CITY OF FILER

Water System Facilities Plan

IDEQ Planning Grant DWG-119-2011-12

May 2016

PROFESSIONAL ENGINEER
LICENSED
15050
5-12-16
STATE OF IDAHO
GARY M. VANCE

Prepared by

J·U·B ENGINEERS, INC.

J-U-B ENGINEERS, Inc.
115 Northstar Avenue
Twin Falls, Idaho 83301

Project No. 60-11-032

CITY OF FILER

Water System Facilities Plan

IDEQ Planning Grant DWG-119-2011-12

May 2016

J·U·B ENGINEERS, INC.

J-U-B ENGINEERS, Inc.
115 Northstar Avenue
Twin Falls, Idaho 83301

Project No. 60-11-032

CITY OF FILER
WATER SYSTEM MASTER PLAN

PROFESSIONAL ENGINEER LICENSED 15050 5-12-16 STATE OF IDAHO GARY M. VANCE

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

REFERENCES

Joe Baratti, City of Filer Maintenance Manager, Personal Communication, 2014.

IDEQ, Memorandum, Monitoring Policy for Backup Wells, February 1994.

J-U-B ENGINEERS, Inc., City of Filer Water System Master Plan, March 2002.

J-U-B ENGINEERS, Inc., City of Filer Water System Arsenic Compliance Study, January 2006.

U.S. Census Bureau, Table DP-1 Profile of General Demographic Characteristics: 2000, Geographic Area: Filer City, Idaho, 2000.

U.S. EPA, Arsenic Treatment Technology Evaluation Handbook for Small Systems, EPA 816-R-03-014, July 2003.

U.S. EPA, 40 CFR Parts 9, 141, and 142, National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring; Final Rule, Federal Register 66 FR 6976, January 22, 2001.

U.S. EPA, Technologies and Costs for Removal of Arsenic from Drinking Water, EPA 815-R-00-028, December 2000.

Chapter 1

Introduction

1.0 INTRODUCTION

1.1 PURPOSE AND NEED OF STUDY

The City of Filer owns and operates a water supply, storage, and distribution system that serves the area in and around the existing City limits. In March 2002, J-U-B ENGINEERS, Inc. (J-U-B) completed a Water System Master Plan for the City. The Water System Master Plan included an evaluation of the water system and recommendations for the improvements necessary to provide a safe and reliable system that meets the current and future residential, irrigation, and fire protection needs of the community. As a result of the Water System Master Plan, the City constructed several upgrades to the water system, including a new well, storage tank, booster pump station, disinfection facilities, and distribution system improvements.

As discussed in the 2002 Master Plan, the U.S. Environmental Protection Agency (EPA) published a rule in the Federal Register (66 FR 6976) on January 22, 2001 establishing a new drinking water standard for arsenic. The rule reduced the primary maximum contaminant level (MCL) for arsenic from 50 micrograms per liter (µg/L) to 10 µg/L. Historical water quality sampling data indicated that several of the City's existing supply wells had arsenic concentrations higher than the new drinking water standard.

In January 2006, J-U-B completed a Water System Arsenic Compliance Study for the City using funds from an EPA STAG Grant. The 2006 study investigated numerous arsenic mitigation alternatives including source abandonment, new source development, blending, construction of a regional water system, use of back-up wells, and water treatment. It was recommended the City continue to monitor arsenic concentrations in the primary wells for compliance and to use the wells with higher arsenic levels as back-up sources.

Since completion of the Arsenic Compliance Study, IDEQ has requested that Filer revisit its Water System Master Plan and begin implementation of a long-term solution for the arsenic issue. This report serves to update the 2002 Master Plan and incorporate findings of the 2006 Arsenic Study into a revised 20-year Water System Facilities Plan spanning from 2014 to 2034. The Water Master Plan Update will provide the City with a roadmap to make sound decisions regarding compliance with the arsenic rule as well as other water system needs. The City also understands that a current Water Facilities Plan is necessary to obtain financing through the State Revolving Fund (SRF) program.

The City has experienced some population growth in the last several years, and is anticipating continued growth within the City boundaries and in areas adjacent to the City. This Water Master Plan Update evaluates the condition and capacity of the existing system, develops scenarios for addressing future growth, addresses compliance with IDEQ regulations, and discusses potential financing for improvement projects through the SRF program.

1.2 REPORT ORGANIZATION

The report is organized into seven chapters, including:

- Chapter 1 - Introduction
- Chapter 2 – Existing Conditions
- Chapter 3 – Future Conditions
- Chapter 4 – Water Supply and Demand
- Chapter 5 – Evaluation of Existing Facilities
- Chapter 6 – Development and Screening of Improvements
- Chapter 7 – Selection of Improvements and Capital Improvement Plan

A further breakdown on the organization of the report is provided in the Table of Contents, Appendices, List of Tables, and List of Figures.

1.3 OPINIONS OF PROBABLE COSTS

The cost estimates contained in this report are in 2014 dollars and appropriate escalation factors should be applied to any projects that are implemented beyond the year 2014. Davis Bacon Act and the American Iron and Steel (AIS) Act cost adjustments are included to comply with state grant and SRF loan program requirements.

1.4 PROJECT RESPONSIBILITY

As discussed further in Chapter 7, there are several potential sources of State and Federal funding available to the City to assist in financing potential water system improvements. The City also has cash reserves and can explore private financing options.

The City has dedicated staff from their management, public works, and water system departments to assist in planning, designing, and implementing any necessary water system improvements. The City has successfully completed numerous water system improvement projects in the past, as well as other general municipal improvement projects. J-U-B also has 60 years of experience in water system planning, design, bidding, and construction and is familiar with the City's drinking water and wastewater systems.

The City will adhere to the legal requirements for acquiring, maintaining, safeguarding, and disposing of property, as necessary.

1.5 ENVIRONMENTAL REVIEW

If necessary, an Environmental Information Document (EID) will be prepared separately from this report for the specific improvements identified in the Water System Facilities Plan. The EID will evaluate potential environmental impacts and mitigation measures for the proposed improvements.

Chapter 2

Existing Conditions

2.0 PLANNING AREA CONDITIONS

2.1 PLANNING AREA

The City of Filer is located in south central Idaho in the north central section of Twin Falls County (see Figure 2-1). The City falls within Sections 7, 8, 17 and 18 of Township 10 South, Range 16 East, B.M. The City is situated approximately 7 miles west of the City of Twin Falls and approximately 10 miles east of the City of Buhl. The City is located along U.S. Highway 30 in a predominantly agricultural region, and is readily accessible by Interstate Highway 84.

This Water System Master Plan is based on a specific Planning Area which represents a geographical area and population which the City can reasonably be expected to serve within a 20 year design period from 2014 to 2034. Figure 2-2 shows the Planning Area and existing corporate limits for the City of Filer.

A number of factors were considered in delineating the geographical boundary of the Planning Area, including recent developmental patterns, location of existing water system facilities, expandability of the existing water system, land use designations, topography of the area and discussions with City personnel regarding areas of anticipated growth. At this time, it appears that a majority of future growth (with regards to the water system) will take place within the present City limits and in areas adjacent to the City.

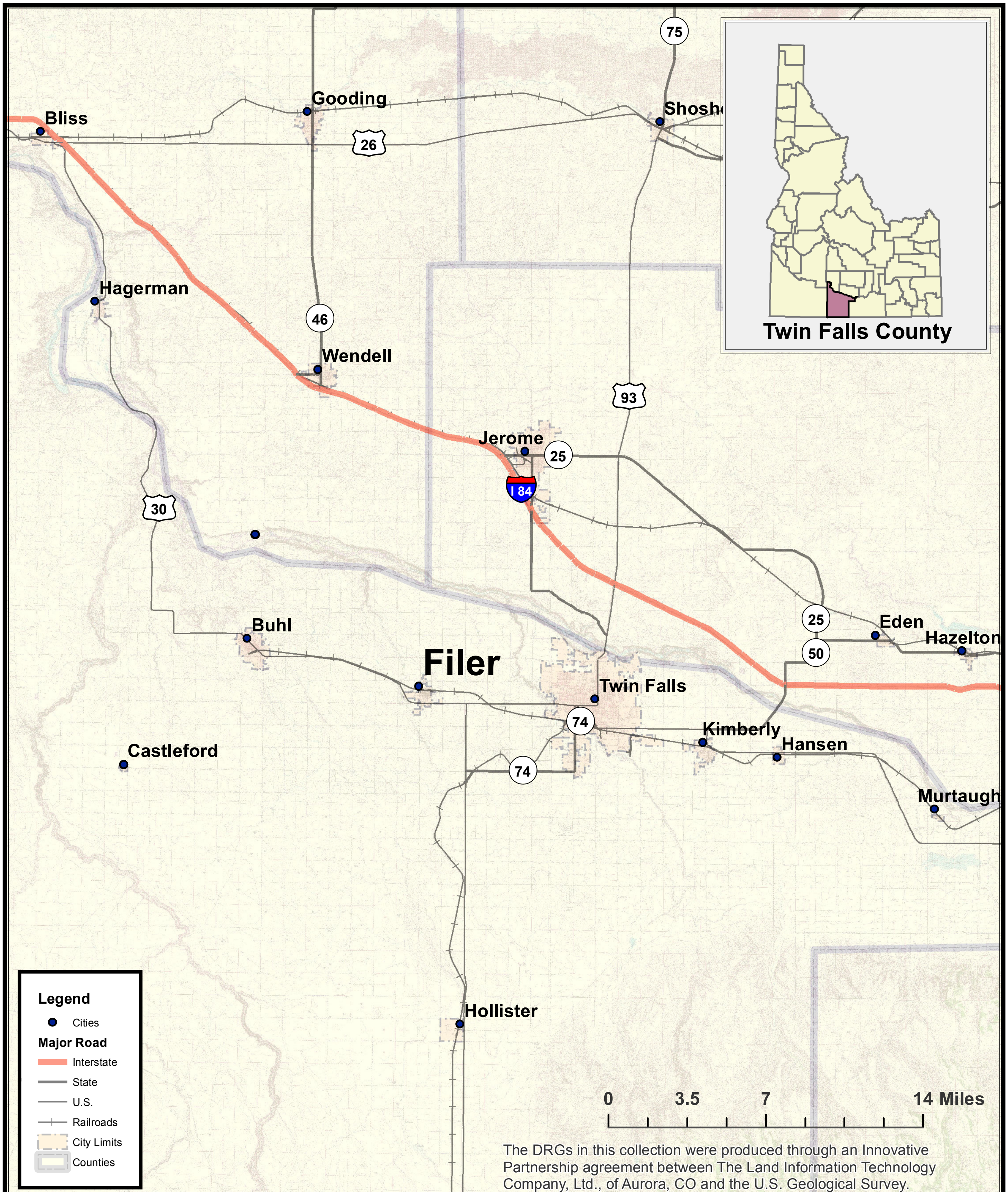
2.2 EXISTING PLANNING AREA CONDITIONS

2.2.1 Physiography, Topography, Geology, and Soils

The topography of the Filer Planning Area is depicted on the U.S. Geologic Survey (USGS) topographic map in Figure 2-3. As shown on the map, the Planning Area consists of relatively flat land with a gradual slope towards the Snake River Canyon to the north and to a lesser extent Cedar Draw to the west. The ground surface elevation ranges from approximately 3,710 to 3,820 feet above mean sea level.

The regional geology of the City of Filer is illustrated in Figure 2-4 located within the Snake River Plain, a major late Cenozoic tectonic/volcanic plain that extends across southern Idaho for roughly 300 miles in a crescent shape. This is divided into two main sections identified as the western and eastern Snake River Plain that meet near Hagerman, Idaho. The Planning Area for this Facilities Study is located within the eastern Snake River Plain.

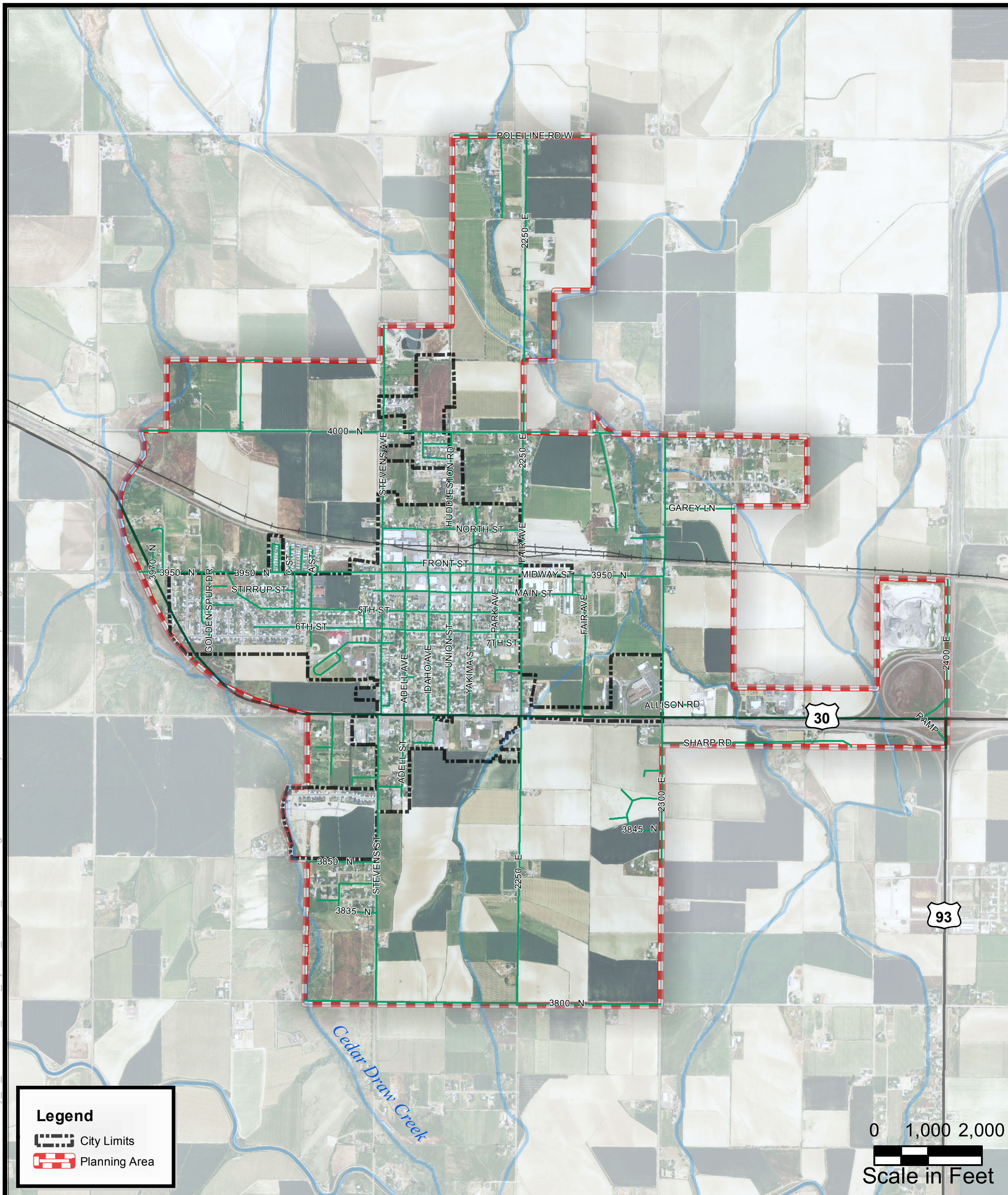
According to information from Idaho State University, the eastern Snake River Plain is a northeast trending lowland underlain by rhyolitic volcanic fields with nested calderas less than 12 million years old, and a thin cover of basalt less than 2 million years old. The basalt consists of a series of Quaternary olivine basalt flows, each averaging 20 to 25 feet in thickness; total thickness is as much as 5,000 feet. The top of each basalt flow, generally less than 6 feet thick, is highly vesicular and broken, and has high hydraulic conductivity. Quaternary basalt in the eastern plain is typically within a few feet of land surface. Near the margins of the plain, basalt is interbedded with unconsolidated sediments. The eastern plain is bounded by steep north-northwest trending basin and range mountains, with agricultural valleys between. The volcanic fields are progressively younger to the northeast towards the Yellowstone Plateau, reflecting the southwest movement of North America over a fixed mantle plume.



J·U·B ENGINEERS, INC.

FIGURE 2-1
CITY OF FILER
PLANNING AREA VICINITY

Path: Q:\Projects\JUB\60-11-032-City_of_Filer-2011_Water_System_Master_Plan\GIS\Filer Vicinity.mxd



WATER SYSTEM FACILITIES PLAN

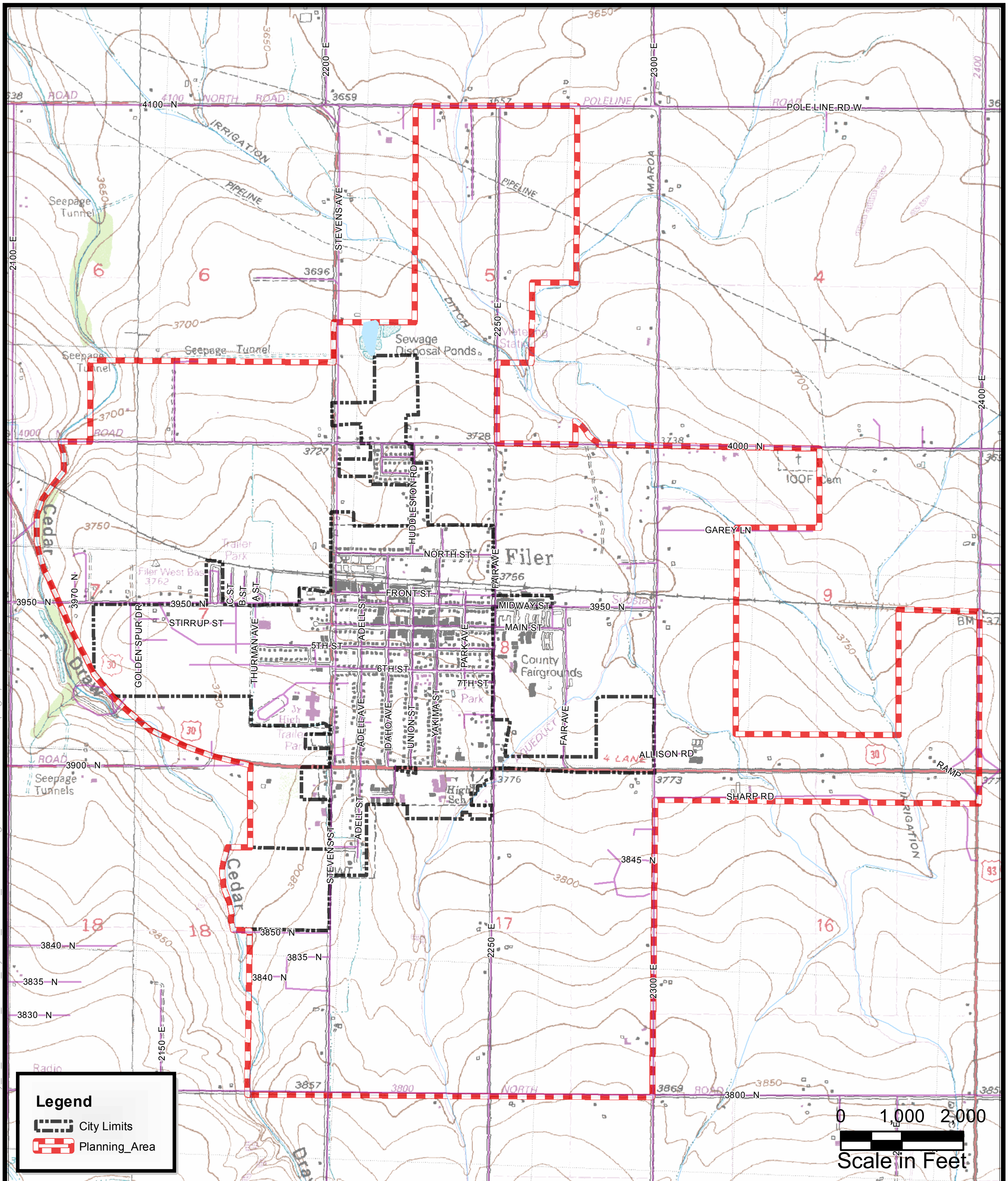
FIGURE 2-2

CITY LIMITS AND WATER SERVICE PLANNING AREA

J-U-B ENGINEERS, INC.

N

6/26/2014 Path: Q:\Projects\JUB\60-11-032-City_of_Filer-2011_Water_System_Master_Plan\GIS\Figure XX Filer City limits and water service planning area.mxd



WATER SYSTEM FACILITIES PLAN

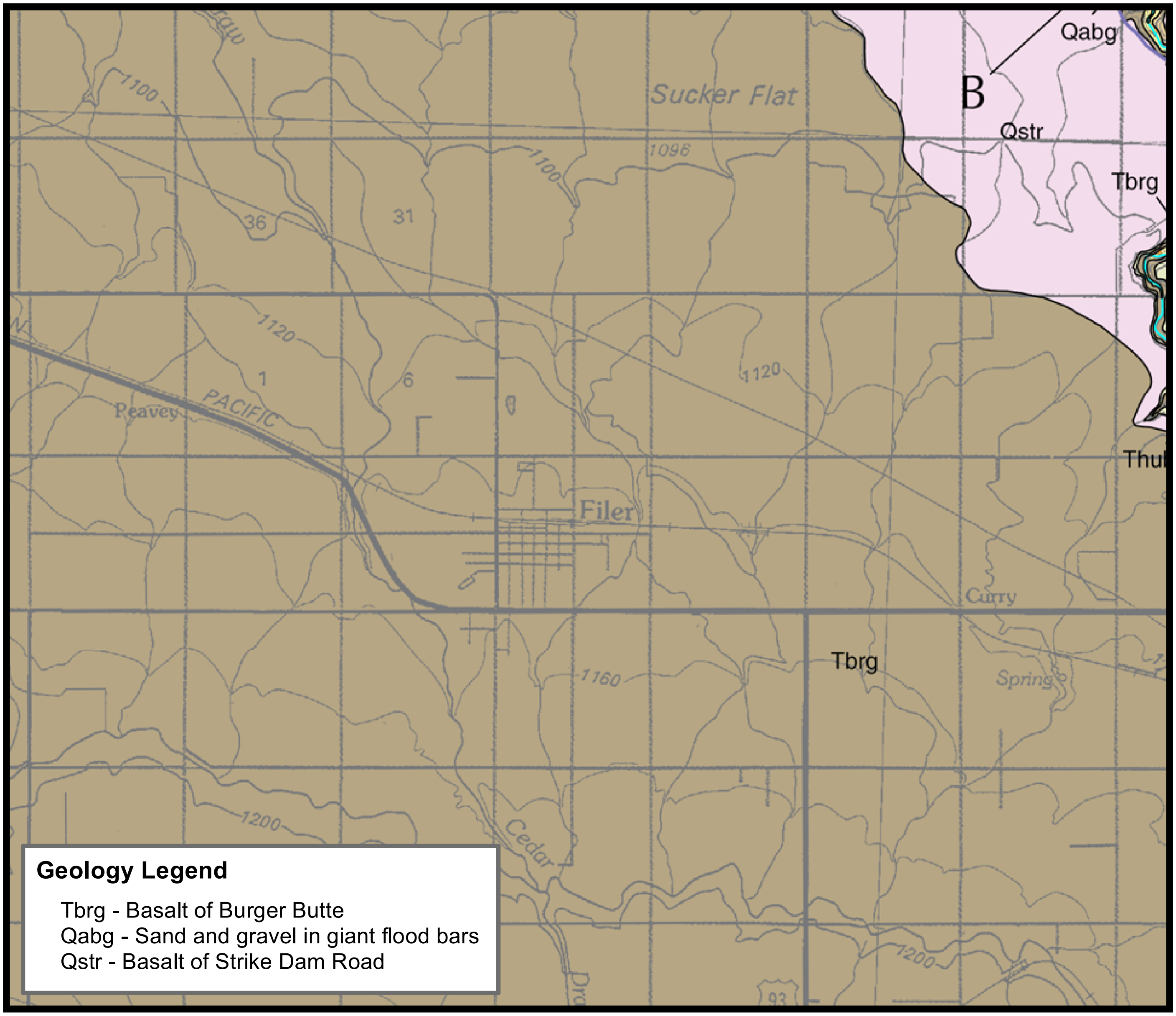
FIGURE 2-3

USGS TOPOGRAPHIC MAP

J-U-B ENGINEERS, INC.

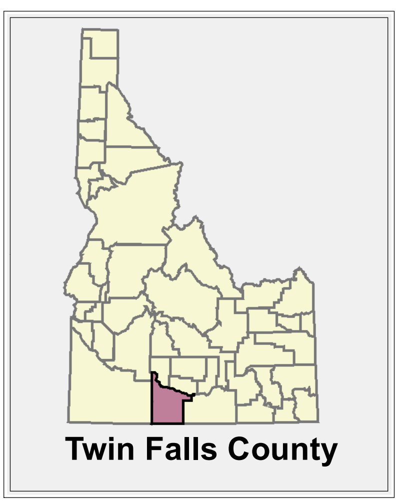
N

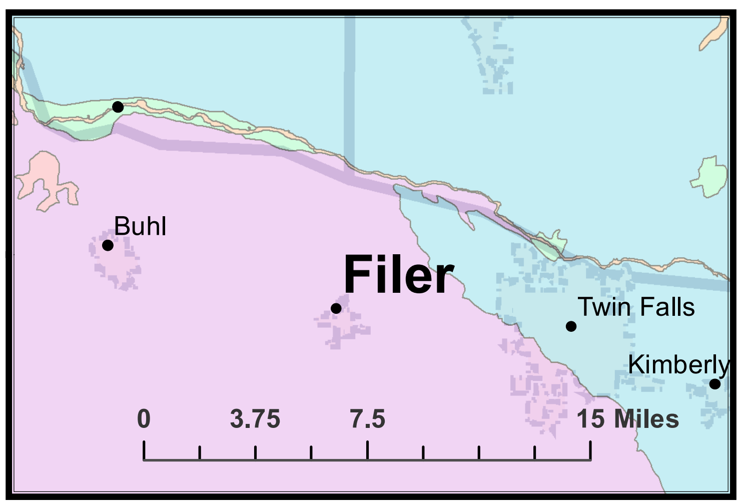
6/26/2014 Path: Q:\Projects\JUB\60-11-032-City_of_Filer-2011_Water_System_Master_Plan\GIS\Figure XX Filer USGS Topographic Map.mxd



Legend

- Cities
- City Limits
- Counties





J·U·B ENGINEERS, INC.

FIGURE 2-4
CITY OF FILER
AREA GEOLOGY

N

Path: Q:\Projects\JUB\60-11-032-City_of_Filer-2011_Water_System_Master_Plan\GIS\Filer Geology.mxd

A Natural Resource Conservation Service (NRCS) soil survey map of Filer is shown in Figure 2-5. Table 2-1 summarizes various qualitative and quantitative characteristics of the predominant soil types in the Planning Area. More detailed information on the physical and engineering properties for the soil types is provided in Appendix A.

TABLE 2-1. SOIL CHARACTERISTICS

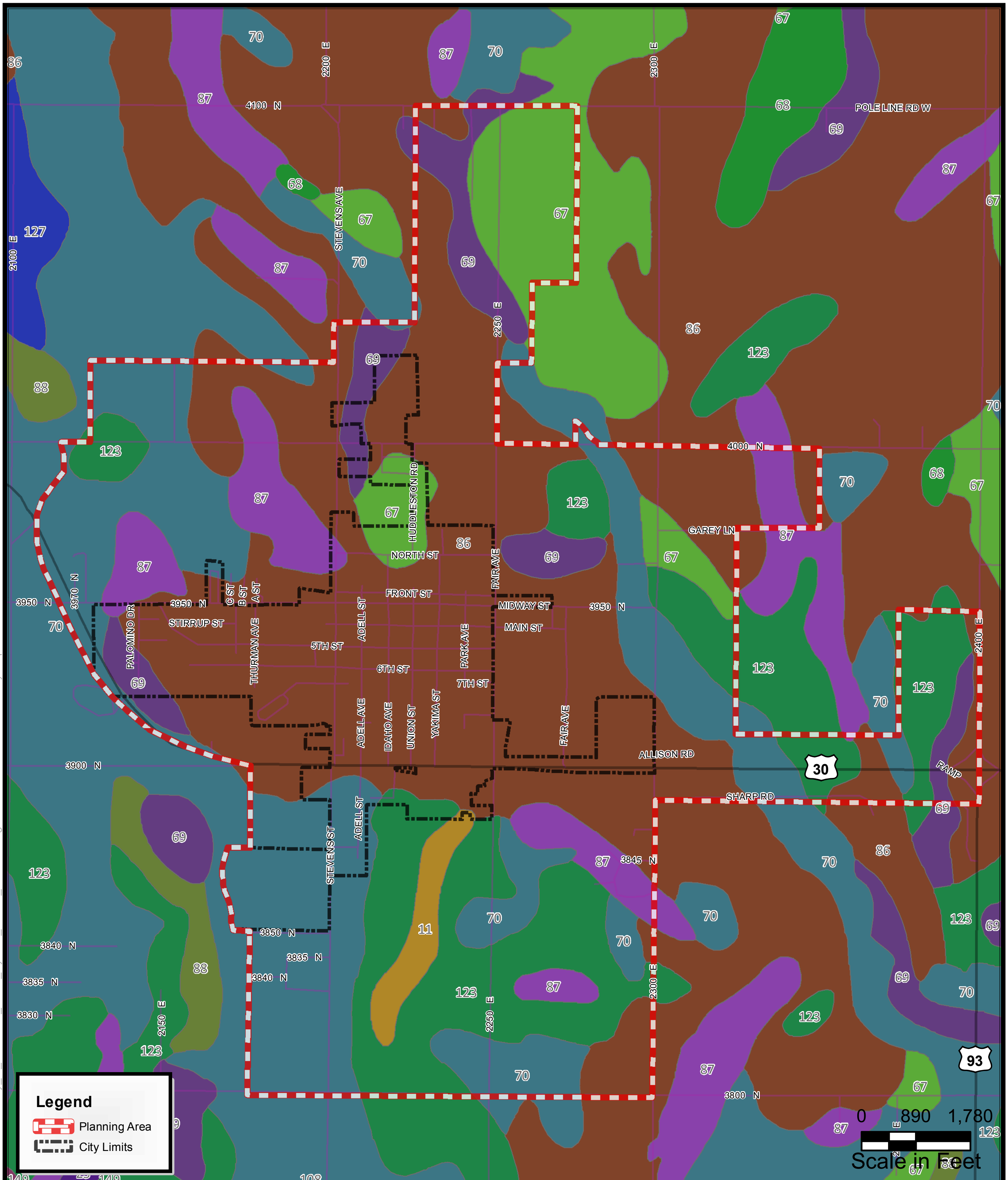
Soil Type	Depth Class	Drainage Class	Runoff	Permeability	Slope	Potential Rooting Depth	Available Water Capacity	Primary Use
Portneuf (PfA)	Very Deep	Well Drained	Slow	Moderately Slow	0 - 2%	>60 in.	10.5 - 11.5 in.	Irrigated Cropland
Minidoka (MaA)	Moderately Deep	Well Drained	Slow	Moderate	0 - 2%	20 - 40 in.	3.5 - 8.0 in.	Irrigated Cropland
Minveno (MeA)	Shallow	Well Drained	Moderate	Moderate	0 - 2%	10 - 20 in.	2.0 - 4.0 in.	Irrigated Cropland, Rangeland
Sluka (SlB)	Moderately Deep	Well Drained	Slow	Moderate	1 - 4%	20 - 40 in.	3.0 - 6.0 in.	Irrigated Cropland, Rangeland
Minveno (MeC)	Shallow	Well Drained	Moderate	Moderate	2 - 8%	10 - 20 in.	2.0 - 4.0 in.	Rangeland, Irrigated Cropland
Bahem (BhC)	Very Deep	Well Drained	Moderate	Moderate	4 - 8%	>60 in.	10 - 11 in.	Rangeland, Irrigated Cropland
Portneuf (PfB)	Very Deep	Well Drained	Slow	Moderately Slow	2 - 4%	>60 in.	10.5 - 11.5 in.	Irrigated Cropland

2.2.2 Surface and Groundwater Hydrology

There are no major surface water sources within the Filer Planning Area. However, as shown in Figure 2-1, the Snake River is located approximately 5 miles north of the Planning Area. In addition, Cedar Draw Creek is situated approximately three-quarters of a mile west of the City. A small irrigation canal also runs along the east side of the Planning Area boundary.

Very little surface water runoff is generated within the Planning Area. The little runoff that is produced follows the topography of the area and flows to the north. It is intercepted by agricultural land and percolates into the aquifer, or flows to irrigation canals that drain to Cedar Draw Creek or the Snake River.

The source of groundwater in Filer is a basalt aquifer. This consolidated aquifer holds water in the cracks of underground basalt rock and in thin sedimentary layers interbedded within the basalt. Groundwater recharge to the aquifer is from several sources, including precipitation, rivers, irrigation canals, land irrigation practices, and movement between aquifers. The groundwater level in the Planning Area fluctuates seasonally between approximately 35 to 75 feet below the ground surface. Groundwater flow direction is generally towards the north.



6/26/2014 Path: Q:\Projects\JUB\60-11-032-City_of_Filer-2011_Water_System_Master_Plan\GIS\Figure XX Filer NRCS Soil Survey Map.mxd

WATER SYSTEM FACILITIES PLAN

FIGURE 2-5

NRCS SOIL SURVEY MAP

J-U-B ENGINEERS, INC.

2.2.3 Fauna, Flora, and Natural Communities

The plants and animals within and around the Filer Planning Area are typical of those found in south central Idaho. Vegetation consists of a variety of trees, shrubs and grasses. Trees common to the area include evergreen, birch, maple, poplar, russian olive and willows. The dominant vegetation in the area is sagebrush, fescue and wheatgrass.

Migratory wildlife, many of which are avian species, use the area seasonally. Common upland game birds in and around the Planning Area include pheasants, partridge, quail and sage grouse. Waterfowl such as geese and ducks are often found concentrated along the Snake River and other drainage ways. Raptors such as hawks, eagles and owls are also found in the area.

Animals commonly found in the vicinity of the City include squirrels, rock chuck, fox, skunks and coyote. Big game habitat generally does not exist because of the significant human population and soil cultivation in the area. However, deer have been sighted in the area on occasion. Fish common to the area include trout.

Wildlife species listed in the endangered species database for Twin Falls County are shown in Table 2-2. This list was updated by the U.S. Fish and Wildlife Service on October 23, 2013. There are no plant species listed in the endangered species database for Twin Falls County.

TABLE 2-2. ENDANGERED WILDLIFE SPECIES

Group	Name	Status
Amphibians	Columbia Spotted Frog *(Rana luteiventris)*	Candidate
Birds	Greater Sage-Grouse *(Centrocercus urophasianus)*	Candidate
Snails	Bliss Rapids Snail *(Taylorconcha serpenticola)*	Threatened
Snails	Snake River Physa Snail *(Haitia (Physa) natricina)*	Endangered

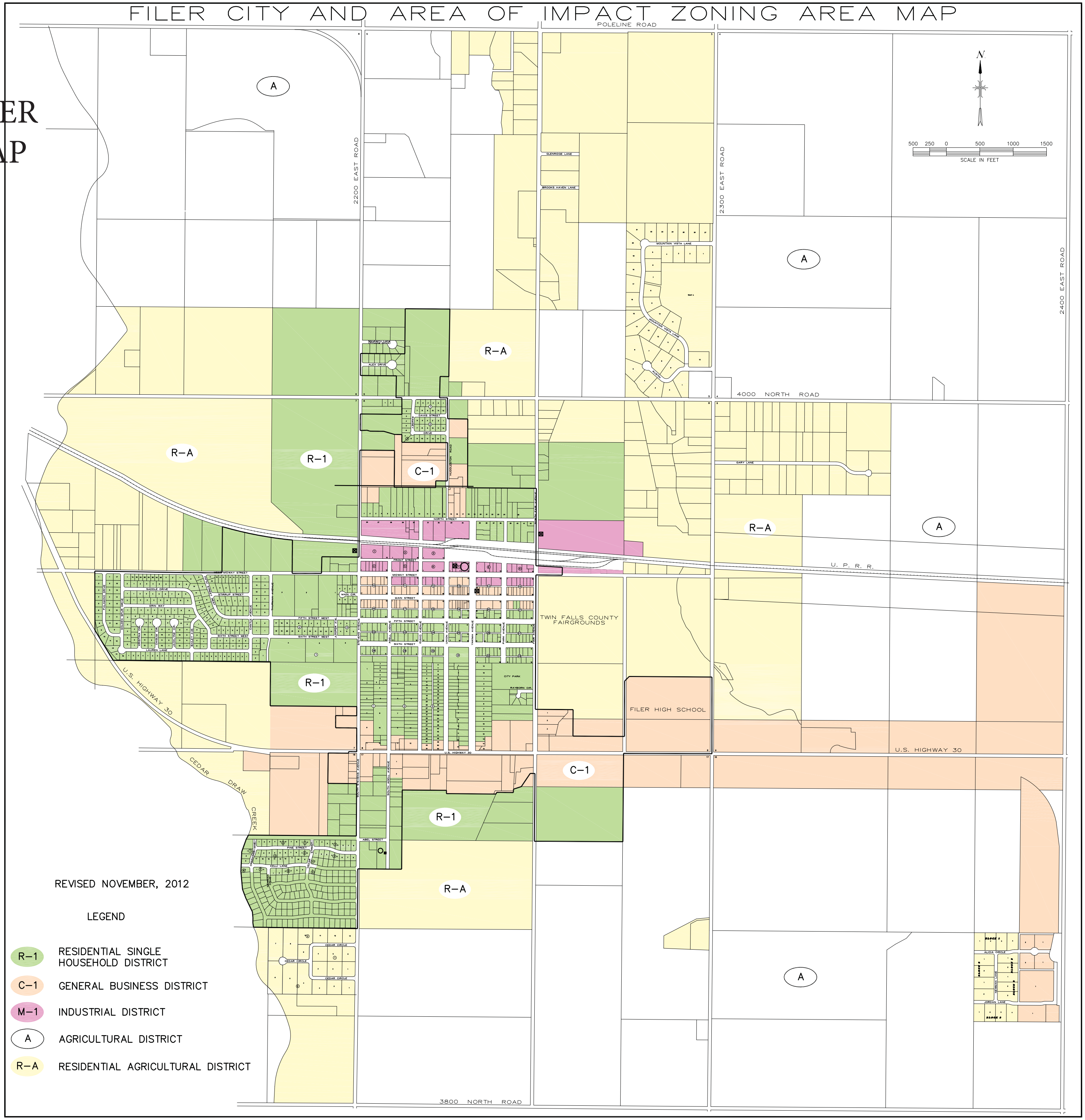
2.2.4 Land Use and Development

Land use within the Planning Area is predominantly residential and agricultural, with smaller areas of commercial and industrial development. Figure 2-6 shows a current zoning map of the City and the Area of Impact depicting the generalized land use designations. Each of these land uses is discussed in further detail in the City's Comprehensive Plan (Appendix B).

Residential areas in Filer are predominantly located within or adjacent to the original townsite. Low density residential areas, which are areas with a minimum of one acre per dwelling unit, are generally located outside of the existing City limits. The commercial section of Filer is primarily located in the downtown area and along U.S. Highway 30 as it passes through town. A majority of the industrial section is located along the railroad in the center of the City.

The area surrounding the City of Filer is predominantly used for agricultural purposes. The fertile soils combined with irrigation water from the Twin Falls Canal Company allow for the production of a wide variety of crops, including small grains, corn, dry beans, sugar beets, potatoes, melons and alfalfa.

FIGURE 2-6
CITY OF FILER
ZONING MAP



The City encourages development of land within the corporate limits prior to annexation of undeveloped fringe land. In addition, the City encourages that future development occur in those areas which are consistent with similar land uses.

Future development within the Planning Area is expected to consist primarily of residential subdivisions. No new industrial developments are projected to be developed in the 20 year planning period. However, Filer remains an attractive industrial development area due to its proximity to Twin Falls. Industrial developments are typically located in areas that provide a buffer zone between adjacent land uses.

It is anticipated that there will be minimal commercial development within the Planning Area over the 20 year design period. Development of commercial businesses will typically occur in areas with good ingress and egress to major arterials to minimize traffic conflicts and maintain smooth circulation.

2.2.5 Cultural Resources

The Filer townsite originally came into existence on April 14, 1906 when the Lorain, Duquesne and Rettig families pooled land to form the nucleus of the present town. Buildings were erected on the west end of town near the area of Union Avenue and Midway Street, and on the east end of town near in the area of Fair Avenue and Midway Street. The eastern settlement began calling itself East Filer. Shortly thereafter, a Twin Falls clothing merchant named W. H. Eldridge formed another townsite in the area approximately one-half mile northeast of East Filer. The communities were united when the Coffin Brothers bought the three townsites in 1907 as an investment. With Henry H. Schildman and William P. Shinn as local directors, the businesses of all three settlements moved to sites along Main Street and Yakima Avenue. Filer then became the town that it is today.

The area's economy is based primarily on the agricultural and service industries. Some of the businesses located within the Planning Area include financial institutions, lodging facilities, restaurants, service stations, convenience stores, beauty shops, grocery store, veterinary, museum, library, real estate agency, auto repair shop, gift shop, bowling alley and child care facilities. There are also several agricultural related businesses that meet the needs of farmers and ranchers in the area. Filer serves as a bedroom community to several of the larger communities in the area.

Tourism and recreation are also significant contributors to the area's economy. The Twin Falls County Fairgrounds serves as the home of the annual Twin Falls County Fair and Rodeo. For a period of one week each fall, thousands of people travel to the fairgrounds as exhibitors, concessionaires and patrons. The fairground facilities are also used for livestock sales, circuses, high school rodeos, political rallies, and gem and antique shows. The Snake River also provides for various recreational opportunities, including boating, fishing, swimming and water-skiing. Other recreational activities available within the area include hunting, camping and hiking.

The Historic Preservation Office of the Idaho State Historical Society was consulted regarding cultural resources in Filer. According to the National Register of Historic Places in Idaho, the Achille Duquesne House is the only historical resource listed within the Planning Area.

2.2.6 Public Utilities and Services

The City is serviced by a full complement of public utilities and services. These services are intended for permanent and seasonal residents of Filer, and the immediate surrounding county residents. Some of the public utilities and services offered within the area include:

- Sewer system;
- Water system;
- Fire protection system;
- Police protection;
- Public library;
- Communications systems;
- Cemetery;
- Post office;
- Utilities (electric, cable television, telephone, solid waste disposal, etc.)
- Health care facilities;
- Public schools;
- Meeting and lodging facilities;
- Transportation services;
- Recreational facilities, and;
- Government.

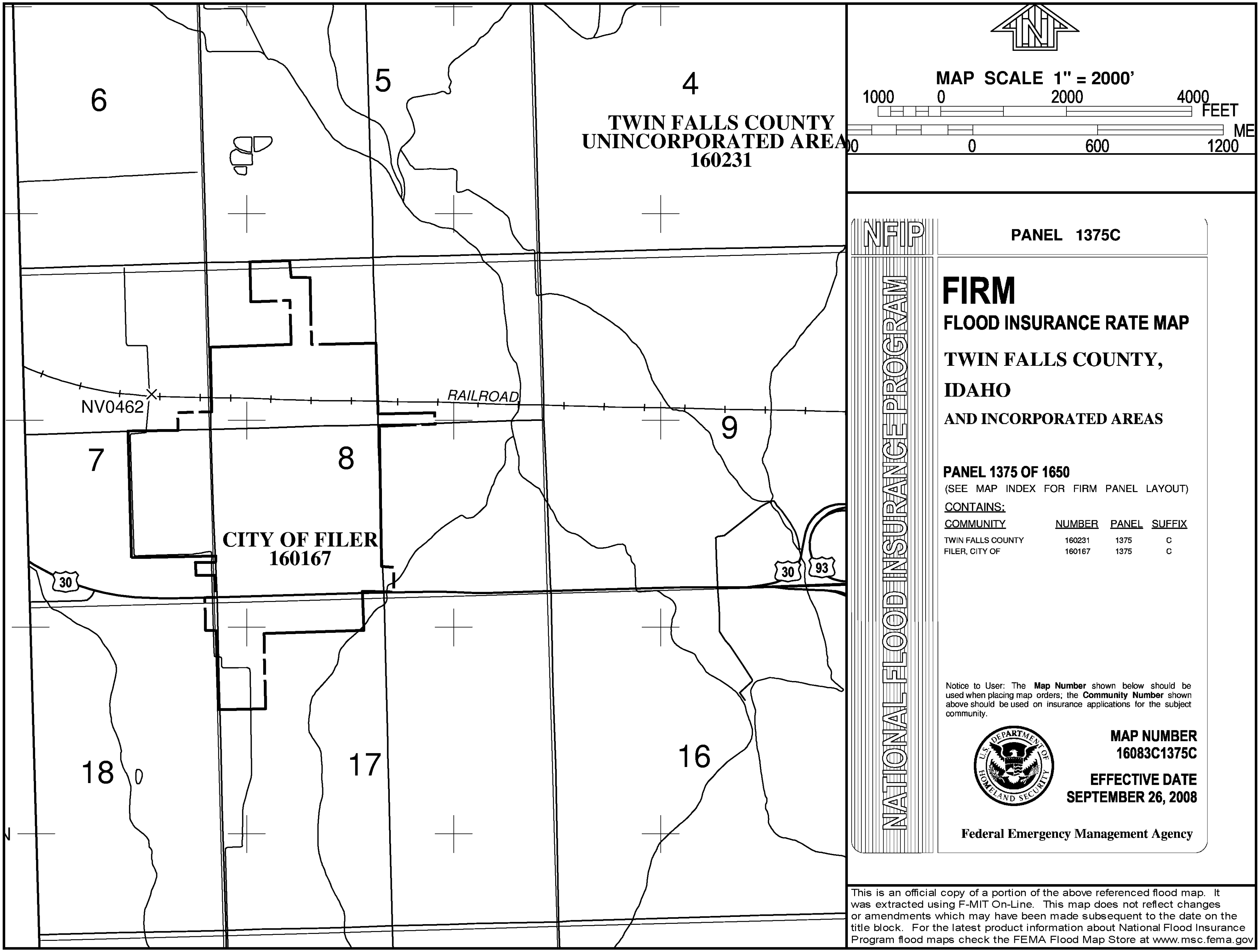
2.2.7 Flood Plains and Wetlands

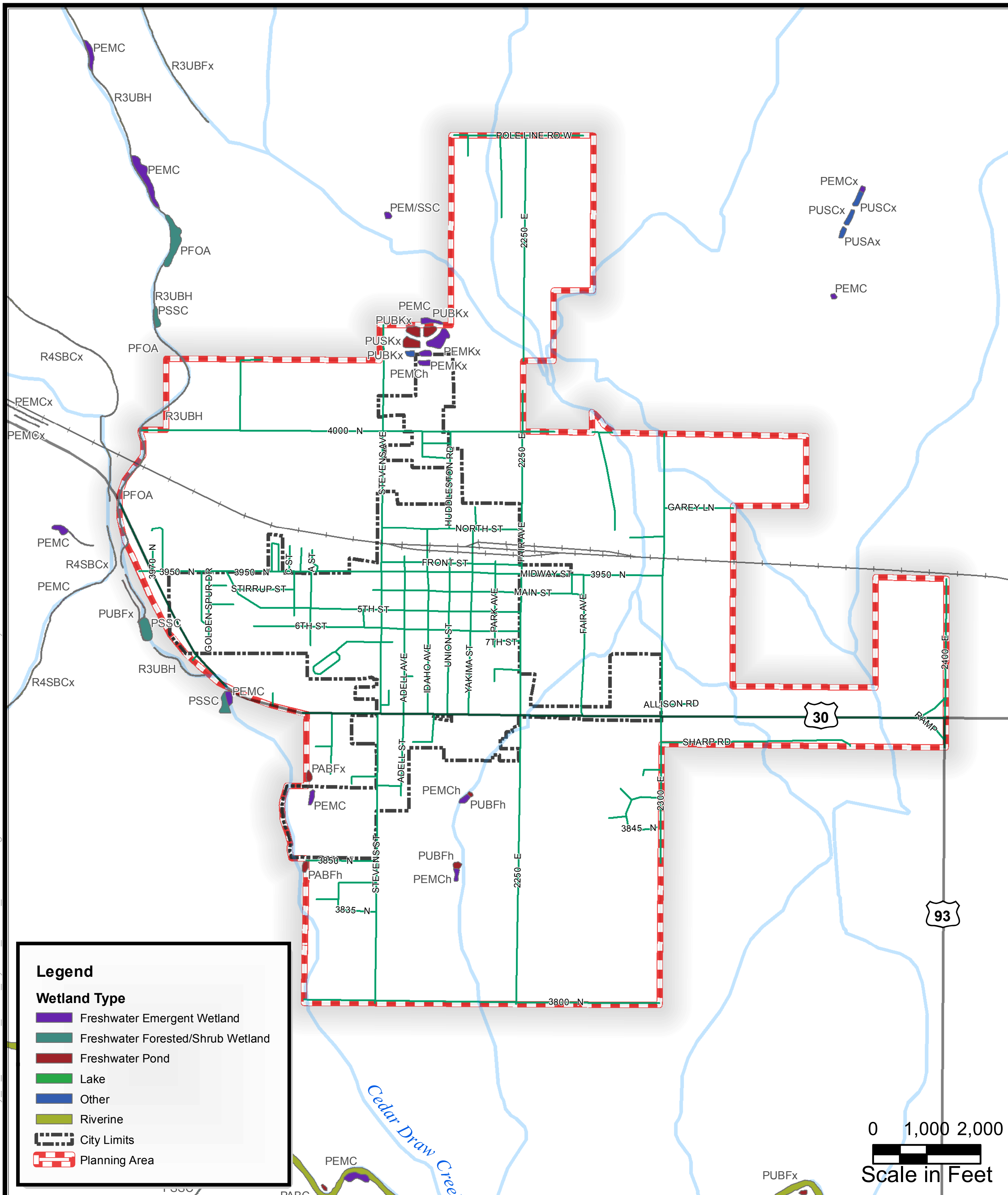
A Federal Emergency Management Agency (FEMA) flood zone map (Community Panel Number 160231 0125 B) was reviewed to determine if the Planning Area is located within any flood plains. As shown in Figure 2-7, there are no areas designated as Zone A flood zones within the Planning Area. Zone A areas are within the 100 year flood plain; however, base flood elevations and flood hazard factors have not been determined. The map does not address the 25 and 50 year flood plains.

The U.S. Fish and Wildlife Service's National Wetlands Inventory provides mapping of wetlands across the United States. The basic criteria that define wetland types are water depth and permanence, water chemistry, life form of vegetation and dominant plant species. Wetlands are categorized in a hierarchical structure, progressing from systems and subsystems at the most general levels, to classes, subclasses, and dominance types. Special modifiers describe wetlands that have been either created or highly modified by man or beavers. There are five defined systems used by the Fish and Wildlife Service: marine, estuarine, riverine, lacustrine and palustrine.

As shown in Figure 2-8, there are some wetlands identified on the U.S. Fish and Wildlife National Wetlands Inventory within the Filer Planning Area primarily associated with local drainages and water ways (i.e., Cedar Draw) and the City's sewer treatment ponds. The predominant types of wetlands are unconsolidated bottom (PUB), emergent (PEM) and aquatic bed (PAB) palustrine wetlands.

Figure 2-7. FEMA Flood Zone Map





WATER SYSTEM FACILITIES PLAN

FIGURE 2-8

U.S. FWS WETLANDS INVENTORY MAP

J-U-B ENGINEERS, INC.

N

Path: Q:\Projects\JUB\60-11-032-City_of_Filer-2011_Water_System_Master_Plan\GIS\Figure XX Filer US FWS Wetlands Inventory.mxd

6/26/2014

2.2.8 Wild and Scenic Rivers

The Wild and Scenic Rivers Act, as promulgated by Congress on October 2, 1968, states that "…certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreation, geologic, fish and wildlife, historic, cultural, or other similar values, shall be protected for the benefit and enjoyment of present and future generations."

All or portions of the following rivers in Idaho have been designated as Wild and Scenic Rivers:

- Battle Creek
- Big Jacks Creek
- Bruneau River
- Bruneau River (West Fork)
- Clearwater River (Middle Fork)
- Cottonwood Creek
- Deep Creek
- Dickshooter Creek
- Duncan Creek
- Jarbidge River
- Little Jacks Creek
- Owyhee River
- Owyhee River (North Fork)
- Owyhee River (South Fork)
- Rapid River
- Red Canyon
- St. Joe River
- Salmon River
- Salmon River (Middle Fork)
- Sheep Creek
- Snake River (Hells Canyon)
- Wickahoney Creek

None of the surface water systems within the Filer area are classified as "Wild and Scenic" under the Wild and Scenic Rivers Act. At present, there are no plans for classification of any surface water systems within the Filer Planning Area.

2.2.9 Public Health and Water Quality Considerations

The Filer Planning Area has minimal public health problems. Aside from the arsenic levels as noted further in this report, the water quality supplied to the City's customers is routinely within the allowable State and Federal drinking water standards.

2.2.10 Important Farmlands Protection

Prime farmland 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, as defined by the U.S. Environmental Protection Agency (EPA) Policy to Protect Environmentally Significant Agricultural Lands of 1978. Most of the land area located within and adjacent to the City is used for agriculture. The long growing season and summer climate provide excellent conditions for growing a variety of crops, including sugar beets, potatoes, alfalfa, grains, corn, and beans. According the NRCS, soils within the Planning Area which are defined as Minidoka (MaA), Porneuf (PfA and PfB) and Sluka (SIB) are designated as “prime or unique” farmland (see Figure 2-5).

2.2.11 Proximity to Sole Source Aquifer

The Sole Source Aquifer (SSA) program was established under Section 1424(e) of the Safe Drinking Water Act (SDWA) of 1974. The program allows individuals and organizations to petition the EPA to designate aquifers as the "sole or principal" source of drinking water for an area. To meet the criteria for designation, a sole source aquifer must supply at least 50 percent of the drinking water consumed in the area overlying the aquifer. The EPA guidelines also stipulate that these areas can have no alternative drinking water source(s) which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. The SSA program provides federal overview of federally-funded projects within the designated area to determine their potential for contaminating the aquifer. Projects and land uses which are not federally-funded are not subject to EPA overview.

Region 10 of EPA has designated the Eastern Snake River Plain Aquifer as a sole source aquifer. The Eastern Snake River Plain Aquifer currently supplies all of the drinking water for the City of Filer.

2.2.12 Air Quality and Noise

EPA has developed standards for monitoring and protecting air quality. IDEQ is responsible for implementing, monitoring and enforcing the air quality standards within Idaho. An area that exceeds the air quality standards is considered to be a “non-attainment area” (NAA) for a particular component, or total air quality. There are currently four NAAs in Idaho, the closest being the Northern Ada County and Portneuf Valley NAAs. As such, the Filer Planning Area is currently not located within a NAA.

Residents in Filer generally feel that air quality is excellent and cite this amenity as one of the area’s quality of life factors. Filer is well removed from any major urbanized areas and there are very few sources of pollution in the immediate vicinity. Local automobile emissions, agricultural activities, light commercial and industrial processing are the primary contributors to air quality degradation. Higher levels of particulate matter may be experienced during certain weather events or during certain times of the agricultural season due to farming practices.

Noise in Filer is generally limited to normal traffic, commercial activities, and farming activities. Noise from the major roads U.S. State Highways 30 and 93, and the Eastern Idaho Railroad may result in slightly higher noise levels during certain times.

2.2.13 Precipitation, Temperature, and Prevailing Winds

Filer has a semi-arid climate typical of southern Idaho. Table 2-3 summarizes historical temperature, precipitation, snowfall and evaporation data for the Planning Area. Winter weather is characterized by alternating high and low pressure systems that bring associated inclement or clear conditions. January is historically the coldest month with an average temperature of approximately 27.7°F. Most of the annual precipitation falls as snow during the winter months. Summer weather is normally dry with warm to hot temperatures. July is historically the warmest month with an average temperature of approximately 70.8°F. The warm summer temperatures combine with low relative humidity to produce an annual evaporation rate of approximately 45 inches. The prevailing wind direction in the area is from the west to southwest, and the average wind speed is approximately 5 to 7 mph. Tornadoes and funnel clouds are rare, as are destructive force winds.

TABLE 2-3. MONTHLY CLIMATIC DATA

Month	Mean Temperature[1] (°F)	Mean Precipitation[1] (in)	Mean Snowfall[1] (in)	Mean Evaporation[2] (in)
January	27.7	1.16	3.55	0.23
February	32.2	0.75	2.70	0.68
March	40.2	1.09	1.40	1.80
April	46.8	1.07	0.65	3.60
May	54.9	1.23	0.25	6.30
June	62.9	0.82	0.00	6.75
July	71.0	0.28	0.00	7.65
August	69.4	0.35	0.00	7.20
September	60.2	0.50	0.05	4.50
October	49.2	0.80	0.20	2.70
November	36.9	1.14	1.90	2.25
December	28.3	1.20	3.15	1.34
Annual	**48.3**	**10.4**	**13.8**	**45.00**

1 Monthly averages from the Western Regional Climatic Center. Average of weather monitoring station Twin Falls WSO (1963 – 2013) and Buhl 2 (1978-2013) (www.wrcc.dri.edu/summary/Climsmsid.html).

2 From "Monthly Shallow Pond Evaporation in Idaho", Molnau, Kpordze and Craine, 1992, ASAE Paper PNW 92-111 (Region 3).

2.2.14 Energy Production and Consumption

A majority of the population in the Planning Area consumes energy in the form of electricity, natural gas, propane, and/or fuel oil. A few residents may also use wood or pellet stoves for heating purposes. There are no known energy producing facilities within the Planning Area. At this time, power providers have not been consulted regarding the incorporation of energy efficiency into the design.

Nearly all of the State of Idaho's power demand is supplied by hydroelectric power, which is a renewable energy source. There are no additional alternative energy sources that could be used for this project.

2.2.15 Economic and Social Profile

Data from the U.S. Census Bureau was summarized to obtain social profiles for the City of Filer. The Census Bureau estimated a median household income of $34,705 in 2010. According to the 2006-2010 American Community Survey 5-Year Estimates for the U.S. Census Bureau, 21.2 percent of families in Filer were at or below the U.S. Health and Human Services poverty level.

It appears that no disadvantaged group will be adversely affected by a project to improve the existing water facilities. However, the community in general will collectively benefit from improving the water facilities.

A summary of the information from the 2010 Census is shown below in Table 2-4.

TABLE 2-4. SOCIAL PROFILE

Parameter		Value
Sex		
	Total Population	2,508
	Male	48.9%
	Female	51.1%
Age		
	Under 5 Years	9.9%
	5 to 9 Years	9.4%
	10 to 19 Years	13.87%
	20 to 29 Years	12.6%
	30 to 39 Years	14.6%
	40 to 49 Years	11.1%
	50 to 59 Years	10.9%
	60 to 69 Years	8.7%
	70 Years and Over	9.0%
Race and Ethnicity		
	White	79.9%
	Black	0.1%
	American Indian	1.0%
	Asian	0.1%
	Pacific Islander	0.0%
	Multi-Race	2.9%
	Other	4.30%
	Hispanic or Latino	11.7%
Education for Population 25+		
	Less than Grade 9	5.9%
	Grade 9 to 12	10.7%
	High School or Equivalency	36.2%
	Some College, No Degree	26.2%
	Associates Degree	16.5%
	Bachelor's Degree	3.7%
	Graduate Degree	0.9%
	% High School Grad. or Higher	83.4%
	% Bachelor's Degree or Higher	4.6%
Housing		
	Total Housing Units	1,002
	Average Household Size	2.64
	Vacant Housing Units	5.1%
	Occupied Housing Units	94.9%
	Owner Occupied Housing Units	72.3%
	Renter Occupied Housing Units	27.7%

1. Data from 2010 Census – U.S Census Bureau

2.3 EXISTING WATER SYSTEM

The City of Filer's current water system consists of five water supply wells, two storage tanks, two booster pump stations, disinfection systems, distribution network and a control system. A map of the drinking water system is shown in Figure 2-9. According to City personnel, there are approximately 935 connections (896 domestic, 18 unused domestic, 21 commercial) in the existing water system.

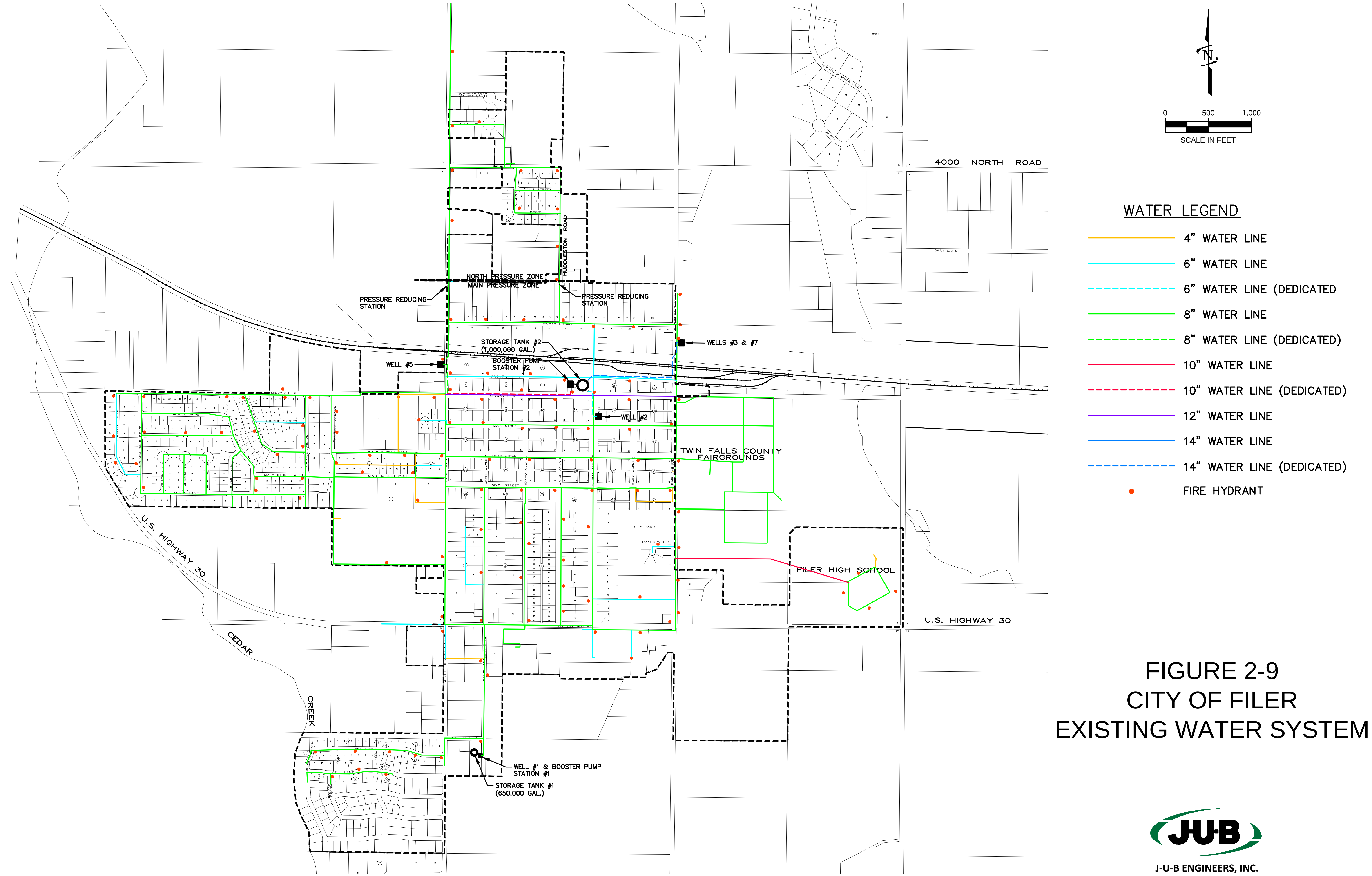


FIGURE 2-9
CITY OF FILER
EXISTING WATER SYSTEM

J-U-B ENGINEERS, INC.

2.3.1 Supply Wells

Water is currently supplied to the City via five deep groundwater wells. Operation of the well pumps is controlled by the storage tank levels, operator observations and adjustments, and a Supervisory Control and Data Acquisition (SCADA) system. Well #3 supplies the majority of the City's drinking water on an annual basis. Well #7 is used during periods of higher demand. Wells #1, #2, and #5 can also supply potable water but are used infrequently. Table 2-5 summarizes general information about each of the wells. The available well logs and pump curves are included in Appendix D.

TABLE 2-5. WATER SUPPLY WELL SUMMARY

Well	Well Depth (ft)	Well Size (in)	Pump and Motor	Pumping Rate (gpm)[2]	Static Water Level (ft bgs)	Discharge Location
#1	575	8	10 hp Constant Speed Submersible	110	75	Storage Tank #1
#2	653[1]	10	10 hp Constant Speed Vertical Turbine	90	35	Storage Tank #2
#3	360	10	50 hp Constant Speed Vertical Turbine	1,100	65	Storage Tank #2
#5	650	8	50 hp Constant Speed Vertical Turbine	350	23	Storage Tank #2
#7	388[3]	15	125 hp Constant Speed Vertical Turbine	2,000	49	Storage Tank #2
Total Pumping Capacity[4]				**1,650 - 2,550**		

1 According to the well log, the well was originally drilled to 800 feet and plugged at 653 feet.
2 As reported by City.
3 Well originally drilled to 410 feet and plugged at 388 feet.
4 Wells #3 and #7 cannot operate at the same time. The lower total pumping capacity assumes Well #3 is operating and the higher capacity assumes Well #7 is operating at 2,000 gpm.

2.3.1.1 Well #1

Well #1 is located in Pump Station #1 adjacent to Storage Tank #1 along South Adell Avenue. According to information from the Idaho Department of Water Resources, this well was originally drilled in 1915 and enlarged in diameter and depth in 1958. The existing 10 horsepower (hp) constant speed submersible pump and motor were installed in 2004. Water pumped from the well can be disinfected with liquid sodium hypochlorite and discharged directly to the storage tank through an 8 inch line. An in-line propeller type flow meter is used to monitor the flow.

2.3.1.2 Well #2

Well #2 was drilled in 1954 and is located in a well house along Yakima Avenue and Main Street. The well consists of a 14 inch hole with a 10 inch steel casing from 0 to 88 feet, a 10 inch hole from 88 to 690 feet, and an 8 inch hole from 690 to 800 feet. The well was plugged at 653 feet due to the presence of sand layers below this level.

Well #2 typically produces lower quality and higher temperature water than the other wells. However, it can be used to supplement the potable water supply as required in an emergency or during peak demand periods. When used as a potable source, the water is pumped through a dedicated 6 inch line and blended with water from Wells #3, #5, and/or #7 near Storage Tank #2.

2.3.1.3 Wells #3 &#7

Wells #3 and #7 serve as the City's primary water supply wells. They are both located in a single well house along Fair Avenue, north of the railroad tracks on The Amalgamated Sugar Company's (TASCO) beet piling grounds. The well house has been designed such that either Well #3 or #7 may be operated, but not at the same time.

Both of the wells pump to a common 12 inch manifold pipe in the well house. An in-line propeller type flow meter located on the manifold pipe is used to measure the flow from the wells. The 12 inch line transitions to a 14 inch dedicated line that transfers the water to Storage Tank #2. Prior to discharging to the tank, the water is blended with water from Wells #2 and/or #5 and disinfected with sodium hypochlorite.

Well #3 was drilled in 1964 to a depth of approximately 360 feet. The well consists of a 12 inch hole from 0 to 119 feet, a 10 inch hole from 119 to 251 feet, and an 8 inch hole from 251 to 360 feet. A 10 inch steel casing was installed to a depth of approximately 119 feet, as verified by a recent video inspection of the well. The video also shows that the well has a bend at approximately 123 feet that limits the size and depth of the pump bowls. As such, smaller pump bowls have been installed and the flow production is less than that observed during recent pumping tests.

Well #7 was drilled in 2002 as part of the City's water system improvement project. The well originally consisted of a 20 inch hole with 16 inch steel surface casing to 120 feet and a 12 inch open hole from 120 to 410 feet. A concrete plug was placed in the bottom of the well to prevent sand and other loose material from entering the pump. This plug reduced the total depth of the well to approximately 388 feet. Additionally, the 12 inch open hole was later reamed out to 15 inches from 120 to 388 feet.

2.3.1.4 Well #5

Well #5 is located in a well house south of the railroad tracks along Stevens Avenue and Front Street. This well was drilled in 1982 to a total depth of approximately 650 feet. During construction, a 14 inch steel casing was installed from 0 to 82 feet and an 8 inch perforated steel casing was installed from 520 to 650 feet.

Well #5 has a history of producing water with a considerable amount of sand content. In April 2000, additional 8 inch perforated steel casing was installed between 365 and 520 feet in an effort to support the hole and reduce the amount of sand in the water. However, the well continued to produce water with sand. A video inspection of the well in May 2002 indicated that the well may have collapsed and filled with sand to a depth of approximately 356 feet. The City pulled the pump and raised the bowls to try and reduce the sand content in the water. The well still produces sand at higher flow rates but is able to deliver good quality water at lower flow rates (approximately 350 gpm or below).

Well #5 discharges through dedicated 8 to 10 inch water lines to Storage Tank #2. Prior to discharging to the tank, the water is blended with water from Wells #2, #3, and/or #7 and disinfected with sodium hypochlorite. An in-line propeller type flow meter located in the well house is used to monitors flows.

2.3.2 Storage Tanks

The City currently has two storage tanks that are used for fire protection, flow equalization, and emergency storage (see Figure 2-9). Tank #1 is located along South Adell Avenue and

Tank #2 is located along Yakima Avenue between Midway Street and Front Street. Table 2-6 summarizes general information about each of the existing storage tanks.

TABLE 2-6. WATER STORAGE TANK SUMMARY

Storage Tank	Construction Date	Type of Tank	Diameter (ft)	Height (ft)	Nominal Storage Volume (gal)	Primary Water Source
#1	1984	Glass-Lined Bolted Steel	61	30	650,000	Well #1, Distribution System
#2	2003	Partially-Buried Concrete	90	22	1,000,000	Wells #2, #3, #5 and #7
Total Storage Volume					**1,650,000**	

2.3.3 Booster Pump Stations

Water from the storage tanks is currently fed to the distribution system through two booster pump stations (see Figure 2-9). Booster Pump Station #1 is located adjacent to Storage Tank #1 and Booster Pump Station #2 is located adjacent to Storage Tank #2. As shown in Table 2-7, the pump stations discharge varying flows to meet a range of water demands.

TABLE 2-7. PUMP STATION SUMMARY

Booster Pump	Pump and Motor	Pumping Rate (gpm)
Booster Pump Station #1		
Pump #1	10 hp Constant Speed	350 [1]
Pump #2	15 hp Constant Speed	500 [1]
Pump #3	25 hp Constant Speed	800 [1]
Booster Pump Station #2		
Pump #1	60 hp Variable Speed	0 - 1,200
Pump #2	50 hp Variable Speed	0 - 800
Pump #3	100 hp Constant Speed	1,600
Pump #4 (Future)	100 hp Constant Speed	1,600 (Future)

1. As reported by the City.

As shown in the table, the 60 hp and 50 hp pumps at Booster Pump Station #2 have variable frequency drives (VFDs) to help the City match the demand conditions. Provisions have been included at Pump Station #2 to install a fourth booster pump in the future, as necessary.

Storage tank water levels and distribution system pressures at the pump stations are used to control the operation of the supply wells and booster pumps through the SCADA system. However, City staff typically operate Tank #1 and Booster Pump Station #1 manually.

Discharge pressures at Booster Pump Station #1 are lower than at Booster Pump Station #2. The City is able to maintain lower pressures at Booster Pump Station #1 because it is located at a high point within the City. The station has an elevation that ranges from approximately 25 to 90 feet above a majority of the distribution system. As a result, the elevation head between the booster station and distribution system provides additional system pressure.

2.3.4 Distribution System

As shown in Figure 2-9, the current distribution system is comprised of approximately 19 miles of 4 to 14 inch water mains. The mains are primarily constructed of ductile iron, cast iron, and polyvinyl chloride (PVC) pipe. Several of the lines are dedicated mains from the wells to the storage tanks. The distribution system is currently metered at the individual users. Table 2-8 summarizes the estimated length of each size of water main in the distribution system.

TABLE 2-8. DISTRIBUTION SYSTEM SUMMARY

Pipe Diameter (inches)	Estimated Length		Percent of Distribution System (%)
	Feet	Miles	
4	8,405	1.59	8.4%
6	14,331	2.71	14.3%
6 (Dedicated)	390	0.07	0.4%
8	68,102	12.9	68.0%
8 (Dedicated)	391	0.07	0.4%
10	2,027	0.38	2.0%
10 (Dedicated)	1,459	0.28	1.5%
12	3,604	0.68	3.6%
14 (Dedicated)	1,437	0.27	1.4%
Total	**100,146**	**19.0**	**100%**

2.3.4.1 Pressure Zones

The City has separated the system into two pressure zones by two pressure reducing stations located along Huddleston Road and Stevens Avenue. Each station contains a 6 inch pressure reducing valve. The valves act to reduce distribution system pressures on the north end of town (North Pressure Zone). Prior to installation of the pressure reduction valve, distribution system pressures were often greater than 90 psi in this area. Pressure on the south end of town (South Pressure Zone) is maintained by the booster pumps.

2.3.5 Disinfection Systems

The City currently uses several systems to disinfect the water supply. A liquid sodium hypochlorite disinfection system is located in Booster Pump Station #1. This system is currently not being used but can be brought online if Well #1 were needed.

A liquid sodium hypochlorite system located in Booster Pump Station #2 is used to disinfect the water from Wells #2, #3, #5, and #7 prior to storage. This system consists of a diaphragm metering pump, piping and tubing, valves, and injection equipment. An 11 to 12 percent sodium hypochlorite solution is stored in 55 gallon plastic containers and pumped to a chlorine injection manhole. At the manhole, the hypochlorite is injected into the 16 inch common inlet pipe for Wells #2, #3, #5, and #7. The dose supplied by the metering pump is paced by a flow meter to achieve the desired chlorine residual. The pump is capable of injecting between 0 and 2.5 gallons per hour at a maximum pressure of 100 psi.

A back-up liquid sodium hypochlorite system is located in the well house for Wells #3 and #7. This system is identical to the one in Booster Pump Station #2. If the system in Pump Station #2 fails, the hypochlorite system in the well house may be used to disinfect the water from Wells #3 or #7 directly or it can be moved to Booster Pump Station #2 to replace the failed system.

The well house at Well #5 has a chlorine gas system. This system is typically only used if the hypochlorite system at Booster Pump Station #2 is taken off-line.

2.3.6 Backup Power Systems

The City currently has a 50 kW generator at Booster Pump Station #1 to provide back-up power during power outages or emergencies. The generator has sufficient capacity to operate Well #1 and the booster pumps. A backup generator has also been installed at Booster Pump Station #2. A 44 kW generator at the fire station provides back-up power to Well #2, which is located nearby.

2.3.7 SCADA System

A Supervisory Control and Data Acquisition (SCADA) system was installed in 2000. The system is able to automatically control storage tank water levels and distribution system pressures by sequencing the well pumps and booster pumps with minimal manual intervention. This allows for immediate response to the system demands, excellent control of system components and improved operation and maintenance. The system also records some of the system flow and pressure data to assist the operators in performing system operation and maintenance. System control and data collection occurs through Wonderware software.

System components include a computer, programmable logic controller (PLC), printer, modems, power supplies, uninterrupted power supplies (UPS), alarm auto-dialers, antennas, electrical wiring and conduit, pressure transducers and radio components. The SCADA system control center is located in Booster Pump Station #2.

2.3.8 User Rates

Table 2-9 summarizes the existing user rate schedule for the City of Filer. These rates were established in April of 2012 (see ordinance in Appendix E). As shown, users are charged a variable monthly base rate for the first 10,000 gallons of water used based on the size of their meter. Any additional water used beyond the base 10,000 gallons is charged at an incremental rate for all meter sizes.

TABLE 2-9 EXISTING USER CHARGE RATES

Volume of Water Used (gallons)	Meter Size (inches)	Charge Rate
0 – 10,000	5/8	$27.00
	1	$27.50
	1 ¼	$28.50
	1 ½	$29.50
	2	$30.50
	4	$46.50
	6	$62.00
	8	$77.50
10,000 – 50,000	All Sizes	$0.42 per 1,000 gal
50,000 – 150,000	All Sizes	$0.60 per 1,000 gal
150,000 – 1,000,000	All Sizes	$0.85 per 1,000 gal
>1,000,000	All Sizes	$1.00 per 1,000 gal

The water system budget for 2012-2013 is included in Appendix F. This includes operation and maintenance, personnel and overhead expenses. The City currently has an outstanding bond related to the water system.

2.3.9 Sanitary Survey

The Idaho Department of Environmental Quality (IDEQ) conducted a sanitary survey of the City water system in April 2010. The survey report recommended several maintenance items for the supply wells and pump houses. A copy of the City's most recent IDEQ Sanitary Survey, including the IDEQ transmittal letter, can be found in Appendix G. The results of the Sanitary Survey indicate that the City's system is in substantial compliance with the regulations for public drinking water systems.

2.3.10 Consumer Confidence Report

A copy of the City's most recent Consumer Confidence Report can be found in Appendix H.

2.3.11 Cross-Connection Program

The City currently has a cross-connection control ordinance in place to protect the quality of their water supply (see Appendix I). As part of the cross-connection control program, backflow prevention devices are required on potential sources of contamination (i.e., service connections, irrigation lines). Personnel on the City staff have been certified in backflow prevention. The City has also developed a list of customers who have a potential for cross-connections or contamination of the water supply. This list is periodically evaluated and updated.

2.3.12 Wellhead Protection Plan

The City has also developed a wellhead protection plan and ordinance (see Appendix J). The purpose of the wellhead protection program is to minimize contamination of the water supply and formalize groundwater protection/pollution abatement and control procedures. As such, the wellhead protection ordinance defines spatial overlay zones that allow or prohibit certain types of activities and uses.

2.3.13 Source Water Protection Program

In June 2001, IDEQ completed a Source Water Assessment Report for the City to comply with the requirements of the Safe Drinking Water Act Amendments of 1996. A copy of the report can be found in Appendix K.

2.3.14 System Classification and Operator Certification

The distribution system is rated a Class II system based on complexity and population served. The Idaho Distribution System Classification Worksheet and a copy of the City's Operator certifications can be found in Appendix L.

2.3.15 Other Systems in the Planning Area

2.3.15.1 Irrigation Water

Several irrigation water wells and their associated distribution systems are located within the Planning Area. These secondary irrigation water systems are located at the fairgrounds, some private residents, and some trailer parks.

2.3.15.2 Wastewater

The City's wastewater collection system currently serves the area within the city limits. The collection system generally consists of:

- Approximately 2,120 feet of 4 inch pressure main.
- Approximately 780 feet of 6 inch pipe.
- Approximately 43,320 feet of 8 inch pipe.
- Approximately 10,270 feet of 12 inch pipe.
- Approximately 460 feet of 14 inch pipe.
- Approximately 5,130 feet of 15 inch pipe.
- Approximately 200 manholes.
- Three lift stations.

The City recently decommissioned their wastewater treatment lagoons and constructed a membrane bioreactor (MBR) mechanical plant. This state of the art treatment facility generally consists of:

- Influent Lift Station
- Screening
- Equalization Basin
- Anaerobic Basins
- Anoxic Basins
- Aeration Basins
- Membrane Basins
- Ultraviolet Disinfection
- Biosolids Holding Tank
- Belt Filter Press

The MBR facility started up in 2011 and produces high quality effluent that could potentially be reused in the City's secondary pressure irrigation system in the future.

2.4 EXISTING WATER RIGHTS

The City has a total of five water rights to supply municipal water, as summarized in Table 2-10. The total current water right for municipal use is 7.78 cfs (3,491 gpm).

TABLE 2-10. WATER RIGHTS SUMMARY

Water Right Number	Priority Date	Basis	Source	Beneficial Use	Point of Diversion	Diversion Rate	
						(cfs)	(gpm)
47-4144	2-6-58	Statutory Claim	Groundwater	Municipal, Fire Protection	Well #1	0.33	148
47-4145	8-9-54	Statutory Claim	Groundwater	Municipal, Fire Protection	Well #2	0.28	126
47-7717	3-11-81	License	Groundwater	Municipal	Well #3	1.38	619
47-7840	10-8-82	License	Groundwater	Municipal, Fire Protection	Well #5	0.89	399
47-16843	7-2-02	Permit	Groundwater	Municipal	Wells #1, #2, #3, #5 and #7	4.90	2,199

Chapter 3

Future Conditions

3.0 FUTURE CONDITIONS

3.1 FUTURE LAND USE AND DEVELOPMENT

The Filer Planning Area represents a geographical area and population which the City can reasonably be expected to serve within a 20 year design period from 2014 to 2034. Sufficient land was included in the Planning Area to accommodate all forecasted residential, commercial, and industrial growth in addition to allowing some flexibility for the future development of the community.

A review of the City's Comprehensive Plan and zoning map indicates that residential land use is predominant, with smaller areas of commercial and industrial land use. It is anticipated that growth within the Planning Area for the 20 year design period will continue to consist primarily of residential development. Additional residential growth will also occur within vacant areas of the existing City limits.

No significant commercial or industrial facilities are anticipated to be developed in the Planning Area during the forecasted 20 year period. However, there will be some modest commercial and industrial development associated with the residential growth of the community.

3.2 POPULATION PROJECTIONS

3.2.1 Historical Population Growth

Population projections for the City of Filer were based on historical growth patterns and discussions with City personnel. Data from the U.S. Census Bureau indicate that Filer experienced an average annual growth rate of approximately 1.92% from 1970 to 2010. This trend mirrors that of Twin Falls County in general, which experienced an average annual growth rate of approximately 1.55% over the same time period. For the period from 2000 to 2010, however, the City of Filer experienced a significantly higher average annual growth rate of 4.47%. This growth was primarily due to the construction of the Golden Spur subdivision, Pierce subdivision and Cedar Draw Estates subdivision.

TABLE 3-1 – HISTORICAL POPULATION GROWTH

Year	Population [1]	Average Annual Percent Change
1940	1,239	
1950	1,425	1.41%
1960	1,249	-1.31%
1970	1,173	-0.63%
1980	1,645	3.44%
1990	1,511	-0.84%
2000	1,838	0.70%
2010	2,508	4.47%

1. Data from U.S. Census Bureau.

3.2.2 Seasonal Population Fluctuations

Although Filer is located within an agricultural area, the Planning Area experiences little, if any, seasonal population fluctuations due to an influx of migrant or other workers. The Planning Area does not contain a migrant labor center, as do some other communities in southern Idaho. As a result, almost all migrant and/or seasonal workers are housed on the farms on which they are employed, most of which are located outside the Planning Area. Therefore, Filer does not experience any significant seasonal population changes due to agricultural practices in the area.

3.2.3 Growth Forecast

3.2.3.1 Residential Growth

A population forecast for the Filer Planning Area was developed for the 20 year design period from 2014 to 2034. This provides the basis for projecting average and peak water demands which are then used to evaluate water system infrastructure needs into the future.

Based on discussions with City personnel, it is anticipated that Filer's annual growth rate in the future will be closer to the overall average growth rate that has been experienced from 1970 to 2010. Therefore, an average annual growth rate of 2.0% was selected for the 20 year planning period. Figure 3-1 summarizes the historical population data in Filer and also shows the projected growth trend into the future.

The population projection estimates that the City of Filer will have 4,034 residents in the year 2034. This represents an increase of approximately 1,526 residents, or a population 61% greater than 2,508 residents reported to be living in the city by the 2010 U.S. Census Bureau.

3.2.3.2 Planning Area Size

The proposed Planning Area contains sufficient acreage to accommodate the forecasted population growth. The Planning Area also includes flexibility for unaccounted for residential, commercial or industrial growth.

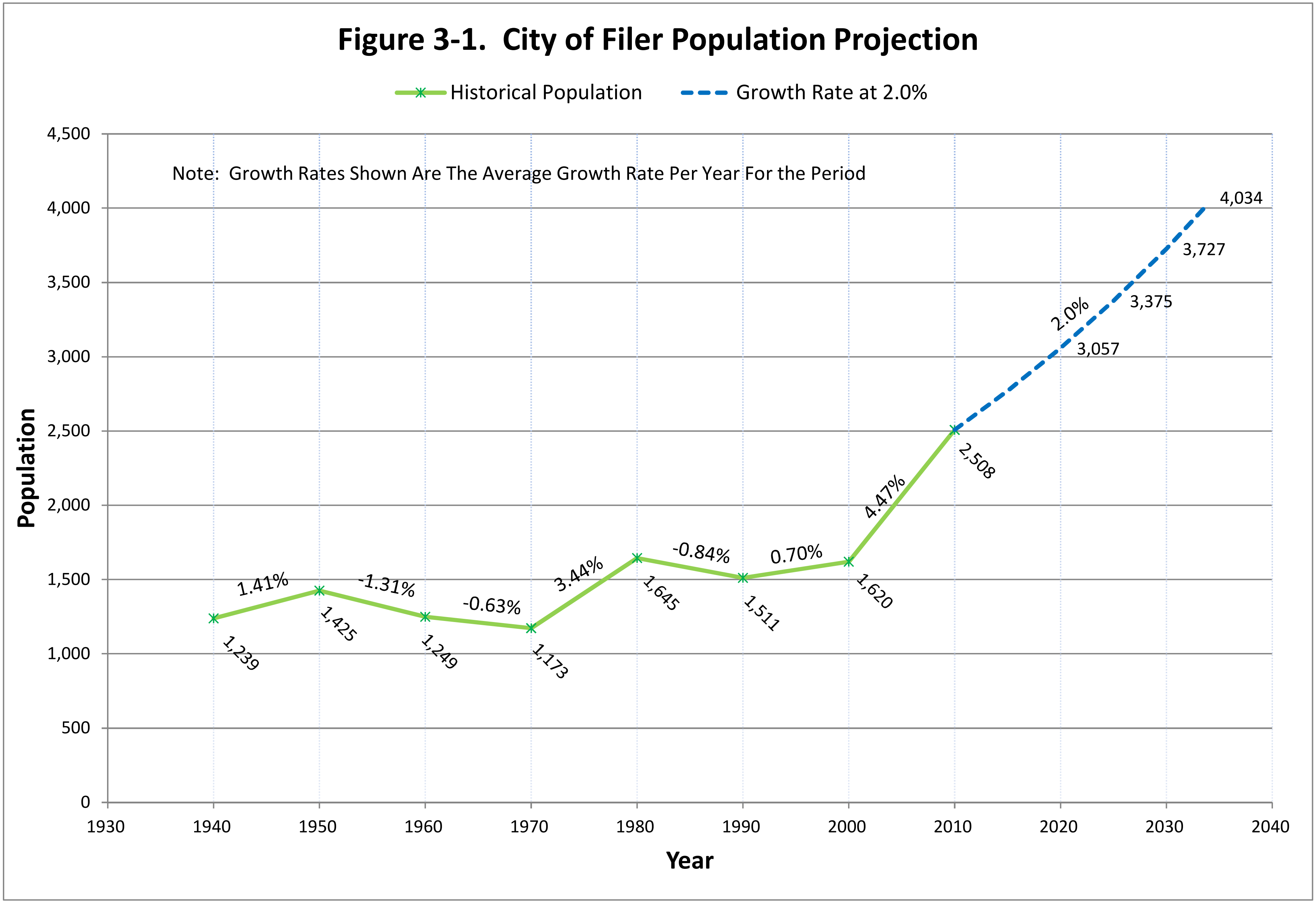


Figure 3-1. City of Filer Population Projection
Historical Population
Growth Rate at 2.0%
Note: Growth Rates Shown Are The Average Growth Rate Per Year For the Period
Population
Year
0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
1,239
1,425
1,249
1,173
1,645
1,511
1,620
2,508
3,057
3,375
3,727
4,034
1.41%
-1.31%
-0.63%
3.44%
-0.84%
0.70%
4.47%
2.0%

Chapter 4

Water Supply and Demand

4.0 WATER SUPPLY AND DEMAND ANALYSIS

4.1 EXISTING WATER DEMAND

Well pumping data was provided by the City over a five-year period from January 2008 through December 2013. The data was generally recorded once per day; however, there are numerous gaps in the data where several days passed without a recorded flow measurement. This flow data was used to obtain a basis for analyzing existing conditions and projecting future demands on the system.

Figure 4-1 shows the total volume of water pumped on a monthly basis over a period of several years. As shown in the figure, there are seasonal variations in the water demand over the course of a typical year. Demands are considerably higher in the summer due to landscape irrigation and higher in-house water uses during warm weather conditions (e.g., washing clothes, additional bathing, etc.). Further analysis indicates that water demand is greater now than it was in 2008 and 2009. However, 2008 and 2009 were very wet years with above average precipitation which may have resulted in less water usage for irrigation needs. In general, the figure appears to indicate that the total annual water demand has stabilized over the past few years despite continued population growth and drought conditions. This stabilization in peak demands is likely due to ongoing water conservation efforts and the implementation of secondary canal water pressure irrigation (PI) in new developments, such as the Pierce Subdivision on the south side of town.

On an annual basis, the highest non-residential water users within the City are the Twin Falls County Fairgrounds, local churches, Filer schools, and the Filer Laundromat. Figure 4-2 shows the highest water users in the City based on water meter readings.

In a community the size of Filer, water consumption over the course of a typical day may vary dramatically. Variations are generally most noticeable in residential flows, which increase or decrease in response to the community's daily routine. These curves showing the magnitude of the variations over time are generally diurnal in shape, peaking in the late morning and during the evening. Large commercial and industrial water demand could skew the diurnal curves. However, Filer is mostly a residential community and it is expected the water demand throughout the day would show the diurnal curves typical for bedroom communities. In order to account for daily variations in water demand, maximum day and peak hourly peaking factors must be applied to the average day demand.

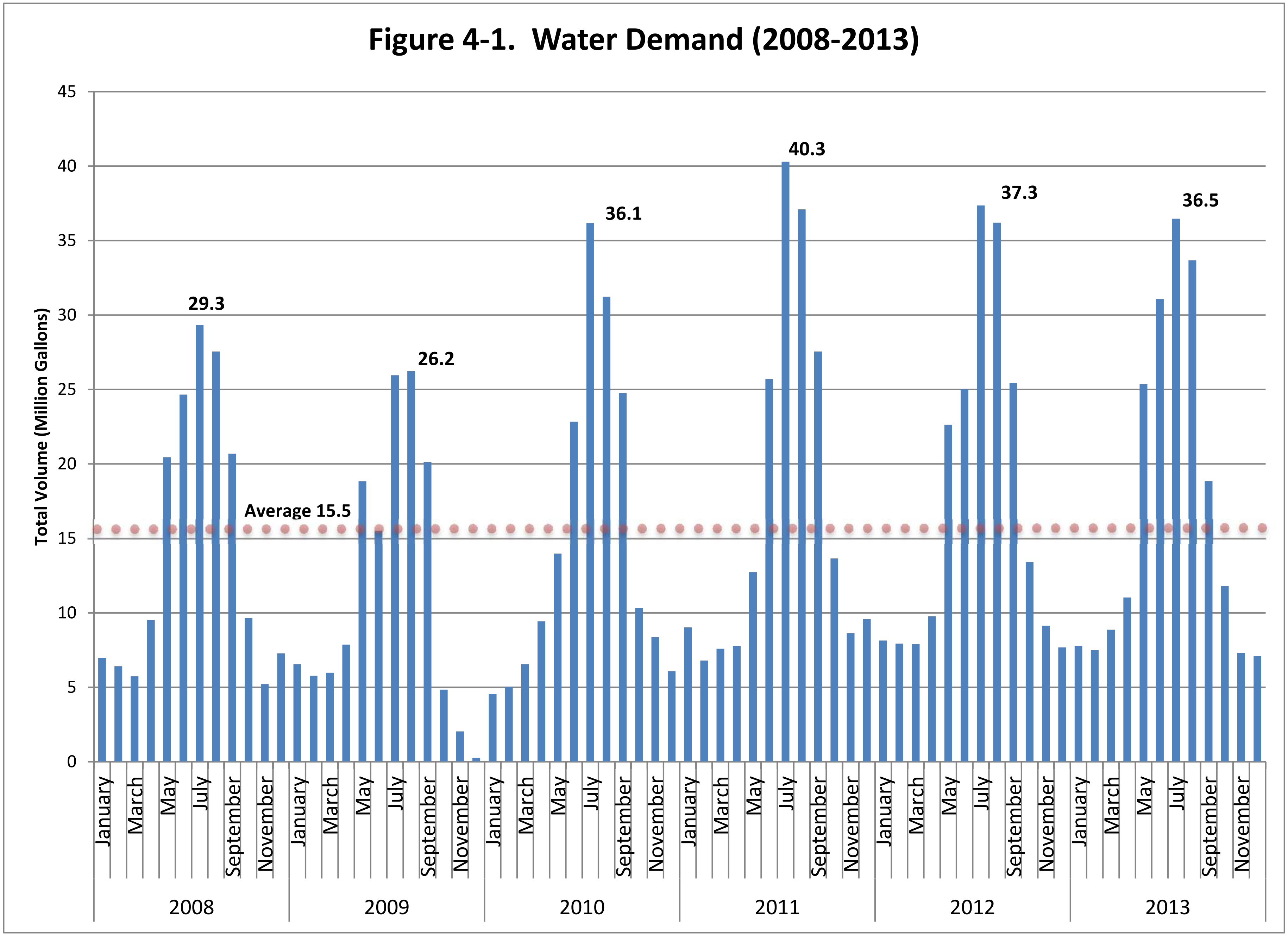
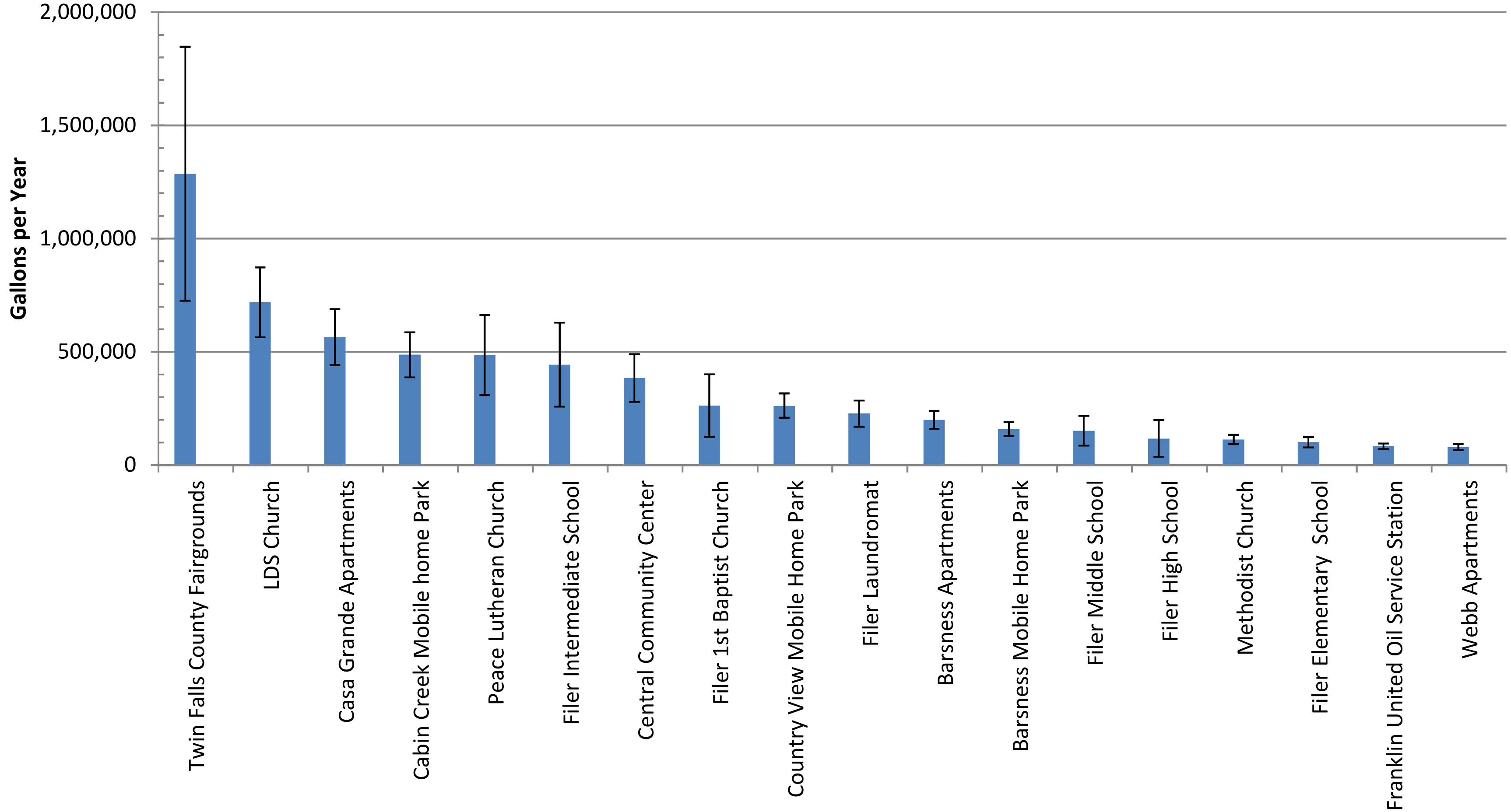


Figure 4-1. Water Demand (2008-2013)
Total Volume (Million Gallons)
45
40
35
30
25
20
15
10
5
0
29.3
26.2
36.1
40.3
37.3
36.5
Average 15.5
January
March
May
July
September
November
2008
2009
2010
2011
2012
2013

Figure 4-2. Average Annual Water Consumption (2007 - 2013)



(Error bars denote standard deviation of average values)

4.1.1 Demand Analysis

The average day demand for the City's water system was obtained from daily records of the well pumping data. Depending on the ultimate goal of the analysis, it is recommended that different types of water demand flow data be used. For example, the maximum day demand should be used to evaluate the amount of sustainable water supply required from the wells. However, the peak hour demand is typically used in calculating water storage requirements, booster pump station capacity, and distribution line sizing. Since the flow data is based on a single daily water meter reading at the wells and there are gaps in the flow documentation, the factors required for these analyses (i.e., maximum day demand and peak hour demand) were not readily apparent and had to be estimated using the process described below.

4.1.1.1 Maximum Day Demand

The following methodology was used to calculate the maximum day peaking factor. The daily flow data was reviewed and the dates that did not have a recorded flow measurement were removed from the dataset to negate any false peaks in the data. In other words, if there was a meter reading after 4 days without a recorded measurement, it was typically 4 times larger than a "normal" reading and was therefore removed from the dataset. In addition, there were some very high flow days that tended to be followed by several days with low flow or minimal flow. Many of these high flow days tended to be on a Friday indicating that water system personnel were filling the City's storage tanks prior to the weekend. Based on the lower flow data typically following the high flow data, it is unlikely that the high flow measurement was a true indicator of actual maximum day demand. The two types of "false" peaks described above were smoothed out and normalized by taking a 5-day moving average of the entire dataset.

In 2013, this analysis described above resulted in a maximum day demand of 1,422,400 gallons compared to an average day demand of 566,500 gallons. This results in a maximum day to average day peaking factor of 2.51 which is very similar to other communities in southern Idaho and values reported in the literature. Recent analyses of the Jerome and Twin Falls water systems yielded maximum day peaking factors of 2.4 and 2.3 respectively. It is expected that Filer's peaking factor would be slightly higher due to its lower population and smaller industrial/commercial base. For the purposes of projecting maximum day flow demands in the future, a maximum day peaking factor of 2.5 was used.

4.1.1.2 Peak Hour Demand

2012 SCADA data (the last complete year that data was available) was used to calculate the peak hour peaking factor. The SCADA system records flow rates at the City's two booster pump stations every 15 minutes. Adding both booster pump stations together gives an average flow of 440 gpm. The largest value in the dataset for the two stations added together was 1,658 gpm. This results in a peaking factor of 3.77 for peak hour flow to average day flow.

This is very similar to what we would expect based on the literature and experience with other communities in southern Idaho. The analysis in Filer resulted in approximately a 1.5 peak hour to maximum day peaking factor. Analysis of the Twin Falls water system resulted in a 1.3 peak hour to maximum day peaking factor. It is expected that the peak flow factor in Twin Falls would be less than Filer as it is a much larger City and the magnitude of peaks are attenuated. For the purposes of projecting Filer's peak hour flow demands into the future, a peak hour to average day peaking factor of 3.75 (2.5 max day x 1.5 peak hour) was used.

4.1.1.3 Existing Water Demand

Table 4-1 summarizes the water demands from the City's water system for the past 6 years.

TABLE 4-1 – HISTORICAL WATER DEMAND

Year	Flow (gallons/year)	Flow (gallons/day)	Flow (gpm)
2008	173,433,000	473,861	329
2009	139,940,000	383,397	266
2010	179,307,000	491,252	341
2011	206,376,000	565,414	393
2012	210,631,000	575,495	400
2013	206,778,000	566,515	393

Since the last three years were very consistent in terms of water use, an average 2011-2013 data was used to estimate the existing water demand in the City. Table 4-2 summarizes the existing water demand.

TABLE 4-2. EXISTING WATER DEMAND

Parameter	Units	Water Demand
Average Day Demand	gpm	395
Maximum Day to Average Day Peaking Factor		2.5
Maximum Day Demand	gpm	988
Peak Hour to Average Day Peaking Factor		3.75 (1.5 times max day)
Peak Hour Demand	gpm	1,482
Total Annual Volume	Mgal	208
Average Day Per-Capita	gpcd	214

Due to population growth, the existing water demand is greater than the water demand reported in the 2002 Water Master Plan. In 2002, a smaller population used an average water demand of 326 gpm resulting in a per capita use rate of 284 gallons per person per day. This is greater than the existing per capita water demand of 214 gallons per person per day. The decrease in per capita water usage is most likely due to the following:

- The City reports that several leaks in the distribution system have been repaired.
- The schools and County fairgrounds have converted some of their large irrigated areas to canal water, reducing the potable water demand for irrigation.
- The Filer City Park is using a separate well for irrigation purposes.

Based on empirical data from several other communities in southern Idaho, the average day per capita demand is typically 300 gallons per person per day or greater. As such, Filer's per capita demand of 214 gallons per person per day is lower than typically observed in southern Idaho. This is most likely due to the reductions in water losses described above as well as the presence of a comparatively small industrial and commercial base.

4.1.1.4 Irrigation Demand

In addition to daily variations, there are also seasonal fluctuations in water. These fluctuations occur primarily in response to irrigation practices within the community since the City supplies both domestic and irrigation water through its drinking water system. It should be noted that the Pierce subdivision on the south side of the City has installed a pressure irrigation system that utilizes secondary water instead of potable water. Converting landscape irrigation to secondary water supplies can reduce demand on the drinking water system during the months of highest water use.

Typically, potable water demand in the City is highest during the summer when irrigation occurs more frequently and lowest during the winter when irrigation is minimal. Figure 4-3 illustrates the annual fluctuations in water demand in terms of total volume (million gallons) for the 6-month irrigation season (May through October) as compared to the non-irrigation season (November through April).

Table 4-3 reiterates that the average day demand during the irrigation season is significantly greater than the non-irrigation season demand.

TABLE 4-3. IRRIGATION FLOWS (2011-2013)

Season	Average Day Demand (gpm)
Irrigation Season (April – October)	515
Non-Irrigation Season (November – March)	228

Figure 4-4 shows water demand by month from 2008-2013. It also shows the average day demand based on the 2011-2013 data for comparison.

4.1.1.5 Fire Flow Demand

The Idaho Survey and Ratings Bureau (ISRB) recommends “needed fire flows” based on guideline values established by the Insurance Services Office, Inc. (ISO). ISO sets the “needed fire flow” guideline values for various structures within a community based on the type of building construction, size of buildings, occupancy factors and proximity of buildings. These values are used primarily for insurance purposes, and are not enforceable requirements. Most communities strive to provide the guideline fire flows to reduce insurance costs to the individual rate payers. Based on recent discussions with the ISRB, Table 4-4 summarizes the recommended “needed fire flows” for the structures within the City requiring the greatest fire flow protection. The full ISRB requirement list is provided in Appendix M.

TABLE 4-4. FIRE FLOW RECOMMENDATIONS

Location	Address	Fire Flow Requirement (gpm)	Duration (hours)
Filer Elementary School	700 Stevens Ave.	5,000	4
Everton Mattress Factory	529 North St.	5,000	4
Magic Valley Livestock Feed	405 Front St.	4,000	4
Twin Falls County Fair Association	215 Fair Ave.	3.500	3
Snake River Metal	193 Fair Ave.	3,500	3
Filer Middle School	299 Hwy 30	3,000	3
Filer High School[1]	3915 Wildcat Way	1,500	4

1. The high school fire flow is based on review of IBC and IFC requirements for a Type IIA sprinklered building approximately 75,000 square feet in size.

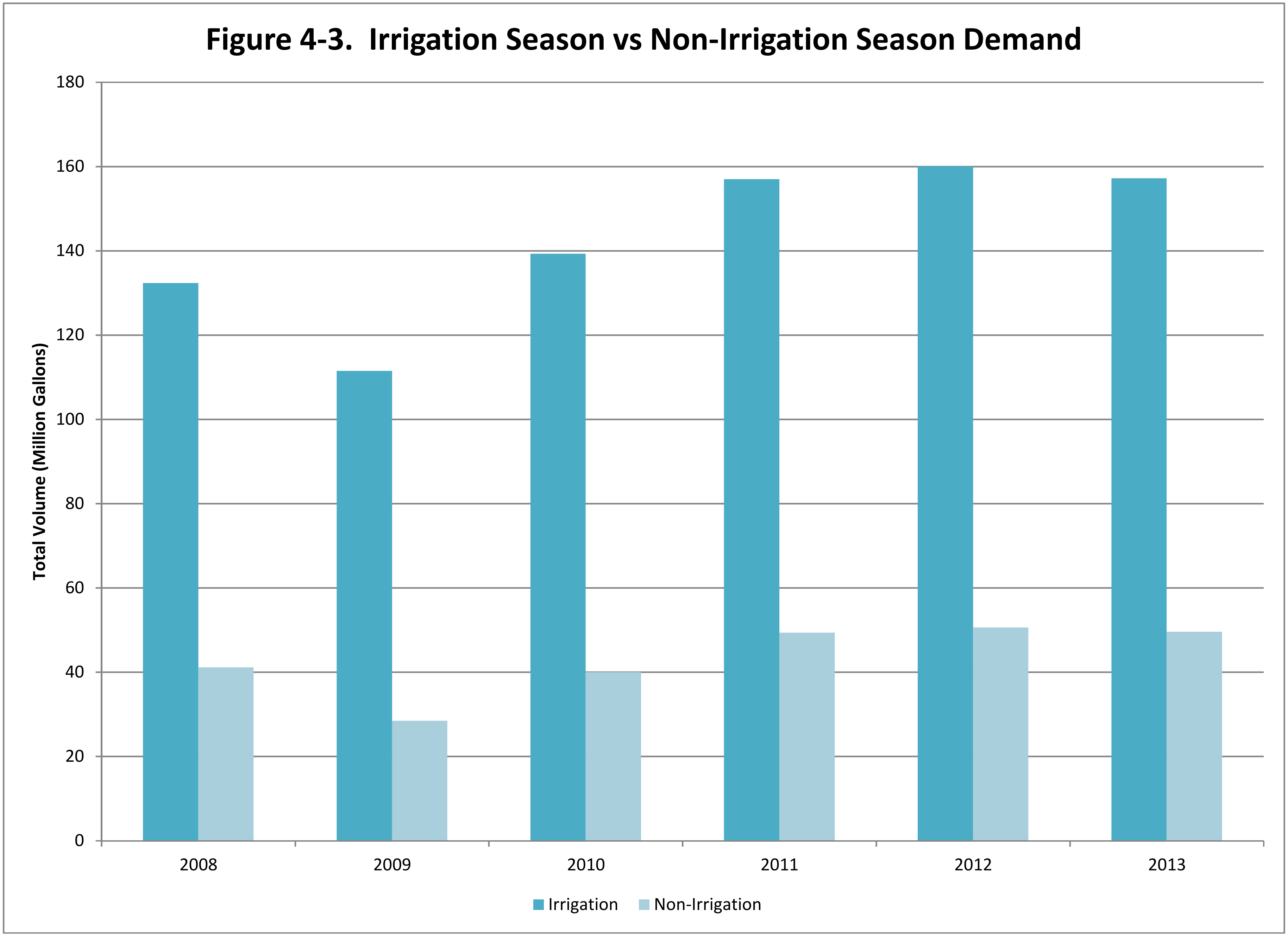


Figure 4-3. Irrigation Season vs Non-Irrigation Season Demand
Total Volume (Million Gallons)
180
160
140
120
100
80
60
40
20
0
2008
2009
2010
2011
2012
2013
Irrigation
Non-Irrigation

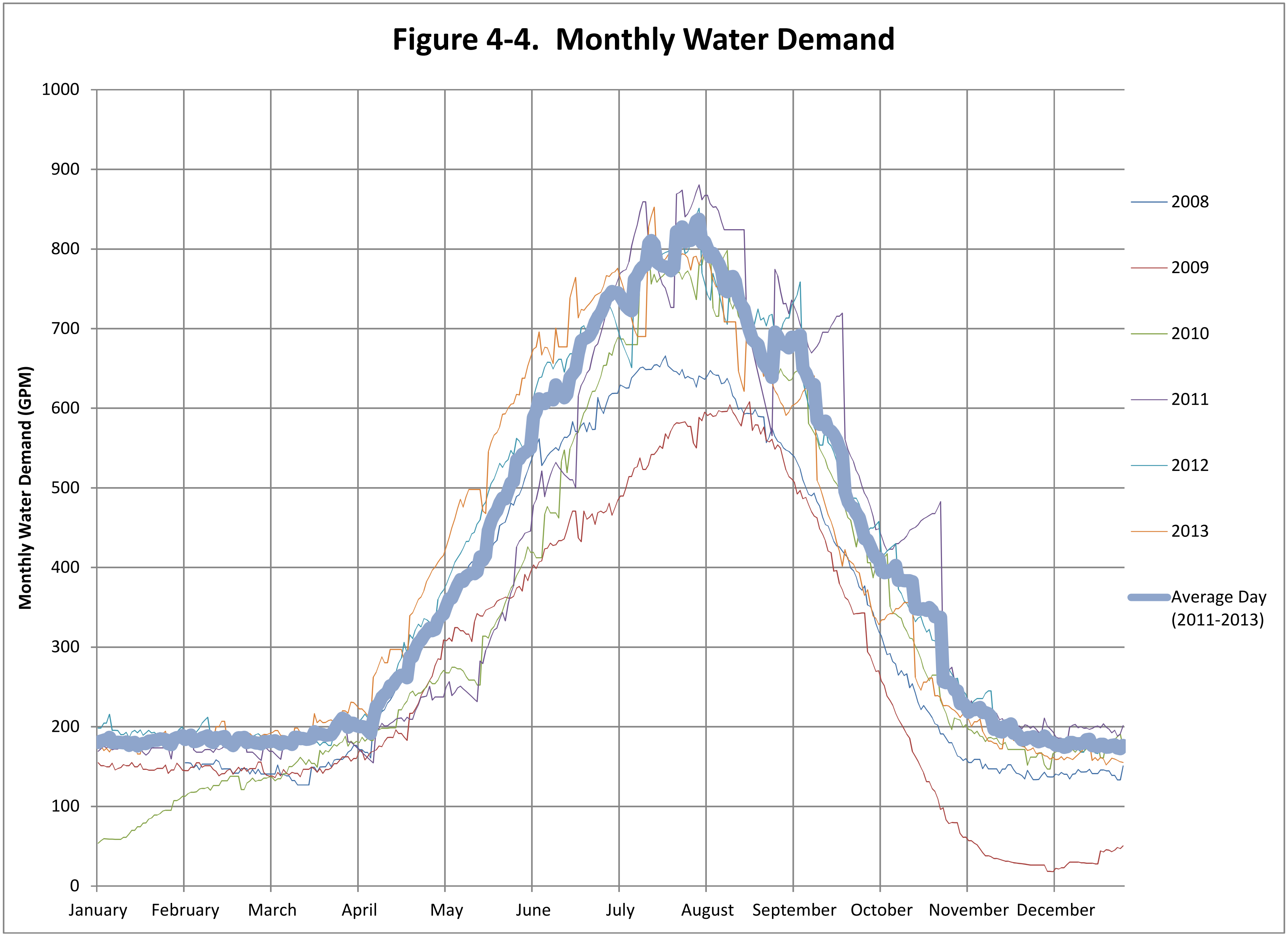


Figure 4-4. Monthly Water Demand
Monthly Water Demand (GPM)
1000
900
800
700
600
500
400
300
200
100
0
January
February
March
April
May
June
July
August
September
October
November
December
2008
2009
2010
2011
2012
2013
Average Day (2011-2013)

In addition to the ISRB recommended fire flows, the Uniform Fire Code requires a basic fire flow of 1,000 gpm for a two hour duration for basic residential structures of less than 3,600 square feet.

The ISRB establishes a fire protection class rating (i.e., 1=best to 10=worst) for the City based on several criteria related to the fire department and water systems within the City. Recent discussions with ISRB indicate that the City of Filer currently has a fire protection class rating of 4.

4.1.1.6 Comparison of Calculated Water Demand to IDAPA Requirements

IDAPA regulations (58.01.08 Part 552.01) state that "*the capacity of a public drinking water system shall be at least 800 gallons/day/residence and that this shall be the design maximum day demand rate exclusive of irrigation and fire flow requirements*".

Using 896 residences (see Chapter 2) and the 800 gallons/day/residence required by IDAPA results in a maximum day water demand of 716,800 gallons/day or 498 gpm. This is significantly less than the calculated maximum day demand of 988 gpm currently placed on the system. The 490 gpm difference is available to accommodate the City's irrigation needs. Fire flow demands are addressed using the City's water storage tanks, which have been adequately sized in Filer. Therefore, the calculated water demands using actual data resulted in a more conservative assessment than what is required by IDAPA regulations. As a result, the projected flow rates into the future were estimated using actual data rather than IDAPA design recommendations.

4.2 FUTURE SUPPLY AND DEMAND PROJECTIONS

4.2.1 FUTURE WATER DEMAND PROJECTIONS

Water demand was projected until 2060 by multiplying the existing per-capita flow (214 gpcd) by the projected population. It was assumed that the peaking factors for maximum day demand (2.5) and peak hourly demand (3.75) would remain the same throughout the planning period. Table 4-5 summarizes the year-by-year flow projections.

TABLE 4-5. YEAR-BY-YEAR WATER DEMAND PROJECTIONS

Year	Population	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hourly Demand (gpm)
2014	2,715	403	1,009	1,513
2015	2,769	412	1,029	1,543
2016	2,824	420	1,049	1,574
2017	2,881	428	1,070	1,606
2018	2,939	437	1,092	1,638
2019	2,997	445	1,114	1,670
2020	3,057	454	1,136	1,704
2021	3,118	463	1,159	1,738
2022	3,181	473	1,182	1,773
2023	3,244	482	1,205	1,808
2024	3,309	492	1,229	1,844
2025	3,375	502	1,254	1,881
2026	3,443	512	1,279	1,919
2027	3,512	522	1,305	1,957
2028	3,582	532	1,331	1,996
2029	3,654	543	1,357	2,036
2030	3,727	554	1,385	2,077
2031	3,801	565	1,412	2,118
2032	3,877	576	1,441	2,161
2033	3,955	588	1,469	2,204
2034	4,034	599	1,499	2,248
2035	4,115	611	1,529	2,293
2036	4,197	624	1,559	2,339
2037	4,281	636	1,590	2,386
2038	4,366	649	1,622	2,433
2039	4,454	662	1,655	2,482
2040	4,543	675	1,688	2,532
2041	4,634	689	1,722	2,582
2042	4,726	702	1,756	2,634
2043	4,821	716	1,791	2,687
2044	4,917	731	1,827	2,740
2045	5,016	745	1,863	2,795
2046	5,116	760	1,901	2,851
2047	5,218	776	1,939	2,908
2048	5,323	791	1,978	2,966
2049	5,429	807	2,017	3,026

Year	Population	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hourly Demand (gpm)
2050	5,538	823	2,057	3,086
2051	5,649	839	2,099	3,148
2052	5,761	856	2,141	3,211
2053	5,877	873	2,183	3,275
2054	5,994	891	2,227	3,341
2055	6,114	909	2,272	3,407
2056	6,236	927	2,317	3,476
2057	6,361	945	2,363	3,545
2058	6,488	964	2,411	3,616
2059	6,618	984	2,459	3,688
2060	6,751	1,003	2,508	3,762

4.2.2 WATER SUPPLY ANALYSIS

The existing water supply for the City is shown below in Table 4-6. This table shows that Well #7 by itself is able to meet the projected maximum day water demand for the entire 20-year planning period. If Well #7 goes down, then all of the backup sources combined will be also be able to meet the projected maximum day demand for the 20-year planning period.

TABLE 4-6. WATER SUPPLY WELL SUMMARY

Well	Pump and Motor	Pumping Rate (gpm)[1]	Discharge Location
#1	10 hp Constant Speed Submersible	110	Storage Tank #1
#2	10 hp Constant Speed Vertical Turbine	90	Storage Tank #2
#3	50 hp Constant Speed Vertical Turbine	1,100	Storage Tank #2
#5	50 hp Constant Speed Vertical Turbine	350	Storage Tank #2
#7	125 hp Constant Speed Vertical Turbine	2,000	Storage Tank #2
	Total Pumping Capacity[2]	**1,650 - 2,550**	

1 As reported by City.
2 Wells #3 and #7 cannot operate at the same time. The lower capacity assumes Well #3 is operating and the higher capacity assumes Well #7 is operating at 2,000 gpm.

As described in Chapter 2, the City has a total of five water rights to supply municipal water (see Table 2-10). The total current water rights for municipal use is 7.78 cfs (3,491 gpm). The City's existing water rights are sufficient to supply water for the 20-year planning period and into the foreseeable future.

Figure 4-5 shows the projected water demands versus the available water supply using Well #7 and the City's backup sources. It also shows the City's existing water rights on the same chart.

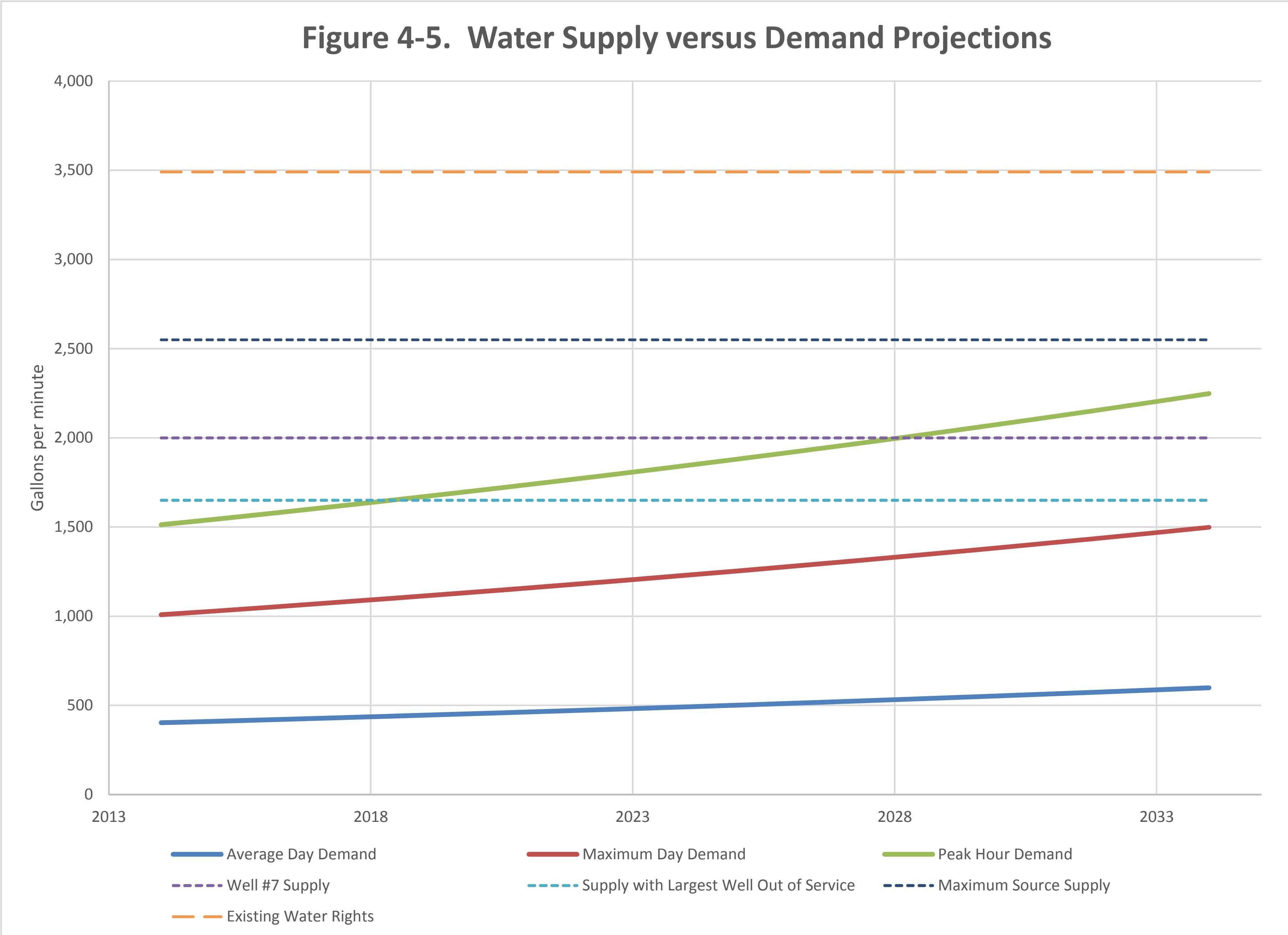


Figure 4-5. Water Supply versus Demand Projections
Gallons per minute
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2013
2018
2023
2028
2033
Average Day Demand
Maximum Day Demand
Peak Hour Demand
Well #7 Supply
Supply with Largest Well Out of Service
Maximum Source Supply
Existing Water Rights

Chapter 5

Evaluation of Existing Facilities

5.0 ANALYSIS OF EXISTING AND FUTURE SYSTEM

The City of Filer's drinking water system consists of five supply wells, two storage tanks, two booster pump stations, disinfection facilities, a distribution network, and a control system. A map of the water system is shown in Figure 2-9. All of the water system components are described in detail in Chapter 2. The following sections evaluate the condition of the individual water system components and discuss potential improvements.

5.1 WATER SUPPLY

The heart of a water system is the water supply. The goal is to provide water of sufficient quantity and quality to meet the uses of the residents and businesses both now and into the future.

5.1.1 Supply Wells

Water is currently supplied to the City via five deep groundwater wells. Wells #3 and #7 serve as the City's primary supply wells to meet the potable water demand of the community. These wells can be supplemented by Wells #1, #2 and #5 as required. Operation of the well pumps is controlled by the storage tank levels and a Supervisory Control and Data Acquisition (SCADA) system.

It should be noted that most of the well pumps installed in the City were originally designed to pump directly into the distribution system at a discharge pressure of 60-90 psi. However, the City is currently pumping to the storage tanks at a much lower discharge pressure of approximately 25 psi. The required pressures in the distribution system are maintained using the booster pump stations. Due to the lower discharge pressures from the well pumps, they are discharging more flow than their original design condition. This can result in the pump operating on the far right side of the curve which results in a lower efficiency and higher operational costs.

5.1.1.1 Well #1

Well #1 is capable of producing 110 gpm and is the only well that discharges directly to Storage Tank #1. This well tends to have higher arsenic concentrations than the other wells and therefore is rarely used. However, it is held in reserve as a backup well in case of an emergency. Well #1 is started and flushed to waste on a monthly basis. The periodic flush is just to make sure it is operable if needed.

5.1.1.2 Well #2

Well #2 is capable of producing 90 gpm and discharges directly into the system near Storage Tank #2. This well typically produces lower quality water than the other wells, including higher fluoride and TDS concentrations. Also, the water tends to discharge at a higher temperature. Therefore, this well is rarely used although it can supplement the potable water supply when required. It normally runs directly into the system without being chlorinated.

Well #2 has a generator that cycles weekly for a maintenance check and also cycles upon a power outage in that part of town. It is automated and will run directly into the system when the generator comes on.

There is a standpipe near Well#2 for filling water and fire trucks. The standpipe is connected to the distribution system and therefore always has pressure regardless of the on-off status of Well #2.

5.1.1.3 Well #3 and Well #7

Wells #3 and #7 serve as the City's primary water supply wells. Well #3 produces 1,100 gpm and Well #7 produces 2,000 gpm. They are both located in a single well house which has been designed such that either Well #3 or #7 may be operated, but not at the same time.

Generally Well #3 runs in the off peak months and meets the demands exclusively by itself. During the peak irrigation season (roughly July – September) the City will manually cycle between Well #3 and Well #7 so both are available and to keep up with topping off the tank more quickly. The City typically switches between Well #3 and #7 during a shift change and are considering a SCADA upgrade to make this more automated.

5.1.1.4 Well #5

Well #5 was drilled in 1982 and is capable of producing up to 900 gpm. However, Well #5 has a history of producing water with a considerable amount of sand content. At lower flow rates the well is more sustainable and does not sand. Therefore the City tends to operate this well at 350 gpm or less.

Well #5 is an active backup well. It is started and flushed to waste on a monthly basis to make sure it is operable if needed. The valving arrangement was designed so this well can either discharge directly into the distribution system or into Storage Tank #2.

5.1.2 Water Supply versus Demand / Pumping Redundancy

IDAPA regulations state that "*under normal operating conditions, with any source out of service, the remaining source or sources shall be capable of providing either the peak hour demand of the system or maximum day demand plus equalization storage*." Since Filer has equalization storage, the City only needs to meet the maximum day demand condition. Table 5-1, below, shows that the City is in compliance with this rule and has adequate redundancy in the water supply to meet the required demands.

TABLE 5-1. WATER SUPPLY AND PUMPING REDUNDANCY

Operating Condition	2014	2034
Maximum Source Supply	2,550 gpm	2,550 [1] gpm
Source Supply with Largest Well Out of Service	1,650 gpm	1,650 [1] gpm
Maximum Day Demand [2]	1,009 gpm	1,499 gpm
Meets Intent of Rule?	**Yes**	**Yes**

1. Assumes no new sources are developed.
2. Backup sources only need to meet maximum day demand because equalization storage has been provided in the system.

5.2 WATER STORAGE

The City currently has two storage tanks which are discussed below and described in more detail in Chapter 2.

5.2.1 Storage Tank #1

Tank #1 is a 650,000 gallon glass-lined bolted steel tank that was constructed in 1984. It is fed by Well #1 and the distribution system.

Storage Tank #1 has a slight leak at the base where the steel contacts the concrete. It leaves a small wet spot at the base of the tank. The City has some quotes for divers to repair the leak from the inside. This will be part of future maintenance budgets.

5.2.2 Storage Tank #2

Tank #2 is a 1,000,000 gallon partially buried concrete tank that was constructed in 2003. It is fed by Wells #2, #3, #5, and #7. This tank is in good condition and no improvements are anticipated for the foreseeable future.

5.2.3 Storage Tank Volume Requirement

Three requirements must be met in the evaluation of the required water storage volume for the City of Filer, including:

- Fire protection storage
- Equalization storage
- Emergency storage

The sum of these three equates to the total volume of usable storage the City should maintain.

Fire Protection

As described in Chapter 4, the storage volume required for fire protection was estimated from the fire flow recommendations established by the Idaho Survey and Ratings Bureau (ISRB). Table 4-4 shows that the limiting fire flow is for Filer Elementary School, which requires a fire flow of 5,000 gpm for a 4 hour duration. Based on this flow demand, the storage volume required for fire protection is 1,200,000 gallons. It was assumed that this flow demand would not change during the 20-year planning period.

Equalization Storage

Equalization storage volume requirements were calculated using a formula recommended by IDEQ assuming a constant rate inflow. The equalization volume is based on a ratio of the source supply to the maximum day demand.

Q_{source} = 2,550 gpm
Q_{maxday} = 1,009 gpm in 2014 and 1,499 gpm in 2034
Q_{source}/Q_{maxday} = 2.5 in 2014
Q_{source}/Q_{maxday} = 1.7 in 2034

There is no equalization storage required when Q_{source}/Q_{maxday} is greater than 1.75.

At a ratio of 1.7, the equalization storage is calculated as 0.1 x Total Volume on maxday / 24. Total max day volume in 2034 is 2,158,560 gallons. This equates to 9,000 gallons of equalization storage that will be required in 2034.

Emergency Storage
According to IDEQ guidance documents, it is recommended that emergency storage be provided to allow for 8 hours of operation at average day demand. This equates to approximately 193,000 gallons in 2014 and approximately 288,000 gallons in 2034. Emergency storage requirements can be reduced or eliminated entirely if back-up generators are installed at all of the wells.

Water Storage Requirements
Table 5-2 summarizes the storage requirements for the City of Filer under existing and future conditions. This table indicates that the City has sufficient capacity in their storage tanks to satisfy both existing and future conditions. The storage requirements shown below provide guidance for what is typically used for sizing drinking water facilities. However, the City has the ability to modify these numbers as required to fit their specific situation.

TABLE 5-2. WATER STORAGE REQUIREMENTS

Storage Requirement	2014 Volume (gallons)	2034 Volume (gallons)
Fire Protection	1,200,000	1,200,000
Flow Equalization	0	9,000
Emergency	193,000	288,000
Total Storage Required	**1,393,000**	**1,497,000**
Available Storage	1,650,000	1,650,000
Additional Storage Required	**0**	**0**

5.3 BOOSTER PUMP STATIONS

Water from the storage tanks is fed to the distribution system through two booster pump stations (see Figure 3-1). The SCADA system controls the operation of the supply wells and booster pumps based on the storage tank water levels and distribution system pressures. The pump stations discharge varying flows to meet a range of water demands.

5.3.1 Booster Pump Station #1

Booster Pump Station #1 consists of 3 constant speed pumps that are capable of pumping between 200 gpm and 800 gpm.

BPS #1 can be started from the SCADA system and viewed in SCADA but the city does not run it on auto. The City regularly checks the pressures at BPS#1 and determines which pumps to run. BPS #1 is basically the "lead" booster pump station in the system and BPS #2 is controlled by the SCADA system based on overall system pressure. BPS #1 is set at 40 psi at its discharge and BPS #2 is set at 66 psi. This is to target an overall system pressure of approximately 50 psi.

5.3.2 Booster Pump Station #2

Booster Pump Station #2 was constructed as part of the 2002 water system improvements project. It consists of 3 vertical line shaft pumps with space for a future 4th pump. Two of the pumps have variable frequency drives while the other is constant speed. The pumps are capable of producing between 0 gpm and 1,600 gpm. Typically only one pump is operated at a time. One of the VFD-controlled pumps will function as the lead pump during normal demand conditions while the other pumps provide supplemental flow during peak conditions.

Booster Pump Station #2 appears to be operating satisfactorily and no upgrades are planned or anticipated for the foreseeable future.

5.3.3 Booster Pump Station Capacity

Assuming the largest pump is out of service in each booster pump station results in a firm capacity of 850 gpm in BPS #1 and 2,000 gpm in BPS #2. This means that the system has a total booster pump capacity of 2,850 gpm which is larger than the 2034 peak hour demand of 2,248 gpm. Therefore, the booster pump stations are adequately sized and larger pumps do not need to be installed at this time.

5.4 DISINFECTION SYSTEM

The City currently uses several systems to disinfect the water supply.

5.4.1 Booster Pump Station #1 Disinfection System

A liquid sodium hypochlorite disinfection system is located in Booster Pump Station #1. This system is currently not being used but can be brought online if Well #1 were needed. The IDEQ Sanitary Survey conducted in 2010 identified a number of deficiencies with the chlorine gas system that used to be located in Booster Pump Station #1. As a result, the City replaced the gas disinfection system with liquid sodium hypochlorite and modified the door to the chlorine room so it opens outward.

5.4.2 Booster Pump Station #2 Disinfection System

A liquid sodium hypochlorite system disinfects the water from Wells #2, #3, #5, and #7 prior to storage. This system uses side stream carrier water in a 1-inch line to move diluted hypochlorite to the injection point. The City has had problems with scale build up in the carrier line and they periodically have to replace the carrier line through the larger slip conduit. This type of build-up can occur as the hypochlorite has a very high pH which causes the hardness in the carrier water to precipitate out of solution. The operator could experiment with pulling smaller diameter tubing from the hypochlorite source directly to the injection point (no carrier water). Injecting the smaller amount of concentrated hypo into the larger water main should reduce the potential for scale build up. The potential draw back to this approach is the potentially longer detention times of the bleach in the carrier line. Bleach can degrade over time, however if the detention in the feed line is on the order of hours or even a few days this operating approach may be more desirable than changing out the carrier hose every few months.

The IDEQ Sanitary Survey conducted in 2010 noted that personal protective equipment needed to be made available at this location. The required equipment has since been provided.

5.4.3 Well #3 / Well #7 Backup Disinfection System

A back-up liquid sodium hypochlorite system is located in the well house for Wells #3 and #7. This system is identical to the one in Booster Pump Station #2. If the system in Pump Station #2 fails, the hypochlorite system in the well house may be used to disinfect the water from Wells #3 or #7 directly or it can be moved to Pump Station #2 to replace the failed system.

This back-up disinfection system is not currently used but could be brought online if needed.

5.4.4 Well #5 Backup Disinfection System

The well house at Well #5 has a chlorine gas disinfection system. This back-up disinfection system is not currently used but could be brought online if needed.

5.4.5 Disinfection Contact Time

The water supply is chlorinated prior to storage and subsequent delivery to the distribution system. Therefore, meeting the IDAPA requirements for a 30 minute disinfection contact time is not a concern for this water system.

5.4.6 Disinfection Residual

The City provides continuous monitoring of residual chlorine levels in the distribution system.

5.5 HYDRAULIC MODEL / DISTRIBUTION SYSTEM

A computer model was developed to evaluate the hydraulic performance of the City's existing water system for the current and projected 20 year planning populations. Results of the model assisted in determining the necessary upgrades to the water system to meet the immediate and future needs of the City.

5.5.1 Terms and Abbreviations

For the City to effectively use this report as a guide for the future development of their water system, several terms and abbreviations should be defined.

Average Day Demand - Demand that would exist if the total water use for one year was applied at a uniform rate throughout the year.

Maximum Day Demand - Demand that would exist if the most water used in any one day was applied at a uniform 24-hour rate.

Peak Hour Demand - Highest demand that occurs at any time throughout the year. For this study, the peak hour demand is considered to have a duration of three hours.

mgd - Million gallons per day.

gpm - Gallons per minute.

gpd - Gallons per day.

gpcd - Gallons per capita per day (gallons per day per person).

cfs - Cubic feet per second.

psi - Pounds per square inch.

5.5.2 Design Criteria

The design criteria used to analyze the water system in this study are as follows:

- All pressures during average day, maximum day or peak hour demand should be greater than 40 psi and less than 100 psi (IDAPA 58.01.08 Part 552).

- All velocities in the water distribution mains during normal operation (no fire flows) should be less than 5.0 fps (good design standard).

- All head losses in the water mains during normal operation should be less than 2.6 psi per 1,000 feet of pipe (good design practice).

- All velocities in the water distribution mains during a fire should be less than 10.0 fps (good design practice).

- All pressures in the water distribution mains during a fire flow should be greater than 20 psi (IDAPA 58.01.08 Part 552).

Finally, when working with population densities, 2.5 people per household was used for existing residences. This value is representative of the population from the census data and the number of connections.

5.5.3 Description of Water System Model

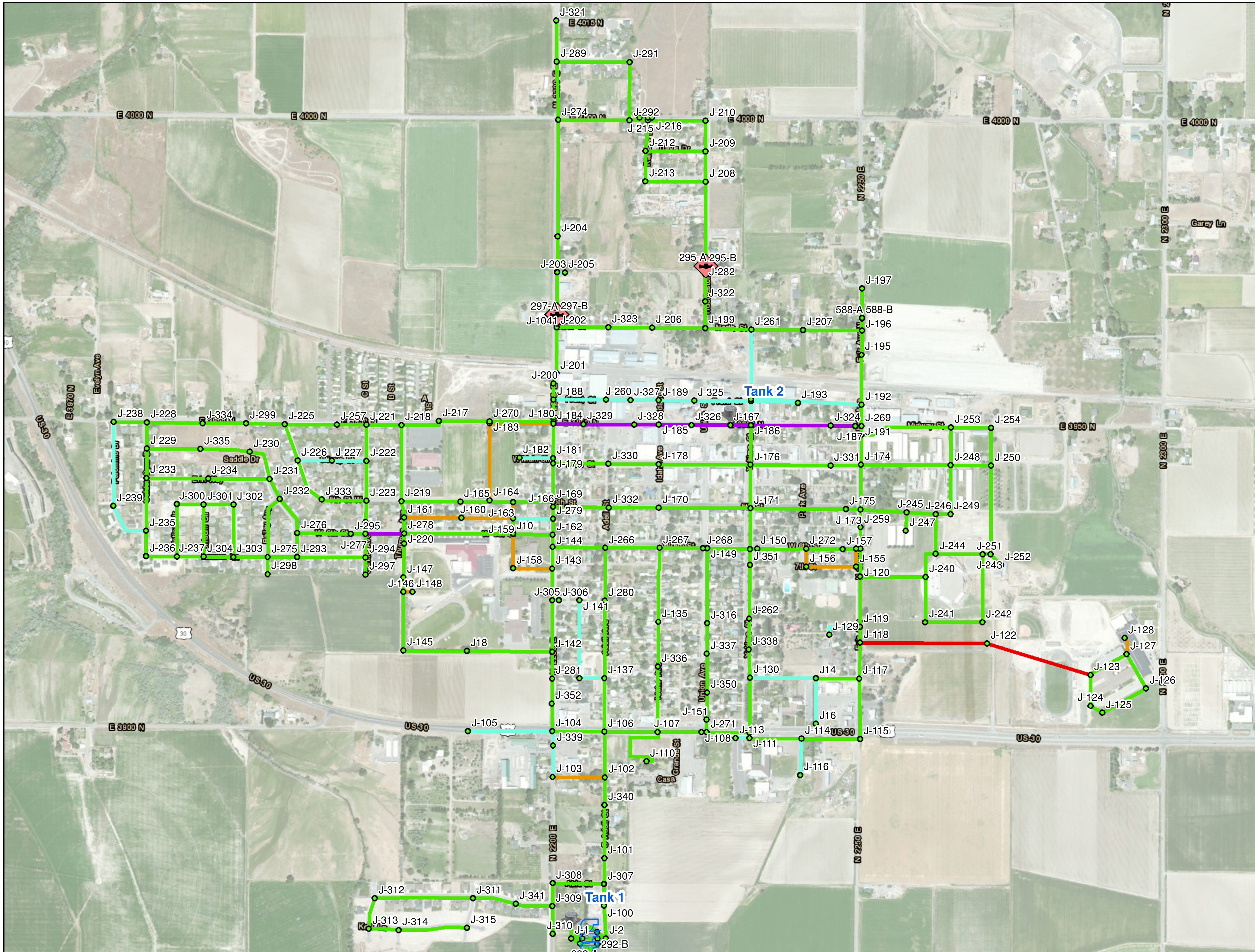
The hydraulic model used to analyze the City's water system was Infowater, a software package produced by Innovyze. The model is a graphical interface water modeling system that enables the user to input water system data into a database, and combine the data with GIS maps of a community to produce a functioning water model.

Figure 5-1 shows the existing distribution piping, nodes, tanks, and pressure reducing valve stations. The tanks are filled from the wells and booster pumps pump water out of the tanks into the system. Tank 1 is currently filled from the booster pumps at tank 2.

A count of all houses, business and miscellaneous other water users were compiled from aerial verification. Water meter readings were analyzed and water demand was distributed proportionally to each junction node based on the house count in that area. Pump station flow data was used to estimate flows and peaking factors for low (winter), maximum day and peak hour flows were applied to the junction demands in the model.

As previously discussed, the existing average day flow was determined from water records as approximately 403 gpm (580,320 gpd). Because the City operates a system that supplies both domestic and irrigation water, the peaks associated with the maximum day are significant. The maximum day flow was determined in Chapter 4 with a peak of 2.5 resulting in a peak day flow of 1,009 gpm (1,452,960 gpd). The third hydraulic factor used in analysis of the water system was the peak hour factor. The peak hour flow was established in Chapter 4 with a peaking factor of 3.75 times the average flow. This resulted in a peak hourly flow of approximately 1,513 gpm.

Filer Water Masterplan
Existing Facilities



N
W
E
S

Legend

- PRV
- Tank
- Pump
- 4 inch
- 6 inch
- 8 inch
- 10 inch
- 12 inch
- 14 inch

J·U·B ENGINEERS, INC.

THE LANGDON GROUP a J·U·B Company

GATEWAY MAPPING INC. a J·U·B Company

OTHER J·U·B COMPANIES

0 400 800 Feet

1 inch = 800 feet

Figure 5-1

The next part of the City's water system examined were the wells, booster pump stations, and pressure reducing stations. Well data was compiled from City records and the Idaho Department of Water Resources (IDWR). Pump curves for each of the well pumps and booster pumps were compiled or estimated. These curves were used in conjunction with assumed efficiencies to estimate well production for the existing system. Since the wells pump directly to the City's reservoirs, where the water is subsequently boosted into the distribution system, the wells were not modeled in the computer simulation. During peak flow periods, the tank will supply the system with water, and will fill during periods of lower demand.

5.5.4 Model Calibration

To calibrate the model, City personnel were consulted to discuss pressures in varying areas of town and the model matched their descriptions. The pressure in the model were also compared to fire hydrant tests that were performed in 2013. It should be noted that some variation between actual and predicted values occurred because of the inability to control all system parameters in actual field tests, and the inability to accurately read the pressure gauges due to their wide range of values. Once the model was calibrated, it was used to analyze the existing system to determine potential problems areas within the community. The model was then used to analyze the water system based on future growth projections. Of particular interest were areas in which the water system will need to be upgraded to handle the increasing demands of growth.

5.5.5 Distribution System Evaluation and Results

Peak Hour Result

Figure 5-2 shows the results for running the model under peak hour conditions. The figure shows red nodes below 40 psi. The Figure indicates a few areas on the south end of town do experience pressures less than 40 psi as required by IDAPA 58.01.08 Part 552.

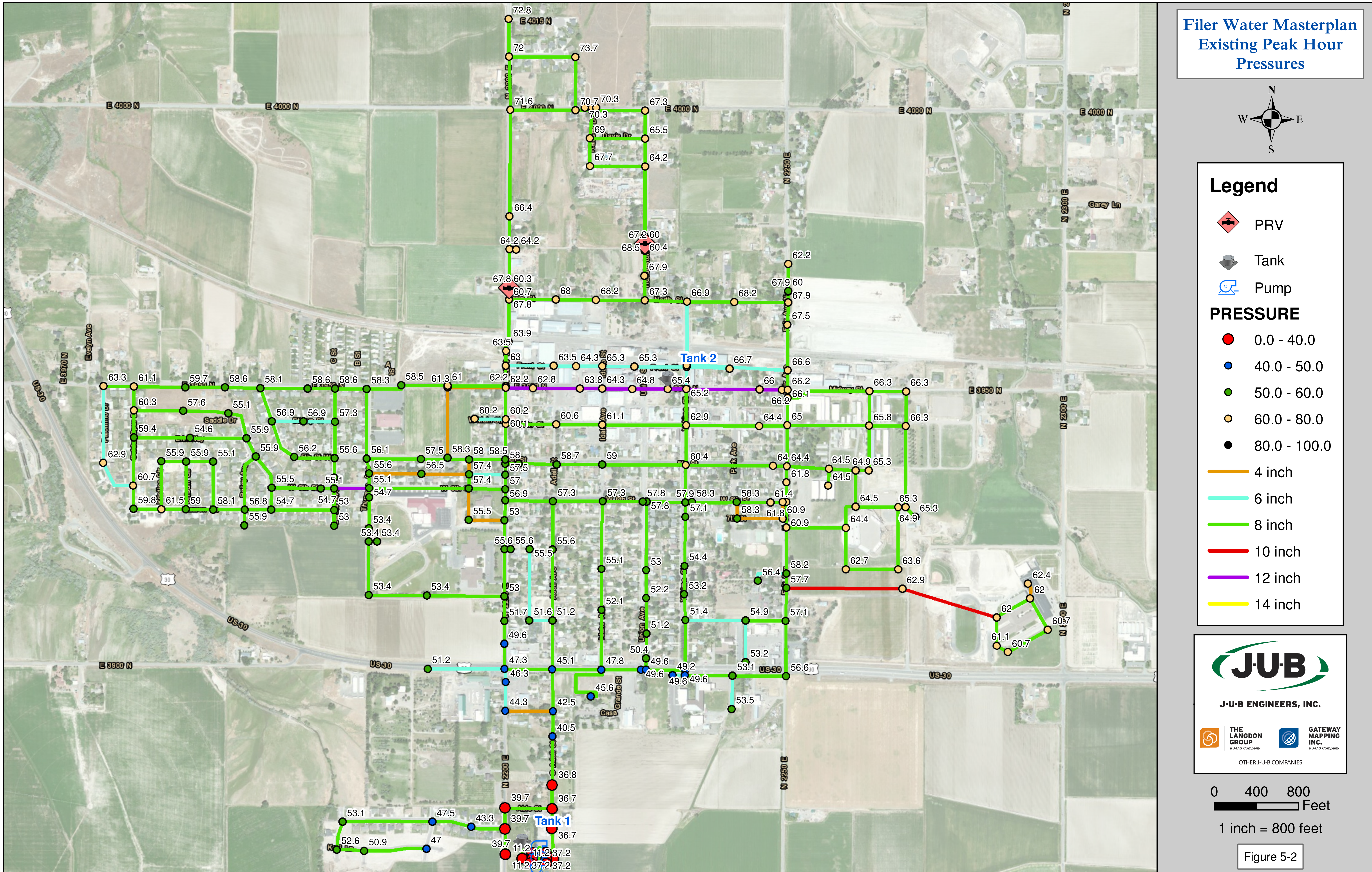
Fire Flow Results

Fire flow was analyzed at 1,000 gpm at all nodes in the system (separately) and at the locations identified in Chapter 4 by the ISRB. Table 5-3 shows the recommended fire flow and the available fire flow with 20 psi residual pressure at several larger users.

TABLE 5-3. FIRE FLOW ANALYSIS

Location	ISRB	Fire Flow Available at 20 psi	
		Largest pump out of service at both BPS#1 and BPS#2[1]	All pumps in service at both BPS#1 and BPS#2[2]
Everton Mattress Factory	5,000 gpm	2,070 gpm	3,589 gpm
Magic Valley Livestock Feed	4,000 gpm	2,141 gpm	4,278 gpm
Twin Falls County Fair	3,500 gpm	2,144 gpm	4,256 gpm
Snake River Metal	3,500 gpm	2,144 gpm	4,256 gpm
Filer Elementary	5,000 gpm	2,064 gpm	3,927 gpm
Filer Middle School	3,000 gpm	2,051 gpm	3,604 gpm
Filer High School	1,500 gpm	1,903 gpm	2,068 gpm

1. BPS#1 = 850 gpm, BPS#2 = 1,600 gpm.
2. BPS#1 = 1,650 gpm BPS#2 = 3,600 gpm.



Filer Water Masterplan
Existing Peak Hour Pressures
N
W
E
S
Legend
PRV
Tank
Pump
PRESSURE
0.0 - 40.0
40.0 - 50.0
50.0 - 60.0
60.0 - 80.0
80.0 - 100.0
4 inch
6 inch
8 inch
10 inch
12 inch
14 inch
J-U-B
J-U-B ENGINEERS, INC.
THE LANGDON GROUP
GATEWAY MAPPING INC.
OTHER J-U-B COMPANIES
0
400
800
Feet
1 inch = 800 feet
Figure 5-2
Tank 1
Tank 2
E 4000 N
E 3950 N
E 3900 N
US-30
N 2200 E
N 2250 E
N 2300 E

In addition to the large fire demands (Table 5-3), two residential nodes (J-314 and J-315 near Tank #1) have estimated fire flows less than 1,000 gpm. Distribution system pressures at the existing peak hour demand, as computed by the water model, are summarized in a table in Appendix N. Figure 5-1 shows the junction names to match the table in Appendix N.

5.6 PRESSURE ZONES

The City has separated the system into two pressure zones through the use of two pressure reducing stations located along Huddleston Road and Stevens Avenue. Pressure reducing valves act to reduce distribution system pressures on the north end of town (North Pressure Zone). Pressure on the south end of town (South Pressure Zone) is maintained by the booster pumps.

5.7 CONTROL SYSTEM

The existing SCADA system was installed in 2000 to replace an antiquated system that had been installed in 1984. As part of the 2002 water system improvements, the SCADA system was upgraded to provide control of the new system components (i.e., Well #7, Storage Tank #2, Booster Pump Station #2, etc.). The SCADA system control center is located in Booster Pump Station #2. According to City personnel, the SCADA system has operated satisfactorily to date with no significant problems. The City is currently working on some programming updates but they will incorporate these costs into their water system maintenance budget.

5.8 BACKUP POWER SUPPLY

The City currently have standby generators that provide backup power to Booster Pump Station #1, Well #1, Well #2, and Booster Pump Station #2. Idaho DEQ issued a drinking water rule interpretation for standby power in 2006. The rule "*requires standby power sufficient to maintain distribution pressure standards and supply flow equal to average day demand for a period of eight hours, including fire flow where provided. If a system has elevated storage sufficient to meet this criterion, no standby power would be required*." The City currently meets the intent of this rule because it has made provisions for emergency storage at the water tanks. However, the City does feel that installation of a backup generator at Well #3/#7 would be a good investment even though it is not required.

5.9 WATER QUALITY

5.9.1 General Water Quality

Regulatory statutes require the City to routinely sample the water supply for various water quality parameters. These parameters include nitrates, inorganic constituents, pesticides, polychlorinated biphenols (PCBs), volatile organic compounds (VOCs), lead and copper, and radiological constituents. Historical water quality data has been compiled for the City's drinking water wells and is summarized in Appendix O. A review of the data indicates that most of the constituents currently monitored are within the recommended State and Federal drinking water standards. In addition, according to City personnel, there have been no persistent customer complaints regarding the water quality.

Table 5-4, below, summarizes the general water quality data for the system based on analysis of water samples from 2004-2013. The table shows Primary IOCs, Secondary IOCs, VOCs, nitrate, and nitrite.

TABLE 5-4. WATER QUALITY: IOCS, VOCS, NITRATE, AND NITRITE

Parameter		Units	Summary Statistics			MCL	Exceeds MCL?
			No. (N)	Average	Max		
Primary IOCs							
	Antimony	mg/L	4	0.005	0.005	0.006	No
	Arsenic	mg/L	See Detailed Arsenic Analysis Section				
	Barium	mg/L	15	0.024	0.024	2.0	No
	Beryllium	mg/L	4	0.0005	0.0005	0.004	No
	Cadmium	mg/L	9	ND	ND	0.005	No
	Chromium	mg/L	9	0.002	0.003	0.1	No
	Mercury	mg/L	9	ND	ND	0.002	No
	Nickel	mg/L	5	0.11	0.11	-	No
	Selenium	mg/L	9	0.002	0.002	0.05	No
	Thallium	mg/L	4	ND	ND	0.002	No
	Fluoride	mg/L	10	1.02	1.49	4.0	No
Secondary IOCs							
	Chloride	mg/L	12	126	341	250	**Yes** [1]
	Iron	mg/L	6	0.19	0.30	0.30	No
	Manganese	mg/L	6	ND	ND	0.05	No
	Dissolved Solids	mg/L	13	595	1030	500	**Yes** [1]
	Hardness (as $CaCO_3$)	mg/L	1	274	274	-	No
	Lead	mg/L	28	0.002	0.005	0.015	No
	Copper	mg/L	22	0.10	0.65	1.3	No
	Sulfate	mg/L	6	121	133	250	No
	Sodium	mg/L	12	58	81	-	No
VOCs		mg/L	5	ND	ND	0.08	No
Nitrate (as N)		mg/L	52	2.8	4.9	10	No
Nitrite (as N)		mg/L	7	ND	ND	1.0	No

1. 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.
2. ND = Non-Detect
3. Data from 2004-2013

Table 5-5, below, summarizes the radiological results for the water system based on data collected from 2001-2012. The water supply meets the MCL for all of the radiological constituents.

Table 5-5. Water Quality: Radiological Constituents

Contaminant Name	Units	Average of Result	Max of Result	# of Records	MCL
Beta/Photon Activity	pCi/L	8.8	8.8	1	4[1]
Gross Alpha Activity	pCi/L	7.3	10.7	10	15
Radium 226	pCi/L	0	0	9	5 combined
Radium 228	pCi/L	0	0	1	5 combined
Uranium, Combined	pCi/L	0.008	0.013	6	15
	ug/L	7.85	7.85	1	30

1. MCL reported in millirems/year and the result is in picoCuries/liter. The sample only needs to be analyzed further if the result is greater than 50 picoCuries/liter.
2. Data from 2001-2012

Chlorination of drinking water supplies has the potential to introduce disinfection byproducts into the system. Table 5-6, shown below, summarizes the DBP data for the years 2011-2012. The water supply is well under the MCL for the disinfection byproducts.

Table 5-6. Water Quality: Disinfection Byproducts

Sampling Location	Units	Haloacetic Acids MCL = 60 µg/L	Trihalomethanes MCL = 80 µg/L
112 Fair Ave	µg/L	6.6	31.4
170 Fair Ave	µg/L	6.8	31.4
1701 West Midway	µg/L	7.0	41.2
2212 Alexander Dr	µg/L	6.4	39.5
905 Creekside	µg/L	7.8	47.7
Filer High School	µg/L	8.7	57.9
Storage Tank #2	µg/L	-	22.4

1. Data from 2011-2012

5.9.2 Arsenic

As discussed in the 2002 Master Plan, EPA published a rule in the Federal Register on January 22, 2001 establishing a new primary drinking water standard for arsenic. The rule reduced the MCL for arsenic from 50 µg/L to 10 µg/L. The rule also established a compliance date for the new arsenic MCL of January 23, 2006 for community water systems.

Historical total arsenic concentrations in the City's wells have been compiled for comparison to the new standard. This data is shown below in Figure 5-1. The data indicates:

- Each of the wells have had multiple arsenic samples test higher than 10 µg/L.

- Wells #1, #2, and #5 generally have total arsenic concentrations higher than the new MCL. Arsenic levels in these wells have historically ranged from 5 to 25 µg/L with average concentrations typically between 12 and 17 µg/L.

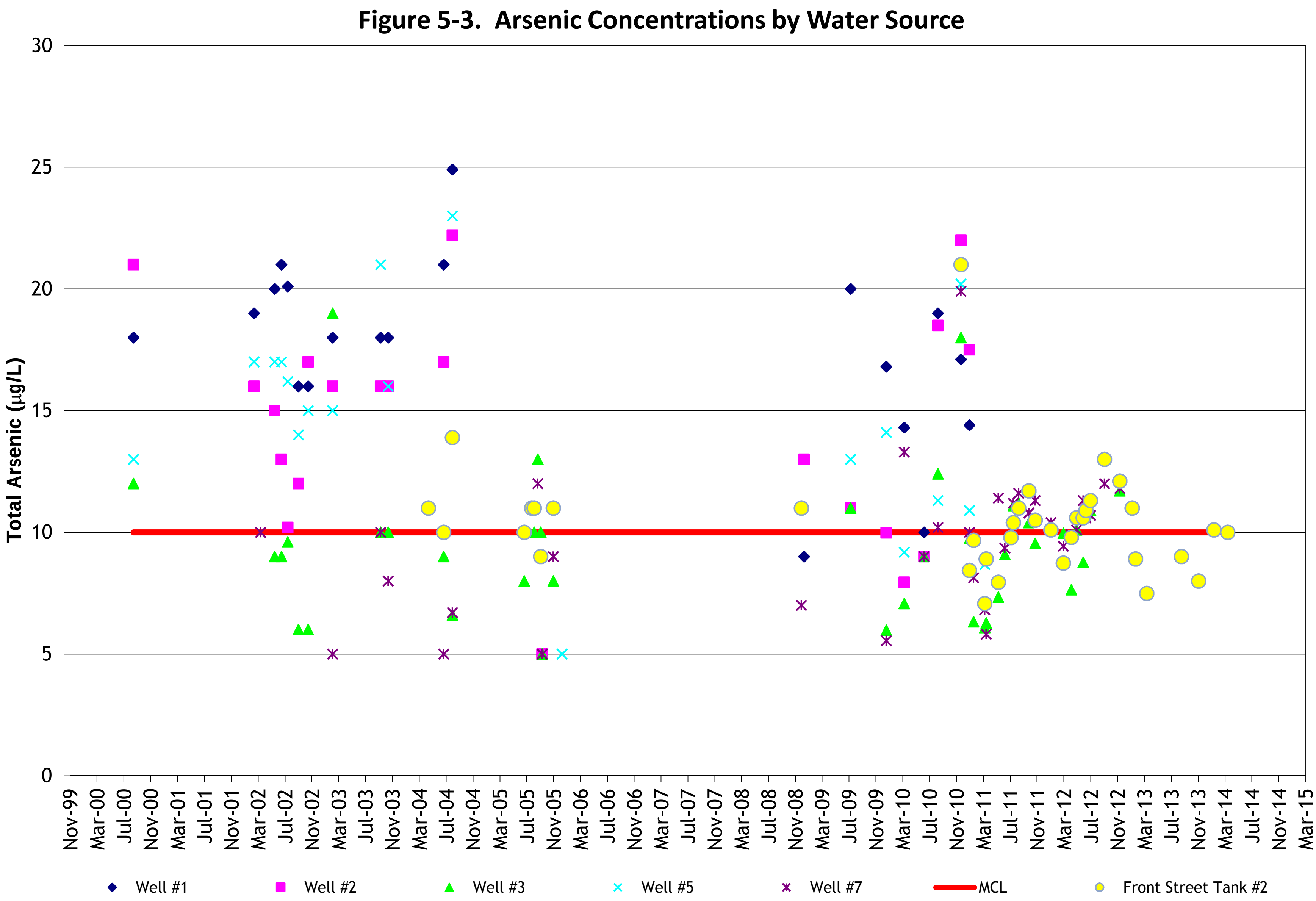


Figure 5-3. Arsenic Concentrations by Water Source
Total Arsenic (µg/L)
30
25
20
15
10
5
0
Nov-99
Mar-00
Jul-00
Nov-00
Mar-01
Jul-01
Nov-01
Mar-02
Jul-02
Nov-02
Mar-03
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Nov-05
Mar-06
Jul-06
Nov-06
Mar-07
Jul-07
Nov-07
Mar-08
Jul-08
Nov-08
Mar-09
Jul-09
Nov-09
Mar-10
Jul-10
Nov-10
Mar-11
Jul-11
Nov-11
Mar-12
Jul-12
Nov-12
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Well #1
Well #2
Well #3
Well #5
Well #7
MCL
Front Street Tank #2

- Well #3 arsenic concentrations have typically hovered around the MCL with an average arsenic concentration of 9.6 µg/L based on samples collected from 2002 to 2012. Historical arsenic concentrations in Well #3 have ranged from <5 to 18 µg/L.

- Well #7 arsenic concentrations have typically hovered around the MCL with an average arsenic concentration of 9.7 µg/L based on samples collected from 2002 to 2012. Historical arsenic concentrations in Well #3 have ranged from <5 to 20 µg/L.

- Since 2012 the City has only sampled at Storage Tank #2. Based on 7 samples between January 2013 and April 2014, the average arsenic concentration at the storage tank has been 9.2 µg/L. Over this same time period, arsenic concentrations have ranged from 7.5 to 11.0 µg/L.

- There are no apparent long-term or seasonal trends up or down in data.

The arsenic data was also graphed based on an annual average concentration, which is how compliance with the arsenic rule is defined. Figure 5-2 shows the annual average concentrations for the primary Wells #3 and #7 and also the sampling from Water Storage Tank #2. Again, the data clusters around the MCL of 10 µg/L. The data suggests that it will be difficult for the City to reliably and consistently meet the arsenic MCL both now and into the future using its existing, untreated water sources.

5.9.2.1 Arsenic Speciation for Potential Treatment

Both organic and inorganic arsenic forms may be found in natural waters; although, inorganic arsenic is typically predominant. The valence and species of inorganic arsenic are dependent on the oxidation-reduction potential and pH of the natural water. In general, arsenite (As+3) is commonly found in reduced or anaerobic conditions (i.e., groundwater) and arsenate (As+5) is typically found in oxidized or aerobic conditions (i.e., surface water). The valence and species of arsenic in a water supply is critical because most treatment technologies are more effective at removing arsenate than arsenite. The City has tested several of their wells for arsenic speciation, as summarized in Table 5-7. The samples that were analyzed for arsenic speciation were collected prior to chlorine addition.

TABLE 5-7. ARSENIC SPECIATION

Arsenic Species	Units	Well #1		Well #2		Well #3	Well #5	
		Jul-30-02	Aug-16-04	Jul-30-02	Aug-16-04	Jul-30-02	Jul-30-02	Aug-16-04
Arsenate (As^{+5})	µg/L	<1	7.6	<1	4.8	<1	<1	2.9
Arsenite (As^{+3})	µg/L	10	17.3	10	17.4	9	16	20.1

As expected in a reduced groundwater environment, most of the arsenic from the City's wells is in the arsenite valence state. This indicates that pretreatment to oxidize the arsenite to arsenate may be necessary for effective removal.

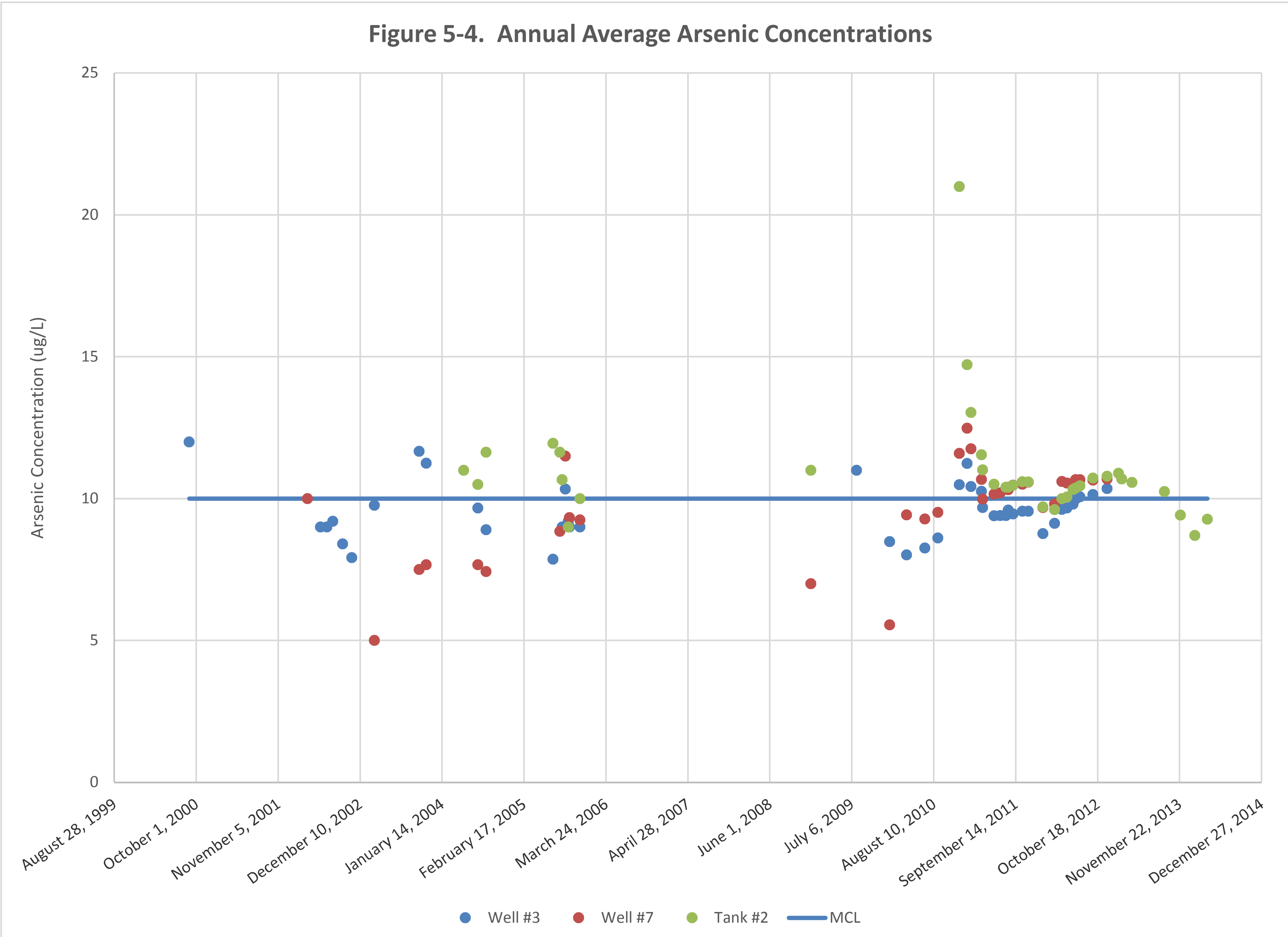


Figure 5-4. Annual Average Arsenic Concentrations
Arsenic Concentration (ug/L)
0
5
10
15
20
25
August 28, 1999
October 1, 2000
November 5, 2001
December 10, 2002
January 14, 2004
February 17, 2005
March 24, 2006
April 28, 2007
June 1, 2008
July 6, 2009
August 10, 2010
September 14, 2011
October 18, 2012
November 22, 2013
December 27, 2014
Well #3
Well #7
Tank #2
MCL

5.9.2.2 Other Water Quality Parameters

The City has also sampled each of their wells for various other water quality parameters. Several of these parameters are critical in evaluating arsenic treatment technologies (i.e., pH, silica, sulfates, TDS, alkalinity, etc.). A summary of these parameters, as well as several others, can be found in Appendix O.

Chapter 6

Development and Screening of Improvements

6.0 DEVELOPMENT AND SCREENING OF IMPROVEMENTS

6.1 WATER SUPPLY

6.1.1 "Do-Nothing"

As discussed in Chapter 5, the City has adequate redundancy in their water supply to meet the demands for the next 20 years even if their largest well goes out of service. The wells are operating satisfactorily and no new sources or upgrades are anticipated for the foreseeable future.

6.2 WATER STORAGE

6.2.1 "Do-Nothing"

No new water storage is required for the drinking water system during the 20-year planning period. However, it has been noted that Tank #1 is leaking and should be repaired. The City estimates the leak to be less than 5 gpm. If the leak is not repaired the structural integrity of the tank could become affected.

6.2.2 Structural Assessment and Repair Leak at Tank #1

6.2.2.1 Description of Option

The City has some quotes for divers to repair the leak from the inside. This cost will be part of future maintenance budgets and was not considered as part of this Master Plan.

6.3 BOOSTER PUMP STATIONS

6.3.1 "Do-Nothing"

The booster pump stations appear to be operating satisfactorily and no upgrades are anticipated for the foreseeable future.

6.4 DISTRIBUTION SYSTEM

6.4.1 "Do-Nothing"

The city currently does not meet the Idaho state standards for minimum pressures, which is 40 psi, during the maximum day and peak hour demand scenarios in all locations of the distribution system. As future growth occurs in the Pierce subdivision and other areas within the system, the pressures in the system will continue to decrease. In addition there are a few areas that have fire flows lower than the values recommended by ISRB and IDAPA.

6.4.2 Distribution System Improvements

6.4.2.1 Description of Option

Table 6-1 show the recommended projects to be completed to fix the existing deficiencies that exist in the city's water system.

Table 6-1. Proposed Project List

Problem	Location	Solution	Projects
Pressures less than 40 psi during peak hour scenario; in-adequate fire flow at Nodes J-314 and J-315	Adell St south of HWY 30; 2200 East near Tank 1	Create new pressure zone	1) Install 1,120 LF of 10" pipe dedicated feed line to tank 1 2) New PRV station south of HWY 30 3) New VFD pump at tank 1 4) Install 10" flow control valve and tie into SCADA system
Minimum pressure (20 psi) during fire flow not met	Filer Elementary School	Create 8" loop through intersection; add BPS capacity	1) Install 450 LF of 8" Pipe 2) Install 1,600 gpm (100 Hp) pump in spare slot in BPS#2.[1]
Minimum pressure (20 psi) during fire flow not met	Everton Mattress Factory	Install new pipe along 2200 East from Midway to North street; add BPS capacity	1) Install 845 LF of 10" Pipe 2) Install 1,600 gpm (100 Hp) pump in spare slot in BPS#2. [1]

1. Meets fire flow with all pumps in service, does not meet the full redundant flow capacity of 58.01.08.18.

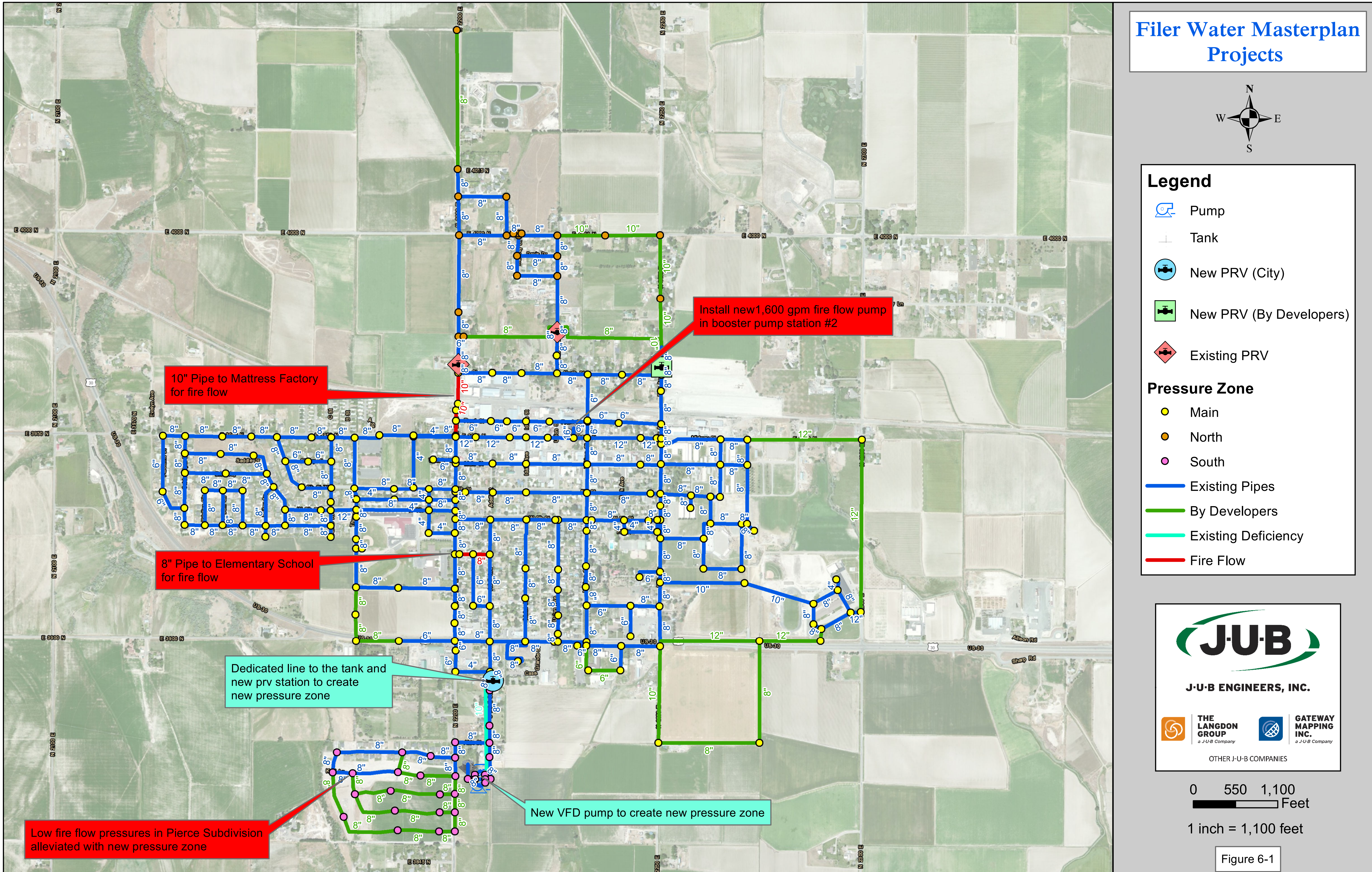
Figure 6-1 shows the existing deficiency projects for fire flow, existing deficiency projects for distribution, and future projects for a 20 year growth projection. The future growth is an estimate and will have to be revisited with growth patterns. It is assumed the future growth projects would be needed with new development and would be funded by that new development.

6.4.2.2 Opinion of Probable Capital Costs

The costs associated with the creation of a new south pressure zone are shown on below in Table 6.2.

Table 6-2. Opinion of Probable Cost – South Pressure Zone

Item	Quantity	Units	Unit Price	Total Costs
New VFD on Tank 1 Pump	1	LS	$45,000.00	$45,000
10" Direct feed line to Tank 1	1,120	LF	$60.00	$67,000
New PRV South of HWY 30	1	LS	$60,000.00	$60,000
Install 10" flow control valve	1	LS	$20,000.00	$20,000
			Sub-Total Construction Costs	**$192,000**
			Contractor Mob/Demob (5%)	$10,000
			Buy American Provisions (5%)	$10,000
			Davis-Bacon Wages (5%)	$10,000
			Contingencies (20%)	$38,000
			Total Construction Costs	**$260,000**
			Engineering & Const. Mngt. (17.5%)	$46,000
			Funding, Legal, Admin, Bonding (10%)	$26,000
			Total Project Capital Costs	**$332,000**



Filer Water Masterplan Projects
N
W
E
S
Legend
Pump
Tank
New PRV (City)
New PRV (By Developers)
Existing PRV
Pressure Zone
Main
North
South
Existing Pipes
By Developers
Existing Deficiency
Fire Flow
Install new1,600 gpm fire flow pump in booster pump station #2
10" Pipe to Mattress Factory for fire flow
8" Pipe to Elementary School for fire flow
Dedicated line to the tank and new prv station to create new pressure zone
New VFD pump to create new pressure zone
Low fire flow pressures in Pierce Subdivision alleviated with new pressure zone
J-U-B
J-U-B ENGINEERS, INC.
THE LANGDON GROUP a J-U-B Company
GATEWAY MAPPING INC. a J-U-B Company
OTHER J-U-B COMPANIES
0 550 1,100
Feet
1 inch = 1,100 feet

Figure 6-1

The costs associated with fire flow improvements are shown on below in Table 6.3.

TABLE 6-3. OPINION OF PROBABLE COST – FIRE FLOW IMPROVEMENTS

Item	Quantity	Units	Unit Price	Total Costs
Install 8" Pipe in front of Elementary School	450	LF	$40.00	$18,000
Install 10" Pipe along 2200 East	845	LF	$55.00	$46,000
Install 1,600 gpm 100 Hp pump at BPS#2	1	LS	$40,000	$40,000
			Sub-Total Construction Costs	**$104,000**
			Contractor Mob/Demob (5%)	$5,000
			Buy American Provisions (5%)	$5,000
			Davis-Bacon Wages (5%)	$5,000
			Contingencies (20%)	$21,000
			Total Construction Costs	**$140,000**
			Engineering & Const. Mngt. (17.5%)	$25,000
			Funding, Legal, Admin, Bonding (10%)	$14,000
			Total Project Capital Costs	**$179,000**

6.4.2.3 Opinion of Probable Annual O&M Costs

There are no significant operation and maintenance cost changes associated with the proposed distribution system improvement projects.

6.5 DISINFECTION SYSTEMS

6.5.1 "Do-Nothing"

The City's disinfection systems appear to be operating satisfactorily. Disinfection time meets state requirements and the chlorine residual is monitored throughout the distribution system. Therefore, no improvements are anticipated for the foreseeable future.

6.6 BACK-UP POWER SYSTEMS

6.6.1 "Do-Nothing"

The City currently have standby generators that provide backup power to Booster Pump Station #1, Well #1, Well #2, and Booster Pump Station #2. The City would not be able to use Well #3 or Well #7 in the event of a power outage.

6.6.2 Back-Up Power System Improvements

6.6.2.1 Description of Option

Although not required by IDAPA regulations, the City may want to consider installing a dedicated backup generator at Well #3/#7 as these wells provide the vast majority of the City's water supply on an annual basis.

6.6.2.2 Opinion of Probable Capital Costs

It is estimated that installation of a standby generator at Well #3/#7 would cost approximately $100,000.

6.6.2.3 Opinion of Probable Annual O&M Costs

The generator would be cycled on and off throughout the year but it is anticipated that additional annual O&M costs would be negligible.

6.7 WATER QUALITY

6.7.1 "Do-Nothing"

The City is in compliance with most general water quality parameters. However, the data indicates that it may be difficult for the City to consistently and reliably meet the arsenic MCL of 10 µg/L both now and into the future using its existing, untreated water sources. Doing nothing would put the City at risk of increased attention from IDEQ and potential fines if the water system is unable to comply with the arsenic MCL on an annual basis. This mitigation alternative will not be investigated further.

6.7.2 Arsenic Mitigation Alternatives

Potential mitigation strategies that are available to the City for complying with the arsenic MCL include:

6.7.2.1 Abandon Sources

This approach involves abandoning sources with arsenic concentrations above the MCL. For this option to be practical, the City must have adequate supply without the abandoned sources or be able to develop additional sources that meet the MCL. In the City of Filer's case, it appears that this strategy is not feasible since: (1) current supply from all of the wells may be necessary to meet future water demands and (2) new sources with arsenic levels below the MCL are not readily available (as discussed below). This mitigation alternative will not be investigated further.

6.7.2.2 Develop New Sources

This option involves developing new ground or surface water sources with arsenic levels less than the new MCL. In general, groundwater in the Filer area has arsenic concentrations greater than the standard as evidenced by data from the surrounding communities (i.e., Twin Falls, Buhl, and Castleford) and several USGS monitor wells in the area. As such, it appears that the City would be unlikely to develop a new groundwater source that can consistently and reliably produce water with arsenic levels less than the MCL. Surface water sources in the area include Cedar Draw Creek and minor irrigation laterals. However, these surface water sources do not appear to be viable at this time due to limited quantities, water rights issues, fluctuations and reliability in supply, and high costs to treat and transmit the water. This mitigation alternative will not be investigated further.

6.7.2.3 Blending

This scenario involves mixing a water source that has an arsenic level less than the MCL with a source that has an arsenic level higher than the MCL to produce a blended supply with an arsenic concentration below the new standard. The blending ratios must include enough high quality water (i.e., low arsenic) to offset the lower quality (i.e., high arsenic) water. Review of the lower quality wells suggest a better quality well would need to have arsenic concentrations consistently below 5-7 µg/L. There have been times that Well #7 and Well #3 have been in the 5-7 µg/L range. However there are also times those wells have been measured above that range. Given that none of the City's wells are consistently and reliably below 7 µg/L, it appears that blending between the wells is not a practical strategy. This mitigation alternative will not be investigated further.

6.7.2.4 Regional Water Systems

The City could join with one or more surrounding communities that have a water supply with arsenic levels less than the new MCL. However, the communities nearest to the City typically have groundwater sources with arsenic levels higher than the standard. Additionally, due to continued drought conditions and changing irrigation practices in the area, these communities may be experiencing declining supplies and typically do not have a sufficient quantity of water to meet Filer's demands. The distances between these communities would also require large pump stations and transmission lines, resulting in substantial costs. As such, it appears that a regional water system is not a viable alternative. This mitigation alternative will not be investigated further.

6.7.2.5 Use of Back-up Wells

In February 1994, IDEQ established a policy that back-up wells are not required to monitor for inorganic contaminants, including arsenic, unless they present a possible acute health concern. A back-up well is defined as a well that contributes water to a public water system less than 60 days per year. For this strategy, the City wells with arsenic levels consistently higher than the new MCL (i.e., Wells #1, #2, and #5) would be designated as back-up wells and used for less than 60 days per year. These wells would only be operated during peak demand periods or during emergency and maintenance situations. Wells #3 and #7 would be used as the primary sources to meet demand throughout the year. This option would rely on maintaining a running annual average arsenic concentration of less than the new MCL. Although Wells #3 and #7 typically have lower arsenic concentrations than the other wells, it cannot be guaranteed that these two wells can reliably and consistently meet the MCL based on the running annual average. This option is essentially the way the City has operated since the revised arsenic standard was established in 2001; continued operation in this manner is investigated further in this report.

6.7.2.6 Well Treatment

This option involves treating the water from the City wells to yield a supply with arsenic levels lower than the MCL. Treatment may occur either at the wellhead or at a centralized facility. This strategy is explored further in this report.

6.7.2.7 Point of Use Treatment

Point-of-use (POU) treatment devices are located on a single tap in a home or business (i.e., "under the sink"). These devices usually consist of IX or RO treatment processes and treat only the water that is directly consumed (i.e., water for drinking and cooking). IDAPA 58.01.08 Part 450 defines the requirements for POUs to meet a MCL. The requirements are quite significant including having a plan for long term operation and maintenance, having the utility own each device, and getting department approval. All of the water system customers must agree to properly use the devices and allow the City access for maintenance. As such, POU treatment systems are typically only applicable and cost-effective for relatively small water systems. Due to the relatively large number of connections, accessibility issues for maintenance, homeowner compliance and agreement concerns, costs, and regulatory acceptance issues, POU treatment devices were not investigated in this report.

6.7.3 Use of Back-up Wells

6.7.3.1 Overview of this Alternative

IDEQ's 1994 policy for monitoring of back-up wells states the following:

- A well is categorized as a back-up well if it contributes water to a public water system for less than 60 days per year.

- Back-up wells are not required to monitor for inorganic contaminants (other than nitrate and nitrite) unless there is a possibility of an acute health risk.

IDEQ has indicated that this policy is applicable to compliance monitoring for arsenic. In other words, back-up wells that pump to a public water system for less than 60 days per year are not required to monitor for arsenic unless an acute health risk exists. EPA stated in the new arsenic rule (Federal Register 66 FR 6976) that acute exposures to arsenic do not occur in water supplies that meet the old MCL of 50 μg/L. Since all of the City's existing wells have arsenic levels less than 50 μg/L, it is anticipated that an acute health risk is not likely.

Under this option, the City would categorize those wells with arsenic concentrations consistently higher than the new MCL as back-up wells (i.e., Wells #1, #2, and #5). Wells #3 and #7 would be designated as the City's primary water supply wells. The back-up wells would each be used for less than 60 days per year during peak demand periods, emergencies (fires), and/or when Wells #3 and #7 are taken off-line for maintenance.

As previously discussed, Wells #3 and #7 have both had several samples that tested for arsenic at levels higher than the new standard. However, compliance with the arsenic regulations is not necessarily based on a single sample, but rather on the running annual average of quarterly samples. A single sample result higher than the MCL is an exceedance of the standard, but not necessarily a violation. Figure 6-2 shows a flow-diagram outlining the steps to determine compliance with the revised MCL.

As shown in the flow diagram, this alternative is based on maintaining a running annual average arsenic concentration in Wells #3 and #7 of less than 10 μg/L. However, recent sampling data has indicated that these wells may not be able to reliably and consistently achieve this.

Table 6-4 outlines several example calculations of a running annual average. If a single sample exceedance of the MCL does occur, a water system is not in violation until the end of the quarterly sampling or if a single sample during the quarterly monitoring would cause the running annual average to exceed the MCL.

Figure 6-2. Arsenic Compliance Determination Flow Chart

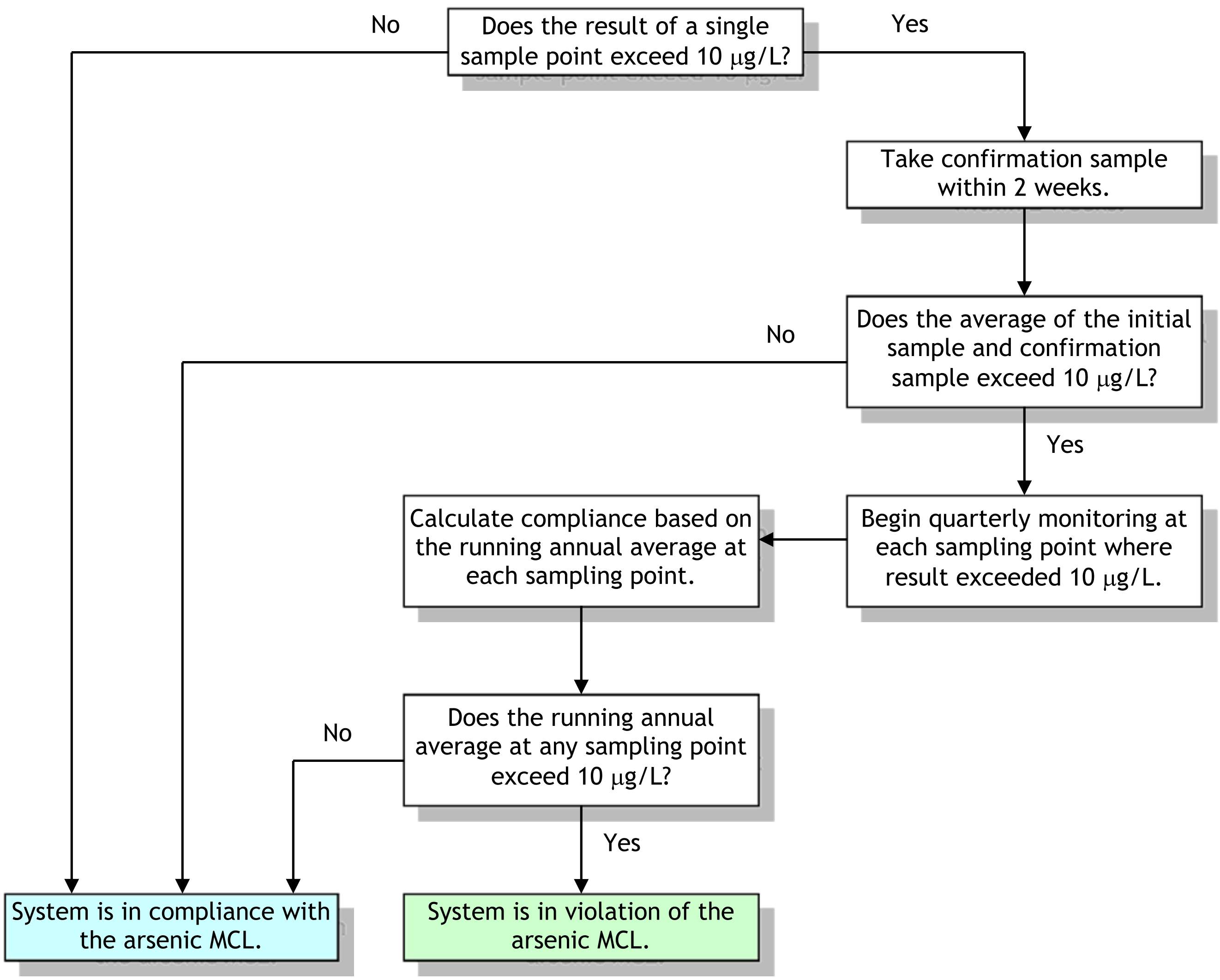


TABLE 6-4. EXAMPLE CALCULATIONS OF RUNNING ANNUAL AVERAGE

Quarterly Sample		Sample Type	Arsenic Concentration (µg/L)		
			Scenario 1	Scenario 2	Scenario3
1st Quarter	Jan-15 Feb-15	Compliance Confirmation	11.0 7.0 } 9.0	12.0 10.0 } 11.0	12.0 10.0 } 11.0
2nd Quarter	May-15	Compliance	N/A	11.0	11.0
3rd Quarter	Aug-15	Compliance	N/A	8.0	8.0
4th Quarter	Nov-15	Compliance	N/A	6.0	13.0
Running Annual Average			**9.0**	**9.0**	**10.8**
Violation of MCL?			**No**	**No**	**Yes**

If Wells #3 and #7 are able to reliably comply with the arsenic MCL, they must also be able to supply sufficient water to meet the demand most of the time. Wells #1, #2, and #5 could provide supplemental water for up to 60 days during peak demand periods. Figure 4-5 compares the supply from various wells to the projected water demand over the 20-year planning period. The data in the figure indicates:

- Well #3 by itself provides sufficient supply (1,100 gpm) to meet the average day demand for the 20-year planning period. However, during peak demand periods (May to September), the flow is not adequate to meet the maximum day demand without additional supply from Wells #1, #2, and/or #5.

- The combined supply from Wells #1, #2, #3 and #5 is approximately 1,650 gpm. Since Wells #1, #2, and #5 would be categorized as back-up wells, this flow could only be pumped for up to 60 days per year. This is a sufficient amount of water to meet the maximum day demand over the 20-year planning period.

- The supply from Well #7 (2,000 gpm) is capable of meeting the maximum day demand over entire the 20-year planning period.

Implementing water conservation practices and/or expanding the secondary pressure irrigation system will most likely reduce potable water demand and allow the City to use Wells #3 and #7 as the primary sources for a longer period of time.

Relative advantages and disadvantages of categorizing Wells #1, #2, and #5 as back-up wells and using Wells #3 and #7 as the primary water sources are summarized in Table 6-5.

TABLE 6-5. RELATIVE ADVANTAGES AND DISADVANTAGES OF BACK-UP WELLS

Advantages	Disadvantages
• Does not require treatment. • Relatively low capital and O&M costs. • Simplicity. • Implementing conservation measures and/or a pressure irrigation system may extend useful life.	• Uncertainty of whether the running annual average arsenic concentration from Wells #3 and #7 will be less than the MCL. • Wells #1, #2, and #5 can only be used 60 days. • Back-up well definition based on IDEQ policy – not in rules. • Essentially relies on a "single" source (Wells #3 and #7).

6.7.4 Treatment of Wells

6.7.4.1 Overview of Treatment Technologies

Several treatment technologies can be used for the removal of arsenic from drinking water. Manufacturers of these technologies generally have slight variations that distinguish their particular systems; however, the general design and operational concepts behind them are usually similar. Table 6-6 summarizes the most common arsenic treatment technologies currently in use. Five of these technologies do not appear to be favorable for the City's wells, including:

- **Ion Exchange (IX)** – As shown in Table 6-7, sulfate and total dissolved solids (TDS) levels in the water produced from the City wells are greater than the optimum values. Most IX resins preferentially select and remove sulfate and other ions associated with TDS before arsenic. As such, the treatment efficiency, capacity, and cost-effectiveness of an IX process may be reduced. Additionally, elevated sulfate levels may cause chromatographic peaking of arsenic and nitrate, resulting in concentrations of these parameters that are higher in the treated water than the raw water.

- **Activated Alumina (AA)** - As shown in Table 6-7, pH, fluoride, silica, and iron levels in the raw water produced from the City wells are greater than the optimum values. Several studies have shown that arsenic removal rates and column run times are optimized at pH levels of 5.0 to 6.0. As such, adjustment of the raw water pH may be required. Fluoride, silica, and iron have been shown to interfere with the adsorption process, either through competition for adsorption sites and/or fouling/plugging the media. Therefore, the treatment efficiency, capacity, and cost-effectiveness of an AA process may be reduced.

- **Reverse Osmosis (RO)** – As shown in Table 6-6, water loss from an RO treatment plant may range from approximately 15 to 50 percent, depending on the process configuration and source water quality. This low water recovery would most likely require the City to develop additional water supply to meet demand. Additionally, disposal of the large quantity of reject water may be difficult. RO treatment systems typically are complex to operate and have higher capital and operation and maintenance (O&M) costs.

- **Enhanced Lime Softening** – As shown in Table 6-7, pH and iron adjustments would be required for this technology. Additionally, lime softening is typically only cost-effective if used to modify or enhance an existing treatment plant. EPA reports that "lime softening is unlikely to be installed solely for arsenic removal" (Technologies and Costs for Removal of Arsenic from Drinking Water, 2000).

- **Conventional Coagulation and Gravity Filtration** - This process is normally used for surface water sources with high solids content. It is seldom used for groundwater due to the low solids levels, operational complexity, and high capital and O&M costs. EPA indicates that the "installation and operation of a conventional gravity coagulation/filtration process solely for arsenic removal is uneconomical" (Arsenic Treatment Technology Evaluation Handbook for Small Systems, 2003). Additionally, EPA suggests that conventional coagulation/filtration is "… unlikely to be installed solely for arsenic removal" (Technologies and Costs for Removal of Arsenic from Drinking Water, 2000).

TABLE 6-6. ARSENIC TREATMENT TECHNOLOGY SUMMARY[1]

Parameter	Ion Exchange	Activated Alumina[2]	Iron Based Sorbents	Enhanced Lime Softening	Reverse Osmosis	Coagulation Assisted Microfiltration	Conventional Coagulation/ Gravity Filtration	Enhanced Coagulation with Pressure Filtration
Arsenic Removal Efficiency[3]	95%	95%	95 - 98%	90%	> 95%	90%	95% (FeCl3) 90% (Alum)	50 - 90%[4]
Total Water Loss	1 - 2%	1 - 2%	1 - 2%	0%	15 - 50%	1 - 5%	0 - 2%	1 - 2%
Optimal Water Quality Conditions	pH 6.5 - 9.0 <5 mg/L NO_3^- <50 mg/L SO_4^{-2} <500 mg/L TDS <0.3 NTU Turbidity	pH 5.5 - 6.0 <250 mg/L Cl^- <2 mg/L F^- <360 mg/L SO_4^{-2} <30 mg/L Silica <0.5 mg/L Fe^{+3} <0.05 mg/L Mn^{+2} $<1,000$ mg/L TDS <4 mg/L TOC <0.3 NTU Turbidity	pH 6.0 - 8.5 <1 mg/L PO_4^{-3} <0.3 NTU Turbidity	pH 10.5 - 11 >5 mg/L Fe^{+3}	No Particulates Soft Water	pH 5.0 - 8.0 ($FeCl_3$) pH 5.0 - 7.0 (Alum)	pH 5.5 - 8.5	pH 5.5 - 8.5 Fe:As Ratio ≥ 20:1
Pre-Oxidation Required	Yes	Yes	Yes[5]	Yes	Yes	Yes	Yes	Yes
Waste Generation (S = Solid) (L = Liquid)	Spent Resin (S) Spent Brine (L) Backwash (L)	Spent Media (S) Backwash (L)	Spent Media (S) Backwash (L)	Sludge (S) Backwash (L)	Spent Membranes (S) Reject Water (L) Cleaning Wastes (L)	Spent Membranes (S) Cleaning Wastes (L) Backwash (L)	Sludge (S) Backwash (L)	Backwash (L) Filter-to-Waste (L)

- 1 Adapted from Table ES-1 in EPA's Arsenic Treatment Technology Evaluation Handbook for Small Systems, 2003.
- 2 Activated alumina assumed to operate in a non-regenerated mode (i.e., operate in a "throw-away" mode).
- 3 Assumes arsenic has been oxidized to arsenate (As^{+5}). Arsenite (As^{+3}) removal rates are typically much lower.
- 4 Depends on arsenic and iron concentrations as well as ferric chloride dose.
- 5 GFH may not require pre-oxidation.

TABLE 6-7. COMPARISON OF WATER QUALITY DATA FOR IX, AA, AND LIME SOFTENING

Water Quality Parameter		Optimum	City's Wells[1, 2]
Ion Exchange (IX)			
	Sulfate (SO_4^{-2})	< 50 mg/L	146 mg/L (14 – 202 mg/L)
	TDS	< 500 mg/L	606 mg/L (263 – 1,030 mg/L)
	Turbidity	< 0.3 NTU	1.3 NTU (0.5 – 2.3 NTU)
Activated Alumina (AA)			
	pH	5.5 – 6.0 s.u.	7.6 s.u. (7.0 – 8.4 s.u.)
	Fluoride (F^-)	< 2 mg/L	1.3 mg/L (0.8 - 3.7 mg/L)
	Silica	< 30 mg/L	48 mg/L (26 - 65 mg/L)
	Iron (Fe^{+3})	< 0.5 mg/L	0.20 mg/L (0.01 - 0.90 mg/L)
Enhanced Lime Softening			
	pH	10.5 – 11.0	7.6 s.u. (7.0 – 8.4 s.u.)
	Iron (Fe^{+3})	> 5 mg/L	0.20 mg/L (0.01 - 0.90 mg/L)

1 Value shown is the average. The range of measured values is also shown in parenthesis.
2 Data collected between 1973 and 2010.

Due to the unfavorable conditions associated with IX, AA, lime softening, RO, and conventional coagulation/filtration, they were not considered any further in this report. The three remaining technologies shown in Table 6-6 are discussed in more detail in Section 6.7.4.3.

6.7.4.2 Pre-Oxidation

Most of the existing arsenic treatment technologies are more effective at removing arsenate (As^{+5}) than arsenite (As^{+3}). This is due to the fact that the treatment processes are generally better at removing contaminants with a surface charge. At natural pH levels, arsenite has a neutral charge while arsenate has a negative charge. As discussed in Chapter 5, most of the arsenic from the City's wells is in the arsenite valence state. As such, oxidation of the arsenite to arsenate is recommended to optimize arsenic removal rates. This conversion may be accomplished by feeding and mixing an oxidizing agent with the raw water prior to treatment. Oxidizing agents that may be used include:

- **Chlorine** – Chlorine may be supplied in either a gaseous or liquid form. For smaller systems, gas is usually provided in 150-pound cylinders and injected into the raw water using a vacuum chlorinator. Alternatively, liquid chlorine may be purchased in bulk as an 11 to 12 percent solution of sodium hypochlorite or generated on-site as a 0.8 percent solution. Sodium hypochlorite is generally injected into the raw water using a diaphragm or peristaltic metering pump. As discussed in Chapter 2, the City is currently using both gas and liquid sodium hypochlorite for disinfection purposes.

- **Permanganate** – Permanganate may be supplied as a solid (potassium permanganate – $KMnO_4$) or liquid (sodium permanganate – $NaMnO_4$). Potassium permanganate is a granular material that is normally dissolved into solution (30 to 60 g/L), stored, and injected into the raw water. Sodium permanganate is generally supplied as a 20 percent solution that is injected into the raw water with a metering pump. Permanganate is commonly used in iron/manganese treatment processes such as greensand filtration. Permanganate can serve as a pre-oxidant but does not provide disinfectant residual for distribution.

- **Ozone** – Ozone is a very reactive and rapid-acting oxidant created by exposing oxygen to a high energy source (i.e., electric discharge or ultraviolet radiation). Due to its highly reactive nature, it has a relatively short life and must be produced on-site. Ozone exists as a gas which is injected and mixed with the raw water. Typically, the water then passes through a contactor, which allows the ozone to dissolve. The mixture flows into a degassifier to separate the undissolved gases from the liquids. The off-gases are then processed through a residual ozone destructor. Ozone systems are typically more complex than chlorine systems and do not provide any kind of residual into the distribution system.

The dose and reaction time of each oxidizing agent is highly dependent on site-specific water quality. The dose must account for parameters other than arsenic which may exert a demand, such as iron (Fe^{+2}), manganese (Mn^{+2}), hydrogen sulfide (HS^{-}), and organic material. Likewise, the reaction time for some of the oxidizing agents is dependent on interfering constituents that may be present in the water. As such, additional water quality analysis and pilot testing of the City's water is recommended to optimize the dose and reaction time. Typical reaction times, doses, and relative advantages and disadvantages of each oxidizing agent are summarized in Table 6-8.

For this report, it was assumed that liquid sodium hypochlorite would be used to oxidize arsenite to arsenate for all alternatives. The City currently uses sodium hypochlorite and is very familiar with the chemical. If greensand media is used in the pressure filter then it is recommended that the City use potassium permanganate as an oxidant as it helps to regenerate the greensand. However, due to the low / non-detect manganese concentrations in the water it is likely not worth the additional expense to use greensand media. Instead, it was assumed that conventional silica sand / anthracite media would be used.

6.7.4.3 Handling Waste Residuals Resulting from Arsenic Treatment

Arsenic treatment results in both a liquid waste stream and a solid waste stream. These waste streams need to be handled appropriately. Waste disposal is an issue that needs to be evaluated for all arsenic treatment technologies. A February 2007 document from the Idaho Department of Environmental Quality entitled "Guidance for Handling Waste Residuals Resulting from Drinking Water Treatment" was included in Appendix C. This document should be reviewed by the City while evaluating the various treatment technologies.

TABLE 6-8. RELATIVE ADVANTAGES AND DISADVANTAGES OF OXIDIZING AGENTS

Oxidizing Agent	Typical Design Reaction Time	Typical Design Dose	Advantages	Disadvantages
Chlorine	< 60 s	1 – 10 mg/L	• Relatively low costs. • Familiarity for City staff. • Can be used as disinfectant residual. • Quick and efficient oxidation. • May be used for regeneration of greensand. • Relatively small footprint for bulk system.	• Potential formation of disinfection-by-products. • May cause fouling in some membrane processes. • Requires chemical handling and storage. • Relatively large footprint for on-site generation system.
Permanganate	< 60 s	1 – 10 mg/L	• Does not form disinfection-by-products. • Unreactive with membranes. • Quick oxidation. • May be used for regeneration of greensand. • Relatively small footprint.	• Relatively high costs. • Additional disinfectant required to provide residual. • Formation of manganese particulates. • May add color to water. • Requires chemical handling and storage. • $KMnO_4$ may require hazardous waste precautions if more than 250 lbs stored on-site. • Unfamiliarity for City staff.
Ozone	30 – 135 s	0.65 – 10.0 mg O_3^+:mg As	• No chemical handling and storage. • On-site generation. • Does not form disinfection-by-products. • Oxidation may be quick in absence of interfering parameters. • Relatively small footprint.	• Sulfide and TOC interfere with conversion. • Relatively high costs. • Additional disinfectant required to provide residual. • Unfamiliarity for City staff. • Potential toxicity if operator exposure occurs.

6.7.4.4 Feasible Arsenic Treatment Technologies

6.7.4.4.1 Iron Based Sorbents

This treatment process involves the physical/chemical adsorption of arsenic to iron based media. The most commonly used iron based sorbent is granular ferric hydroxide (GFH), although other iron based media includes granular ferric oxide (GFO), iron-oxide coated sand, sulfur-modified iron, and iron filings mixed with sand. For the purposes of this study, the analysis is based on the use of GFH. A flow-diagram of a typical GFH adsorption treatment process is shown in Figure 6-3. As shown in the schematic, the unit processes include:

- **Pre-Oxidation** – Chlorine is added to the raw water to oxidize arsenite to arsenate. Depending on pilot testing results, pre-oxidation may not be required for GFH.

- **Pre-Filtration** – The presence of solids in the raw water may cause clogging of the adsorptive media, resulting in reduced capacity and increased headloss. As such, pre-filtration with 2 to 5 μm bag filters may be required if the turbidity levels are greater than approximately 0.3 NTU. Historical water quality data for the City wells indicates that turbidity levels may be greater than this value. The bag filters are typically used on a replacement basis.

- **Adsorption Columns** – The GFH is placed in packed-beds within steel or fiberglass pressure vessels. Arsenic removal is accomplished by continuously passing water under pressure in a downward flow direction through the GFH. Each column has an upper and lower distribution manifold that is designed to provide uniform flow through the media. The upper manifold distributes the influent and collects backwash water, and the lower manifold collects the filtered water and distributes backwash water.

There are normally three pressure vessels within a treatment train that may be operated in parallel or series. In parallel operation, each column receives one-third of the incoming flow. Start-up of the columns is staggered so that they operate at different points on their exhaustion curve. In series operation, two of the vessels function as roughing and guard columns, while the third vessel is in a stand-by mode. Two or more treatment trains are recommended to provide operational redundancy.

Once breakthrough occurs, the adsorptive sites are saturated and the column is taken off-line for media regeneration or replacement. Adsorption of arsenic to GFH has been referred to as "chemisorption", which is typically considered irreversible. As such, regeneration is generally not practical and the system is operated on a media replacement (i.e., "throw-away") basis. As such, once the adsorptive capacity of the media has been exhausted, the GFH is removed and replaced with new material. The media is also normally backwashed once every 2 to 6 weeks to minimize compaction of the bed and remove captured solids.

Two waste streams are generated in a GFH treatment plant: backwash water and exhausted GFH. It is anticipated that the backwash water may be indirectly discharged through the City's wastewater system. This may require that the City develop Technically Based Local Limits (TBLLs) as part of an Industrial Pretreatment Program. The TBLLs are set to protect the wastewater treatment plant operation, comply with discharge permits, and prevent unacceptable accumulation of contaminants in the sludge.

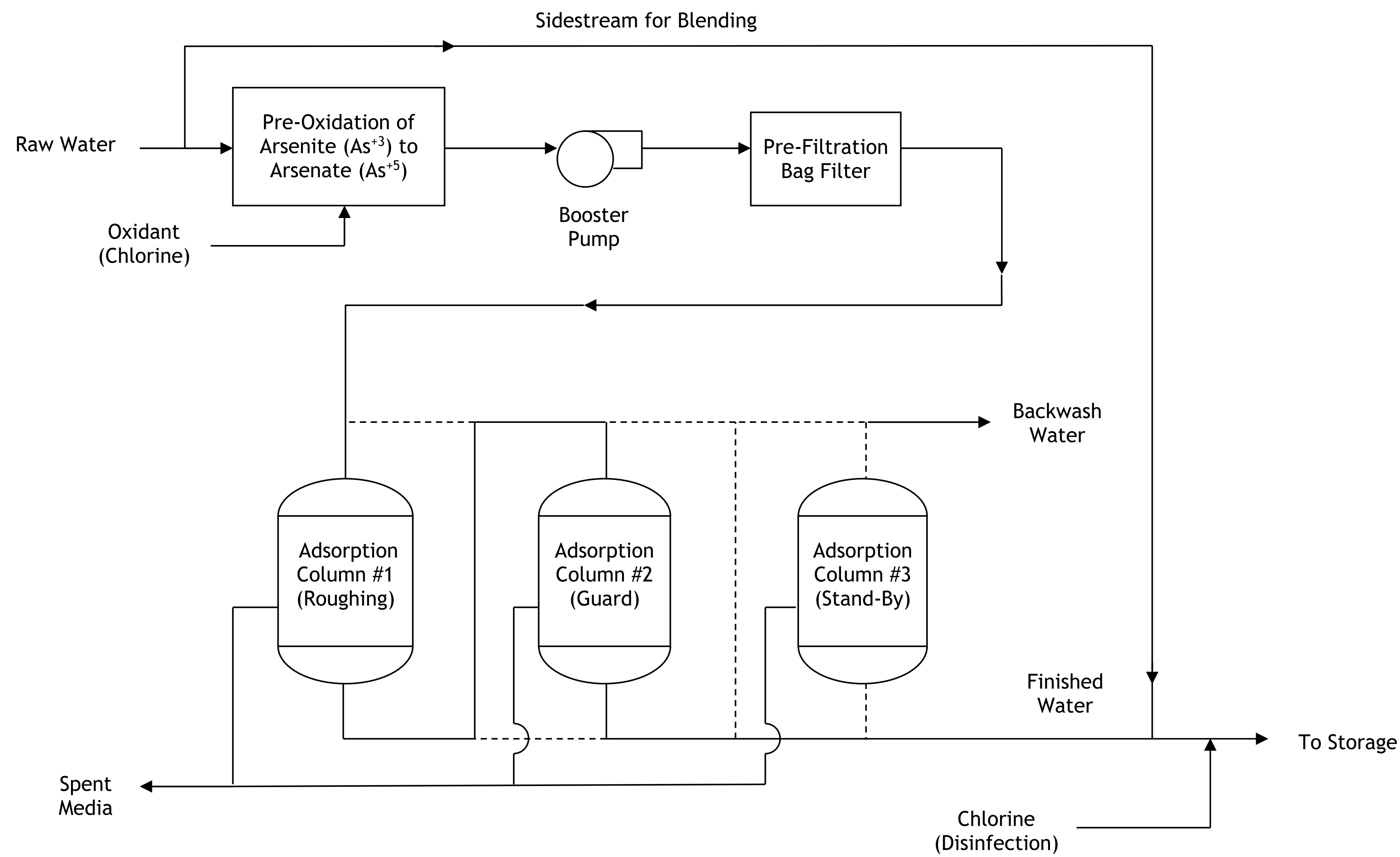


Figure 6-3. Iron-Based Sorbent Treatment Process

J-U-B ENGINEERS, Inc.
ENGINEERS • SURVEYORS • PLANNERS

It is anticipated that the exhausted GFH may be disposed of in a municipal solid waste landfill (MSWLF). This requires that the spent GFH pass both a Paint Filter Test and Toxicity Characteristic Leaching Procedure (TCLP) test. The Paint Filter Test verifies that there is no free liquid in the waste. As such, a drying bed may be necessary to reduce the water content in the GFH after it is removed from the columns. To be sent to a MSWLF, results from the TCLP test must indicate that the concentrations of arsenic and other constituents (i.e., chromium, mercury, etc.) are lower than the Toxicity Characteristic (TC) levels used to classify hazardous wastes. The TC regulatory level for arsenic is 5.0 mg/L. If the TCLP leachate levels are lower than the TC levels, the GFH may be classified as non-hazardous and disposed of at a MSWLF. Recent studies report that GFH tightly binds the arsenic and typically passes the TCLP test.

Typical preliminary design data and relative advantages and disadvantages of an iron-based adsorption treatment process are summarized in Table 6-9.

6.7.4.4.2 Coagulation Assisted Microfiltration

This treatment process consists of adding a chemical to the raw water that forms insoluble solid particles to which the arsenic is adsorbed or enmeshed. The solid particles, along with the arsenic, are than filtered from the water through a low pressure membrane. A flow-diagram of a typical coagulation assisted microfiltration treatment process is shown in Figure 6-4. As shown in the schematic, the unit processes include:

- **Pre-Oxidation** – Chlorine is added to the raw water to oxidize arsenite to arsenate.

- **Chemical Coagulant Feed** – A chemical coagulant is fed into the raw water to destabilize the surface charges of colloidal and suspended material. The coagulant allows for the agglomeration of particles together to form large, dense floc which is readily removed by filtration. The most commonly used coagulants for water treatment are aluminum and iron salts, such as aluminum sulfate (alum), ferric chloride ($FeCl_3$), and ferric sulfate ($Fe_2(SO_4)_3$). These salts hydrolyze and form insoluble aluminum and iron hydroxide particulates. Polymers may also be used to facilitate coagulation. In general, iron coagulants are more effective at arsenic removal than alum since they are more stable and insoluble over a natural pH range of 5.5 to 8.5. As such, it was assumed that ferric chloride would be used as the coagulant for this option. Ferric chloride is supplied as a 38 percent solution that can be injected into the raw water using a diaphragm or peristaltic metering pump.

- **Rapid Mix** – This unit process involves intense mixing and agitation to disperse the coagulant uniformly throughout the water and to provide adequate contact between the coagulant and colloidal/suspended solids. Mixing usually takes place in concrete basins. Vertical-shaft rotary mixing devices, such as turbine or paddle impellers, are commonly used for mixing and agitation. In-line mixers and pneumatic agitation has also been employed.

- **Flocculation** – Flocculation is the gentle stirring or agitation of the water to further aggregate the destabilized particles to form a larger floc. Dissolved arsenic adsorbs to the floc and becomes entrapped as the particle grows larger. Particulate arsenic may also be enmeshed in the floc. Mixing is typically accomplished using horizontal- or vertical-shaft paddle wheels or turbine impellers. Flocculation normally takes place in concrete basins and may be designed for tapered velocity gradients.

TABLE 6-9. TREATMENT TECHNOLOGY TYPICAL DESIGN PARAMETERS AND RELATIVE ADVANTAGES AND DISADVANTAGES

Treatment Technology	Typical Design Parameters		Advantages	Disadvantages
Iron Based Sorbents (GFH)	Media Bulk Density EBCT Hydraulic Loading Media Depth Max Pressure Differential Media Life Backwash Rate Backwash Duration	72-75 lbs/ft^3 5-10 min 5-8 gpm/ft^2 32-40 in 3.5 psi 2-5 years 10-15 gpm/ft^2 5-20 min	• Effective at natural pH ranges. • Chemical handling for pH adjustment and regeneration not required. • May not require pre-oxidation. • Chromatographic peaking not typical. • Finished water pH adjustment may not be required. • Less energy intensive than coagulation assisted microfiltration.	• GFH is shipped wet, increasing costs. • Competing ions (phosphates, silica, etc.) shorten media life. • Disposal of GFH - must pass Paint Filter Test and TCLP. • GFH cannot be regenerated. • Relatively large footprint. • Media fouling/scaling.
Coagulation Assisted Microfiltration	$FeCl_3$ Dose Polymer Dose Rapid Mix Flocculation Microfiltration Flux Rate Operating Pressure Pore Size TMP Membrane Life NaOH Dose	5-25 mg/L 2-5 mg/L 20-60 sec 30-60 min 50-100 gpd/ft^2 5-45 psi 0.05-0.2 µm 5-40 psi 5-10 years 5-20 mg/L	• Effective at natural pH ranges. • Minimal waste solids. • Smaller floc sizes removed than conventional system = less coagulant. • Membrane is effective barrier to microorganisms. • Adaptable for surface water treatment. • Flexible/modifiable.	• Finished water pH adjustment. • Sole source membranes. • More energy intensive than other technologies. • Relatively large footprint. • Chemical handling and storage. • Membrane fouling/scaling. • Potential freezing issues with NaOH.
Enhanced Coagulation Pressure Filtration	Fe:As $FeCl_3$ Dose NaOCl Dose Hydraulic Loading Anthracite Depth Silica Sand Depth Garnet Media Air Scour Rate Media Life Max Pressure Differential Backwash Rate Backwash Duration Backwash Frequency	>20:1 3-6 mg/L 1-3 mg/L 3-5 gpm/ft^2 12-24 in 6-18 in 4-6 in 3-5 scfm/ft^2 10-15 years 8-10 psi 12-15 gpm/ft^2 15 min 1-7 days	• Effective at natural pH ranges. • Removes iron and turbidity through the sand filter. • Sand media is easy to find and relatively inexpensive. • Relatively small footprint. • Less energy intensive than coagulation assisted microfiltration.	• Lower arsenic removal percentage than other technologies. • Large backwash volumes over short period of time. • Potential finished water pH adjustment. • Chemical handling and storage.

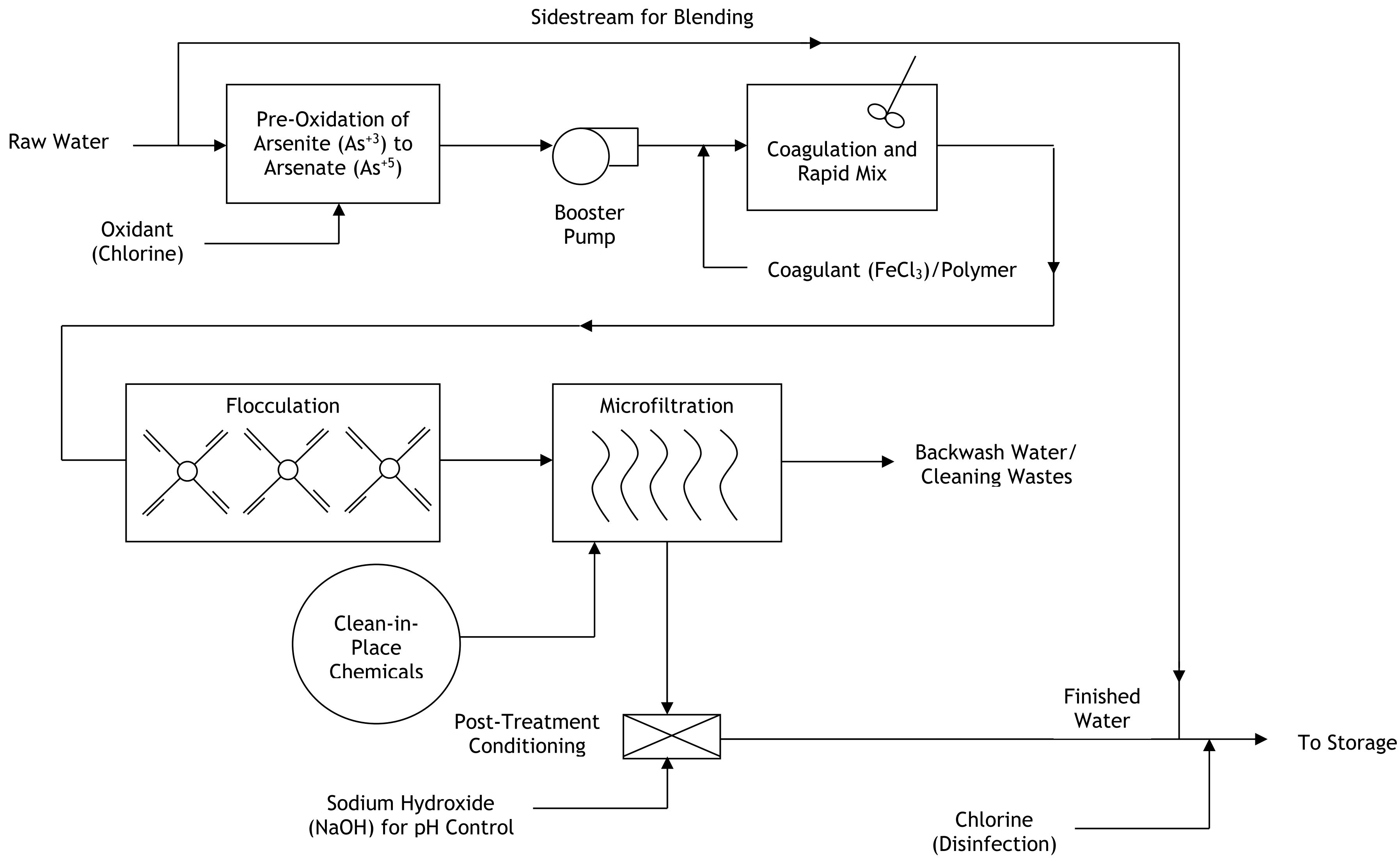


Figure 6-4. Coagulation Assisted Microfiltration Treatment Process

J-U-B ENGINEERS, Inc.
ENGINEERS • SURVEYORS • PLANNERS

- **Microfiltration** – In this unit process, the water is forced through low-pressure, semi-permeable membranes by a pressure differential (i.e., pressure or vacuum). The arsenic laden floc is retained on the membrane while the clean water flows through the membranes. To remove the floc particles, the membranes are periodically backwashed with water and/or air (i.e., typically on an hourly to daily basis). Over time, the membranes may also clog/foul and must be cleaned once a pre-set transmembrane pressure differential has been reached (i.e., typically every 1 to 6 months). Cleaning is usually accomplished in-place without removing the membranes using acids, bases, chlorine, proprietary chemicals, etc. The membranes have various configurations (i.e., hollow fiber, spiral wound, tubular, etc.) and are constructed of various materials. They are immersed in the water and are commonly housed in racks of tubes or frames set in concrete basins. Microfiltration membranes are typically capable of removing particles with sizes down to 0.1 to 0.2 μm.

- **Post-Treatment Conditioning** – The pH of the finished water may be slightly acidic. As such, it may be necessary to adjust the pH of the treated water with sodium hydroxide for corrosion control. Sodium hydroxide is commonly supplied as a 50 percent solution that may be injected with a metering pump and mixed with an in-line static mixer.

Wastes generated from a coagulation assisted microfiltration treatment process are backwash water, cleaning wastes, and spent membranes. The liquid waste streams typically have a low solids content (< 1 percent). It is anticipated that they may be indirectly discharged through the City's wastewater system. It is anticipated that the membranes should last approximately 10 years and they may be disposed of at a MSWLF.

Typical preliminary design data and relative advantages and disadvantages of a coagulation assisted microfiltration treatment process are summarized in Table 6-9.

6.7.4.4.3 Enhanced Coagulation with Pressure Filtration using Greensand Media or Sand/Anthracite Media

Enhanced coagulation with pressure filtration is an iron co-precipitation / filtration treatment process commonly used to remove arsenic from drinking water. Chlorine is used oxidize the arsenic and then ferric chloride is added to form metal hydroxide precipitates. The arsenic is either incorporated into the metal hydroxide floc (co-precipitation) or electrostatically bound to the surface of the insoluble metal hydroxides (adsorption). These precipitates are large enough to be removed by the sand filter. The binding of the iron to the arsenic is very strong under typical water chemistry conditions (i.e., pH from 6-9).. Unlike the iron based sorbent media described above (such as GFH), the primary removal process in this case is filtration rather than adsorption. As such, pre-filtration is not required to protect the available adsorption sites. The filtration media typically consists of gradated silica sand and anthracite layers. These media are robust, relatively inexpensive, and readily available.

An alternative to using the conventional sand media would be to use the more expensive greensand media. This media is frequently used to remove manganese and it also slightly improves the percent removal for iron and arsenic. The active material in greensand is glauconite, an iron-rich, clay-like mineral with ion exchange properties. Glauconite containing sand is treated with potassium permanganate ($KMnO_4$) instead of chlorine, forming a layer of manganese oxides on the sand particles. The greensand catalyzes the oxidation of soluble iron and manganese to form insoluble hydroxide precipitates. Arsenic adsorbs to the hydroxide particulates, which are subsequently filtered out. The arsenic may also undergo ion exchange reactions with the glauconite surface. Therefore, the greensand can act like a secondary barrier to remove some arsenic that has not precipitated. However, the greensand media is more expensive than conventional silica sand and needs to be changed out more frequently due to contaminants adhering to the media. In Filer's case, since the manganese concentrations in the groundwater are non-detect, there should not be a need for the added expense of greensand media.

A flow-diagram of a typical enhanced coagulation and pressure filtration treatment process is shown in Figure 6-5. As shown in the schematic, the unit processes include:

- **Pre-Oxidation** – Chlorine is added to the water to oxidize arsenite to arsenate.

- **Iron Addition** – For this process to effectively remove arsenic, the iron to arsenic mass ratio should be a minimum of 20:1. Historical water quality data for the City wells indicates that the iron to arsenic ratios ranges from approximately 3 to 54, with an average of around 14. As such, it is recommended that additional iron be added to the water to maintain this minimum ratio. It was assumed that ferric chloride would be used for this purpose. As previously discussed, ferric chloride is normally supplied as a 38 percent solution that can be injected into the raw water using a diaphragm or peristaltic metering pump. An in-line static mixer may be used to provide mixing.

- **Sand/Anthracite Columns** – The dual media silica sand and anthracite layers are typically placed in packed-beds within steel or fiberglass pressure vessels. The feed water is continuously passed under pressure through the media. Arsenic removal is accomplished by the precipitation and filtration process described above. Each column has an upper and lower distribution manifold similar to those described for a GFH pressure column. If desired, greensand can be substituted for silica sand.

A pressure filter normally has multiple layers of media. A coarse upper layer of anthracite is commonly used to provide rough filtration and an area for iron floc formation. A layer of silica sand or greensand is then placed in the filters above a layer of filter garnet, which helps to prevent the sand from being slurried through the underdrain. The bottom media layer typically consists of gravel which provides support and helps to uniformly distribute treated and backwash flow.

A normal treatment train consists of multiple horizontal pressure filtration vessels, with each vessel receiving a portion of the flow. The filters normally operate in three different modes: (1) filtration, (2) backwash, and (3) filter-to-waste. In the filtration mode, water is fed through the columns in a downward flow direction and the treated water is transmitted to the distribution system. Over time, solids captured by the sand begin to plug the filter, increasing headloss. When the headloss across the media reaches a pre-determined level, the filter is backwashed with water and/or air to remove the entrapped solids and restore hydraulic capacity. Backwash occurs in an upwards directions, which fluidizes the sand and carries the solids out of the vessel. Following backwash, normal downwards flow conditions are restored with the product water flowing to waste until the media is restratified. Two or more treatment trains may be constructed to provide operational redundancy.

Backwash and filter-to-waste water are the waste streams generated from the enhanced coagulation with filtration treatment process. These waste streams typically have a low solids content (< 0.1 percent) and may be indirectly discharged through the City's wastewater system.

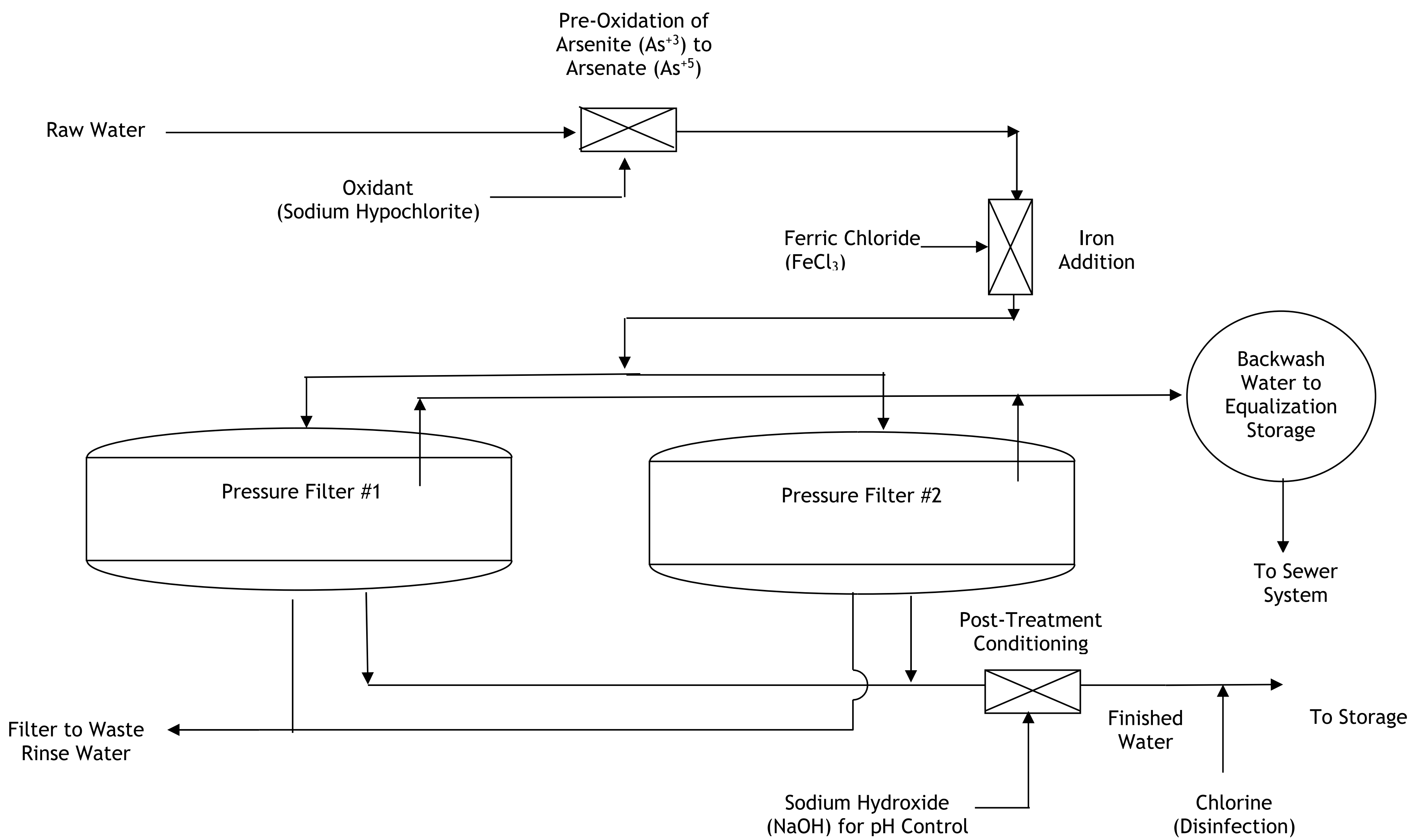


Figure 6-5. Enhanced Coagulation with Pressure Filtration Treatment Process (Sand/Anthracite Media or Greensand Media)

J-U-B ENGINEERS, Inc.
ENGINEERS • SURVEYORS • PLANNERS

Approximately every 10-20 years the sand may need to be removed and replaced. Each system and water type may vary in the amount of backwash waste generated but experience has shown 3 percent to 5 percent of the produced water results as backwash waste. The backwash flowrate can be high and it is common to provide some kind of equalization storage to meter the flow back to the sewer. The equalization storage also allows for some settling of particulate matter which can be periodically removed from the equalization storage system.

Typical preliminary design data and relative advantages and disadvantages of an enhanced coagulation with pressure filtration treatment process are summarized in Table 6-9.

6.7.5 City of Filer Treatment Plant Alternatives

6.7.5.1 Preliminary Design Data

As described in Chapter 4, the 20-year maximum day demand is 1,499 gpm. Therefore, the treatment plant shall be sized to treat 1,500 gpm of flow. If possible, it would be beneficial to treat only a portion of the flow and then blend the remaining untreated portion (i.e., side stream treatment). Blending is not recommended for enhanced coagulation with pressure filtration because it has a lower arsenic removal efficiency than the other alternatives. This means a blending strategy after treatment would require significant amounts of chemical to lower the arsenic concentration. Table 6-10 illustrates the required sizing of the treatment facility for the three alternatives.

TABLE 6-10. TREATMENT PLANT SIZING

Parameter	Iron-Based Sorbent (GFH)	Coagulated Assisted Microfiltration	Enhanced Coagulation with Pressure Filtration
Treatment Plant Size	1,000 gpm	1,000 gpm	1,500 gpm
Treated Effluent Arsenic Concentration	3 μg/L	3 μg/L	7 μg/L
Untreated Blending Stream	500 gpm	500 gpm	0 gpm
Untreated Arsenic Concentration	15 μg/L	15 μg/L	NA
Distribution System Arsenic Concentration	7 μg/L	7 μg/L	7 μg/L

To be conservative, the untreated groundwater was assumed to have an arsenic concentration of 15 μg/L, which is about 50% higher than current arsenic concentrations in the system. In addition, the blended concentration in the distribution system of 7 μg/L provides a factor of safety given the variability in the measured arsenic levels.

It appears that sufficient land is available near Booster Pump Station #2 to construct a new treatment plant. Water from Wells #2, #3, #5, and/or #7 would be pumped to the plant for treatment, blending, and disinfection prior to storage in Storage Tank #2. The water would then be distributed to the community through Booster Pump Station #2. Storage Tank #1 would be filled with treated water from the distribution system. The treated water would then be pumped to the south end of town using Booster Pump Station #1.

The preliminary design data used for developing conceptual plant layouts and cost estimates are summarized in Table 6-11 for each treatment technology. Redundancy is provided by installing two trains designed for 500 gpm each for the GFH and coagulation/microfiltration alternatives and 750 gpm each for the enhanced coagulation with pressure filtration alternative. Average day flows are currently approximately 400 gpm and they are expected to rise to 600 gpm in 20 years. Therefore, for the majority of the year only one train will need to be operational. Variable frequency drives may be required on the pumps at Well #3/#7 so the flows can be varied to meet demand.

TABLE 6-11. TREATMENT PLANT PRELIMINARY DESIGN DATA

Iron-Based Sorbent (GFH)		Coagulated Assisted Microfiltration		Enhanced Coagulation with Pressure Filtration	
Design Flow Rate	1,000 gpm	Design Flow Rate	1,000 gpm	Design Flow Rate	1,500 gpm
Columns in Series	3 Columns	Parallel Treatment Trains	2 Trains	Parallel Treatment Trains	2 Trains
Parallel Treatment Trains	2 Trains	Flow to Each Train	500 gpm	Flow to Each Train	750 gpm
Flow to Each Train	500 gpm	Rapid Mix Time	30 s	Filter Diameter	10 ft
Column Diameter	12 ft	Flocculation Time	30 min	Filter Length	22 ft
Column Height	7.5 ft	Microfiltration Flux Rate	75 gpd/ft^2	Hydraulic Loading Rate	3.5 gpm/ft^2
Hydraulic Loading Rate	6 gpm/ft^2	Membrane Surface Area	35,000 ft^2	Backwash Rate	15 gpm/ft^2
Backwash Rate	15 gpm/ft^2	Backwash Rate	60 gpm	Backwash Duration	10-15 min
Backwash Frequency	30 d	Backwash Frequency	1 hr	Backwash Frequency	1 d
Backwash Volume	2,500 gal/d	Backwash Volume	25,000 gpd	Backwash Volume	22,500 gpd
Percent Water Loss	0.6%	Percent Water Loss	3%	Percent Water Loss	3%
NaOCl Dose	6 mg/L	NaOCl Dose	6 mg/L	NaClO Dose	6 mg/L
		$FeCl_3$ Dose	25 mg/L	$FeCl_3$ Dose	5 mg/L
		Polymer Dose	4 mg/L	NaOH Dose	10 mg/L
		NaOH Dose	10 mg/L		

The preliminary design parameters for each of the treatment plants are highly dependent on site-specific water quality. As such, additional water quality analysis and pilot testing of the City's water is recommended to optimize the design data for a full-scale treatment facility.

As previously discussed, it is anticipated that the liquid waste streams generated by the treatment facilities may be indirectly discharged to the City's wastewater collection system. Additionally, it is expected that the solid waste streams will pass the Paint Filter and TCLP tests and may be disposed of at the Milner Butte municipal landfill.

6.7.5.2 Preliminary Layouts

Preliminary layouts of each type of treatment plant are shown in Figures 6-6 through 6-8. There may be other plant configurations that potentially allow for phasing of the project. These configurations should be investigated further in the pilot and final design phases.

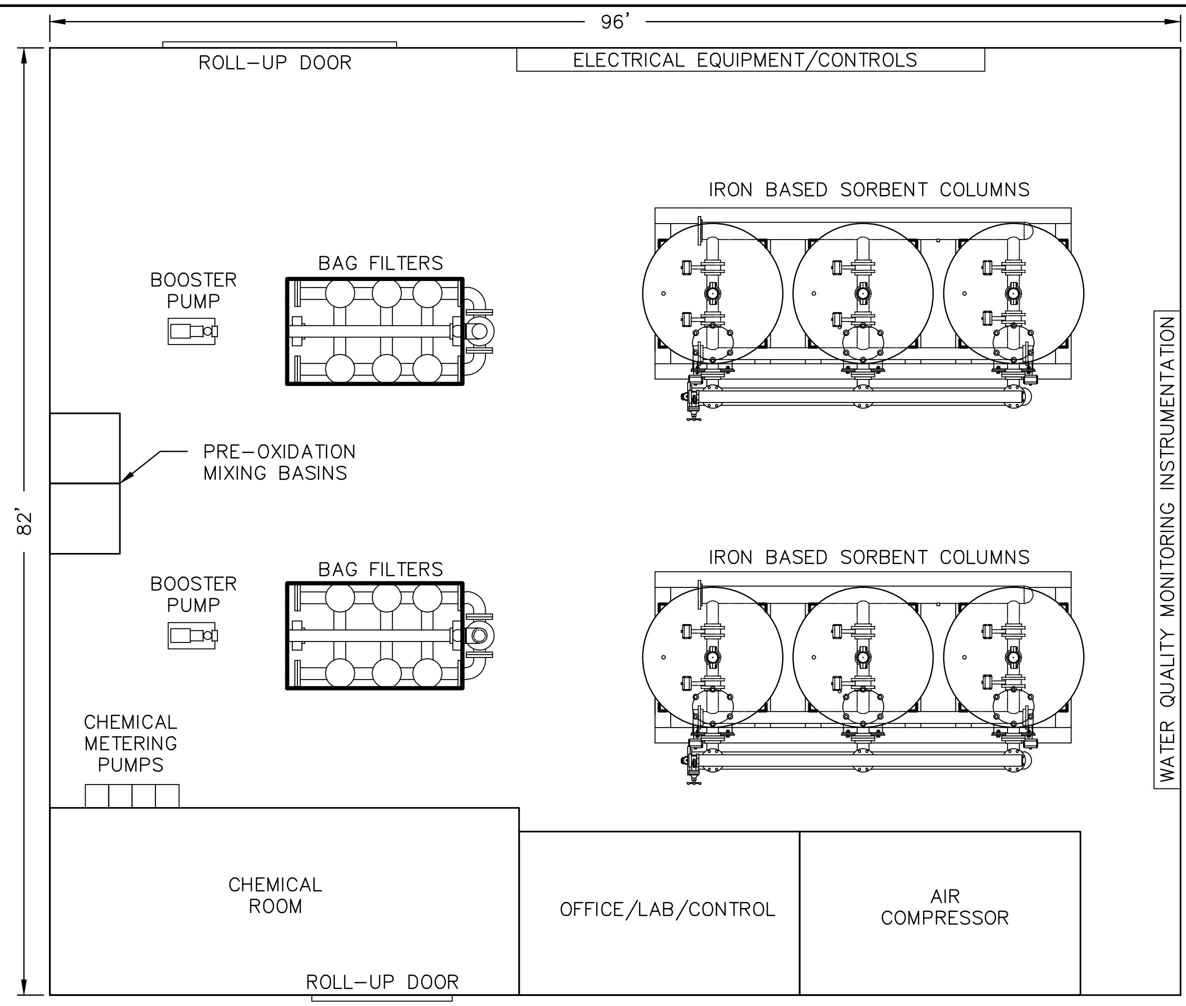


FIGURE 6-6
IRON-BASED SORBENT TREATMENT PLANT
PRELIMINARY LAYOUT

J-U-B ENGINEERS, INC.

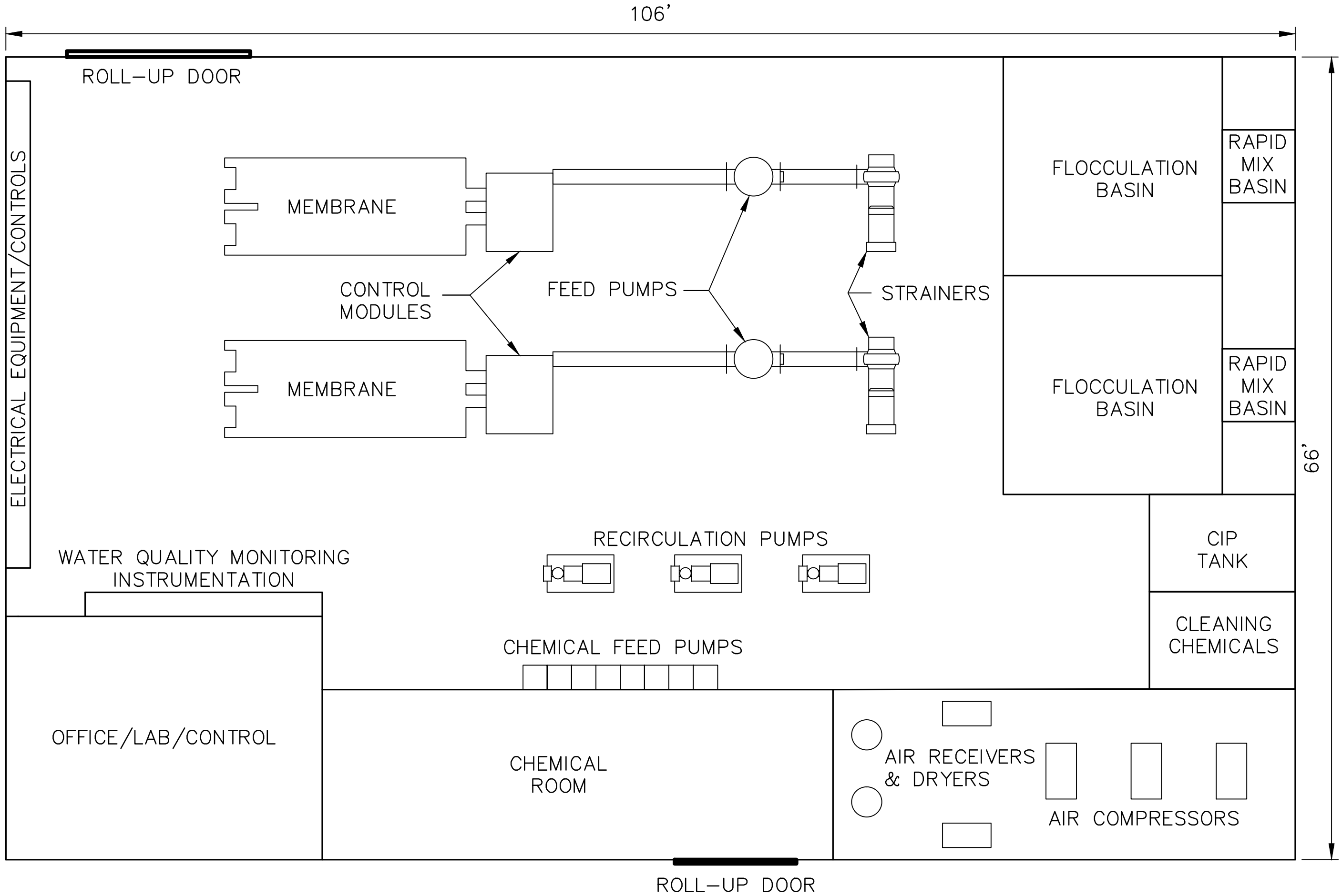


FIGURE 6-7
COAGULATION ASSISTED MICROFILTRATION
TREATMENT PLANT PRELIMINARY LAYOUT

J-U-B ENGINEERS, INC.

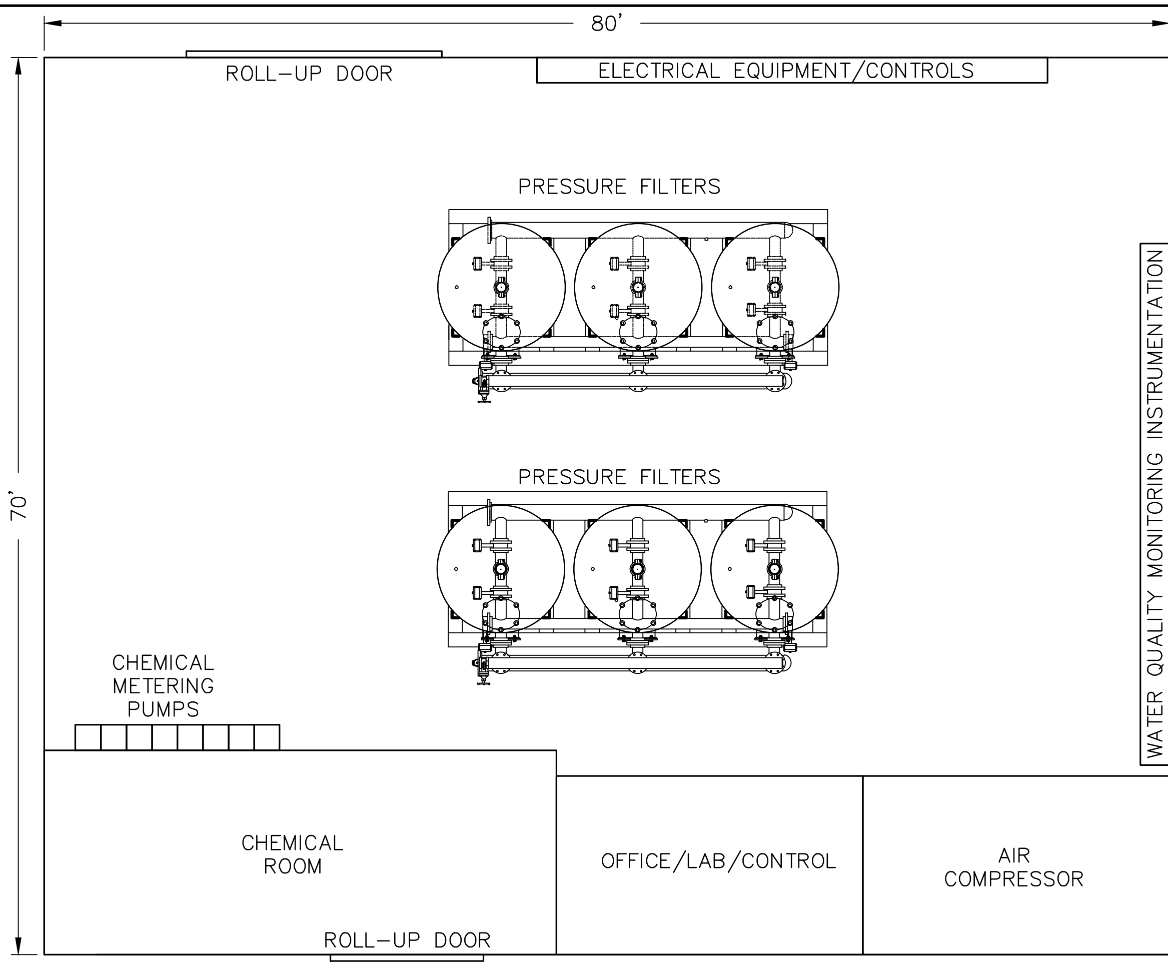


FIGURE 6–8
ENHANCED COAGULATION WITH PRESSURE FILTRATION
TREATMENT PLANT PRELIMINARY LAYOUT

J-U-B ENGINEERS, INC.

6.7.5.3 Opinions of Probable Capital Cost

Based on the preliminary plant layouts and design data, an opinion of probable capital costs in 2014 dollars to construct each type of treatment plant is shown in Tables 6-12 through 6-15.

TABLE 6-12. OPINION OF PROBABLE CAPITAL COSTS FOR AN IRON-BASED SORBENT (GFH) TREATMENT PLANT

Item	Quantity	Units	Unit Price	Total Costs
Site Work	1	LS	$70,000.00	$70,000
Well #7 VFD	1	LS	$20,000.00	$20,000
Pre-Oxidation Rapid Mix System	2	EA	$35,000.00	$70,000
Booster Pumps	2	EA	$15,000.00	$30,000
Pre-Filtration Bag Filters	2	EA	$125,000.00	$250,000
GFH Adsorption Columns	1	LS	$1,000,000.00	$1,000,000
Chemical Storage and Containment	3	EA	$10,000.00	$30,000
Chem Feed Skids	3	EA	$20,000.00	$60,000
Chemical Distribution Piping	1	LS	$20,000.00	$20,000
Backwash Pumps	2	EA	$15,000.00	$30,000
In-Line Static Mixers	3	EA	$15,000.00	$45,000
Air Compressors	2	EA	$15,000.00	$30,000
Equalization Basin for Backwash	1	LS	$60,000.00	$60,000
Building Structural (82' x 96')	7,872	SF	$150.00	$1,180,000
Yard Piping	1	LS	$140,000.00	$140,000
Bulding Mechanical and Piping	1	LS	$280,000.00	$280,000
Site Electrical	1	LS	$470,000.00	$470,000
			Sub-Total Construction Costs	**$3,785,000**
			Contractor Mob/Demob (5%)	$189,000
			Buy American Provisions (5%)	$189,000
			Davis-Bacon Wages (5%)	$189,000
			Contingencies (20%)	$757,000
			Total Construction Costs	**$5,109,000**
			Engineering & Const. Mngt. (17.5%)	$894,000
			Funding, Legal, Admin, Bonding (10%)	$511,000
			Start-Up Services	$15,000
			Pilot Study	$75,000
			Total Project Capital Costs	**$6,604,000**

Table 6-13. Opinion of Probable Capital Costs for a Coagulation Assisted Microfiltration Treatment Plant

Item	Quantity	Units	Unit Price	Total Costs
Site Work	1	LS	$80,000.00	$80,000
Well #7 VFD	1	LS	$20,000.00	$20,000
Booster Pumps	2	EA	$15,000.00	$30,000
Pre-Oxidation/Coagulant Rapid Mix System	2	EA	$35,000.00	$70,000
Flocculation System	2	EA	$80,000.00	$160,000
Microfiltration Membrane System	1	LS	$1,500,000.00	$1,500,000
Chemical Storage and Containment	6	EA	$10,000.00	$60,000
Chem Feed Skids (included in quote)	1	EA	$20,000.00	$20,000
Chemical Distribution Piping	1	LS	$50,000.00	$50,000
Backwash Pumps	2	EA	$15,000.00	$30,000
Finished Water Pumps (725 gpm, 10 hp)	2	EA	$10,000.00	$20,000
In-Line Static Mixers	3	EA	$15,000.00	$45,000
Air Compressors	0	EA	$0.00	$0
Equalization Basin for Backwash	1	LS	$20,000.00	$20,000
Building Structural (66' x 106')	6,996	SF	$150.00	$1,050,000
Yard Piping	1	LS	$150,000.00	$150,000
Bulding Mechanical and Piping	1	LS	$310,000.00	$310,000
Site Electrical	1	LS	$520,000.00	$520,000
			Sub-Total Construction Costs	**$4,135,000**
			Contractor Mob/Demob (5%)	$207,000
			Buy American Provisions (5%)	$207,000
			Davis-Bacon Wages (5%)	$207,000
			Contingencies (20%)	$827,000
			Total Construction Costs	**$5,583,000**
			Engineering & Const. Mngt. (17.5%)	$977,000
			Funding, Legal, Admin, Bonding (10%)	$558,000
			Start-Up Services	$15,000
			Pilot Study	$75,000
			Total Project Capital Costs	**$7,208,000**

Table 6-14. Opinion of Probable Capital Costs for a Greensand Media with Pressure Filtration Treatment Plant

Item	Quantity	Units	Unit Price	Total Costs
Site Work	1	LS	$60,000.00	$60,000
Well #7 VFD	1	LS	$20,000.00	$20,000
Pressure Filtration Vessels	1	LS	$1,200,000.00	$1,200,000
Chemical Storage and Containment	4	EA	$10,000.00	$40,000
Chem Feed Skids	4	EA	$20,000.00	$80,000
Chemical Distribution Piping	1	LS	$30,000.00	$30,000
In-Line Static Mixers	4	EA	$15,000.00	$60,000
Air Compressors	2	EA	$15,000.00	$30,000
Equalization Basin for Backwash	1	LS	$100,000.00	$100,000
Building Structural (70' x 80')	5,600	SF	$150.00	$840,000
Yard Piping	1	LS	$120,000.00	$120,000
Bulding Mechanical and Piping	1	LS	$240,000.00	$240,000
Site Electrical	1	LS	$400,000.00	$400,000
			Sub-Total Construction Costs	**$3,220,000**
			Contractor Mob/Demob (5%)	$161,000
			Buy American Provisions (5%)	$161,000
			Davis-Bacon Wages (5%)	$161,000
			Contingencies (20%)	$644,000
			Total Construction Costs	**$4,347,000**
			Engineering & Const. Mngt. (17.5%)	$761,000
			Funding, Legal, Admin, Bonding (10%)	$435,000
			Start-Up Services	$15,000
			Pilot Study	$75,000
			Total Project Capital Costs	**$5,633,000**

TABLE 6-15. OPINION OF PROBABLE CAPITAL COSTS FOR A SAND/ANTHRACITE PRESSURE FILTRATION TREATMENT PLANT

Item	Quantity	Units	Unit Price	Total Costs
Site Work	1	LS	$60,000.00	$60,000
Well #7 VFD	1	LS	$20,000.00	$20,000
Pressure Filtration Vessels	1	LS	$1,100,000.00	$1,100,000
Chemical Storage and Containment	3	EA	$10,000.00	$30,000
Chem Feed Skids	3	EA	$20,000.00	$60,000
Chemical Distribution Piping	1	LS	$20,000.00	$20,000
In-Line Static Mixers	3	EA	$15,000.00	$45,000
Air Compressors	2	EA	$15,000.00	$30,000
Equalization Basin for Backwash	1	LS	$100,000.00	$100,000
Building Structural (70' x 80')	5,600	SF	$150.00	$840,000
Yard Piping	1	LS	$110,000.00	$110,000
Bulding Mechanical and Piping	1	LS	$230,000.00	$230,000
Site Electrical	1	LS	$380,000.00	$380,000
			Sub-Total Construction Costs	**$3,025,000**
			Contractor Mob/Demob (5%)	$151,000
			Buy American Provisions (5%)	$151,000
			Davis-Bacon Wages (5%)	$151,000
			Contingencies (20%)	$605,000
			Total Construction Costs	**$4,083,000**
			Engineering & Const. Mngt. (17.5%)	$715,000
			Funding, Legal, Admin, Bonding (10%)	$408,000
			Start-Up Services	$15,000
			Pilot Study	$75,000
			Total Project Capital Costs	**$5,296,000**

6.7.5.4 Opinions of Probable Annual O&M Costs

There will be an increase in annual O&M costs associated with each of the water treatment options, including labor, chemicals, power, media/membrane replacement, waste disposal, and miscellaneous equipment and repair. As shown in Figure 6-9, O&M costs per 1,000 gallons of treated water were estimated over a range of flows to develop cost curves for each treatment technology. A line was fit to the curve and used to estimate annual O&M costs over the 20-year planning period using the average annual volume of water to be treated. Figure 6-9 summarizes the annual O&M costs over the 20-year planning period for each treatment technology. Detailed O&M cost estimates can be found in Appendix P. All O&M costs in this section are incremental (increases) to current water system operating costs.

Figure 6-9. O&M Cost Curves

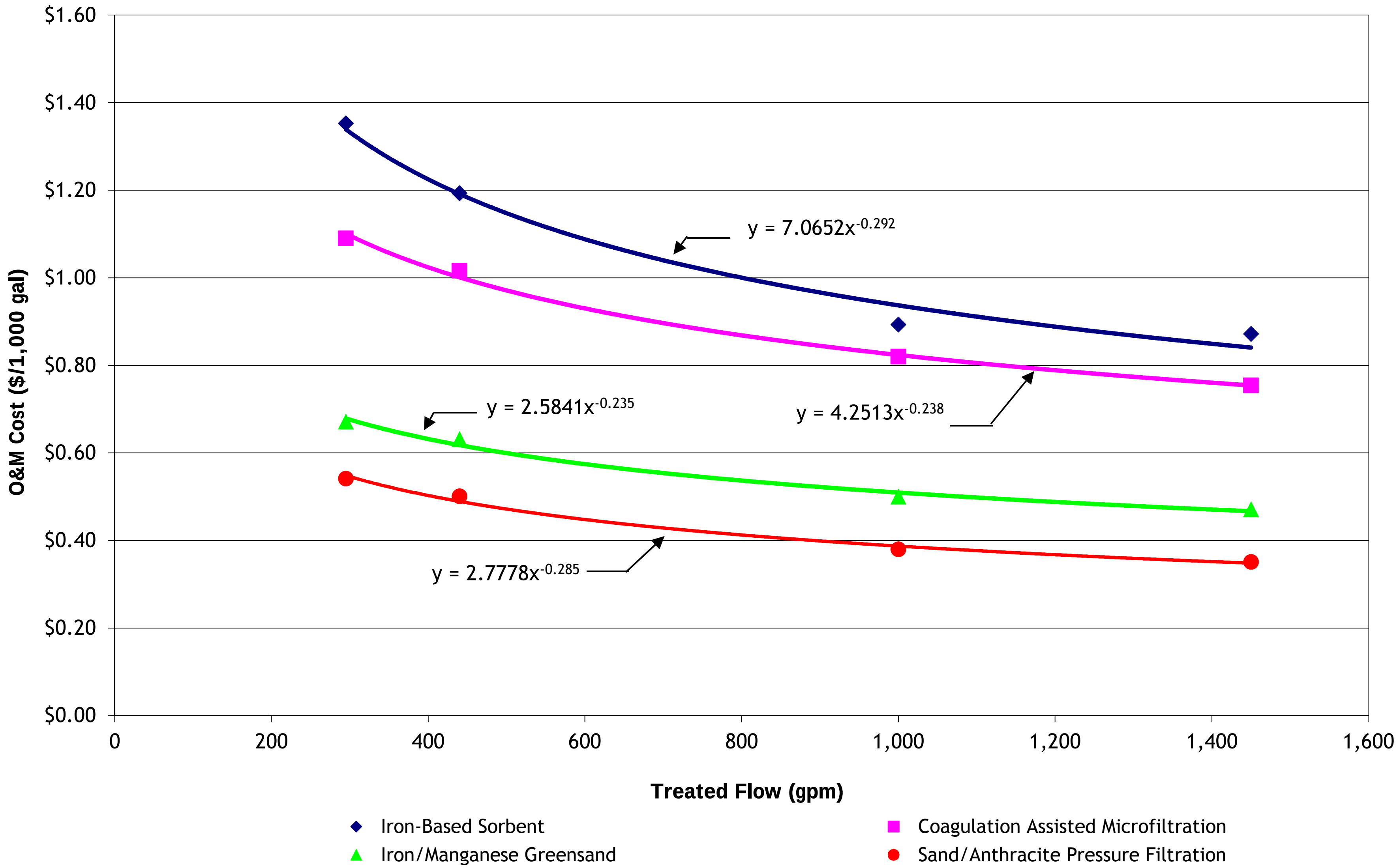
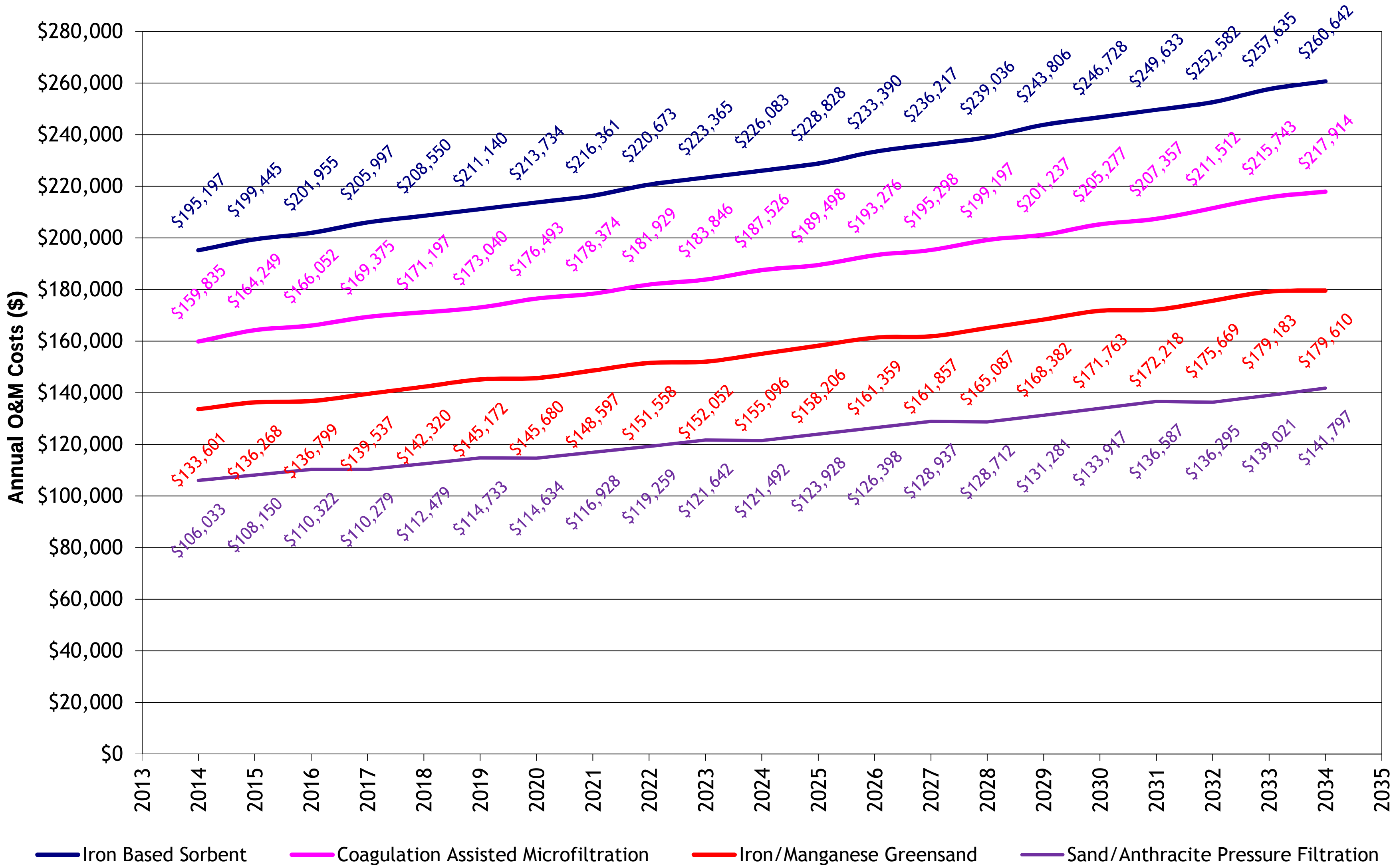


Figure 6-10. Annual Treatment Plant O&M Costs



6.7.6 Secondary Pressure Irrigation System and Reduced Treatment Plant Size

6.7.6.1 Description of Option

Some new developments in the City have installed a secondary pressure irrigation system. However, the majority of the City's residents do not have access to secondary water. As noted in Chapter 4, demands are considerably higher in the summer due to landscape irrigation. During the irrigation season the average day demand is 515 gpm. During the non-irrigation season the average day demand is only 228 gpm. The estimated 2014 maximum day demand is 1,009 gpm which typically occurs in late July and significantly influenced by landscape irrigation.

The installation of a secondary water system in the City would help to minimize the maximum day peaking factor and keep average day flows more consistent on an annual basis. This in turn benefits the City because it would allow them to construct a smaller arsenic water treatment plant. The treatment plant costs shown in the preceding section are based on treating the maximum day demand in 2034 (1,499 gpm). In theory, if the peaks due to landscape irrigation could be attenuated through the installation of a secondary water system, the treatment plant could be sized closer to the average day demand in 2034 (599 gpm). Additional engineering analysis would need to be performed to determine the exact sizing of the treatment facility under this scenario, but it seems feasible that the treatment plant size could be cut in half (750 gpm) if a City-wide secondary pressure irrigation system were constructed. This would likely be considered a best case scenario and would need to be evaluated further if the City decides to pursue this alternative.

The City has good water rights for canal water so secondary water supply should not be an issue. The new wastewater plant can also produce Class A reclaimed water which could be reused as an additional water source directly in the pressure irrigation system.

Construction of a secondary pressure irrigation system would require the components shown below in Table 6-16.

TABLE 6-16. SECONDARY WATER SYSTEM COMPONENTS

Component	Assumed Quantity	Design Basis
Secondary Water Distribution System Piping	50,000 LF	Assume approximately ½ the total length of the drinking water distribution system piping (100,000 LF) by only focusing on the more dense areas of the City and higher water users. Also, some newer developments already have secondary water piping in place.
Irrigation Storage / Equalization	10 acre feet	Assume 750 gpm is used in the pressure irrigation system during the peak irrigation season. 3 days of storage at 750 gpm = 3.2 MGal = 10 acre feet
Irrigation Pump Station	1	Assume 1 irrigation pump station to pump water from the storage reservoir and to maintain pressure in the secondary distribution system.
Arsenic Treatment Plant Sizing	750 gpm	Reduce capacity of water treatment plant from 1,500 gpm to 750 gpm due to reduced peaking factors.

6.7.6.2 Opinion of Probable Capital Costs

Based on the preliminary design data, an opinion of probable capital costs in 2014 dollars to construct a secondary pressure irrigation system and associated components is shown below in Table 6-17.

TABLE 6-17. OPINION OF PROBABLE CAPITAL COSTS FOR CONSTRUCTION OF A SECONDARY PRESSURE IRRIGATION SYSTEM

Item	Quantity	Units	Unit Price	Total Costs
Distribution System Piping	50,000	LF	$60	$3,000,000
Irrigation Storage / Equalization (10 AF)	1	LS	$500,000	$500,000
Irrigation Pump Station	1	LS	$400,000	$400,000
750 gpm Arsenic Treatment Plant	1	LS	$2,000,000	$2,000,000
			Sub-Total Construction Costs	**$5,900,000**
			Contractor Mob/Demob (5%)	$295,000
			Buy American Provisions (5%)	$295,000
			Davis-Bacon Wages (5%)	$295,000
			Contingencies (20%)	$1,180,000
			Total Construction Costs	**$7,965,000**
			Engineering & Const. Mngt. (17.5%)	$1,394,000
			Funding, Legal, Admin, Bonding (10%)	$797,000
			Total Project Capital Costs	**$10,156,000**

6.7.6.3 Opinion of Probable Annual O&M Costs

The secondary water system would minimize the peak flows that would need to be treated. As a result, it can be expected that chemical, power, and disposal costs would be cut approximately in half at the treatment system (this reduces O&M in first year by approximately $25,000). Labor would increase however as an entirely new system is implemented. It is assumed that labor would increase by 20 hours per week in the summer for the secondary system which is an increase of approximately $25,000. This suggests the net O&M costs are essentially the same between sand treatment alone as compared to adding the secondary system. It was assumed that the power requirements for the secondary water system would be offset by power reductions on the drinking water side. The 2016 O&M costs for this alternative were estimated to be approximately $110,000.

6.7.7 Summary of Arsenic Treatment Costs

Table 6-18 summarizes the capital, O&M, and 20-year life cycle costs for the feasible arsenic treatment alternatives.

TABLE 6-18. OPINION OF CAPITAL, O&M, AND LIFE CYCLE COSTS FOR ARSENIC TREATMENT ALTERNATIVES

Alternative	Treatment Plant Flow to Meet Arsenic MCL	Total Capital Costs at 2034 Maximum Day Flows (1,500 gpm)	Annual O&M Costs at 2016 Average Day Flows (420 gpm)	20-Years of O&M Costs [1]	20-Year Life Cycle Costs	Present Worth [2]
GFH Treatment Plant	1,000 gpm with 500 gpm bypass	$6,604,000	$202,000	$4,908,000	$11,512,000	$9,574,000
Microfiltration Treatment Plant	1,000 gpm with 500 gpm bypass	$7,208,000	$166,000	$4,070,000	$11,278,000	$9,667,000
Greensand Pressure Filtration Treatment Plant	1,500 gpm	$5,633,000	$137,000	$3,380,000	$9,013,000	$7,675,000
Sand/Anthracite Pressure Filtration Treatment Plant	1,500 gpm	$5,296,000	$110,000	$2,657,000	$7,953,000	$6,903,165
Secondary Water System and Sand/Anthracite Treatment Plant	750 gpm	$10,156,000	$110,000	$2,836,000	$12,992,000	$11,857,000

1. O&M costs for arsenic treatment alternatives escalated by flow rate as shown on Figure 6-10. O&M costs for secondary water system alternative escalated at 2 percent per year.
2. Discount rate = 4.375 percent. Payment period = 20 years.

Table 6-18 suggests that the lowest life-cycle cost treatment method is the Sand/Anthracite pressure treatment plant. This system has some additional non-monetary advantages over the other treatment systems including:

- No proprietary media.
- Relatively simple system to operate.

The microfiltration plant is significantly more on a life cycle basis. The microfiltration plant has an advantage that if the City ever needed to treat surface water, the membrane facility could be suited for that type of approach as membranes are used as a barrier to biological pathogens.

The nearby City of Buhl, Idaho is treating arsenic successfully using the Sand/Anthracite pressure filter approach with chlorine and ferric pretreatment.

Chapter 7

Implementation of Water System Improvements

7.0 IMPLEMENTATION OF WATER SYSTEM IMPROVEMENTS

7.1 RECOMMENDED WATER SYSTEM IMPROVEMENTS

This Water Master Plan has indicated that the City is in compliance with the majority of general water quality and water supply parameters. However, there are a few areas of concern regarding the water system, including:

- The data indicates that it may be difficult for the City to consistently and reliably meet the arsenic MCL of 10 µg/L both now and into the future using its existing, untreated water sources. If the City has trouble complying with the arsenic MCL, the City may need to improve the source quality; Chapter 6 indicates the only feasible method is to construct an arsenic removal water treatment plant. The City could continue current operations of the best quality wells, using the lower quality wells for backup, if the arsenic standard is met.
- Pressures on the south end of town tend to be lower than in other parts of the City. It is recommended that the City implement a third pressure zone in the south to alleviate this problem. This would allow the City to meet the minimum pressure standard of 40 psi at peak hour and peak day conditions.
- It is recommended that the City install a permanent backup generator at Well #3/#7. While not required by IDAPA regulations, this is a critical water source for the City and a backup generator will improve system reliability in the event of a prolonged power outage.
- The City is unable to deliver fire flow to some of the largest fire demands recommended by ISRB. The City does meet a minimum fire flow of 1,000 gpm at all locations at pressures above 20 psi. Fire flow improvements are not included in the costs shown below in Table 7-1.

Figure 6-1 shows the recommended improvements. The likely location for a treatment facility is near Tank 2 as the City owns property at that location. Future distribution system piping will mostly be associated with development and those facilities are assumed to be furnished and installed by others.

7.2 OPINIONS OF PROBABLE COSTS

Table 7-1 combines the lowest cost treatment alternative, the new pressure zone, and the backup generator at Well #3/#7 into a total opinion of probable cost (assuming the City needs to install treatment).

TABLE 7-1. OPINIONS OF PROBABLE COSTS FOR WATER SYSTEM IMPROVEMENTS

System Improvement	Capital Costs [1]
Arsenic Water Treatment Plant - Enhanced Coagulation with Sand Pressure Filtration (lowest cost alternative)	$5.296 million
New Pressure Zone on South End of Town	$0.332 million
Backup Generator at Well #3/#7	$0.100 million
Total Cost of Improvements	**$5.728 million**

1. Costs include: Construction, engineering, inspection, pilot test, and contingency.

7.3 MONTHLY USER CHARGE RATE ANALYSIS

Single-family residential connections (e.g., one equivalent residential unit, or ERU) are currently charged a monthly user rate of $27 per month. Other entities within the City can be billed different monthly rates based on the size of their water meter.

Changes to the monthly user rates were estimated for the water system improvements described above. For comparison purposes, two financing scenarios were considered for the proposed improvements. The two scenarios were based on the source and amount of funding procured for the project:

1. Scenario 1 – No grant funding would be secured and the project would be funded entirely through low-interest loans.
2. Scenario 2 – Approximately half of the project ($2.7M) will be funded through grants and the remaining portion would be funded through low interest loans.

There may be other project financing combinations that should be explored by the City. These two scenarios are simply used to illustrate possible changes to the monthly user rates for the water system improvements. Table 7-2 summarizes the results of the user charge rate analysis for the two financing alternatives.

TABLE 7-2. MONTHLY USER RATE CHARGE ANALYSIS

Item	Funding Scenario 1	Funding Scenario 2
Total Capital Cost of Improvements (Table 7-1)	$5.73M	$5.73M
Loan/Grant	$5.73M/$0.0M	$2.865M/$2.865M
Loan Term	30 years	40 years
Loan Rate	2%	3%
Annualized Capital	$255,800	$123,900
Annual O&M (Chapter 6)	$110,000	$110,000
Total Annual Costs	$355,800	$223,900
# of ERUs	935	935
Existing User Rate	$27	$27
$/ERU/Month Increase	$33	$21
Proposed User Rate	$60	$48

7.4 PROJECT FINANCING

The City could consider making application for financing of the proposed improvements, including both loans and grants, to minimize the costs to the community. Assessment of fees to new development may also be used to replace and/or upgrade the existing system.

Potential sources of funding include the IDEQ Revolving Loan Fund, U.S. Department of Agriculture Rural Development Agency (RD) loans and grants, Department of Commerce and Labor Community Development Block Grant Program, Department of Commerce Economic Development Administration Grants, EPA State and Tribal Assistance Grants (STAG), and U.S. Forest Service, and other non-governmental sources such as private bond markets. Some funding sources have requirements such as completion of an environmental document in accordance with the National Environmental Policy Act (NEPA). Some also have requirements to source labor in accordance with prevailing wages (i.e., Davis-Bacon wages) or purchase equipment substantially manufactured in the United States. These requirements tend to increase costs and the costs provided in Chapter 6 and Chapter 7 may have to be escalated if these requirements are in force. The City should consult qualified financial professionals or the potential funding agencies for additional guidance on what type of funding is best for the community.

The Idaho Department Environmental Quality has funds available through their Revolving Loan Fund. This program provides below market rate interest loans to Idaho communities to build new, or repair, existing water and wastewater facilities. The loan term is 20 years; however, some applicants may qualify as disadvantaged and be eligible for reduced loan terms. The funding is derived from an appropriation from the EPA (80%) and a 20% match from the Water Pollution Control Account.

Rural Development Agency makes loans and grants to public bodies and non-profit organizations in rural areas to construct or improve facilities that are modest in size, cost and design. Water and Waste Disposal (WWD) Loans and Grants may be used to construct, repair, improve, expand or otherwise modify rural water and wastewater facilities; pay necessary fees and costs associated with the project; or finance facilities in conjunction with funds from other agencies or those provided by the applicant. The maximum loan term is 40 years and grant funds may be available for facilities serving the most financially needy communities.

The Idaho Community Development Block Grant program (ICDBG) assists Idaho Cities and Counties under 50,000 population with the development of needed public infrastructure and housing in an effort to support local economic diversification and growth. The program is administered by the Department of Commerce and Labor Division of Community Development, with funds received annually from the U.S. Department of Housing and Urban Development. ICDBG funds are used to construct projects that benefit low and moderate income persons, help prevent or eliminate slum and blight conditions, or solve catastrophic health and safety threats in local areas.

The U.S. Department of Commerce Economic Development Administration (EDA) provides funding for the construction of public infrastructure under the authority of the Public Works and Economic Development Act of 1965. Eligible projects include water and wastewater improvement and projects that support economic development within the community. Cities, counties and special cities are eligible to apply. Projects must meet economic development eligibility criteria as established by Congress - specifically, per capita income, employment and other demographic characteristics, with an emphasis on resolving unemployment and barriers to economic growth and stability. EDA funds are provided as grants of from 50 to 80 percent of the project. Applicants must provide the local share from acceptable sources, including cash, local government bonds or a Community Development Block Grant.

The EPA provides STAG grant funds through their Office of Enforcement and Compliance Assurance (OECA) to carry out compliance assurance activities related to regional focus areas, potentially including water and wastewater systems. Eligible grant recipients include States, tribes, territories, local governments and multi-jurisdictional organizations. The OECA typically announces the availability of grant funds for a specific focus area through a Federal Register Notice. Preference is generally given to those applicants that provide some match towards the grant.

Many of the funding agencies have affordability criteria which they may follow as look at monthly user rate impacts. These criteria may include such things as local income levels and utility costs in nearby communities. As user rates exceed affordability criteria, the City may have the opportunity for grant funding for the proposed project.

The Idaho State Legislature ruled in March 1996 that communities can attach a price to new growth and development through the implementation of impact fees. The law allows government entities to charge a developer for a "proportionate share" of the cost of public facilities impacted by residential, commercial and industrial building. The calculation of the proportionate share must be based on a sturdy planning foundation that includes a comprehensive land use plan, a capital improvements plan, and a cash flow analysis. The money must be spent on the specific project it was collected for, within five years of collection.

Government entities may also charge a "new user capacity", "capacity buy-in", or "equity buy-in", fee to developers desiring to connect to water and wastewater systems. This fee typically accounts for the demand the new connection will place on a system and the depreciated replacement value of the system at the time of connection. The funds collection from this fee are generally held in a separate account and used for replacement of the water or wastewater system. The recommended charges are based on audited financial information and estimated system capacities.

7.5 ENVIRONMENTAL CONSIDERATIONS

The proposed improvements should have minimal environmental impacts from construction activities. Most the proposed water main improvements are generally in existing road right of ways. The likely location for the treatment facility, near Tank #2, is on an empty City owned parcel in town that has been disturbed. Heavy equipment and machinery will be used during construction, resulting in increased noise levels. However, construction activity should be limited to normal working hours to reduce the noise impacts on residential areas. In addition, construction noise should be temporary and can be minimized by the use of well-maintained equipment and mufflers.

Air quality may be impacted during construction due to dust and exhaust emissions from construction equipment, which may produce some minor air pollution. Debris created by construction should not be burned, but transported to a disposal area to avoid further air pollution. The impacts of construction dust can be mitigated by ceasing activity during exceptionally windy conditions and using watering equipment.

Open trenches, electrical utilities, and heavy equipment may present health and safety hazards during construction. These hazards may be mitigated by educating project personnel about the applicable health and safety regulations, and establishing safe operating procedures. Traffic control may also result in a safety hazard, as traffic patterns are altered for construction purposes.

It is anticipated that impacts on agricultural lands, cultural resources, wetlands, plants, or wildlife from the improvements will be minimal. If properly designed, operated and maintained, the proposed improvements should have minimal impacts on the soil, groundwater, and surface water.

The preliminarily locations of improvements are at sites where there are existing structures or streets. There is a possibility that some of the improvements will be constructed in areas where trees and vegetation have been planted and the area has been landscaped. In all areas where construction of the proposed improvements takes place, an effort will be required to reconstruct, replant, and landscape the area to its former condition.

If necessary, an Environmental Information Document (EID) will be prepared separately from this report for the specific improvements identified in the Water System Facilities Plan. The EID will evaluate potential environmental impacts and mitigation measures for the proposed improvements.

7.6 IMPLEMENTATION ISSUES AND TENTATIVE SCHEDULE

Implementation of the proposed projects is a function of regulatory approval, public acceptance, funding, and constructability. It is anticipated that the City will be able to obtain the necessary regulatory approval and permits for construction and operation of the proposed water system improvements. A permit will most likely be required from the Idaho Transportation Department for crossing U.S. Highway 30. The recommended improvements should provide a water system capable of complying with the new arsenic standard.

It is anticipated that standard construction practices will be used to install the water main improvements and construct the water treatment plant. Additionally, the water mains will most likely be installed within existing City street right-of-ways. As such, no insurmountable construction problems are expected for the recommended improvements.

It is anticipated that once funding is available it will take approximately 6 months to design the treatment plant and pressure zone improvements. Construction will likely last approximately 12 months.

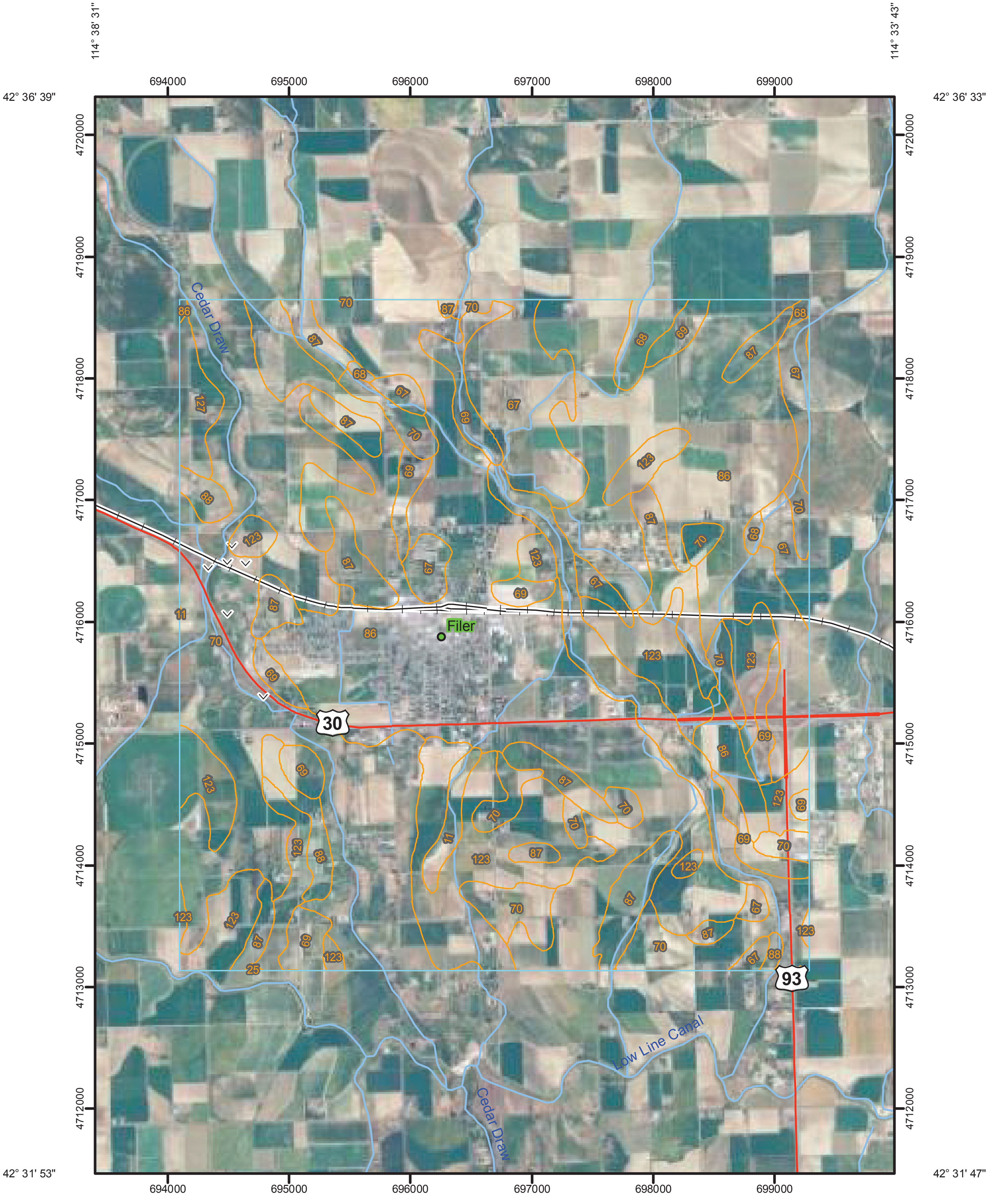
7.7 PULIC PARTICIPATION

City staff have notified the public of the City's arsenic levels and the arsenic MCL through annual consumer confidence reports. The results of this Arsenic Compliance Study were presented to the City Council at an open public meeting on June 17, 2014. In the event the City elects to move forward in a manner that either impacts user rates or requires significant funding from an outside source, the City will be required to hold public hearings on the matter. It is recommended the City hold a public meeting such as an open house to explain the current conditions, deficiencies, alternatives, and costs. This feedback from the public can be used in the EID and final funding assessment. A final public hearing on the rates is also recommended and likely required depending on the final funding package.

Appendix A

Physical and Engineering Properties of Soils

Figure 2-5. Soil Map—Jerome County and Part of Twin Falls County, Idaho
(City of Filer Soil Map)



Map Scale: 1:42,200 if printed on A size (8.5" x 11") sheet.

Meters: 0, 400, 800, 1,600, 2,400

Feet: 0, 1,500, 3,000, 6,000, 9,000

MAP LEGEND

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

Soils
- Soil Map Units

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
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:42,200 if printed on A size (8.5" × 11") sheet.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N NAD83

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

Soil Survey Area: Jerome County and Part of Twin Falls County, Idaho
Survey Area Data: Version 7, Aug 14, 2012

Date(s) aerial images were photographed: 7/6/2004

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Jerome County and Part of Twin Falls County, Idaho (ID704)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
11	Bahem silt loam, 4 to 8 percent slopes	42.8	0.6%
25	Chiara silt loam, 1 to 8 percent slopes	1.3	0.0%
67	Minidoka silt loam, 0 to 2 percent slopes	479.7	6.8%
68	Minidoka silt loam, 2 to 4 percent slopes	74.8	1.1%
69	Minveno silt loam, 0 to 2 percent slopes	327.2	4.6%
70	Minveno silt loam, 2 to 8 percent slopes	1,891.8	26.8%
86	Portneuf silt loam, 0 to 2 percent slopes	2,716.6	38.4%
87	Portneuf silt loam, 2 to 4 percent slopes	471.6	6.7%
88	Portneuf silt loam, 4 to 8 percent slopes	95.0	1.3%
123	Sluka silt loam, 1 to 4 percent slopes	895.5	12.7%
127	Stricker-Nawt-Rock outcrop association, 15 to 30 percent slopes	70.7	1.0%
Totals for Area of Interest		**7,067.2**	**100.0%**

Appendix B

Comprehensive Plan

CITY OF FILER

AND AREA OF IMPACT

Comprehensive Plan

INTRODUCTION

The City of Filer is located approximately 7 miles west of Twin Falls, in Twin Falls County, Idaho. The U.S. Census estimated 2140 residents in the City of Filer in 2008.

Continued growth and economic development in Filer will be dependent upon land use decisions made by the community and the type and quality of services available in Filer.

The Comprehensive Plan for Filer will serve as a guide for local decision makers to use to assure that decisions are made in the best interest of the community. It contains statements of the citizens in the form of Goals and Policies, and the application of the Goals and Policies in the form of a Comprehensive Plan.

This document is only a part of the comprehensive planning process. To serve as an effective guide for development, implementation methods must be developed, adopted, and administered in a fair manner. The adoption of zoning, subdivision, and the building regulation ordinances by the City will assure continuity in development through proper enforcement.

I. GOALS AND POLICIES

Goals are explanations of purpose - ideals of, and for the future. Policies are explanations of the course of action the City intends to take in order to meet those goals. Goals and Policies are developed by citizens because it is the right and responsibility of citizens to set their future course. The citizens of Filer can, in an orderly and rational manner, determine their future and assure that future generations will be able to do the same.

Goals and Policies should be reviewed and adjusted through time to allow for the inevitability of change. Another comprehensive plan addressed this need for flexibility as follows:

> "Different goals will in time conflict with one another. The community will then have to weigh one goal against the other. This ongoing process of establishing, applying, weighing and evaluating community direction constitutes the planning process. The planning process is an open-ended process, one which never ends. The goals, policies, and proposed land use found herein, along with the detailed studies which remain to be done, should be continually evaluated and updated - together they provide the framework for community decision making."

The following Goals and Policies reflect the desires of the people of the City of Filer and its impact area to have "the best of possible worlds" here in our own community.

A. GENERAL

GOAL: To preserve the quality of the land, air and water environment in the City of Filer.

POLICIES:

1. The capability of the land, air, and water resources to sustain human activity should be a determining factor in land use decision.

2. Generally, land use in areas subject to seasonal high water table should be limited to agricultural or public recreation.

3. Proposed subdivision and commercial site plans should include provisions to protect the natural drainage system. Where the natural system is not adequate, supplemental drainage facilities should be required.

4. Areas with limited groundwater quantity or quality should be restricted to low density unless adequate domestic water supplies are available.

5. The City will provide adequate water supply, pumping, and distribution facilities to meet projected population needs. The City will also provide adequate sewage collection and treatment facilities to meet projected population needs.

6. Standards for air quality, noise, and odors as determined by the Idaho Department of Environmental Quality shall be adhered to and enforced.

7. Buffers between noise-generating and odor-generating uses and other uses should be provided through zoning and subdivision ordinances.

8. The City shall by ordinance, adopted, amended, or repealed, in accordance with Section 67-6526 Idaho Code, define

the boundary the area of city impact. Within this area, the city and county shall adopt and the City shall administer the City's plan and ordinances adopted, amended, or repealed.

B. LAND USE

GOAL: The physical development of the City of Filer should be accomplished in an orderly fashion by rational and objective land use decisions.

POLICIES:

1. Land use decisions shall be based upon findings of fact and efforts should be made to determine the effects and alternatives of any land use decision.

2. The entire Comprehensive Plan shall serve as a guide for development.

3. Ordinances, traditionally zoning and subdivision ordinances, shall be amended, if necessary, to implement the Comprehensive Plan.

4. The Comprehensive Plan, and land use regulations shall be monitored continually and updated when necessary to reflect current community goals and values.

5. Input from citizens should be requested at every level of land use decision-making.

6. The protection and enhancement of the general public safety, health, and welfare shall be tantamount to all other factors guiding land use decisions.

GOAL: The City of Filer should encourage, but not be limited to, the development of land within the corporate limits of Filer prior to annexation of undeveloped fringe areas.

POLICIES:

1. The City should refrain from extending public services to areas outside the corporate limits, unless such property is annexable and the request for services is accompanied by a request for annexation.

2. Areas proposed for annexation should be considered only if they are contiguous to the corporate limits.

3. Annexations should occur only after a determination has been made that the City can provide those public services necessary

to promote the health, safety, and general welfare of the citizens of Filer.

4. Areas adjacent to the corporate limits and within the area of City impact should be developed in conformance to City regulations to assure continuity of development.

5. Annexation of areas to the City shall be concurrently accompanied with a land use plan and zoning designated for the annexed area.

C. HOUSING AND RESIDENTIAL DEVELOPMENT

GOAL: Encourage housing that meets the needs of all socio-economic groups of citizens in the Filer area.

POLICIES:

1. Decent housing and a suitable housing environment should be available to all socio-economic levels.

2. Cooperate with and encourage private efforts to provide adequate housing.

GOAL: Maintain and/or improve the quality of housing and residential development.

POLICIES:

1. Rehabilitation of substandard housing should be encouraged.

2. Housing policies should be developed to assure that the upgrading and rehabilitation of home is encouraged rather than discouraged.

3. Assure safe and long-lasting housing construction by utilizing building, zoning, and housing regulations.

4. The City of Filer and its impact area should promote traffic safety in all residential areas by adopting a parking ordinance requiring that all vehicles other than passenger cars and pick-ups under 10,000 g.v.w. be parked off the street. The offstreet requirement should include all large vehicles, such as motor homes, travel trailers, and large trucks, that might potentially create traffic hazards through reduced visibility and congestion.

5. Encourage increased housing satisfaction through residential "clean-up" programs. All weed ordinances will be strictly enforced in the City of Filer.

GOAL: Provide all areas of different residential densities and uses.

POLICIES:

1. Densities and uses should conform to existing pattern of development.

2. A further definition of these densities should be made in the zoning ordinance to allow for multi-family dwellings at increased densities.

3. Higher densities and more intensive residential uses should occur nearer to similar uses than to less intensive uses.

4. When multi-family dwellings are to be located adjacent so single-family dwellings, consideration must be given to density and design of the more intensive use to protect the amenities of the single family uses.

5. In areas where applicable the allowable density of housing will be determined by the South Central District Health..

POLICIES:

1. Developers should be required to maximize the variety of attractive neighborhood settings in terms of price range, amenities, natural settings, and proximity to other areas of activity.

2. Adequate public access shall be provided to all lots.

3. Streets and roads shall be designed and constructed in compliance with adopted standards. The costs of new streets and roads will be borne by the developer.

4. An adequate system for connection to the municipal water system must be provided by the developer.

5. Availability of other utilities such as power, gas, telephone, cable T.V., and street lights are the responsibility of the developer.

6. Sewage disposal will be provided for by the developer in accordance with the standards of the South Central District Health In areas where public sewer disposal is not yet available, sewage disposal will be provided for by the developer in accordance with the standards of South Central District Health. The developer shall also be required to install a "dry system" to ease the eventual connections to a public collection system. The plans for this must be submitted to the Department of Environmental Quality for approval before installation.

7. Developers will be required to upgrade or add to city water and sewer services as necessary to accommodate the needs of their projects.

8. Buffering of non-residential uses that are adjacent to residential areas will be required for the protection of both parties.

9. Developers will be required to pay all the costs involved in complying with ordinances adopted by the City of Filer.

10. Land use regulations, zoning and subdivision ordinances, and the applicable building codes will be adhered to, to assure responsible, well-planned development.

D. COMMERCIAL AND GENERAL BUSINESS

GOAL: Commercial and general business development should occur in those areas where there is an established pattern of commercial and general business development.

POLICIES:

1. Encourage commercial and general business development in the area where commercial and general business activity now exists.

2. Commercial and general business development should occur in areas with good ingress and egress to major arterials to minimize traffic conflicts and maintain smooth circulation.

GOAL: Commercial and general business development should occur in a responsible and complimentary manner, and should be compatible with other land uses, as much as possible.

POLICIES:

1. Provide adequate traffic circulation in commercial and general business areas.

2. Require developers to provide sufficient area for off-street parking of both commercial and private vehicles and an area for snow storage on commercial and general business sites.

3. Require developers to provide adequate means of handling increased runoff caused by introduction of impervious surfaces.

4. Require developers to upgrade or add to city water and sewer services as necessary to accommodate the needs of their projects.

5. Require developers to provide for proper lighting and signage, as provided in the City Code and current International Energy Code, that assures an attractive commercial and general business area and promotes safe traffic circulation.

6. Buffer commercial and general business development to protect adjacent areas of different uses.

7. Encourage aesthetic designs for physical structures.

E. INDUSTRIAL

GOAL: Provide an area for the location of light industrial uses.

POLICIES:

1. Encourage the development of light industrial uses which will have minimal adverse effects on the physical and social environment.

2. Encourage the location of light industrial uses which utilize the area's existing human and material resources.

3. Require the buffering of light industrial uses which locate adjacent to other land uses.

4. Require developers to upgrade or add to city water and sewer services as necessary to accommodate the needs of their projects.

5. Require developers to provide for proper lighting and signage, as provided in the City Code and the current International Energy Code, that assures attractive and safe siting.

6. Provide adequate traffic circulation in light industrial areas to assure safety and smooth transition.

7. Ensure appropriate overall design of light industrial sites.

GOAL: Industrial development should occur in a responsible and complimentary manner, and should be compatible with other land uses, as much as possible.

POLICIES:

1. Encourage industrial development in the area where industrial activity now exists.

2. Industrial development should occur in areas with good ingress and egress to major arterials to minimize traffic conflicts and maintain smooth circulation.

F. PUBLIC SERVICES

GOAL: Encourage essential public services at the lowest possible cost.

POLICIES:

1. Development patterns should be consistent with the availability of services and utilities as well as with land capability and development goals.

2. Coordinate public improvements and programs within the city.

3. Explore the alternative methods of financing public projects to relieve the cost burden to individual residents.

4. The City should refrain from extending public services to areas outside the corporate limits of the City of Filer.

GOAL: Promote the provision of utilities sufficient to protect the public health and welfare.

POLICIES:

1. Continue to implement a Wastewater and Sewer Management Plan.

2. Methods of financing extensions of the sewage and water systems and storm sewers should be sought.

3. Decisions regarding sewage disposal should conform to and support optimal land uses.

4. Developers will be required to provide interim systems that can be tied into future sewer lines.

5. Gravity flow sewage systems are to be encouraged.

6. Utilities should be placed underground whenever possible.

7. Adequate water pressure, quantity, and qualify of supplies shall be required for domestic uses and for fire protection purposes.

8. Consolidation of power transmission lines with other utility corridors (pipelines, etc.) and transportation rights-of-way should be encouraged.

9. Power substations should be screened with mature plantings or be designed to blend visually with their surroundings.

10. Energy conservation should be encouraged in the City of Filer.

11. Alternative sources of energy should be encouraged and examined.

GOAL: Support adequate and effective police and fire services to all residents in the City.

POLICIES:

1. Coordinate with fire protection officials to assure that development is designed and located so fire protection can be effectively provided.

2. Coordinate with law enforcement officials to assure that development is designed and located so that hazards are minimized and law enforcement and protection can be effectively provided.

G. TRANSPORTATION

GOAL: Provide an efficient transportation system in the City of Filer.

POLICIES:

1. All components of the transportation system should be coordinated with neighboring jurisdictions and with state and federal programs.

2. Maintenance and improvement of existing streets should have priority over construction of new streets.

3. The City should discourage private streets that serve developments, particularly residential areas. Half-width streets will also be prohibited.

4. Standards for the construction of new streets should be developed, adopted, and adhered to.

5. Developers will be required to bear the cost of improvement of new streets dedicated to the City for the purpose of serving new developments.

6. Developers will be required to put in streets, curbs, sidewalks, street lights, storm drainage, and other appropriate improvements.

7. Truck routes should be designated.

GOAL: Land use decisions should consider the impact of the decision on the transportation system and transportation improvements should be reviewed for their impact on land use.

POLICIES:

1. New development shall be reviewed to determine the effect on existing streets.

2. Development proposals shall include plans for circulation to assure compatibility and conformance with existing and proposed transportation systems.

3. The construction of major arterials through new or existing residential developments should be discouraged.

4. Developers should be required to provide for a minimum of two off-street parking spaces per housing unit in all new developments.

5. Careful consideration of the use of traffic controls and regulations should be made to assure the safety of all traffic and pedestrians.

H. PARKS, RECREATION AND OPEN SPACE

GOAL: Maintain and/or improve recreation areas within Filer.

POLICIES:

1. Encourage coordinated recreational activities and needs with local agencies, e.g., school district.

2. Seek alternative financial sources for the development, expansion and acquisition of park lands.

3. Expand facilities when and where demand necessitates.

4. A plan that inventories the demand and makes need projections should be developed to assure a continuing commitment to recreational opportunities in the City.

5. All parks shall be maintained either by the City or a responsible association.

GOAL: Encourage new recreational development within the City of Filer.

POLICIES:

1. Allow for development that will enhance the recreational opportunities of the area.

I. GOVERNMENT

GOAL: Encourage full citizen participation in public decision making.

POLICIES:

1. Citizens' opinions on major issues should be ascertained in advance of decision making.

2. The best interests of the whole should be given priority over the special interests of a small group.

3. An effective system to assure continued participation by individuals and groups in planning and decision-making should be maintained.

4. Local planning by residents should be encouraged.

GOAL: Promote regional awareness and cooperation.

POLICIES:

1. The City of Filer will negotiate zoning ordinances, regulations and obligations for an area of city impact with Twin Falls County.

2. Land use decisions concerning conflicts between jurisdictions should take into consideration the current land use and the long range goals of both jurisdictions.

3. Regional and local goals should, where possible, be coordinated to insure continuity of development.

GOAL: Develop and maintain a comprehensive plan and planning process that is: adaptable to changing conditions.

POLICIES:

1. Land use decisions shall conform to the adopted comprehensive plan.

2. The comprehensive plan will be reviewed periodically by the Planning and Zoning Board to ensure that plan goals and objectives continue to reflect community desires and circumstances. The plan can be updated or amended every six months if sufficient new data becomes available or unforseen changes take place.

3. City officials should be familiar with the comprehensive plan and planning process to answer questions and assist in the plan implementation. The Planning and Zoning Board should attend seminars as is necessary.

4. The granting of variances should be minimized.

5. Non-conforming uses should not be expanded or converted into other non-conforming uses.

6. Flexible land use regulations should be developed that are specifically suited and applicable to Filer to implement the comprehensive plan and development policies.

II. LAND USE PLAN

A. RESIDENTIAL

This plan provides for two types of residential densities to accommodate the wide range of residential uses.

Residential. Limited to one family dwellings, and duplex and multiple-family housing by special use permit.

Low Density Residential. Low Density Residential provides for minimum one acre parcels with single family dwelling in those area where access to City utility services will be impractical.

When considering amendments to this plan and/or zone changes that concern residential uses, the following factors should be considered:

1. Has a need for the change been established?
2. Does the proposal conform with the goals, policies, and intent of the comprehensive plan?
3. Does the proposal meet all of the requirements of the zoning and subdivision ordinances?
4. Is the proposed density and use compatible with the surrounding area?

B. COMMERCIAL

Commercial development should be encouraged to develop in the established general business and commercial areas.

The City of Filer should discourage commercial development outside of this area to minimize adverse effects on residential areas.

Though this plan and the zoning ordinances there must be sufficient area provided for general business and commercial development so that the rezoning of residential areas will not be necessary.

A buffer area will be required between general business, commercial and residential areas.

When considering amendments to the plan and/or zone changes to expand the general business and commercial area, the following factors should be considered with primary concern being given to number one:

1. Is the proposal compatible with surrounding uses and have acceptable measures been taken to assure compatibility?

2. Has a need for the change been established?

3. Does the proposal conform with the goals, policies, and intent of the comprehensive plan?

4. Does the proposal meet all of the requirements of the zoning and subdivision ordinance?

C. INDUSTRIAL

The goals and policies of the plan encourage the provision for an industrial area.

The general character of an industrial area is defined as those areas being suitable for non-polluting types of industries and utilities. These types of industries include machine shops and light manufacturing. These are the heaviest types of uses allowed within the industrial category. The lightest (lightest being the least amount of impact on surrounding uses) which would locate within an industrial area include general commercial types of uses which refer to such things as cabinet shops, electrical and plumbing contractors, public and semi-public facilities, welding and metal fabricating jobs.

After the establishment of industrial areas on the land use plan map, the zoning and subdivision ordinances will be used to implement the plan.

The administration of these ordinances should, therefore, take special types of consideration into account when considering a proposed plat for rezone within an area designated for industrial use in the Land Use Plan. Generally, these considerations should take these factors into account:

1. The proposed use will be compatible with the industrial area as defined.
2. That the proposal meets the goals and policies as defined in the Land Use Plan. These factors should include considerations of conflict with surrounding uses and the location criteria.
3. Proposed industrial uses shall be required to hook up to city sewer.
4. Will the proposal meet the use and performance standards as required in the subdivision and zoning ordinance?
5. If the proposal for an industrial zone of subdivision is not located within an area designated for industry, the question should be asked, does the site:
   a. Meet all of the above criteria for location and the impact of surrounding uses.
   b. Establish a precedent whereby a new area is established for industrial growth (which should not be encouraged unless areas currently designated for industrial use are near or have reached capacity) and
   c. If a new area for industrial use is deemed acceptable, then an amendment to the land use plan should be adopted prior to rezoning.

D. AGRICULTURAL

It is the goal of the plan to preserve agricultural land from encroachment by other uses, and to discourage subdivision or development of these lands.

III. COMPONENT STUDIES

A. PROPERTY RIGHTS

The plan should establish an orderly, consistent review process that better enables the City of Filer to evaluate whether proposed regulatory or administrative actions may result in a taking of private property without due process of law. It is not the purpose of this policy to expand or reduce the scope of private property protections provided in the state and federal constitutions.

B. POPULATION

Historically, Filer has exhibited a slow but steady growth in population since 1930 that is typical of Twin Falls County as a whole. The City's historic population data show that the population increased by approximately 405 people between 1960 and 1980, which is a 40 percent increase over the 20 year period. Population decreased by approximately eight percent between 1980 and 1990. The population was estimated by the U.S. Census Bureau to be 1701 between 1995-2000. The 2000 Census, however, showed a decrease in population to 1620, but the City experienced an increase of approximately 75 (seventy-five) new homes being built during the period of 1994 and 2000. The increase in new homes isn't reflected in the estimate done by the 2000 U.S. Census Bureau. Since the 2000 Census, approximately 120 (one hundred twenty) more new homes have been built. By 2008, the U.S. Census Bureau estimated the City of Filer's population to be 2,140. This is a better representation of the growth the City has experienced over the past fifteen years.

C. SCHOOL FACILITIES AND TRANSPORTATION

Public education and administration in the community is provided by Public School District No. 413. Public School District No. 413 serves primary and secondary education needs with a primary school, middle school and high school. These facilities appear to be at or over capacity. Based upon student growth in Filer, additional facilities or expansions will be necessary to accommodate increasing enrollment. A new high school was built in 1995. The middle school moved to the former high school.

D. ECONOMIC DEVELOPMENT

In the City of Filer there are several agricultural supported businesses which also provide employment for local and area residents. Businesses include, but not limited to, a manufacturer of agricultural products, seed research facilities, feed mill, lumber yard, and an agricultural trucking company.

In the area surrounding Filer are a variety of agricultural uses.

The Filer area is known to be one of the leading areas in the world for growing garden seed beans. This is because of its dry and disease free climate. The area also contains a large acreage of sugar beets, seed peas, edible commercial beans, alfalfa hay, wheat and feed grains. It also has many small plots of irrigated pastures. There are several established dairies around Filer and also numerous small beef herds. The area is also home to several fish hatcheries.

All of the land surrounding Filer is irrigated with water from the Twin Falls Canal Co.

Most of the land is locally owned and about 50% is owner operated, with the other 50% under tenant lease.

As it extends farther south, the climate becomes a little colder, and this limits the growing season from perishable crops to such crops as feed grains, hay, etc. It also has, to the far south, a large acreage of dry range land.

To the west, close to the city limits, is Cedar Draw. It runs angle across the country and is a natural barrier that separates the agricultural land to the west of it. This draw has provided a natural location for fish ponds and related industry.

To the north-west corner of Filer on old Highway 30 is the Filer Wastewater Treatment Facility.

Directly north of the city lies some of the better farm land in Magic Valley. This area is known as "Sucker Flats." It has land value as high as any district in Twin Falls County. To the north of this farm land is the Snake River Canyon which divides Twin Falls and Jerome Counties. This canyon has new economic value because of several hydro-power plants being built to supply energy needs for the area.

To the east of Filer is agricultural land that borders the city limits but because of Highway 30 joining Twin Falls and Highway 93 crossing, it has showed future development that will eventually join the city limits of Twin Falls and Filer.

E. LAND USE

A Comprehensive Plan Land Use Map has been prepared indicating suitable projected land uses for the City of Filer and the Area of Impact.

INDUSTRIAL:

Most industrial businesses are located along the railroad in the center of the City, with some to the north past the city limits.

COMMERCIAL:

Most of the commercial and general business areas are located in the downtown area and along Highway 30.

RESIDENTIAL:

Residential areas are primarily located within the original townsite area. There are scattered residential developments along each boundary within the Area of Impact.

F. NATURAL RESOURCES

WIND:

Wind velocity in the Filer area can be considered a natural resource. Through testing it has been determined that wind velocities in this area are sufficient for the generation of power during a period of not less than 300 days a year.

Wind generation has been under consideration as an alternate power source for this area. With power costs on the increase continually in this area, it may soon become an economic reality.

G. HAZARDOUS AREAS

IRRIGATION:

A hazard that exists in Filer and the surrounding planning area is open irrigation ditches. This is a problem that plagues a large number of towns in Southern Idaho.

TRAFFIC:

Traffic hazards exist in several areas of the City. The first being State Highway 30 running east and west through the City of Filer, separating the school from the major portion of the townsite. Pedestrian traffic to and from the school must cross this artery without the aid of traffic signals.

There are several possible solutions to the traffic problem which exists on Highway 30.

A solution which was pursued at one time is traffic stop lights with a controlled crosswalk. At the time this possibility was pursued, the state was not receptive to the idea of placing stop lights on a major highway. Since that time there have been a number of such installations and could easily become a reality at this location. Caution lights have been installed at the east and west entrances on Highway 30 and a caution light was installed at the crosswalk at Yakima Avenue and Highway 30. The City has petitioned for traffic lights at the following intersections: 2300 East (Wildcat Way) & Highway 30, 2250 East (Fair Avenue) and Highway 30 and 2200 East (Stevens Avenue) & Highway 30.

PUBLIC SERVICES AND UTILITIES

The Filer Police Department moved to the old library in 1988. As the City has grown, so has the Police Department and the need for larger facilities for offices, a meeting room, secure garage and holding area.

There now is a staff consisting of 1 chief, 4 officers, 8 reserves and 1 matron.

LIBRARY:

The Filer Library was founded over 60 years ago and since that time considerable progress has been made.

In 1988 it was moved from the small facility behind the city office to across and down the street in the former lumber yard after many improvements.

The library now has the capacity to handle many more books and people with room for special activities for the public to enjoy, with plenty of off street parking.

QUICK RESPONSE UNIT:

The Filer Quick Response Unit was started in 1984 with a (14) fourteen volunteer member team and one used ambulance. During the first few years the call volume was about forty-four calls per year. In 2005, the call volume had increased to over four hundred. It is still a (14) fourteen member volunteer team highly trained in First Responder, Basic and Advanced Emergency Medical Technical Pre-Hospital Training.

We now have (3) three ambulances complete with the latest equipment and housed in the City Fire Station, ready for 24 hour a day service. Members are all equipped with radios and pagers for faster and more efficient response.

The QRU is funded by monies from the City of Filer, Filer Rural Fire District, grants, donations and recently formed Twin Falls County EMS District. A County-wide EMS Training Program is a goal the members are working towards. Challenges in the future are to get more people to become EMT's and volunteer for the Filer Quick Response Unit.

FIRE DEPARTMENT:

The Filer City Fire Department was established in 1927 with the members being local business men. They were summoned to a fire by a triangle dinner bell, then a bell and in the early 40's, a siren. A 1942 American La France fire truck was purchased around the time the siren was added. The siren and telephones were the means used to contact the firemen for fires until the late 80's. In the late 80's, pagers were purchased and used by the firemen for emergency situations. The City Filer Department is still in the same location as it has been for over 75 years and has been joined by the Filer Rural Fire District. The Departments consist of (28) twenty eight professional firefighters who have dual roles with the City Fire Department and Rural Fire District. Each Fire Dpeartment is commanded by a fire chief, assistant fire chief, two captains, two lieutenants, safety officer, training officer and a fire prevention bureau. Each firefighter carries a pages and/or radio for 24/7 communication and quick response. Firefighters are training in the 21st Century Firefighting Techniques, where safety and training are the top priorities.

During the 40's and 50's the City had (21) twenty one fire hydrants and (64) sixty four fire hydrants in the 70's and 80's. In 2005, the City of Filer has 152 fire hydrants, all with spaces of 400 feet apart with steamer ports and two 2 ½ " outlets. The City Fire Department operates with three fire trucks, the newest bought in 2004. The City has a ISO rating of (4) four.

A new station will be needed in the near future to house a much needed 100' ladder truck Keeping up with growth is, and will continue to be a challenge

Fire Mission Statement: Save lives, property, teach fire safety and be role models.

SEWER:

The City of Filer's installed collection system has nearly 9 miles (47,520 lineal feet) of sewer mainline. Most of this consists of 8" sewer pipe which was installed in the mid-1930's

The City's current Treatment Plant is located northwest of the City, and was last upgraded in the 1970's. It consists of (4) four facultative lagoons (two of which are aerated), a chlorine disinfection system, and a 75-acre farm which is used to land apply treated effluent from the treatment plant. The current approved Plan is to construct a Membrane Bioreactor (MBR) wastewater treatment plant designed to produce Class B reclaimed wastewater. It is expected that Filer's drinking water supply should be sufficient for at least the next 10 to 15 years. Therefore, it is recommended that the City not construct fully redundant Class A facilities or a secondary irrigation system at this time. Instead, the site will be master planned so that redundant components (e.g., an MBR process train) can be added to the site at a later date. Over the coming 10 to 15 years the City can monitor the arsenic issues and determine the best use of the high quality effluent. The anticapated treatment facility would include: plant headworks including screening, membrane bioreactor treatment that includes phosphorus and nitrogen removal, UV disinfection, effluent pump station, sludge holding/digestion tank, dewatering, landfill or land application of solids and effluent disposal initially at the existing land application site or year round disposal to Cedar Draw with the ultimate goal of water reuse.

The City rotates crops on approximately 40 acres of the farm ground raising hay, grain, corn or wheat. These crops aid in the treatment process by providing additional nutrient uptake from the applied wastewater. The City also has a National Pollutant Discharge Elimination System (NPDES) permit, which allows the City to discharge to Cedar Draw Creek during the non-growing season.

During the next few years the City will be in the process of replacing nearly (6) six miles of deteriorating, 70 year-old sewer pipe.

WATER:

The water distribution system in the City of Filer has come a long way from the wooden mainlines originally installed in the City. Cast iron, lead gasket pipe was used in the 1930's & 40's, then cast iron pipe with rubber gaskets in the 50's & 60's. Ductile iron pipe was introduced to the City in the 1970's and used extensively until the mid 90's. From the mid 90's until present, the City has adopted the use of plastic, Poly Vinyl Chloride (PVC) pipe as the standard for the water distribution system. The last of the wooden pipe was removed in 1982 and the last of the old cast iron pipe was removed in 2005. In addition, the City also has a 650,000 gallon storage tank that was constructed in the early 1980's.

In 2003, the City was able to finance a major upgrade improvement project to the existing water system. The financial support for the project resulted in part from the gracious approval by the citizens of Filer of a bond election of one million dollars. The passing of the bond allowed the City to leverage additional grant funds from USDA-RD, EPA and the Idaho Department of Commerce, for a total project cost of 2.3 million dollars. The upgrade improvements included a new deep-well, a one million gallon storage tank, and automated booster pump station with a chlorine disinfection system and replacement of approximately four miles of distribution and dedicated water main. This project allows those within the City of Filer to enjoy consistent water pressure and volume which was not possible with the previous system.

The City of Filer is continually looking for ways to maintain, upgrade and improve the water system in areas that still need to be addressed. Although currently no quality problems exist, arsenic and nitrates levels are always a concern, and the City constantly monitors these levels and looks for cost effective technologies of treatment. The City of Filer is committed to be proactive in delivering clean pure water to the well deserving people who live here.

DRAINAGE:

Storm drains within the City are at this time adequate for present conditions and are continually being upgraded to meet the community growth.

SOLID WASTE:

The City is currently using facilities provided through the County for solid waste disposal.

The City is presently using a contractor solid waste disposal company, which is provided once a week.

Commercial solid waste disposal is available to the businesses in the City by several disposal companies.

I. TRANSPORTATION

The future of transportation around the Filer area is going to become an important, controversial subject within a few years, one of the primary reasons being energy costs and the distances to surrounding communities. Other facets of City management come into play also, such as streets, truck routes, intersections, building set-backs, parking, right-of-way acquisition, and other related problems.

Due to the ever increasing truck traffic, the City Council has enacted a truck route for our City.

The primary commercial transportation is that of agricultural commodities and supplies being shipped into Filer. Trucking is a major concern in Filer.

Private cars and car pooling make up the major portion of the travel and commuting to and from the surrounding areas. A company bus is provided for residents that work in Jackpot, Nevada.

Another form of transportation available in Filer is the railroad which runs through the Industrial District.

Major transportation problems lie on Highway 30 in front of the schools and South Stevens Street where children must cross the streets in order to attend schools.

West Midway is currently experiencing an influx of pedestrians and high traffic on a narrow street. Plans are in progress for widening the road and providing sidewalks for pedestrians along that street.

The City adopted a Transportation Plan in April 2009. The purpose of a Transportation Plan is to provide guidance for the development of an existing and future travel needs of the community and adjacent regions.

J. RECREATION

The Filer Community Park provides facilities for swimming, tennis, horse shoes, picnics, baseball and softball. The Filer Recreation District provides organized baseball and softball programs for boys and girls ages six to fifteen. Swimming and tennis instruction are offered to participants of all ages.

This park plays host to numerous invitational softball and baseball tournaments each year, drawing teams from many Magic Valley communities.

The Community Park is receiving some pressure from various softball associations since the sport has grown tremendously in popularity. In addition to more playing area, an indoor facility for use during inclement weather is needed. Such a facility could accommodate handball, racquetball, basketball and other recreational activities.

The City is requiring developers to plan and provide for parks in new developments. Future plans for bicycle paths and walkways are being studied. The City is currently partnering with the

Filer Highway District, the Twin Falls County Fairgrounds and the Filer School District for this project.

The Twin Falls County Fairgrounds also serve as a source of recreation for the Filer area. This facility is the home of the Twin Falls County Fair & Rodeo, said to be one of the largest and best in the state, however, this facility is well used the year round. Events such as livestock sales, circuses, high school district and state rodeos, political rallies, gem and antique shows as well as family reunions take advantage of the fine grounds and buildings.

Cedar Draw Park is a developed rest area with parking, picnic tables, restrooms, RV parking, water and electrical hookups on the State's Thousand Spring Scenic Byway. It was built and maintained by the State when Highway 30 was constructed. In 1999, Cedar Draw Park was on the State surplus lands list and was available for purchase. The City of Filer and Twin Falls County purchased the rest area from the State with grant money. City and County officials visualized the potential with the park being located at the west entrance to Filer as a gateway to the community. Cedar Draw Creek runs through the center of the park with native vegetation along creek banks providing excellent wildlife habitat, large grassy areas and several trees. This park is the only natural park rest area between Twin Falls and the Wildlife Management Area a few miles before arriving in the City of Hagerman. Twin Falls County granted the City of Filer their interest in the park in 2004.

K. SPECIAL AREAS OR SITES

Filer was an area of several square miles of potential farmland, so named by the local farmer's organization. The Filer Townsite came into being when the Lorain, Duquesne, and Rettig families pooled land to form the nucleus of the present town. The early Townsite was cleared and mapped, and it was formally opened April 14, 1906.

Buildings were erected both at the west end of the townsite in the area of Union and Midway and also farther east on Midway at its junction with Fair Avenue. Within a short time the eastern settlement started calling itself East Filer; each of the two tiny towns tried unsuccessfully to entice each 'other to join one with the other. To complicate matters a Twin Falls clothing merchant bought land a half mile northeast of East Filer and platted it as the Eldridge Townsite, named after the owner, W. H. Eldridge, thus forming a third small community to add to the squabble.

The communities were united into one when Coffin Brothers, owners of the Idaho Store Company, bought the three townsites in 1907 as an investment. With Henry H. Schildman and William P. Shinn as local directors, the businesses of all three places moved to sites along Main Street and Yakima Avenue; Filer then became the town we now know.

Filer has always maintained individual groups, usually forming their social nucleus in one of Filer's many churches. Two unifying elements, the school system and local government, bring everyone together in a common goal.

The oldest building in Filer is the Lorain home, north across the tracks on Stevens Street. The Duquesne homes on the northeast and northwest corners of Stevens and Midway and another built along similar lines by Achille Duquesne on Stevens and Fifth Streets are the oldest homes of a sturdy, permanent quality within the Townsite. Mr. Duquesne made the stone blocks and pillars, acted as architect, and was building supervisor.

Achille Duquesne also built the oldest business building still in Filer, the Elliott Building on Main Street, which has been, among other things, a Real Estate Office, a grocery, a furniture store, and a mortuary.

The Odd Fellows Hall on Main and Yakima was built in 1911 for the Beem Brother's Grocery and General Store. It is one of the oldest buildings still in use.

L. HOUSING

City policies relating to land use patterns, transportation, public facilities and economic developments regulate to a certain degree the availability of housing and the cost of housing. Effective urbanization and zoning policies help to utilize land and city facilities, urbanization and zoning policies help to utilize land and city facilities without causing unnecessary inflationary land costs.

MOBILE HOMES:

There are currently mobile home parks in and around the City of Filer. Reports show more crime occurs within mobile home parks and therefore new mobile home parks are being discouraged.

HOUSEHOLD SIZE:

Size of the average household has decreased in the last several years down to approximately four persons per household.

HOUSING COSTS:

Housing costs have increased and this has been a tendency to increase the value of homes already built and to increase the value of the property on which they rest.

RENTAL HOUSING

There are two housing units in the City which provide rental housing.

One complex on the south side of the City, and the other near the center of the City.

M. COMMUNITY DESIGN

The City should eliminate the many "spot zones" that exist throughout the City, reduce the number of zones and specify special uses which may be permitted after public hearing and examination of surrounding uses. The City should also determine whether landscaping and sign ordinances should be adopted especially on the main thoroughfares through the City.

N. IMPLEMENTATION

Section 67-6511 of the Idaho Code requires the adoption and amendment of zoning ordinances by local governments. This section further requires that such ordinances must be commensurate with an adopted Comprehensive Plan. The Idaho Code also provides for the adoption of the regulations such as building codes and subdivision ordinances to assist in plan implementation.

The Comprehensive Plan and associated ordinances are not effective unless they are used in conjunction with each other. Therefore, it is necessary that implementing ordinances be developed, adopted, and enforced to assure a responsible, effective and efficient planning process.

These land use regulations must be prepared and adopted in compliance with the Idaho Code and shall be relevant to the character of Filer in order to realize the goals set forth in this plan.

As stated earlier, it is sometimes necessary to update the goals and policies of the citizens of Filer. Since the Comprehensive Plan for Filer was developed to meet statutory requirements of the State Planning Act, research studies were confined in scope and depth. Over time, new growth will occur, additional data will emerge, and public values will change. Therefore, it is important that the Comprehensive Plan be subject to review and modification to assure that it will continue to reflect the current values of the citizens of Filer.

As changes in the Comprehensive Plan are made, the implementation procedures and ordinances must also be reviewed and updated to ensure efficient administration.

Appendix C

Guidance for Handling Waste Residuals

Guidance for Handling Waste Residuals Resulting from Drinking Water Treatment

Idaho Department of Environmental Quality

February 2007

3.0 Treatment and Disposal of Arsenic

Disposal of waste residuals containing arsenic are subject to both federal and state requirements. These requirements are described in the following, preceded by a brief discussion of the physical characteristics and health concerns associated with arsenic. There is also a discussion of available treatment technologies and several decision flowcharts designed to help you choose the treatment plan that will provide the most economical method of compliance.

3.1 Background

Arsenic (As) is element number thirty-three in the periodical table of elements (CRC, 1993), with physical characteristics, occurence in nature, and health concerns as described in the following.

3.1.1 Physical Characteristics

Arsenic "is a steel grey, very brittle, crystalline, semimetallic (metalloid) solid. It tarnishes in air, and when heated rapidly oxidises to arsenous oxide which has a garlic odour." (Webelements, 2005)

3.1.2 Natural Occurrence

Although arsenic can originate from manmade sources, most arsenic in water is natural:

> "Typically . . . arsenic occurrences in water is caused by the weathering of and dissolution of arsenic-bearing rocks, minerals, and ores. Although arsenic exists in both organic and inorganic forms, the inorganic forms are more prevalent in water and are considered more toxic."
>
> (EPA, 2003)

Arsenic is "widely distributed throughout the earth's crust" and is "introduced into water through the dissolution of minerals and ores, and concentrations in groundwater in some areas are elevated as a result of erosion from local rocks" (WHO, 2001). Additional sources of arsenic include industrial effluents and the combustion of fossil fuels. (WHO, 2001)

In nature, arsenic is typically found in combination with other elements, such as oxygen, chlorine, and sulfur (NSC, 2005):

> "In combination, such arsenic is referred to as inorganic arsenic. Arsenic combined with carbon and hydrogen is referred to as organic arsenic. The organic forms are usually less toxic than the inorganic forms."
>
> (NSC, 2005)

Arsenic enters the environment through several paths:

> Arsenic can be released into the environment through natural activities such as volcanic action, erosion of rocks, and forest fires, or through human activities such as pesticide application, improper disposal of arsenic-containing waste chemicals, agricultural applications, mining, and smelting.
>
> (DEQ, 2005a)

Uses of arsenic include the following:

> Approximately 90% of industrial arsenic in the U.S. is used as a wood preservative. Arsenic is a well-known poison used in the manufacture of agricultural chemicals such as pesticides, weed killers, and rodenticides. It is also used in the production of paints, dyes, metals, drugs, soaps, and semi-conductors.
>
> (DEQ, 2005a)

3.1.3 Health and Safety Considerations

Health concerns regarding arsenic include skin damage, problems with the circulatory system, and a potential increased risk of cancer (EPA, 2005d).

The greatest threat arsenic poses to public health comes from its presence in drinking water (WHO, 2001), but exposure in the work place can also be a factor for some industries and locales.

Occupational Safety and Health Administration (OSHA) guidelines for controlling worker exposure to arsenic include the following methods (OSHA, 2005b):

- Process enclosure
- Local exhaust ventilation
- General dilution ventilation
- Personal protective equipment

Regulations that apply to occupational exposures to arsenic are defined in 29 CFR 1910.1018. The exposure limit is defined as follows:

> The employer shall assure that no employee is exposed to inorganic arsenic at concentrations greater than 10 micrograms per cubic meter of air (10 $\mu g/m^3$), averaged over any 8-hour period.
>
> (OSHA, 2005b)

In the event of a release or potential release of arsenic, workers “must be protected as required by paragraph (q) of OSHA's Hazardous Waste Operations and Emergency Response Standard [29 CFR 1910.120].”

3.2 Regulations

Both federal and Idaho state regulations apply to arsenic in drinking water and as a waste.

3.2.1 Federal Statutes and Regulations

Federal statutes and regulations that apply to arsenic in drinking water waste residuals include the following:

- *Safe Drinking Water Act* (SDWA; EPA, 2005h), including the final *Arsenic Rule* (EPA, 2001), which lowered the arsenic maximum contaminant level (MCL) for arsenic from 0.050 mg/L to **0.010 mg/L**. All water systems are required to comply with the 0.010 mg/L MCL by January 2006 (EPA, 2003).
- Because treatment processes used to remove arsenic could affect other drinking water regulation, system owners need to be vigilant to prevent such impacts. System owners need to consider interactions such as the following (EPA, 2003):
  - Optimum pH for minimizing lead and copper corrosion is 7.59, so pH adjustment may be needed before treating for arsenic.
  - Reducing pH enhances biocidal effectiveness, so systems may need to adjust pH before treating for arsenic.
  - Coagulation and flocculation processes are also related to pH , so pH adjustment may be needed before treating for arsenic.
  - Pre-chlorination to convert arsenite As(III) to arsenate As(V) could increase levels of total trihalomethanes and haloacetic acids.
- *Clean Water Act* (CWA, 2002). Waste residuals that are to be discharged to a stream or other water body require a National Pollution Discharge Elimination System (NPDES) permit from Region 10 of the U.S. Environmental Protection Agency, 1200 Sixth Avenue, Seattle, WA 98101. Telephone (206) 553-1200. Additional information about the NPDES program can also be located at the following address:

  http://cfpub.epa.gov/npdes/

- *Resource Conservation and Recovery Act* (RCRA; EPA, 2005g):
  - Liquid waste streams must have concentrations lower than the Toxicity Characteristic (TC)—which is **5.0 mg/L** for arsenic—to be classified as non-hazardous (EPA, 2003).
  - Solid waste streams are subjected to the *Toxicity Characteristic Leaching Procedure* (TCLP) as defining in EPA Test Method 1311 (EPA, 2006), which measures the potential for leaching in a landfill setting (EPA, 2003).

3.2.2 Idaho Statutes and Rules

Idaho Rules for Public Drinking Water Systems (IDAPA 58.01.08), which applies to any water system that "serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents," incorporates 40 CFR 141.11, which defines the MCL for arsenic as **0.010 mg/L**.

In addition, disposal of wastes containing arsenic may be subject to the following *Idaho Administrative Procedures Act* (IDAPA) rules:

- 37.03.03. *Rules and Minimum Standards for the Construction and Use of Injection Wells.*
- 58.01.02. *Water Quality Standards*.
- 58.01.03. *Individual/Subsurface Sewage Disposal Rules*.
- 58.01.05. *Rules and Standards for Hazardous Waste*.
- 58.01.06. *Solid Waste Management Rules*.
- 58.01.10. *Rules Regulating the Disposal of Radioactive Materials not Regulated Under the Atomic Energy Act of 1954, as Amended*. Because processes that remove arsenic may also remove uranium, it is important to be aware of the regulations that apply to uranium-bearing wastes. (For additional information on handling waste streams containing uranium, see Section 4 of this guidance, *Treatment and Disposal of Uranium*, starting on page 33.)
- 58.01.16. Wastewater Rules.

3.3 Treatment Strategies and Processes

This section identifies potential strategies for mitigating arsenic levels, along with treatment processes and disposal options.

3.3.1 Treatment Strategies

Strategies for mitigating problematic arsenic levels in drinking water include the following (EPA, 2003):

- *Abandonment* - The total abandonment of the problematic source(s) and subsequent switch to other source(s) within the system or purchase from a neighboring system.
- *Seasonal Use* - Switching the problematic source(s) from full-time use to seasonal (less than 60 days per year) or peaking use with subsequent blending with other full-time source(s).
- *Blending* - The combination of multiple water sources to produce a stream with an arsenic concentration that is reliably and consistently below the MCL[1].
- *Sidestream Treatment* - The treatment of a portion of the high arsenic water stream and subsequent blending back with the untreated portion of the stream to produce water that that is reliably and consistently below the MCL.

[1] Generally achieved by a concentration goal that is 80% or less of the MCL.

- *Treatment* – The processing of all or part of a water stream to reduce the arsenic concentration to below the MCL. Treatment strategies include the following:
  - *Wellhead Treatment* – Treatment is located at the wellhead location before the water is mixed with water from other sources.
  - *Centralized Treatment* – Water from several sources is piped to a centralized location for treatment before the water enters the distribution system.
  - *Point of Use (POU) Treatment* – Treatment devices are located at the Point-Of-Use within the building or home and treat only the water intended for direct consumption, typically at a single tap.

3.3.2 Treatment Processes

Arsenic treatment processes can be categorized into three classes (EPA, 2003):

- *Sorption Treatment Processes*, including ion exchange (IX), activated alumina (AA), and Iron Based Sorbents (IBS).
- *Membrane Treatment Processes*, including reverse osmosis (RO), typically assisted with coagulant addition.
- *Precipitation/Filtration Processes*, including enhanced conventional gravity coagulation/filtration, oxidation/filtration, and enhanced lime softening.

Typical efficiencies and the associated water losses for various treatments are shown in Table 5.

Table 5. Typical arsenic treatment efficiencies and associated water losses.

Treatment	As(V) Removal Efficiency	Water Loss
Sorption Processes		
Ion Exchange	95%[1]	1-2%
Activated Alumina (Throw-Away Media)	95%[1]	1-2%
Iron Based Sorbents	Up to 98%[1]	1-2%
Iron and Manganese Removal Processes		
Oxidation/Filtration (Greensand)	50-90%[2]	≤2%
Membrane Processes		
Reverse Osmosis	>95%[1]	15-50% [1]
Precipitative Processes		
Coagulation Assisted Microfiltration	90%[1]	5%
Enhanced Coagulation/Filtration:		
With Alum	<90%[1]	1-2%
With Ferric Chloride	95%[1]	1-2%
Enhanced Lime Softening	90%[1]	1-2%

(Source: EPA, 2003)
1. EPA, 2000
2 Depends on arsenic and iron concentrations

For optimal performance, all of the treatment processes assume that reduced trivalent arsenic [As(III)] has been converted to its oxidized pentavalent form [As(V)]. Such conversion can be accomplished by using an oxidizing agent—chlorine, permanganate, ozone, or Filox-R®[2] at the head of the arsenic removal process (EPA, 2003).

Table 6 shows a comparison of the benefits and drawbacks associated with these four oxidizing agents.

Table 6. Comparison of arsenic oxidizing agents.

Oxidant	Benefits	Drawbacks
Chlorine	Low relative cost ($0.50/lb) Primary disinfection capability Secondary disinfectant residual Oxidizes arsenic in less than 1 minute	Formation of disinfection by-products Membrane fouling Special handling and storage requirements
Permanganate	Unreactive with membranes No formation of disinfection by-products Oxidizes arsenic in less than 1 minute	High relative cost ($1.35/lb) No primary disinfection capability Formation of MnO_2 particulates Pink Water Difficult to handle An additional oxidant may be required for secondary disinfection
Ozone	No chemical storage or handling required Primary disinfection capability No chemical by-products left in water Oxidizes arsenic in less than 1 minute in the absence of interfering reductants	Sulfide and total organic carbon (TOC) interfere with conversion and increase the required contact time and ozone dose for oxidation An additional oxidant may be required for secondary disinfection
Solid Phase Oxidants (Filox R®)	No chemical storage or handling required No chemical by-products left in water Oxidizes arsenic with an empty bed contact time (EBCT) of 1.5 minutes in the absence of interfering reductants	Backwashing required Backwash waste is generated Requires dissolved oxygen to work No primary disinfection capability An additional oxidant may be required for secondary disinfection Iron, manganese, sulfide, and TOC increase the contact time and dissolved oxygen concentration required for oxidation

(Source: EPA, 2003)

In the *Arsenic Rule* (EPA, 2001) EPA has identified what it considers to be Best Available Treatments (BATs) and Small System Compliance Technologies (SSCTs) for use in removing arsenic from drinking water (EPA, 2002b):

- BATs are “developed with large systems in mind, [where] removal is much more efficient. . .”
- SSCTs provide a measure of affordability and technical complexity for systems of different size categories.

[2] Filox-R is a registered trademark of Matt-Son, Inc., Barrington, IL.

EPA BATs for arsenic removal are shown in Table 7.

Table 7. EPA Best Available Technologies (BATs) for arsenic removal.

Treatment Technology	Maximum Percent Removal*
Ion Exchange (sulfate <= 50 mg/L)	95
Activated Alumina	95
Reverse Osmosis	>95
Modified Coagulation/Filtration	95
Modified Lime Softening (pH > 10.5)	90
Electrodialysis Reversal	85
Oxidation/Filtration (20:1 iron:arsenic)	80

(Source: EPA, 2001)
*The percent removal figures are for arsenic (V) removal. Pre-oxidation may be required.

EPA SSCTs for arsenic removal are shown in Table 8.

Table 8. Small System Compliance Technologies (SSCTs)[1] for arsenic[2].

Small system compliance technology	Affordable for listed small system categories[3]
Activated Alumina (centralized)	All size categories
Activated Alumina (Point-of-Use)[4]	All size categories
Coagulation/Filtration[5]	501-3,300, 3,301-10,000
Coagulation-assisted Microfiltration	501-3,300, 3,301-10,000
Electrodialysis reversal[6]	501-3,300, 3,301-10,000
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH> 10.5)	All size categories
Ion Exchange	All size categories
Lime Softening[5]	501-3,300, 3,301-10,000
Oxidation/Filtration[7]	All size categories
Reverse Osmosis (centralized)[6]	501-3,300, 3,301-10,000
Reverse Osmosis (Point-of-Use)[4]	All size categories

(Source: EPA, 2001)
1 Section 1412(b)(4)(E)(ii) of SDWA specifies that SSCTs must be affordable and technically feasible for small systems.
2 SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.
3 The Act (ibid.) specifies three categories of small systems: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.
4 When POU or POE devices are used for compliance, programs to ensure proper long-term operation, maintenance, and monitoring must be provided by the water system to ensure adequate performance.
5 Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.
6 Technologies reject a large volume of water—may not be appropriate for areas where water quantity may be an issue.
7 To obtain high removals, iron to arsenic ratio must be at least 20:1.

A comparison of treatment technologies, showing optimal water quality conditions, level of operator skill required, types of waste generated, and a ranking of costs, is presented in Table 9.

Table 9. Comparison of arsenic treatment technologies.

Factors	Sorption Processes			Membrane Processes			Precipitative Processes		
	Ion Exchange	Activated Alumina	Iron Based Sorbents	Reverse Osmosis	Enhanced Lime Softening	Enhanced (Conventional) Coagulation Filtration	Coagulation Assisted Micro Filtration	Coagulation Assisted Direct Filtration	Oxidation Filtration
	IX	AA	IBS	RO	LS	CF	CMF	CADF	OxFilt
USEPA BAT	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
USEPA SSCT	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes
System Size	25-10,000	25-10,000	25-10,000	501-10,000	25-10,000	25-10,000	500-10,000	500-10,000	25-10,000
SSCT for POU	No	Yes	No	Yes	No	No	No	No	No
POU System Size	—	25-10,000	25-10,000	25 -10,000	—	—	—	—	—
Removal Efficiency	95%	95%	up to 98%	> 95%	90%	95% (w/ $FeCl_3$) < 90% (w/ Alum)	90%	90%	50-90%
Total Water Loss	1-2%	1-2%	1- 2%	15-75%	0%	0%	5%	1-2%	1-2%
Pre-Oxidation Required	Yes	Yes	Yes	Likely	Yes	Yes	Yes	Yes	Yes
Optimal Water Quality Conditions	pH 6.5 - 9 < 5 mg/L $NO3^-$ < 50 mg/L SO_4^{2-} < 500 mg/L TDS < 0.3 NTU Turbidity	pH 5.5 - 6 pH 6 - 8.3 < 250 mg/L C < 2 mg/L F < 360 mg/L SO_4^{2-} < 30 mg/L Silica < 0.5 mg/L Fe^{+3} < 0.05 mg/L Mn^{+2} < 1,000 mg/L TDS < 4 mg/L TOC < 0.3 NTU Turbidity	pH 6 - 8.5 < 1 mg/L PO_4^{-3} < 0.3 NTU Turbidity	No Particulates	pH 10.5 - 11 > 5 mg/L Fe^{+3}	pH 5.5 - 8.5	pH 5.5 - 8.5	pH 5.5 - 8.5	pH 5.5 - 8.5 >0.3 mg/L Fe Fe:As Ratio > 20:1
Operator Skill Required	High	Low	Low	Medium	High	High	High	High	Medium
Waste Generated	Spent Resin, Spent Brine, Backwash Water	Spent Media, Backwash Water	Spent Media, Backwash Water	Reject Water	Backwash Water, Sludge (high volume)	Backwash Water, Sludge	Backwash Water, Sludge	Backwash Water, Sludge	Backwash Water, Sludge
Other Considerations	Possible pre & post pH adjustment. Pre-filtration required. Potentially hazardous brine waste. Nitrate peaking. Carbonate peaking affects pH.	Possible pre & post pH adjustment. Pre-filtration may be required. Modified AA available.	Media may be very expensive. O Pre-filtration may be required.	High water loss (15-75% of feed water)	Treated water requires pH adjustment	Possible pre & post pH adjustment	Possible pre & post pH adjustment	Possible pre & post pH adjustment	None
Centralized Cost	Medium	Medium	Medium	High	Low	Low	High	Medium	Medium
POU Cost	—	Medium	Medium	Medium	N/A	N/A	N/A	N/A	N/A

(Source: EPA, 2003)

3.4 Waste Characterization and Disposal

Table 1 and Table 2 (pages 4 and 5, respectfully) list the constituents of raw water that should be characterized prior to making decisions about arsenic treatment.

3.4.1 Analysis of Waste Residuals

Waste streams generated by arsenic removal processes must be characterized chemically, so that decisions may be made about disposal options. Disposal options (Figure 1) are limited and potentially expensive, which may affect the choice of treatment method and the manner in which the treatment process is operated.

As an example, treatment with adsorptive media may turn out to be more economical if the media is not backwashed and reused, but is instead disposed of in a landfill when it is fully saturated with arsenic on a one-time basis. This approach avoids creation of a liquid waste stream composed of backwash and rinse waters, which may require further handling and treatment to remove arsenic and any other contaminants that may be present.

3.4.2 Determination of Waste as Liquid or Solid

An initial step in the characterization of the waste is to determine if the waste is liquid or solid. Solid residuals are considered dry enough to landfill when they pass the *Paint Filter Liquids Test* (PFLT) as defined by EPA Test Method 9095B (EPA, 2006). During this test, a measured sample is placed on #60 filter paper, suspended in a funnel, and, if no liquid passes through in five minutes, the residuals are classified as *solid*.

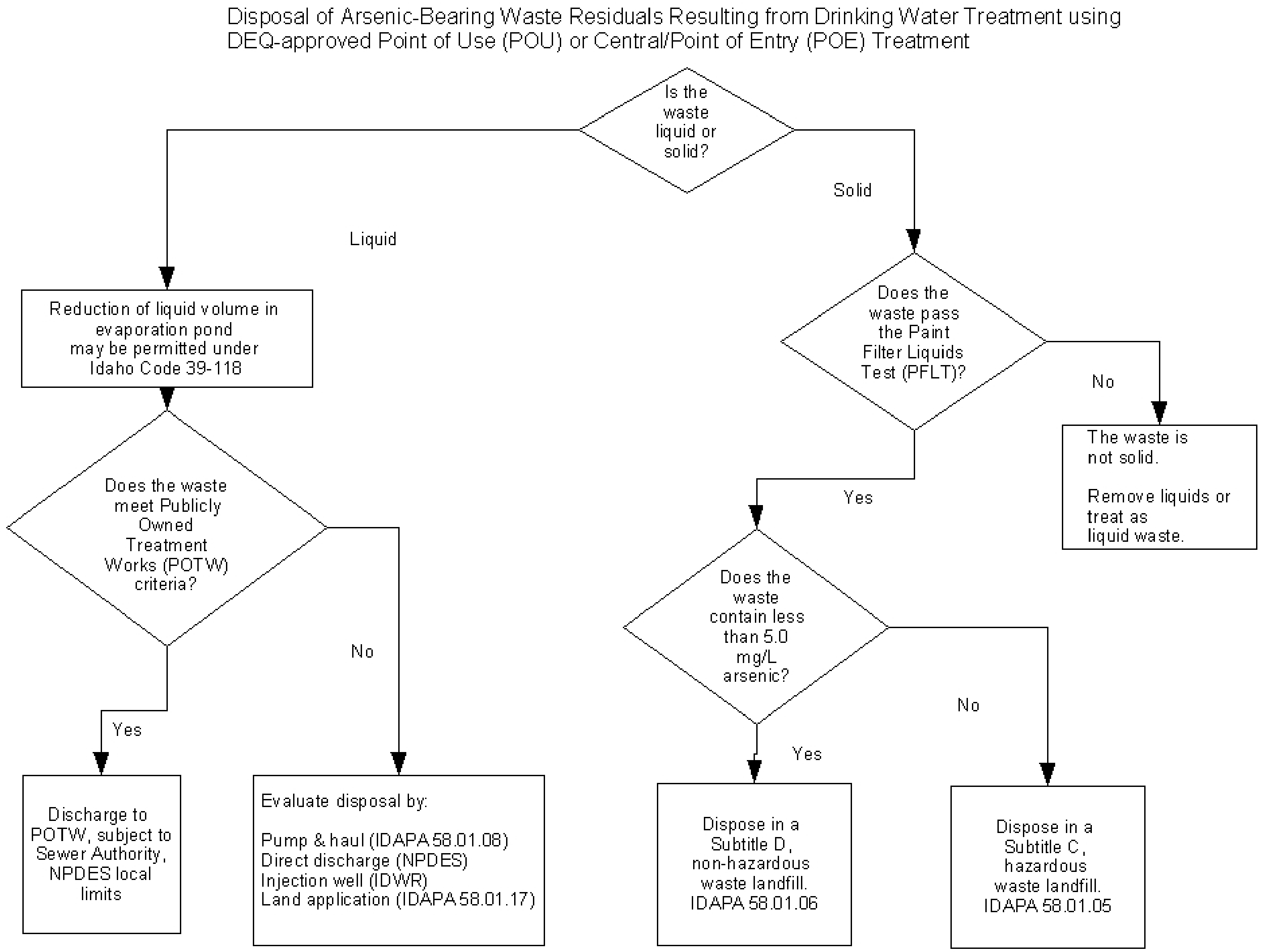


Figure 1. Disposal options for arsenic-bearing waste residuals.

3.4.3 Disposal of Liquid Waste Residuals

Disposal of liquid wastes is generally more problematic than disposal of solid residuals. The options given in the flow chart of Figure 1 are discussed in the following, with suggestions on how to characterize the materials to determine which disposal strategy may be viable.

Storage and handling of liquids in properly constructed lagoons may be used as a means of removing solids and reducing liquid volume by evaporation. However, solids will eventually need to be dewatered and disposed of permanently.

Currently, disposal of liquid residuals containing arsenic to the subsurface is not considered a practical option because the movement and fate of arsenic in the subsurface would be difficult to predict with any accuracy.

a. Total Containment Evaporation Lagoon (Idaho Code Section 39-118 Plan & Specification Review)

A water quality engineer at a DEQ Regional Office will need to approve the design and construction of the lagoon(s). Considerations include sizing to accommodate flows plus a safety margin for heavy precipitation events or snowmelt, lining of the lagoon to prevent percolation of contaminants into underlying groundwater, and proper design and construction of containment structures to prevent the escape of impounded liquids. Lagoons must be capable of being dewatered at appropriate intervals so that sediments can be dried and characterized (as described in the following section on solid residuals) to determine what type of ultimate disposal is appropriate.

Contact: DEQ Water Quality Engineer at the appropriate DEQ Regional Office—see Appendix A, page 59.

b. Connection to a POTW (Clean Water Act—NPDES Program and 40 CFR 503(b) standards for land application)

If a POTW is available, the water system may obtain permission to dispose of liquid wastes by this route. The POTW will need to demonstrate that the waste stream will meet the requirements of its industrial pretreatment program, will not impact the operation of its treatment processes, will not violate the terms of its NPDES discharge permit, and will not exceed standards for the composition of any biosolids that are land-applied after drying.

Analysis of the constituents listed in Table 3 (page 4) may be adequate as a starting point for discussions with the POTW. However, each POTW has unique contaminant challenges and specific discharge criteria that may dictate further analyses of the treatment residuals. Total flow to the POTW and the distribution of flows through time will be required for the POTW to estimate the impact of receiving the wastes. Systems pursuing this and the following disposal option should expect fees, as there is no other incentive for a POTW to increase the load on their treatment facility.

Contact: A POTW to which a direct connection is present or feasible.

c. Pump and Haul to a POTW

This disposal strategy is a variation on the previous one, the difference being that the water system temporarily stores the liquid residual onsite, with the temporary storage tank design and construction to be approved under 39-118 plan and specification review by a DEQ water quality engineer. (Belowground tanks are not allowed).

Characterization of the waste residuals may proceed as in option b. The POTW may request additional analyses. Total volumes and data describing the projected frequency and volume of individual deliveries may be needed.

Contact: Any nearby POTW to which wastes could be economically transported.

d. Direct Discharge to Surface Water (Clean Water Act, NPDES Program)

EPA Region 10 administers the NPDES program in Idaho. Water systems that wish to pursue a permit for direct discharge will need to contact EPA and obtain instructions on how to apply. Requirements for chemical and physical characterization of liquid waste residuals will vary in accordance with the attributes of the proposed receiving waters.

As part of the NPDES permit process, DEQ will conduct a *401 certification*, but this will only occur if EPA is prepared to issue a permit. It is important to be aware that the time required for issuance of an NPDES permit can exceed three years from the date of application. DEQ's 401 certification is for the NPDES discharge and is issued when the NPDES permit meets the state water quality standards.

Contact: Unit Manager, NPDES Permits Unit, US EPA Region 10, 1200 Sixth Avenue, OWW-130, Seattle, WA 98101. Telephone (800) 424-4EPA or (206) 553-1200.

e. Disposal to an Injection Well (Idaho Department of Water Resources Underground Injection Program)

Injection wells are used to dispose of wastes at a depth well below any aquifers that contain useful water. Existing injection wells are few in number and construction of new ones is very expensive. For these and other reasons, disposal of residuals to an injection well is unlikely to be a viable option for a water system. Information on the injection well program can be obtained from IDWR.

Contact: Idaho Department of Water Resources, Underground Injection Program, 322 E. Front St, PO Box 83720, Boise, Idaho 83720-0098. Telephone (208) 287-4800.

f. Land Application (IDAPA 58.01.17, Rules for Reclamation and Reuse of Industrial and Municipal Wastewater)

It is possible to land apply liquid residuals under a DEQ-issued reuse permit, providing that soils and crops are compatible, runoff is controlled, and long term degradation of the land or contamination of underlying ground water will not occur. Characterization of the waste stream in accordance with the constituents listed in Table 4 (page 6) may be sufficient as a starting point.

Analysis of soils for permeability characteristics, depth of profile, and electrical conductivity of the soil solute will be required, both initially and in subsequent years if a permit is issued. The total quantity of wastewater to be land applied and the distribution of application through the course of the year will need to be characterized.

Contact: DEQ Regional Office and ask to speak to someone about a wastewater reuse permit.

3.4.4 Disposal of Solid Waste Residuals

Disposal of solid residuals may occur, in a sanitary landfill (Subtitle D), in a hazardous waste disposal site (Subtitle C) or by land application. Important considerations related to landfill disposal include the following:

- Arsenic-bearing residuals must be tested for leaching potential using the TCLP procedure (EPA Test Method 1311). The arsenic contained on the adsorption media is tightly bound and will usually pass the TCLP test without difficulty, allowing for disposal in a non-hazardous landfill. Because arsenic bearing residuals subject to anaerobic or low pH conditions can release the bound arsenic and allow it to leach into ground water and migrate offsite, disposal in a lined landfill is recommended. The water system seeking to dispose of solid residuals containing arsenic will want to consider negotiating a long-term agreement with a landfill that is prepared to accept these residuals.
- If disposal is to occur in a sanitary landfill, **arsenic in the leachate must not exceed 5 mg/L** and the disposer must qualify as a *Conditionally Exempt Small Quantity Generator* (CESQG), meaning the quantity of waste generated cannot be greater than 100 kg/month. If your system generates more than 100 kg per month of solid waste that does not exceed the 5 mg/L leachate concentration, contact your local landfill to determine if their license allows them to accept greater quantities. If not, consider disposal at a hazardous waste site, or land application, as described below.
- If the TCLP test yields **greater than 5 mg/L arsenic** in the leachate, disposal to a hazardous waste site is required. The landfill authority will provide instructions on how to handle and deliver such wastes. Transportation and disposal of hazardous waste are highly regulated and likely to be expensive. Unless there are no practical alternatives, design engineers should avoid selecting a treatment strategy that results in residuals classified as hazardous waste.
- Sludge that results from settling or coagulation/precipitation of arsenic and other contaminants from liquid wastes may vary in composition due to chemical and physical changes during treatment and handling. Sludge that experiences low pH conditions or a reducing (low oxygen) environment may contain arsenic that is less oxidized and, therefore, more mobile.
- If the raw water contains radionuclides in addition to arsenic, care must be taken to prevent creation of a *mixed waste*, consisting of radioactive contaminants and arsenic (or other contaminants that exceed RCRA toxicity criteria). If mixed waste is a likely outcome of the treatment process, staged treatment may be required to remove contaminants separately.

- There are few options for disposal of mixed waste, and mixed waste regulatory requirements are extremely challenging. Handling and disposal of mixed wastes are not discussed in this guidance because economics alone make it unlikely that treatment processes resulting in mixed waste residuals will be chosen.

a. Disposal at a Sanitary Landfill

Each landfill authority determines what type of waste the facility will accept. Arsenic residuals may pass the TCLP but be mobilized under landfill conditions, such as anaerobic environments or in low pH environments during biological decomposition processes. Consequently, landfill authorities may develop monofill areas for placement of drinking water residuals. As mentioned above, solids residuals must be dry enough to pass the paint filter test before they may be landfilled.

A list of landfills in Idaho is provided in Appendix B, page 61.

b. Disposal at a Hazardous Waste Landfill

Solids that release more than 5 mg/L of arsenic during the TCLP are hazardous wastes and must be disposed of in a licensed hazardous waste facility. At present, only the American Ecology Grandview operation is licensed in Idaho.

Other facilities are located in Nevada, (American Ecology, Beatty site), and Utah (Envirocare), but there is some question as to whether Idaho-generated hazardous wastes can be disposed of at these locations.

It may be necessary to confine these wastes to containers before removal from the water treatment facility. Transportation of hazardous waste in all but the smallest quantity is regulated under the *Hazardous Materials Transportation Act*, which requires all shipments to be manifested and tracked. For this reason, water systems that create hazardous wastes will probably find it economically necessary to contract with service providers that specialize in this type of transport. Some manufacturers of arsenic treatment equipment offer waste handling and disposal as part of equipment leasing arrangements. Small systems may find such arrangements beneficial from both an operational and regulatory standpoint.

c. Land Application of Solid Residuals

Water treatment plant residuals are exempt from the Clean Water Act 503(b) provisions, but these materials may be regulated under IDAPA 58.01.16 (*Wastewater Rules*) or 58.01.06 (*Solid Waste Rules*). It will be necessary to characterize the waste residuals chemically and determine if:

- Land application confers a benefit in respect to crop production and related soil characteristics (or is at least neutral in these effects) or;
- Land application is primarily for disposing of the waste residuals.

For example, if the residuals contain nutrients, while at the same time having arsenic and other contaminant levels that are unlikely to cause environmental damage, then a benefit may be derived from land application.

The criteria for beneficial reuse provided in RCRA may serve as a guideline for land farming of solid residuals. The water system would need to own or control any land to be used for this purpose or be prepared to negotiate a fee-based agreement with a nearby landowner.

A detailed chemical characterization of the solids would be needed to determine toxicity characteristics and potential effects on soil chemistry and on the crops to be grown on the treated land. Under RCRA, solids containing up to **41 mg/kg** of arsenic may be land applied without any requirement to track the total amount of arsenic applied over time (EPA, 2003). Tracking is required when the solids contain arsenic in the range of 41-75 mg/kg, and total long-term arsenic accumulation must not exceed 41 kg of arsenic per hectare.

There are containment requirements (no runoff) and restrictions on the types of crops that can be grown. Tests for soil permeability and conductivity of the soil solute will be necessary prior to initiation of sludge application and at appropriate intervals thereafter.

Contact: DEQ Regional Office. Ask to talk to someone about a sludge management plan under Section 650 of the wastewater rules, or, alternatively, a solid waste disposal permit under IDAPA 58.01.06 and 40 CFR Part 257, Criteria for Classification of Solid Waste Disposal Facilities and Practices.

Appendix D

Well Logs and Pump Curves

WELL LOG & REPORT TO THE STATE RECLAMATION ENGINEER OF IDAHO

Well #2

081627

Log No. ______
Rec. ______
Well No. ______
Permit No. ______

DO NOT FILL IN

Owner: City of Filer   Driller: H. H. Francis

Address: Filer, Idaho   Address: Box 251-Twin Falls, Idaho   Lic. No. 54

Location of Well: Corner of Main and Yakima Streets, Filer, Idaho ______ County

______ feet N/S, and ______ feet E/W from ______ corner of ¼ ¼ Sec.

Water will be used for: City   Total depth of well: 800 Feet

Size of drilled hole: 14" to 88 Ft.- 10" to 602 Ft. 8" to 110 Ft. Total 800 Feet   Weight of casing per linear foot ______

Thickness of casing: 10 gauge   Casing Material: Steel (e.g., pipe, concrete, wood.)

Diameter, length and location of casing: 10" - 88' - Bottom at 88' from top
(Casing 12" in diameter and under give inside diameter; casing over 12" in diameter give outside diameter.)

Number and size of perforations: None located None feet to None feet from surface of ground.

Other Perforations: None

If flowing well, give flow in c.f.s. ----- or g.p.m. 500 -------- and shut in pressure ---------

If nonflowing well, give depth of standing water from surface: 37 Ft.

If flowing well, describe control works ______ (Type and size of valve, etc.)

On pumping test delivery was 480 g.p.m. or 1 c.f.s. Drawdown was 35 feet

Length of time pumped during check was 4 hr. 15 min. Water temp. 66 °Fahrenheit.

Date of commencement of well: 11-10-53   Date of Completion of well: 3-25-54

Type of well rig: 71 Star Spudder

CASING RECORD

Diam. Casing	From Feet	To Feet	Length	"Remarks" — Seals, Grouting, Etc.
10"	0	88	88	Grouted with cement 26' up from bottom of 10" or from 88' to 62'. Steel shoe on bottom of 10" casing.

GENERAL INFORMATION—Pumping Test, Quality of Water, Etc.

Little water 35' to 38' water stands at 28' from top - later lowered to 37'.

47

08[illegible]

WELL LOG

[illegible]	[illegible]	Type of Material Well #2	Drilling Time Hrs.	Drilling Time Min.	Water-bearing Formation [illegible]	Casing [illegible]
[illegible]	[illegible]	Soil				
[illegible]	[illegible]	Clay				
[illegible]	[illegible]	Brown Lava				
[illegible]	[illegible]	Red Clay				
[illegible]	[illegible]	Brown Lava				
[illegible]	38	Red Lava				
38	47	Brown Lava				
47	50	Black Lava				
50	53	Brown Lava				
53	57	Black Lava				
[illegible]	68	Brown Lava				
68	72	Black Lava				
72	107	Brown Lava - some water at 95'				
107	110	Red Lava				
110	118	Brown Lava				
118	120	Red Lava and Talo				
120	125	Brown Lava				
125	140	Red Lava				
140	167	Brown Lava				
167	180	Red Lava				
		If more space is required use Sheet No. 2 - Continued on Sheet No.2				

WELL DRILLERS STATEMENT

This well was drilled under my jurisdiction and the above information is true and correct to the best of [illegible] and belief.

Signed H. H. Francis - Drilling Contractor

By H. H. Francis

License No. 44

[illegible] April 5, 19 54

[illegible] and sworn before me this .... day of .... 19......

Notary Public

Residing at

[illegible]

NOTARIZATION NOT NECESSARY UNDER [illegible]

Well #2

SHEET NO.

081629

Well Driller H. H. [illegible]

Well Location Filer, Idaho

WELL LOG

From Feet	To Feet	Type of Material	Drilling Time Hrs.	Drilling Time Min.	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
180	185	Black Lava				
185	211	Brown Lava (tested at 200')				
211	215	Blue Clay				
215	221	Brown Lava				
221	230	Black Lava				
230	250	Brown Lava				
250	262	Gray Lava - Hard				
262	266	Brown Clay and gravel				
266	270	Brown Lava				
270	280	Brown Clay and Gravel (some lighter)				
280	282½	Brown Lava				
282½	300	Brown Clay and little gravel (tested 300')				
300	305	Gray Clay				
305	314	Lava Gray				
314	322	Red Clay				
322	335	Brown Lava				
335	338	Red Lava				
338	355	Brown Lava				
355	378	Red Lava				
378	400	Brown Lava				
400	402	Brown Clay				
[illegible]	447	Brown Lava				
[illegible]	471	Red Sand and Cinders in Clay -				
[illegible]	475	Blue Clay				
[illegible]	495	Blue Lava (Tested 495') about here tests are same (hard H_2O). 1 ppm. F [illegible]				
495	505	Brown Lava				
505	540	Red Sand or cinders				
540	555	Clay and sand or cinders				
555	574	Brown Lava				
[illegible]	580	Gray Lava				

(Continued opposite side)

Well #2

SHEET NO. 2

081630

Well Driller H. H. Fr[illegible]

Well Location Filer, Idaho

WELL LOG

From Feet	To Feet	Type of Material	Drilling Time Hrs.	Drilling Time Min.	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
[illegible]	[illegible]	Red Sand and gravel				
5[illegible]	[illegible]	Brown Lava				
[illegible]	[illegible]0	Blue Shale				
600	[illegible]	Brown Lava				
642	[illegible]	Brown Clay plugged at 653 ft				
651	[illegible]	Grey Lava				
655	[illegible]	Brown Lava				
676	[illegible]	Red Lava				
[illegible]	709	Blue Shale				
709	712	Grey Lava				
712	[illegible]	Brown Lava				
[illegible]	[illegible]	Red Lava				
755	763	Blue Clay				
763	767	Brown Sand				
767	785	Gray Sand				
785	790	White Clay				
790	800	Sand - Total Depth Tested 800'				

069574

no permit

Well #3

WELL LOG AND REPORT BY THE
MACK GRAY WELL DRILLING
KIMBERLY, IDAHO

RECEIVED
AUG 21 1964
Department of Reclamation

Permit No. ______ Well No. ______ County Twin Falls

Owner City of Filer

Address Filer, Idaho

Driller Gray Well Drilling

Address Kimberly, Idaho

Well location SW ¼ NE ¼ Sec. 8, T. 10S N/S, R. 16E E/W

Size of drilled hole 8"

Total depth of well 360 ft.

Locate well in section

NW¼	NE¼ ✓
SW¼	SE¼

Give depth to standing water from the ground 65' Water temp. ______ °Fahr.

On "Pumping Test" delivery was 630 g.p.m. or ______ c.f.s. Drawdown was 27 feet.

Size of pump and motor used to make test 8" bowls, 6" column, 300 H.P. Diesel

Length of time of test $3\frac{1}{2}$ hours ______ minutes.

If flowing well, give flow ______ c.f.s. or ______ g.p.m. and of shut off pressure ______

If flowing well, described control works ______
(TYPE AND SIZE OF VALVE, ETC.)

Water will be used for Municipal Weight of casing per lineal foot ______

Thickness of casing $\frac{1}{4}$" Casing material steel
(STEEL, CONCRETE, WOOD, ETC.)

Diameter, length and location of casing 10", 119', 0 to 119'; 12", 6', 0 to 6'
(CASING 12" IN DIAMETER OR LESS, GIVE INSIDE DIAMETER; CASING OVER 12" IN DIAMETER, GIVE OUTSIDE DIAMETER)

CASING RECORD

Diam. Casing	From Feet	To Feet	Length	Remarks—seals, grouting, etc.
10"	0	119'	119'	
12"	0	6'	6'	

Number and size of perforations ______ located ______ feet to ______ feet from ground

Date of commencement of well 4/23/64 Date of completion of well 6/16/64

SWNE S.8 10S 16E

PD

cons.

47

Well #3

WELL LOG

From Feet	To Feet	Type of Material	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
0	4	Top soil		
4	48	Firm grey lava		
48	70	Firm red lava		
70	92	Firm black lava Hit water @ 67'		
92	101	Firm brown lava		
101	107	Firm grey lava		
107	111	Soft brown lava		
111	119	Firm brown lava		
119	124	Brown clay		
124	140	Firm dark brown lava		
140	152	Dark grey lava		
152	156	Loose broken lava		
156	161	Firm black lava		
161	187	Loose layers black & brown lava & talc		
187	198	Firm grey & black lava		
198	209	Soft grey lava		
209	218	Dark grey lava		
		If more space is required use Sheet No. 2		

WELL DRILLER'S STATEMENT

This well was drilled under my supervision and the above information is true and correct to the best of my knowledge and belief.

Signed Mack Gray Well Drilling

By Margaret Gray Theisen

Elmer Austin **License No.** 268

Dated 7/15/64 **, 19 .**

069575

H10

Well #3

SHEET NO. 2

Well Owner City of Filer

Well Driller Gray Well Dr.

Well Location Filer, Idaho
10 S 16 E S. 8 SW NE

WELL LOG

From Feet	To Feet	Type of Material	Water-bearing Formation Ans. Yes or No	Casing Perforated Ans. Yes or No
218	225	Dark black porous lava		
225	251	Dark black layers of lava & blue talc		
251	260	Firm grey lava		
260	266	Soft black & brown clay sticky		
266	285	Layers of hard & soft shale & blue clay		
285	330	Black & brown soft lava water formation		
330	352	Firm grey lava		
352	360	Soft red lava		
360		Hard grey lava		
		well		

47

SWNE S.8 10S 16E

Barn 41
Per 763789
Ap 861089

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Well #5 Screen

Office Use Only
Inspected by ______
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0008724

DRILLING PERMIT NO. ____

Other IDWR No. 763786

2. OWNER: Application No. 861089

Name City of Filer

Address P.O. Box 140

City Filer State ID Zip 83328

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

Twp. 10 North ☐ or South ☒

Rge. 16 East ☒ or West ☐

Sec. 7, ____ 1/4 SE 1/4 NE 1/4 (10 acres / 40 acres / 160 acres)

Gov't Lot ____ County ____

Lat: : : Long: : :

Address of Well Site Stevens Street City Filer
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☒ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD

Was drive shoe used? ☐Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☐ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8-5/8	365	525	.250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 40' Length of Tailpipe 20'

9. PERFORATIONS/SCREENS

Perforations Method Factory

Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
405	445	3/16 x 3	8 R	8"	Steel	☒	☐
						☐	☐
485	505	3/16 x 3	8 R	8"	Steel	☒	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
____ ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

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

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
			40' solid 365'		
			40' perforated 3/16x3x8 row		
			20' solid		
			40' perforated 3/16x3x8 row		
			20' solid 525'		
			Top of 8" liner 365' with		
			10" bell on top		
			RECEIVED APR 20 2000 Department of Water Resources		
			RECEIVED APR 07 2000 Department of Water Resources Southern Region		

Completed Depth 650 ft. (Measurable)
Date: Started 3-30-00 Completed 4-3-00

13. DRILLER'S CERTIFICATION

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

Company Name Elsing Drilling Firm No. 31

Firm Official Arnold Elsing Date 4-6-00

and

Driller or Operator [illegible] Date 4-6-00
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

Well #5

USE TYPEWRITER OR BALLPOINT PEN

JAN 14 1983

WELL DRILLER'S REPORT

RECEIVED JAN 6 1983 Department of Water Resources Southern District Office

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

1. WELL OWNER

Name: Filer City Well
Address: Filer, Idaho
Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

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

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
.375 inches	14 inches +	1 feet	82 feet
.250 inches	8 5/8 inches	520 feet	650 feet

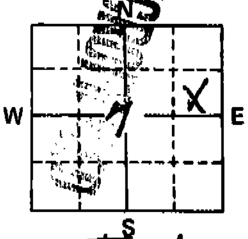
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☒ Yes ☐ No
How perforated? ☒ Factory ☐ Knife ☐ Torch
Size of perforation 1/8 inches by 3 inches

Number	From	To
perforations	525 feet	645 feet

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

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name
Lot No. Block No.
County: Twin Falls
SE ¼ NE ¼ Sec. 7, T. 10 N/S R. 16 E/W.

7. WATER LEVEL

Static water level 23' feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow
Artesian closed-in pressure p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature °F. Quality

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Air ☐ Other Pump

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 83512

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	4	Top Soil		X
	4	8	Hard Pan		X
	8	14	Sand & Lava		X
	14	28	Broken Brown Lava	X	
	28	36	Grey Lava		X
	36	55	Brown Lava	X	
	55	58	Broken Grey Lava & Sand	X	
	58	81	Hard Grey Lava		X
	81	89	Hard Grey Lava		X
	89	90	Broken Grey Lava & Talc	X	
	90	102	Grey Lava		X
	102	105	Broken Grey Lava Blue Talc		X
	105	116	Grey Lava		X
	116	119	Black Broken Lava & Blue Talc	X	
	119	150	Black Lava Hard		X
	154	166	Black Lava		X
	166	183	Grey Lava		X
	183	191	Soft Grey Lava		X
	191	200	Black Lava & Seams of Blue Clay	X	
	200	206	Soft Black Lava	X	
	206	244	Hard Black Lava		X
	244	248	Hard Brown & Black Lava		X
	248	270	Hard Black Lava		X
	270	296	Hard Black Lava		X
	296	304	Brown Lava		X
	304	324	Hard Black Lava		X
	324	335	" Brown "		X
	335	350	" Black "		X
	350	362	Red Lava Ash	X	
	362	370	Hard Black Lava		X
	370	406	" " "		X
	406	418	Hard Brown Lava		X
	418	444	Hard Grey Lava		X
	444	460	Redish Brown Lava		X
	460	462	Redish Brown Lava		X
	462	469	Grey Lava		X

10. Look next sheet attached

Work started 9-16-82 finished 10-1-82

11. DRILLERS CERTIFICATION

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

Firm Name: Elsing Drilling Firm No. 31
Address: Box 919 Date: Oct 20, 82
Signed by (Firm Official): Arnold Elsing
and
(Operator): Lloyd Hayden

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

Form 238-7 Well #5
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

1. WELL OWNER

Name *Filer City*

Address *Filer Idaho*

Owner's Permit No. ______

2. NATURE OF WORK

☐ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) ______

3. PROPOSED USE

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

4. METHOD DRILLED

☐ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other ______

5. WELL CONSTRUCTION

Casing schedule: ☐ Steel ☐ Concrete ☐ Other ______

Thickness		Diameter		From		To	
______	inches	______	inches +	______	feet	______	feet
______	inches	______	inches	______	feet	______	feet
______	inches	______	inches	______	feet	______	feet
______	inches	______	inches	______	feet	______	feet

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

Number		From		To	
______	perforations	______	feet	______	feet
______	perforations	______	feet	______	feet
______	perforations	______	feet	______	feet

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

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name ______

Lot No. ______ Block No. ______

County ______

SE ¼ *NE* ¼ Sec. *7*, T. *10* N/S, R. *16* E/W.

7. WATER LEVEL

Static water level ______ feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow ______
Artesian closed-in pressure ______ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ______ °F. Quality ______

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other ______

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

83513

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	469	500	Brown Lava & sandy clay		X
	500	501	Brown Lava		X
	501	520	Black Lava		X
	520	544	Brown Sandstone	X	
	544	572	Black Lava		X
	572	630	Brown Sandstone	X	
	630	634	Brown Sandstone	X	
	634	641	Broken Grey Lava	X	
	641	650	Hard Grey Lava		X

RECEIVED
JAN 14 1983
Department of Water Resources

10.

Work started *9-16-82* finished *10-1-82*

11. DRILLERS CERTIFICATION

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

Firm Name *Elsing* Firm No. *31*

Address ______ Date *10/20/82*

Signed by (Firm Official) ______

and

(Operator) ______

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

Dasin 47

Form 238-7 A/P 874782
11/97 Per 789217

JD 360241

. Well #7 Ream

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

CR

Office Use Only
Inspected by ______
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D D0023506

DRILLING PERMIT NO. 789217

Other IDWR No. 417 8438-47-11843

2. OWNER:

Name Filer City Well

Address PO Box 140

City Filer State Id Zip 83328

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

Twp. 10 North ☐ or South ☒

Rge. 16 East ☒ or West ☐

Sec. 8 , SW 1/4 NE 1/4 1/4

Gov't Lot ____ County Twin Falls

Lat: : : Long: : :

Address of Well Site Fair Ave North of Railroad tracks City Filer

(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)

☐ New Well ☒ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD

☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☐ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS

Perforations Method ____
Screens Screen Type ____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

48 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: Welded plate

11. WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____

Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
15	120	390	Reemed existing Well		

RECEIVED
FEB 19 2003
Department of Water Resources
Southern Region

Completed Depth 390' (Measurable)

Date: Started 12-16-02 Completed 12-20-02

13. DRILLER'S CERTIFICATION

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

Company Name Eldon Drilling Firm No. 26

Firm Official [signature] Date 2-18-03

and

Driller or Operator [signature] Date 12-23-02

Basin 47 ID 343438 Well #7
App 86878 Per 771515

Form 238-7, 11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

C

Office Use Only
Inspected by ____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0016677

DRILLING PERMIT NO. ____

Other IDWR No. ____

RECEIVED
APR 0 3 2002
Department of Water Resources
Southern Region

2. OWNER:
Name CITY OF FILER
Address P.O. BOX 140
City FILER State ____

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

Twp. 10 North ☐ or South ☒
Rge. 16 East ☒ or West ☐
Sec. 8, ____ 1/4 SW 1/4 NE 1/4 (10 acres, 40 acres, 160 acres)
Gov't Lot ____ County TWIN FALLS
Lat: : : Long: : :
Address of Well Site FAIR AVE NORTH OF RR TRACKS AT BEET DUMP City FILER
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	120	53	OVERBORE

Was drive shoe used? ☒Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? ☐ Y ☐ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
16	+1	120	375	STEEL	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
Perforations Method ____
Screens Screen Type ____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
51 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
2100		200	

Water Temp. 56 Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encounter ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
19	0	3	SURFACE DIRT		X
	3	5	BROKEN		X
	5	38	GREY BASALT		X
	38	50	RED BASALT		X
	50	53	BROKEN LST CIRCULATION		X
	53	65	GREY BASALT		X
	65	73	BLACK & TALC	X	
	73	85	BROWN BASALT		X
	85	107	GREY BASALT		X
	107	111	RED ASH		X
	111	117	BLACK & TALC BROKEN	X	
	117	119	GREY BASALT		X
12	119	127	BROWN BASALT		X
	127	131	BROKEN & TALC	X	
	131	134	SOLID		X
	134	138	SOFT LOTS TALC	X	
	138	145	BLACK BASALT		X
	145	151	BLACK SOFT BASALT		X
	151	157	BROKEN LOTS TALC	X	
	151	157	LARGE CINDERS	X	
	157	170	SOLID		X
	170	179	SOFTER		X
	179	182	TALC LARGE CINDERS	X	
	182	196	BLACK BASALT		X
	196	215	HARD GREY BASALT		X
	215	221	BROKEN SOFTER BASALT		X
	221	231	HARD GREY		X
	231	233	BROKEN LOTS TALC		X
	231	233	LARGE CINDERS		X
	233	239	GREY BASALT		X
	239	242	BROKEN BASALT		X
	242	258	GREY BASALT		X
			TO BE CONTINUED ON NEXT PAGE		

Completed Depth 410 (Measurable)
Date: Started 01/28/02 Completed 03/20/02

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

Company Name WALKER WATER SYSTEMS INC. Firm No. 15
Firm Official [signature] Date 03/28/02
and
Driller or Operator ____ Date 03/28/02
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-Z
11/97

Well #7

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by ________
Twp ____ Rge ____ Sec ____
.....CONTINUATION ____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. WELL TAG NO. D ____________
DRILLING PERMIT NO. ____-____-____-____
Other IDWR No. ____________

2. OWNER:
Name ____________
Address ____________
City ____________ State ____ Zip ____

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

Twp. ________ North ☐ or South ☐
Rge. ________ East ☐ or West ☐
Sec. ________, ____1/4 ____1/4 ____1/4 (10 acres / 40 acres / 160 acres)
Gov't Lot ____ County ____________
Lat: : : Long: : :
Address of Well Site ____________
(Give at least name of road + Distance to Road or Landmark)
City ____________
Lt. ______ Blk. ______ Sub. Name ____________

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ________

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment ☐ Other ________

6. DRILL METHOD
☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ________

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	

Was drive shoe used? ☐Y ☐ N Shoe Depth(s) ________
Was drive shoe seal tested? ☐ Y☐ N How? ________

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ________ Length of Tailpipe ________

9. PERFORATIONS/SCREENS
Perforations Method ________
Screens Screen Type ________

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
______ft. below ground Artesian pressure ______lb.
Depth flow encountered ______ft. Describe access port or control devices: ________

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

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. ________ Bottom hole temp. ________
Water Quality test or comments: ________
Depth first Water Encounter ________

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
	258	260	FRACTURE		X
	260	273	GREY BASALT		X
	273	279	BROKEN		X
	279	283	BROKEN LOTS TALC		X
	279	283	LARGE CINDERS CALCITE	X	
	283	299	HARD GREY BASALT		X
	299	300	FRACTURE	X	
	300	348	GREY BASALT		X
	348	353	SOFTER BROWN BASALT		X
	353	388	VERY HARD		X
	388	390	SOFTER		X
	390	393	RED ASH		X
	393	397	SOFT CAVING SAND		X
	397	405	SOFT		X
	405	410	SOFT		X

Completed Depth ________ (Measurable)
Date: Started 01/28/02 Completed 03/20/02

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

Company Name WALKER WATER SYSTEMS INC. Firm No. 15
Firm Official [signature] Date 03/28/02
and
Driller or Operator ________ Date 03/28/02
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

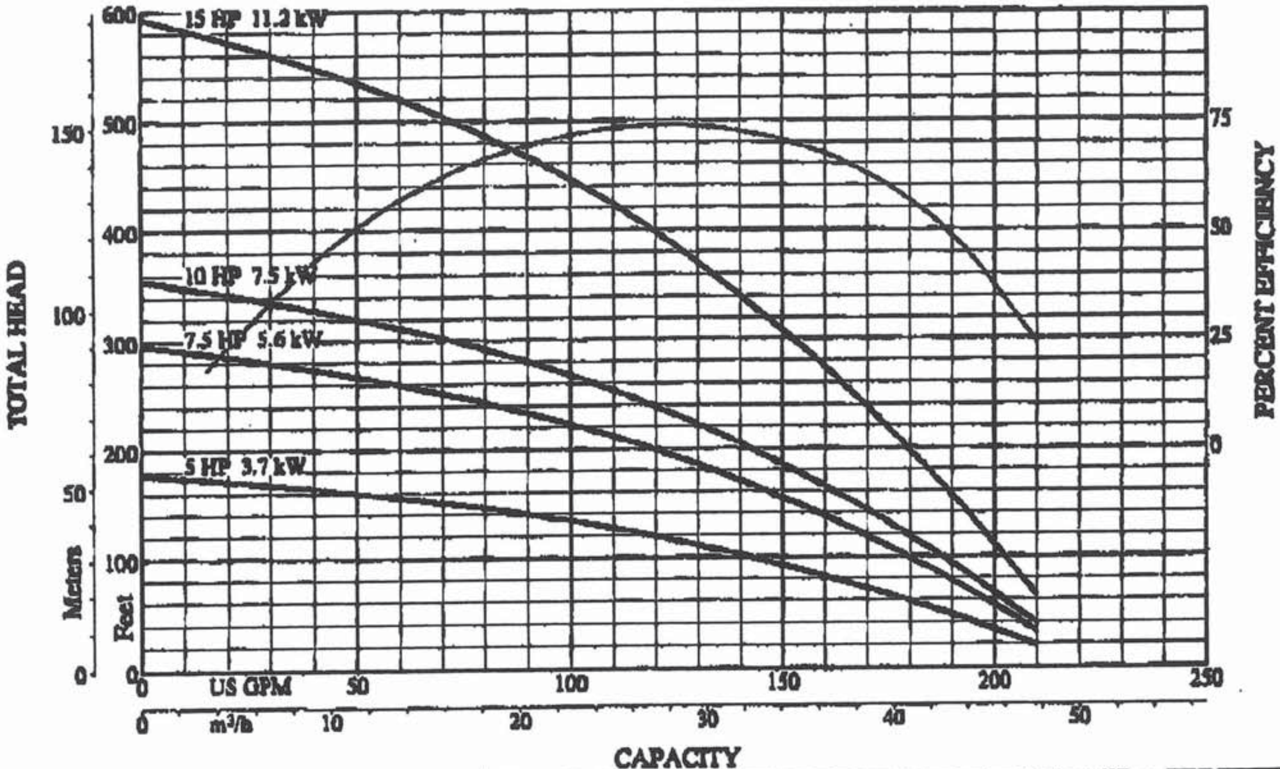
#1

BERKELEY

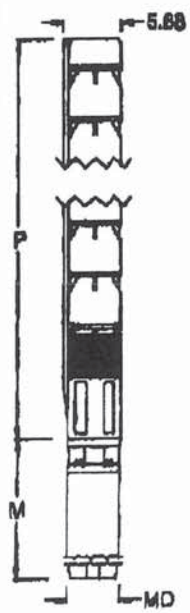
SUBMERSIBLE TURBINE

6T-115

Nominal RPM: 3450
Based on Fresh Water @ 68° F (20° C)
Maximum Working Pressure: 606 PSI (42 bar)



Dimension Information



HP	Stages	Motor Size	"P" Inches	"P" Meters	"M" Inches	"M" Meters	"MD" Inches	"MD" Meters	Motor Weight Lbs.	Motor Weight Kg.	Pump Weight Lbs.	Pump Weight Kg.
5	3	6"	27.9	0.71	25.4	0.65	5.38	0.14	101	46	91	41
7.5	5	6"	37.1	0.94	28.0	0.71	5.38	0.14	108	49	127	58
10	6	6"	41.8	1.06	30.6	0.78	5.38	0.14	116	53	145	66
15	10	6"	60.2	1.53	33.1	0.84	5.38	0.14	129	59	217	98

Specifications

Minimum Well I.D.	6"/152 mm
Minimum Submergence @BEP (above inlet)	10 Feet/3 Meters
Capacity Range U.S. GPM~m³/h	60~180/13.6~40.9
Discharge (as ordered)	3" NPT

SUPERSEDES
1/03/97

Date 10/14/02
Section ST
Page 10.01

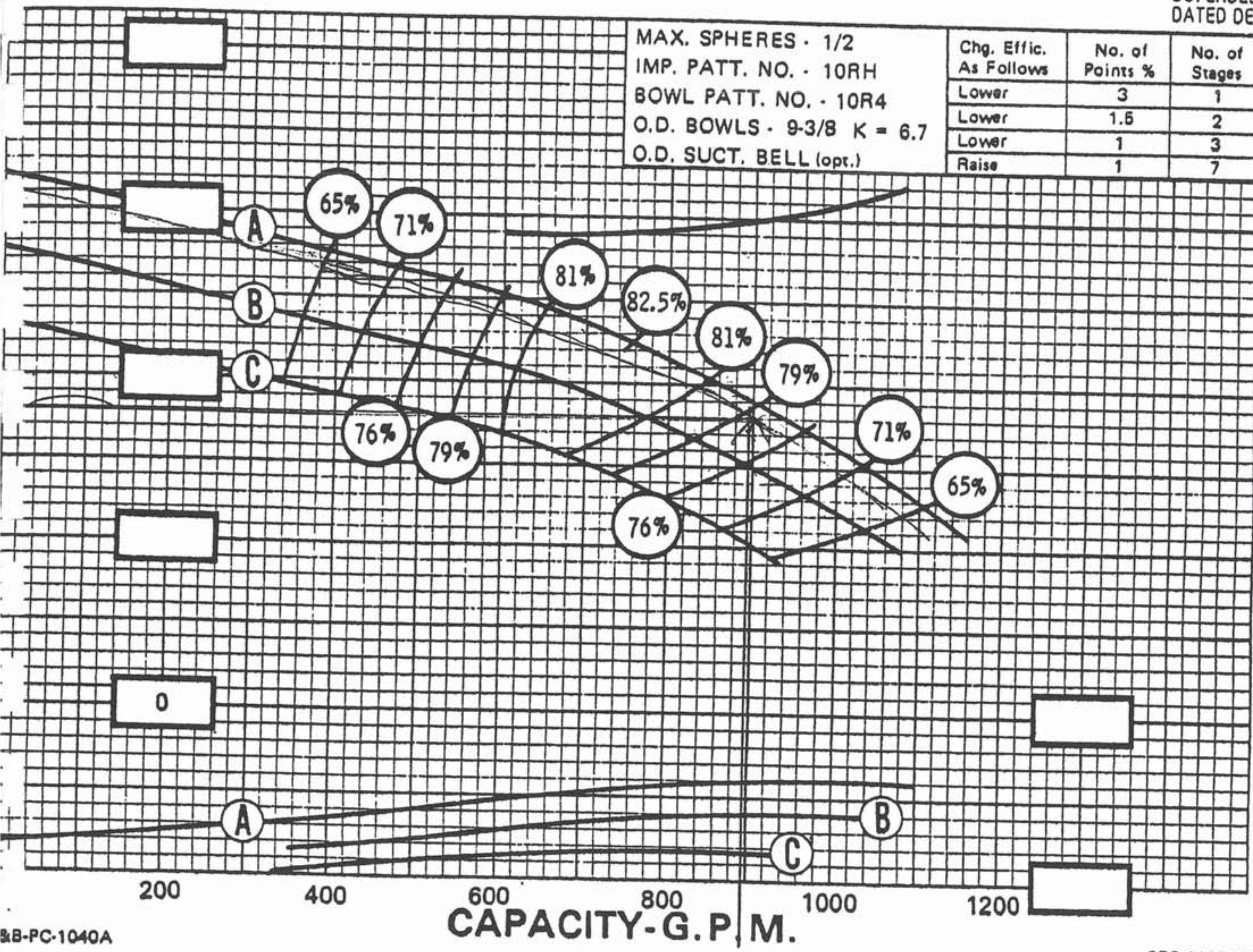
SCALE IN FEET

Well #5 Pump Curve

10RH SERIES 1110

Verti-Line PUMP

SECTION 1110
DATED MARCH
SUPERSEDES PAGE 535
DATED DECEMBER 1981



&B-PC-1040A

9PC-119368

G. J. VERTI-LINE PUMPS, INC.
1970 HIGHLAND AVE E.
P.O. BOX 892
TWIN FALLS, ID 83301
(208)-733-4278

Ⓐ = 7.750
Ⓑ = 7.375
Ⓒ = 7.000

#5

Stevens Street Well

H.P. 900 GPM @ 182 TDH

5 Stage Bowl Assembly

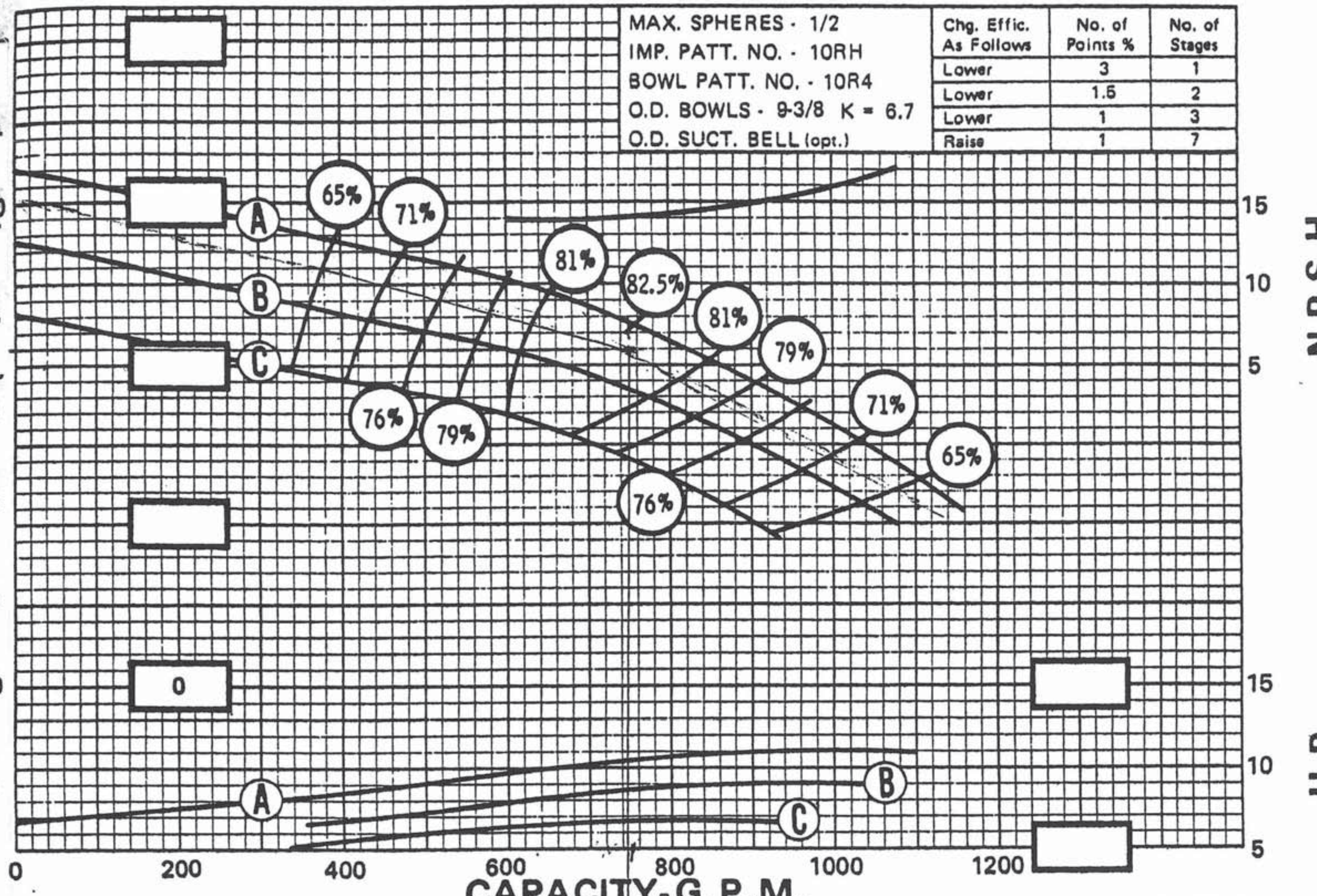
10RH SERIES 1110

Verti-Line PUMP

SECTION 1110
DATED MARCH
SUPERSEDES PAGE 535
DATED DECEMBER 1981

MAX. SPHERES - 1/2
IMP. PATT. NO. - 10RH
BOWL PATT. NO. - 10R4
O.D. BOWLS - 9-3/8 K = 6.7
O.D. SUCT. BELL (opt.)

Chg. Effic. As Follows	No. of Points %	No. of Stages
Lower	3	1
Lower	1.5	2
Lower	1	3
Raise	1	7



L&B-PC-1040A

9PC-119368

G. J. VERTI-LINE PUMPS, INC.
1970 HIGHLAND AVE E.
P.O. BOX 892
TWIN FALLS, ID 83301
(208)-733-4278

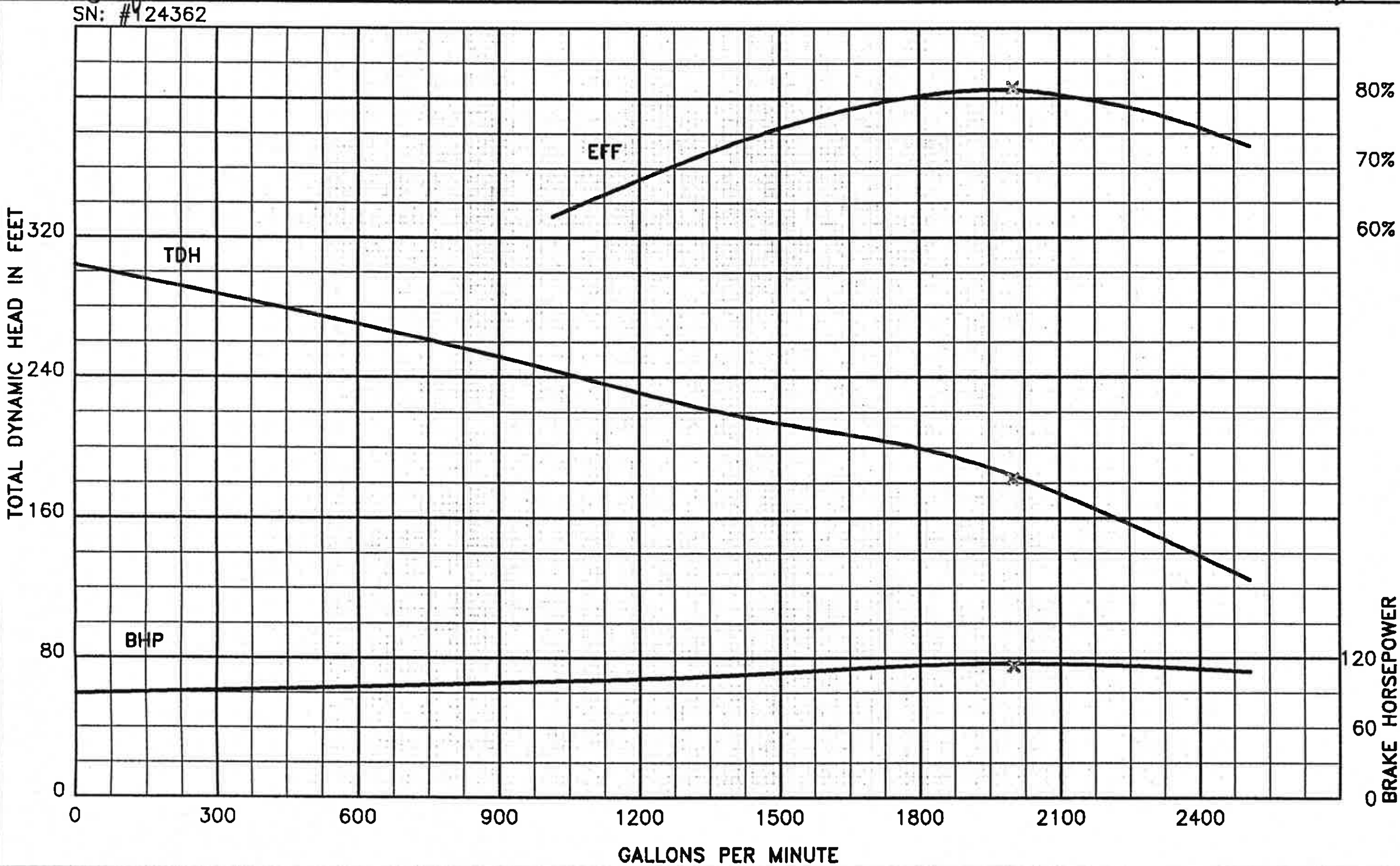
Ⓐ = 7.750
Ⓑ = 7.375
Ⓒ = 7.000

Well #3 By Beet Dump
50 H.P. 750 GPM @ 210 TDH
5 STAGE BOWL ASSEMBLY

City of Filer Well Pump #7

Well #7 Pump Curve

PUMP PERFORMANCE
CERTIFIED BY [signature]



AMERICAN-MARSH PUMPS
SINCE 1873

DATE: 5/1/03

Performance based on pumping clear, fresh water at a temperature not over 85°F., and free of gas, air or abrasives, and with bowls properly adjusted and submerged.

NUMBER OF BOWLS	CHANGE EFFICIENCY AS FOLLOWS
4	0

Change in efficiency may affect both head and horsepower.

Bowl Dia. 12 3/16 In
Bowl No. 4771 C.I.\ENAM.
Impeller No. 4777 BRONZE
Eye Area 29.70 sq.in.
Imp. Type CLOSED
K= 16.20

STAGE PERFORMANCE

Curve No. TEST
R.P.M. 1760
Bowl 12WCZ-4

LAYNE PUMPS, Inc.

VERTICAL TURBINE PUMPS

Well #7 Pump Test

PHONE 733-3284 P. O. BOX 640
TWIN FALLS, IDAHO 83301

WELL TESTING REPORT AND AGREEMENT

NAME CITY OF FILER LOCATION N FAIRVIEW

I. D. WELL 16" WELL DEPTH 385 WATER TEMP. ________ STATIC WATER LEVEL 45'

ORIFICE SIZE 9" DISCHARGE PIPE 12" COLUMN & LENGTH 360' AIRLINE 360'

TIME	WATER LEVEL FT. FROM TOP	R. P. M.	ORIFICE READING	G. P. M.	REMARKS: SAND? CASCADING WATER? etc.
9:00	129'	1200	22"	1670	CLOUDY
9:15	134'	1550	35"	2107	CLEAR
9:20	134'	1700	53"	2592	CLOUDY
9:30	134'	1700	53"	2592	CLOUDY
10:00	143'	1700	49"	2493	"
10:30	143'	1700	49"	2493	"
10:36	139'	1700	55	2641	AFTER BACK FLUSH
11:00	148'	1700	52-1/2	2580	CLEAR W/SOME CLAY
11:30	148'	1700	52-1/2	2580	CLEAR
12:00	153'	1700	52-1/2	2580	CLEAR
12:20	153'	1700	52-1/2	2580	"
11:00	153'	1700	52-1/2	2580	CLEAR
1:30	153'	1700	52-1/2	2580	CLEAR
2:00	171'	2000	72"	3000+	CLOUDY
2:10	171	2000	72"	"	CLOUDY
2:30	171'	"	"	"	"
3:00	171'	"	"	"	"
3:30	166'	2000	16-1/2	2677	SUCTION PLUGED UP -HAD TO BACKFLUSH
3:45	171'	2000	71"	3000	
4:00	171'	2000	71"	3000	CLEAR WITH SOME CLAY
4:30	171'	2000	63"	2826	MILKY
4:50	171	"	"	"	"

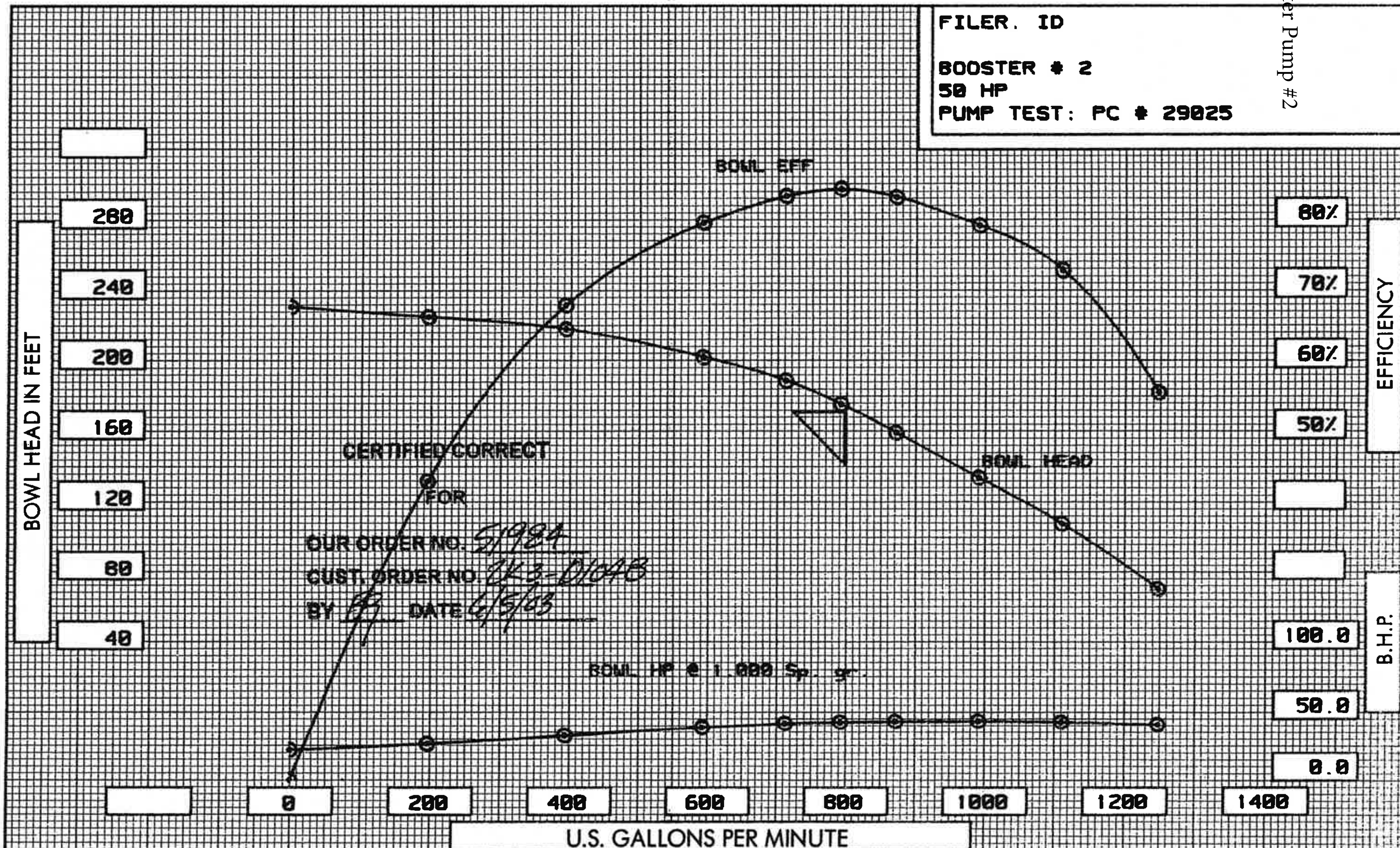
RECOVERY TIME: FT. 1 MINUTE FT. 2 MINUTES FT. 3 MINUTES

APPROVED BY:
RAY WIGHT

(LAYNE & BOWLER, INC.) (OWNER OF WELL)

INSTALLED BY: LARRY PETZOLDT DATE 1/8/03

Booster Pump #2



PUMPTECH CO. INC
4444S. YELLOWSTONE HWY
P.O. BOX 51259
IDAHO FALLS ID 83405

DWG. NO. 51984-1-1-T1

FLOWAY PUMPS
FRESNO, CALIFORNIA
A WEIR COMPANY

TYPE 11 JKM
NO. OF STAGES 3
R.P.M. 1770
PUMP SERIAL NO. 51984-1-1

DWN. BY BMT DATE 06-04-2003

PF-614

Booster Pump #2

TEST NUMBER PC#: 29025 S.O. # : 51984-1-1 DATE: 06-04-2003
CONDITION POINT: GPM= 800 TDH= 170 RPM =1770
CALCULATED BY: BMT DRAWING No. = 51984-1-1-T1
PUMP TYPE (Bb$): 11 JKM
MANOMETER CONSTANT (Mc) = 0.9960 IMPELLER TRIM DIA. = 8.308 inch
GAGE HEIGHT (Ght) = 5.210 IMPELLER FINAL DIA. = 8.308 inch
NUMBER OF STAGES(Stages) = 3 NUMBER OF STAGES TESTED (Ds) = 3
SPECIFIC GRAVITY (SPG) = 1.0000
WATER TEMPERATURE = 65 DEGREES (F) SPECIFIC WEIGHT = 62.324 Lbs/Cu Ft.
COLUMN SIZE = 8
TURNTABLE CONSTANT (Ttc) = 4039

RUN	RPM	GPM	PRESS	GA COR	S LOSS	C-LOS	DH-LOS	VEL HD	SC RDG	SC COR	DWT	BLOS
1	1789	0.0	100.00	-0.20	0.00	0.00	0.00	0.00	51.30	0.0	0.0	0.00
2	1786	200.0	97.00	-0.26	0.00	0.00	0.00	0.02	60.70	0.0	0.0	0.00
3	1782	400.0	93.40	-0.33	0.00	0.00	0.00	0.10	74.10	0.0	0.0	0.00
4	1778	600.0	86.00	-0.48	0.00	0.00	0.00	0.22	87.60	0.0	0.0	0.00
5	1776	720.0	80.00	-0.50	0.00	0.00	0.00	0.31	93.70	0.0	0.0	0.00
6	1775	800.0	73.50	0.10	0.00	0.00	0.00	0.39	95.60	0.0	0.0	0.00
7	1774	880.0	66.30	0.06	0.00	0.00	0.00	0.47	96.60	0.0	0.0	0.00
8	1774	1000.0	55.20	0.00	0.00	0.00	0.00	0.61	96.80	0.0	0.0	0.00
9	1774	1120.0	43.80	0.00	0.00	0.00	0.00	0.76	94.80	0.0	0.0	0.00
10	1776	1260.0	27.40	-0.03	0.00	0.00	0.00	0.96	90.60	0.0	0.0	0.00

I	RPM	GPM	TDH	TDH/STAGE	BHP	BHP/STAGE	EFF	MTR EFF
1	1770	0.0	230.82	76.94	22.01	7.34	0.00	1.0000
2	1770	197.4	224.67	74.89	26.13	8.71	42.87	1.0000
3	1770	395.7	217.39	72.46	32.04	10.68	67.81	1.0000
4	1770	594.9	201.20	67.07	38.04	12.68	79.45	1.0000
5	1770	714.7	187.93	62.64	40.78	13.59	83.16	1.0000
6	1770	794.6	174.66	58.22	41.66	13.89	84.12	1.0000
7	1770	874.5	158.29	52.76	42.14	14.05	82.95	1.0000
8	1770	993.8	132.76	44.25	42.23	14.08	78.89	1.0000
9	1770	1113.0	106.69	35.56	41.36	13.79	72.51	1.0000
10	1770	1250.7	68.94	22.98	39.44	13.15	55.22	1.0000

FLOWAY PUMPS

COMMENTS:

TIME START 7:12 FINISH 7:31

LAB TEST REPORT

DATE 6/4/03 TEST NO PC-29025 CUSTOMER PumpTECH CO. INC S/N 1 51984-1-1

PUMP DESCRIPTION 11 JKM NO OF STAGES 3 STG'S COL SIZE & LENGTH 8"x5'6 SHAFT SIZE 1 1/2"

HEAD SIZE & TYPE 8"x16 1/2" BOWL (C.I.) IMPELLER (ENCLOSED) IMPELLER DIA FULL U.F STD

MOTOR DATA: MAKE LAB SERIAL NO # 4 HP 40 POLES 4 PH 3 HZ 60 VOLTS 460 TYPE V.H.S.

METER SIZE & TYPE: 6"x3", 8"x4" GAGE DESCRIPTION 300/100 # AXIAL ADJUSTMENT @1 1/2 (TURNS)/INCHES 10 TPI

MANIFOLD ADAPTER: SIZE 8"x14" OFFSET ☐ STRAIGHT ☒

	TEST RPM	MANOMETER READING IN GPM	TOTAL GPM READING x .996/1.005	GPM @ 1770 RPM K=	PRESSURE GAGE	DISCHARGE GAGE READING IN P.S.I.	DISCHARGE GAGE CORRECTION	TOTAL P.S.I.	GAGE HEAD IN FEET	SYSTEM LOSSES IN FEET	GAGE ELEV. IN FEET	VELOCITY HEAD IN FEET	TOTAL HEAD IN FEET	HEAD IN FEET @1770 RPM K²=	POWER METER RDGS HP (REF ONLY)	SCALE READING IN LBS	SCALE DEAD WT IN LBS	TOTAL SCALE WT IN LBS	CORR. SCALE WT CORR. FACTOR	COUNTER DEAD WEIGHT IN LBS	CORR. DEAD WT CORR. FACTOR	TOTAL LBS	BHP	BHP @ 1770 RPM K=	BHP @ 1.000 SPEC GRAVITY		EFFICIENCY	
1	1789	0			300#	100.0	-.20				5.21				27.0	51.3				0								
2	1786	200				97.0	-.26								31.8	60.7												
3	1782	400				93.4	-.33								38.7	74.1												
4	1778	600				86.0	-.48								45.9	87.6												
5	1776	720				80.0	-.50								49.5	93.7												
6	1775	800			100#	73.5	.10								50.5	95.6												
7	1774	880				66.3	.06								51.1	96.6												
8	1774	1000				55.2	.00								51.2	96.8												
9	1774	1120				43.8	.00								50.1	94.8												
10	1776	1260				27.4	-.03								47.6	90.6												
11																												
12																												
13																												
14																												

FORMULAE: GAGE HEAD = P.S.I. x 2.3105 BHP = RPM x TOTAL LBS. / SCALE CONSTANT SCALE CONSTANT ☒ 6036 TT #1 ☐ 4185 TT #2 EFF = TOTAL HEAD GPM / BHP (3960) K = JOB SPEED / TEST RPM

CONDITION POINT: 800 GPM @ 170 T.D.H. @ 1770 RPM

TURN TABLE HT ______ COUNTER WEIGHT PULLEY HEIGHT ______

SCALE PULLEY HT ______ COUNTER WEIGHT PULLEY DUT HT ______

SCALE PULLEY DUT. HT ______

Booster Pump #2

NOTES:

TEST EQUIPMENT

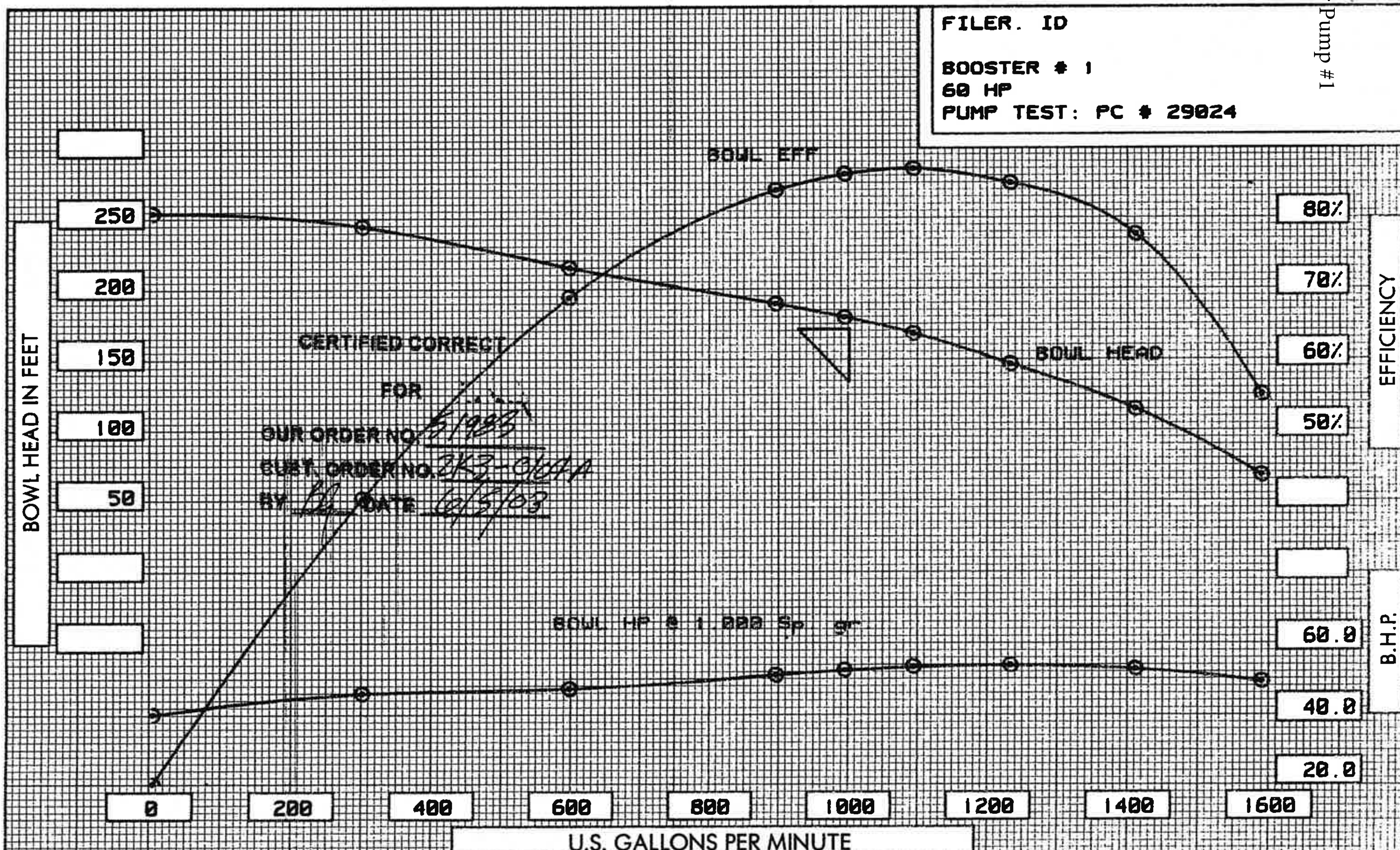
DESCRIP	EQUIP NO	CALIB	DUE DATE
300 #	TL/1515	5-7-03	6-7-03
100 #	TL/1200	5-7-03	6-7-03
SCALE	TL/1800	4-7-03	7-7-03
AIRPAX	TL/2002	Self-cal	Self-cal

TESTED BY: Brandon [signature] DATE: 6/4/03 WITNESSED BY: ______ DATE: ______

PC 1 of 2

TL-003RO

Booster Pump #1



PUMPTECH CO. INC
4444 S. YELLOW STONE HWY.
P.O. BOX 51259
IDAHO FALLS ID 83405

DWG. NO. 51983-1-1-T1

FLOWAY PUMPS
FRESNO, CALIFORNIA
A WEIR COMPANY

TYPE 12 DOM
NO. OF STAGES 3
R.P.M. 1770
PUMP SERIAL NO. 51983-1-1

DWN. BY BMT DATE 06-04-2003

PF-614

Booster Pump #1

TEST NUMBER PC#: 29024 S.O. # : 51983-1-1 DATE: 06-04-2003
CONDITION POINT: GPM= 1000 TDH= 170 RPM =1770
CALCULATED BY: BMT DRAWING No. = 51983-1-1-T1
PUMP TYPE (Bb$): 12 DOM
MANOMETER CONSTANT (Mc) = 1.0050 IMPELLER TRIM DIA. = 7.813 inch
GAGE HEIGHT (Ght) = 5.210 IMPELLER FINAL DIA. = 7.813 inch
NUMBER OF STAGES(Stages) = 3 NUMBER OF STAGES TESTED (Ds) = 3
SPECIFIC GRAVITY (SPG) = 1.0000
WATER TEMPERATURE = 65 DEGREES (F) SPECIFIC WEIGHT = 62.324 Lbs/Cu Ft.
COLUMN SIZE = 8
TURNTABLE CONSTANT (Ttc) = 4039

RUN	RPM	GPM	PRESS GA	COR S	LOSS	C-LOS	DH-LOS	VEL HD	SC RDG	SC COR	DWT	BLOS
1	1793	0.0	110.40	-0.05	0.00	0.00	0.00	0.00	53.20	0.0	40.4	0.00
2	1793	300.0	106.00	-0.09	0.00	0.00	0.00	0.06	66.40	0.0	40.4	0.00
3	1793	600.0	93.00	-0.34	0.00	0.00	0.00	0.22	69.30	0.0	40.4	0.00
4	1792	900.0	81.50	-0.50	0.00	0.00	0.00	0.50	78.20	0.0	40.4	0.00
5	1792	1000.0	76.50	0.13	0.00	0.00	0.00	0.62	81.30	0.0	40.4	0.00
6	1792	1100.0	71.20	0.10	0.00	0.00	0.00	0.75	83.50	0.0	40.4	0.00
7	1792	1240.0	61.70	0.02	0.00	0.00	0.00	0.95	84.30	0.0	40.4	0.00
8	1792	1420.0	47.50	0.00	0.00	0.00	0.00	1.25	81.70	0.0	40.4	0.00
9	1792	1600.0	26.50	-0.04	0.00	0.00	0.00	1.58	73.20	0.0	40.4	0.00

I	RPM	GPM	TDH	TDH/STAGE	BHP	BHP/STAGE	EFF	MTR EFF
1	1770	0.0	253.54	84.51	39.97	13.32	0.00	1.0000
2	1770	297.6	243.60	81.20	45.61	15.20	40.14	1.0000
3	1770	595.3	213.93	71.31	46.85	15.62	68.64	1.0000
4	1770	893.4	188.16	62.72	50.71	16.90	83.72	1.0000
5	1770	992.7	178.42	59.47	52.03	17.34	85.96	1.0000
6	1770	1091.9	166.53	55.51	52.97	17.66	86.69	1.0000
7	1770	1230.9	145.13	48.38	53.31	17.77	84.62	1.0000
8	1770	1409.6	113.37	37.79	52.20	17.40	77.30	1.0000
9	1770	1588.3	66.27	22.09	48.57	16.19	54.73	1.0000

FLOWAY PUMPS

COMMENTS:

TIME START 6:27 FINISH 6:52

LAB TEST REPORT

DATE 6/4/03 TEST NO PC- 29024 CUSTOMER PumpTech Co. Inc. S/N 1 51983-1-1

PUMP DESCRIPTION 12 DOM NO OF STAGES 3 STG'S COL SIZE & LENGTH 8"x5'LG SHAFT SIZE 1 1/2"

HEAD SIZE & TYPE 8"x16 1/2" BOWL (C.I.) IMPELLER (OPEN / ENCLOSED / SKL) IMPELLER DIA Full U.F. STD

MOTOR DATA: MAKE LAB SERIAL NO # 31 HP 100 POLES 4 PH 3 HZ 60 VOLTS 460 TYPE V.H.S.

METER SIZE & TYPE: 8"x4" GAGE DESCRIPTION 300/100# AXIAL ADJUSTMENT @ 1 1/2 (TURNS) 18 TPI

MANIFOLD ADAPTER: SIZE 8"x14" OFFSET ☐ STRAIGHT ☒

	TEST RPM	MANOMETER READING IN GPM	TOTAL GPM READING x1.005	GPM @ 1770 RPM K=	PRESSURE GAGE	DISCHARGE GAGE READING IN P.S.I.	DISCHARGE GAGE CORRECTION	TOTAL P.S.I.	Ⓐ GAGE HEAD IN FEET	Ⓑ SYSTEM LOSSES IN FEET	Ⓒ GAGE ELEV. IN FEET	Ⓓ VELOCITY HEAD IN FEET	TOTAL HEAD IN FEET Ⓐ+Ⓑ+Ⓒ+Ⓓ	HEAD IN FEET @1770 RPM K²=	POWER METER RDGS HP (REF ONLY)	Ⓣ SCALE READING IN LBS	Ⓤ SCALE DEAD WT IN LBS	Ⓥ TOTAL SCALE WT IN LBS = Ⓣ + Ⓤ	Ⓦ CORR. SCALE WT CORR. FACTOR = x Ⓥ	Ⓧ COUNTER DEAD WEIGHT IN LBS	Ⓨ CORR. DEAD WT CORR. FACTOR = x Ⓧ	TOTAL LBS = Ⓦ + Ⓨ	BHP	BHP @ 1770 RPM K=	BHP @ 1.000 SPEC GRAVITY		EFFICIENCY		
1	1793	0			300#	110.4	-.05				5.21				45.2	53.2				40.4									
2	1793	300				106.0	-.09								51.5	66.4													
3	1793	600				93.0	-.34								52.4	69.3													
4	1792	900				81.5	-.50								56.5	78.2													
5	1792	1000			100#	76.5	.13								57.8	81.3													
6	1792	1100				71.2	.10								58.7	83.5													
7	1792	1240				61.7	.07								59.1	84.3													
8	1792	1420				47.5	.00								58.0	81.7													
9	1792	1600				26.5	-.04								53.9	73.2													
10																													
11																													
12																													
13																													
14																													

FORMULAE: GAGE HEAD = P.S.I. x 2.3105 BHP = RPM x TOTAL LBS. / SCALE CONSTANT SCALE CONSTANT ☒ 5038 TT #1 ☐ 4165 TT #2 EFF = TOTAL HEAD GPM / BHP (3960) K = JOB SPEED / TEST RPM

CONDITION POINT: 1000 GPM @ 170 T.D.H. @ 1770 RPM

NOTES:

TESTED BY: Brandon [illegible] DATE: 6/4/03 WITNESSED BY: DATE:

TURN TABLE HT
SCALE PULLEY HT
SCALE PULLEY DUT. HT
COUNTER WEIGHT PULLEY HEIGHT
COUNTER WEIGHT PULLEY DUT HT

Booster Pump #1

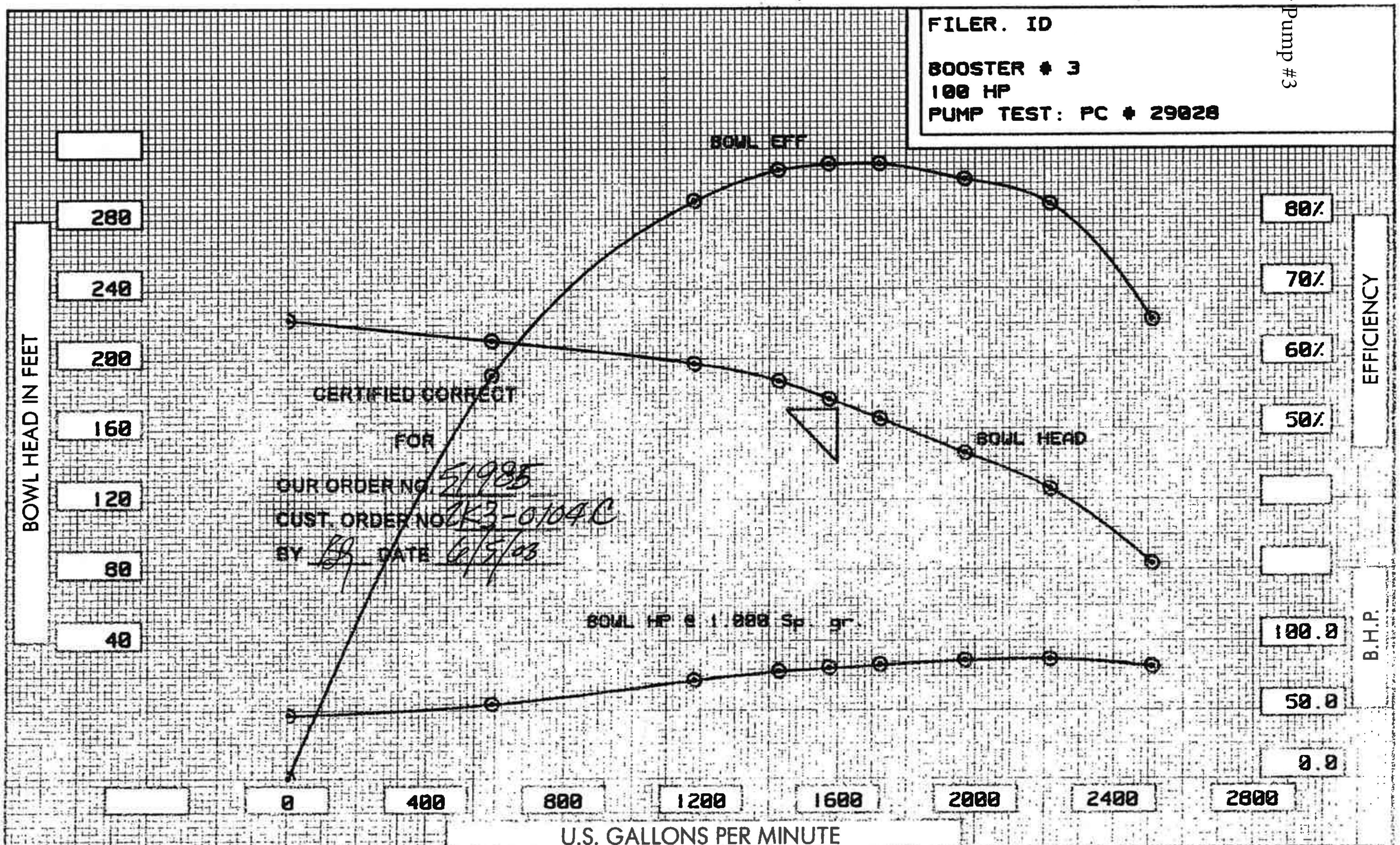
TEST EQUIPMENT

DESCRIP	EQUIP NO	CALIB	DUE DATE
300 #	TL/1515	5-7-03	6-7-03
100 #	TL/1700	5-7-03	6-7-03
SCALE	TL/1800	4-7-03	7-7-03
AIR/Ax	TL/2002	Self-cal.	Self-cal.

PG 1 OF 2

TL-003RO

Booster Pump #3



PUMPTECH CO. INC
4444 S. YELLOWSTONE HWY.
P.O. BOX 51259
IDAHO FALLS ID 83405

DWG. NO. 51985-1-1-T1

FLOWAY PUMPS
FRESNO, CALIFORNIA
A WEIR COMPANY

TYPE 14 JKM
NO. OF STAGES 2
R.P.M. 1770
PUMP SERIAL NO. 51985-1-1

DWN. BY BMT DATE 06-05-2003

PF-614

Booster Pump #3

TEST NUMBER PC#: 29028 S.O. # : 51985-1-1 DATE: 06-05-2003
CONDITION POINT: GPM= 1600 TDH= 170 RPM =1770
CALCULATED BY: BMT DRAWING No. = 51985-1-1-T1
PUMP TYPE (Bb$): 14 JKM
MANOMETER CONSTANT (Mc) = 0.9957 IMPELLER TRIM DIA. = 9.780 inch
GAGE HEIGHT (Ght) = 5.210 IMPELLER FINAL DIA. = 9.780 inch
NUMBER OF STAGES(Stages) = 2 NUMBER OF STAGES TESTED (Ds) = 2
SPECIFIC GRAVITY (SPG) = 1.0000
WATER TEMPERATURE = 65 DEGREES (F) SPECIFIC WEIGHT = 62.324 Lbs/Cu Ft.
COLUMN SIZE = 10
TURNTABLE CONSTANT (Ttc) = 4039

RUN	RPM	GPM	PRESS GA	COR	S LOSS	C-LOS	DH-LOS	VEL HD	SC RDG	SC COR	DWT	BLOS
1	1794	0.0	97.10	-0.26	0.00	0.00	0.00	0.00	68.70	0.0	40.4	0.00
2	1792	600.0	91.40	-0.37	0.00	0.00	0.00	0.09	86.90	0.0	40.4	0.00
3	1789	1200.0	85.00	-0.50	0.00	0.00	0.00	0.34	65.40	0.0	100.8	0.00
4	1788	1450.0	80.30	-0.50	0.00	0.00	0.00	0.50	79.60	0.0	100.8	0.00
5	1789	1600.0	75.10	0.10	0.00	0.00	0.00	0.61	85.40	0.0	100.8	0.00
6	1788	1750.0	70.00	0.10	0.00	0.00	0.00	0.73	89.70	0.0	100.8	0.00
7	1787	2000.0	61.30	0.01	0.00	0.00	0.00	0.95	96.20	0.0	100.8	0.00
8	1787	2250.0	52.10	0.00	0.00	0.00	0.00	1.21	97.80	0.0	100.8	0.00
9	1788	2550.0	33.20	0.00	0.00	0.00	0.00	1.55	84.70	0.0	100.8	0.00

I	RPM	GPM	TDH	TDH/STAGE	BHP	BHP/STAGE	EFF	MTR EFF
1	1770	0.0	222.87	111.44	46.54	23.27	0.00	1.0000
2	1770	590.1	210.36	105.18	54.42	27.21	57.59	1.0000
3	1770	1182.2	196.55	98.27	71.29	35.65	82.30	1.0000
4	1770	1429.2	186.28	93.14	77.47	38.74	86.78	1.0000
5	1770	1576.2	175.78	87.89	79.87	39.94	87.59	1.0000
6	1770	1724.9	164.54	82.27	81.81	40.90	87.61	1.0000
7	1770	1972.5	145.02	72.51	84.70	42.35	85.29	1.0000
8	1770	2219.0	124.39	62.20	85.38	42.69	81.64	1.0000
9	1770	2513.5	81.80	40.90	79.66	39.83	65.17	1.0000

FLOWAY PUMPS

COMMENTS:

TIME: START 6:08 FINISH 6:27

LAB TEST REPORT

DATE 6/5/03 TEST NO. PC- 29028 CUSTOMER PumpTECH Co, INC S/N 1 51985-1-1

PUMP DESCRIPTION 14 JKM NO OF STAGES 2 STG'S COL SIZE & LENGTH 10"x5'26 SHAFT SIZE 1 1/2"

HEAD SIZE & TYPE 10"x16 1/2 BOWL (C.I.) IMPELLER (ENCLOSED) IMPELLER DIA 9.780 U.F. STD

MOTOR DATA: MAKE LAB SERIAL NO # 31 HP 100 POLES 4 PH 3 HZ 60 VOLTS 460 TYPE V.H.S

METER SIZE & TYPE: 12"x6" GAGE DESCRIPTION 300/100# AXIAL ADJUSTMENT @ 1 1/2 (TURNS) 10 TPI

MANIFOLD ADAPTER: SIZE 10"x14" OFFSET ☐ STRAIGHT ☒

	TEST RPM	MANOMETER READING IN GPM	TOTAL GPM READING x.9957	GPM @1770 RPM K=	PRESSURE GAGE	DISCHARGE GAGE READING IN P.S.I.	DISCHARGE GAGE CORRECTION	TOTAL P.S.I.	Ⓐ GAGE HEAD IN FEET	Ⓑ SYSTEM LOSSES IN FEET	Ⓒ GAGE ELEV. IN FEET	Ⓓ VELOCITY HEAD IN FEET	TOTAL HEAD IN FEET Ⓐ+Ⓑ+Ⓒ+Ⓓ	HEAD IN FEET @1770 RPM K²=	POWER METER RDGS HP (REF ONLY)	Ⓣ SCALE READING IN LBS	Ⓤ SCALE DEAD WT IN LBS	Ⓥ TOTAL SCALE WT IN LBS = Ⓣ+Ⓤ	Ⓦ CORR. SCALE WT CORR. FACTOR = x Ⓥ	Ⓧ COUNTER DEAD WEIGHT IN LBS	Ⓩ CORR. DEAD WT CORR. FACTOR = x Ⓧ	TOTAL LBS = Ⓦ + Ⓩ	BHP	BHP @ 1770 RPM K =	BHP @ 1.000 SPEC GRAVITY		EFFICIENCY		
1	1794	0			300#	97.1	-.26				5.21				52.1	68.7				40.4									
2	1792	600			↓	91.4	-.37				↓				60.8	86.9				↓									
3	1789	1200				85.0	-.50								78.21	65.4				100.8									
4	1788	1450			↓	80.3	-.50								85.0	79.6				↓									
5	1789	1600			100#	75.1	.10								81.7	85.4													
6	1788	1750			↓	70.0	.10								89.7	89.7													
7	1787	2000				61.3	.01								92.6	96.2													
8	1787	2250				52.1	.00								93.4	97.8													
9	1788	2550			↓	33.2	.00				↓				87.3	84.7				↓									
10																													
11																													
12																													
13																													
14																													

FORMULAE: GAGE HEAD P.S.I. x 2.3105 BHP = RPM x TOTAL LBS. / SCALE CONSTANT SCALE CONSTANT ☒ 5030 TT #1 ☐ 4165 TT #2 EFF = TOTAL HEAD GPM / BHP (3960) K = JOB SPEED / TEST RPM

CONDITION POINT: 1600 GPM @ 170 T.D.H. @ 1770 RPM

TURN TABLE HT — COUNTER WEIGHT PULLEY HEIGHT
SCALE PULLEY HT — COUNTER WEIGHT PULLEY DIST HT
SCALE PULLEY DIST. HT

TEST EQUIPMENT

DESCRIP	EQUIP NO	CALIB	DUE DATE
300#	TL/1515	5-7-03	6-7-03
100#	TL/1100	5-7-03	6-7-03
SCALE	TL/1800	4-7-03	7-7-03
AZIMAY	TL/2002	Self-cal.	Self-cal.

Booster Pump #3

NOTES:

TESTED BY: Brandon [signature] DATE: 6/5/03 WITNESSED BY: DATE:

PG 1 OF 1

TL-003RO

Appendix E

User Charge Ordinance

RESOLUTION NO. 600

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF FILER, IDAHO, ESTABLISHING WATER AND SEWER RATES AND CHARGES.

BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF FILER, IDAHO, THAT WATER SYSTEM AND SEWER SYSTEM RATES AND CHARGES ARE ESTABLISHED AS FOLLOWS:

I. WATER SYSTEM RATES AND CHARGES: Water system rates and charges for all properties connected to the Filer sewer system are established as follows:

A. Regular Charges:
5/8" meter monthly minimum with 10,000 gallons at $27.00
Next 40,000 gallons at $0.42 per 1,000 gallons
Next 100,000 gallons at $0.60 per 1,000 gallons
Next 850,000 gallons at $0.85 per 1,000 gallons
All additional gallons at $1.00 per 1,000 gallons

Minimum monthly charges shall be as follows:

Per Unit Charge for Multi-units	$27.00
5/8" meter	$27.00
1" meter	$27.50
1 ¼" meter	$28.50
1 ½" meter	$29.50
2" meter	$30.50
4" meter	$46.50
6" meter	$62.00
8" meter	$77.50

B. Pressurized Irrigation: A flat rate of $60.00/year, to be paid $5.00/month.

C. Service Outside City Limits: All charges to users outside the City limits shall be double the rates above specified.

D. Turn On/Off Charges: There will be no charge for turnoff and turn-on of water service at the request of the homeowner or occupant for repair, provided such turn off and turn on is done between the hours of eight o'clock (8:00) A.M. and five o'clock (5:00) P.M. on weekdays, holidays excluded. The charges for turning the water service off or on, at the request of the homeowner or occupant after five o'clock (5:00) P.M. until eight o'clock (8:00) A.M. weekdays, shall be ten dollars ($10.00), five dollars ($5.00) to turn the water off and five dollars ($5.00) to turn the water on. Twenty-four (24) hours a day on weekends and holidays are chargeable for turn-off and turn-on fees. Residential or commercial service shutoff and turn-on for purposes of temporary vacations or winters in other states or communities shall not be charged to have the water turned off when they leave and turned on when they return to their homes if done on weekdays between eight o'clock (8:00) A.M. and five o'clock (5:00) P.M., excluding holidays.

E. Connection Fees: Each new user service connection shall pay:

1. A refundable one hundred dollar ($100.00) security deposit unless there is a satisfactorily established credit record with the City as a result of prior service from the City. A satisfactorily established credit record shall be determined if all payments to the City for the twenty four (24) month period immediately preceding have been made in a timely manner according to the terms printed on the monthly billing statement. The security deposit shall be refunded to the water user or credited to the current water bill after twenty four (24) months of satisfactory payment of billings for City services, including water, sewer and sanitation provided by the City.

2. A nonrefundable two thousand five hundred dollar ($2,500.00) water tap connection charge if the work is performed by the City, and five hundred dollars ($500.00) if the work is not performed by the City, to be paid to the City Treasurer.

3. The cost of the meter, meter pit, setter, ring and cover for the connection:
Meters: $300 for ¾" meter; $375 for 1" meter.
Meter pit, setter, ring and cover: $330 for ¾" meter; $396 for 1: meter.
Cost of the meter is in addition to the cost of the pit, setter, ring and cover.

3. Each of the foregoing charges and deposit for service shall be paid to the City Treasurer before issuance of a building permit, or if no building permit is to be issued, before the water service is connected to the City's line.

F. Water System Capacity Fees: Each property connecting to the City's water system shall be charged $2,109/ERU (Equivalent Residential Unit) before being permitted to connect to the City's water system.

II. SEWER USER RATES AND CHARGES: Sewer rates for all properties connected to the Filer sewer system are established as follows:

A. City Residential Uses: Each residence, dwelling unit or building in the City limits that is occupied for residential purposes, uses City sewer service and consumes seven thousand (7,000) gallons or less of water per month, based upon water use for the winter months as metered by the City, shall be charged a rate of seventy dollars and fifty cents ($70.50) per month. Sewer users consuming in excess of seven thousand (7,000) gallons of water per month shall pay an increased sewer use charge of one dollar fifty cents ($1.50) per one thousand (1,000) gallons of water consumed or part thereof in excess of seven thousand (7,000) gallons.

B. Commercial Uses: Each commercial sewer user in the City limits that consumes seven thousand (7,000) gallons or less of water per month, as metered by the City the preceding month, shall be charged a rate of seventy two dollars and fifty cents ($72.50) per month. Commercial users consuming in excess of seven thousand (7,000) gallons of water per month shall pay an increased sewer user charge of one dollar fifty cents ($1.50) per one thousand (1,000) gallons of water consumed or part thereof in excess of seven thousand (7,000) gallons.

C. Unmetered Commercial Uses: The following unmetered commercial user shall be charged the following rate:

Business	Account No.	Rate
Cedar Lanes Bowling Alley	814	$95.50 month

D. Out-Of-City Residential Uses: Each residence, dwelling unit or building outside the City limits that is occupied for residential purposes, uses City sewer service and does not use City water service shall be charged a rate of seventy five dollars and fifty cents ($75.50) per month.

E. Out-of-City Commercial Uses: Each commercial sewer user in the City limits that consumes seven thousand (7,000) gallons or less of water per month, as metered by the City the preceding month, shall be charged a rate of seventy seven dollars and fifty cents($77.50) per month. Commercial users consuming in excess of seven thousand (7,000) gallons of water per month shall pay an increased sewer user charge of one dollar fifty cents ($1.50) per one thousand (1,000) gallons of water consumed or part thereof in excess of seven thousand (7,000) gallons.

F. Sewer Tap Fees: Sewer tap fees for properties connecting to the City sewer system are established as follows: each new sewer connection shall require a nonrefundable two thousand five hundred dollar ($2,500.00) connection charge if the work is performed by the City, and five hundred dollars ($500.00) if the work is not performed by the City, to be paid to the City Treasurer before issuance of a building permit, or if no building permit is to be issued, before the sewer connection is made. The applicant shall pay all costs associated with the service line installation and shall reimburse the City its cost of street and/or sidewalk repair, if any.

G. Wastewater System Capacity Fees: Each property connecting to the City's wastewater collection and treatment system shall be charged $1,895/ERU (Equivalent Residential Unit) before being permitted to connect to the City's wastewater collection and treatment system.

III. ANNUAL RATE REVIEW AND UPDATE: The City Council shall review these utility rates annual, in conjunction with the annual budget process, and adjust rates as required to generate sufficient revenues required for operation, maintenance, and debt retirement. The City Council shall notify each user of the user charges attributable to wastewater treatment services on an annual basis.

IV. EFFECTIVE DATE: This Resolution shall be effective immediately.

PASSED BY THE CITY COUNCIL May 7, 2013.
SIGNED BY THE MAYOR May 7, 2013.

MAYOR

ATTEST:

CITY CLERK

Appendix F

City Budget

2012-2013 BUDGET - CITY OF FILER, IDAHO
General Budget

Cash Carry Forward		$ 495,959.00
REVENUES:		
Taxes	$ 483,005.00	
Sanitation	$ 109,000.00	
Sales Tax (Inventory)	$ 56,300.00	
Building Permits	$ 20,000.00	
Development Fees	$ 1,000.00	
Magistrate Court	$ 14,000.00	
Liquor	$ 18,000.00	
Licenses, Permits & Fees	$ 2,500.00	
Franchises	$ 50,000.00	
Other	$ 4,000.00	
Interest	$ 5,000.00	
Fire District Utilities	$ 4,200.00	
Cedar Draw Park	$ 500.00	
Check Reimbursement	$ 3,100.00	
PD Asset recovery	$ 1,000.00	
PD Grant Reimb.	$ 5,000.00	
Tree Grant	$ 500.00	
TOTAL REVENUES	$ 777,105.00	
TOTAL CASH AVAILABLE		$ 1,273,064.00

GENERAL-GENERAL

EXPENDITURES:

Attorney	$	6,000.00
A.I.C. Dues	$	1,014.00
Audit	$	1,890.00
Building Inspector	$	20,000.00
Building Maintenance	$	2,500.00
Capital Improvement	$	320,000.00
City Parks	$	20,000.00
Department Supplies	$	2,000.00
Develop. Fees & Engineer	$	2,000.00
Election	$	1,000.00
Engineer	$	650.00
NSF Checks	$	3,000.00
Planning & Zoning	$	1,500.00
Power	$	1,000.00
Publishing & Printing	$	5,000.00
Retirement	$	9,650.00
S.S. & Med. (FICA)	$	7,500.00
Salaries	$	85,000.00
Sanitation	$	90,000.00
Schools & P.R.	$	4,000.00
Telephone	$	950.00
Water Shares	$	12,900.00
Worker's Compensation	$	1,136.00
City Park/Tree Grant	$	500.00
Contingency	$	10,877.00
TOTAL EXPENDITURES - GENERAL	$	610,067.00

GENERAL - POLICE 2012-2013 BUDGET

EXPENDITURES:

Ammunition/Tasers	$	4 800.00
Animal Control	$	1,500.00
Asset Recovery	$	1,000.00
Attorney (Inc. Pros. Atty)	$	4,500.00
Body Armor	$	1,000.00
Computer Update	$	4,000.00
Council Member Salary 1/2	$	2,060.00
Crime Stoppers	$	100.00
Department Supply	$	9,600.00
E911 - Sircomm	$	20,700.00
Gas, Oil & Repair	$	30,000.00
Grant Expenses	$	5,000.00
Health Insurance	$	55,000.00
Heat	$	3,600.00
IPOA Dues	$	450.00
Mobile Phones	$	4,000.00
Office Supplies	$	2,500.00
Policy Manual	$	4,950.00
Ord. Revision & Update	$	220.00
Patrol Cars	$	25,000.00
Power	$	900.00
Radio/Repair	$	2,500.00
Retirement	$	33,575.00
S.S. & Med. (FICA)	$	23,500.00
Salaries	$	300,500.00
Schools	$	4,000.00
Telephones	$	3,600.00
Unemployment	$	1,000.00
Uniforms	$	1,250.00
Worker's Comp.	$	8,864.00
Contingency	$	8,000.00
TOTAL EXPENDITURES - POLICE	$	567,669.00

GENERAL - FIRE 2012-2013 BUDGET

EXPENDITURES:

Attorney	$	500.00
Council Member Salary 1/2	$	2,060.00
Drills & Salaries	$	35,000.00
Fire Prevention Literature	$	800.00
Fire Truck	$	11,000.00
Fire Truck Equipment	$	6,000.00
Gas, Oil & Repair	$	2,500.00
Heat	$	3,500.00
Maintenance	$	2,000.00
Office Supplies	$	500.00
Ord. Revision & Update	$	195.00
Power	$	4,000.00
Radio/Repair	$	5,000.00
Retirement	$	2,300.00
S.S. & Med. (FICA)	$	2,700.00
Schools	$	3,000.00
Telephone	$	3,500.00
Unemployment	$	500.00
Worker's Comp.	$	2,273.00
Contingency	$	8,000.00
TOTAL EXPENDITURES - FIRE	$	95,328.00

TOTAL GENERAL FUND BALANCE $ 1,273,064.00

WATER BUDGET

Cash Carry Forward		$ 946,112.00
REVENUES:		
Water Sales	$ 360,000.00	
Forfeitures	$ 8,000.00	
Capacity Fees	$ 20,000.00	
Water Meter Installations	$ 12,000.00	
Water Reserve Fund	$ 10,000.00	
DEQ Grant	$ .00	
Other	$ 4,000.00	
Meter Deposits	$ 6,000.00	
TOTAL REVENUES	$ 420,000.00	
TOTAL CASH AVAILABLE		$ 1,366,112.00

WATER BUDGET

EXPENDITURES:

Arsenic Study	$	49,890.00
Attorney	$	500.00
Audit	$	1,890.00
Backhoe lease	$	4,000.00
Bond Payments	$	150,000.00
Bond Reserve	$	14,000.00
Capital Improvement	$	700,000.00
Certification Fee (D.E.Q.)	$	3,000.00
Council Member Salary	$	4,120.00
Engineer	$	8,000.00
Gas, Oil & Repairs	$	10,000.00
Generator	$	25,000.00
Health Insurance	$	28,000.00
Heat	$	1,800.00
Lab Testing	$	5,000.00
Maintenance	$	63,500.00
Maintenance Equipment	$	12,000.00
Office Supplies	$	6,800.00
Ord. Revision & Update	$	195.00
Power	$	32,000.00
Pump Maintenance	$	7,000.00
Radio/Repair	$	1,000.00
Retirement	$	10,100.00
S.S. & Med. (FICA)	$	8,000.00
Salaries	$	85,000.00
Schools (Training)	$	1,500.00
Special Water Reserve	$	75,000.00
Telephone	$	2,400.00
Unemployment	$	1,500.00
Water Deposit Returns	$	7,000.00
Worker's Comp.	$	4,460.00
Contingency	$	43,457.00

TOTAL EXPENDITURES $1,366,112.00

STREET LIGHTING BUDGET

Cash Carry Forward		$ 68,920.00
REVENUES:		
Taxes	$ 76,917.00	
T.F. Co. Fair (Street Light)	$ 240.00	
Inventory Phaseout	$ 7,507.00	
Marquee Charge	$ 300.00	
TOTAL REVENUES	$ 84,964.00	
TOTAL CASH AVAILABLE		$ 153,884.00
EXPENDITURES:		
Christmas Dec. & Poles	$ 2,500.00	
Health Insurance	$ 14,200.00	
Ord. Revision & Update	$ 650.00	
Retirement	$ 6,200.00	
S.S. & Med. (FICA)	$ 4,200.00	
Salaries	$ 56,500.00	
Street Lighting	$ 26,000.00	
Worker's Comp.	$ 1,136.00	
Contingency	$ 42,498.00	
TOTAL EXPENDITURES	$ 153,884.00	

STREET BUDGET

Cash Carry Forward		$ 185,513.00
REVENUES:		
Taxes	$ 170,399.00	
Highway Users	$ 82,500.00	
Highway 50%	$ 45,000.00	
Other	$ 500.00	
TOTAL REVENUES	$ 298,399.00	
TOTAL CASH AVAILABLE		$ 483,912.00
EXPENDITURES:		
Attorney	$ 500.00	
Audit	$ 1,890.00	
Backhoe Lease	$ 4,000.00	
Construction	$ 60,000.00	
Council Member	$ 4,120.00	
Engineer	$ 7,500.00	
Gas, Oil & Repair	$ 10,000.00	
Health Insurance	$ 28,000.00	
Heat	$ 1,800.00	
Maintenance	$ 62,000.00	
Office Supplies	$ 4,500.00	
Ord. Revision & Update	$ 195.00	
Radio/Repair	$ 800.00	
Retirement	$ 10,100.00	
S.S. & Med. (FICA)	$ 8,000.00	
Salaries	$ 85,000.00	
Equipment	$ 12,000.00	
Telephone	$ 350.00	
Unemployment	$ 500.00	
Vehicle Maintenance	$ 8,000.00	
Worker's Comp.	$ 2,489.00	
Contingency	$172,168.00	
TOTAL EXPENDITURES	$483,912.00	

LIBRARY BUDGET

Cash Carry Forward		$ 76,529.00
REVENUES:		
Taxes	$ 62,108.00	
Inventory Phaseout	$ 6,193.00	
TOTAL REVENUES	$ 68,301.00	
TOTAL CASH AVAILABLE		$ 144,830.00
EXPENDITURES:		
Capital Improvements	$ 70,000.00	
Library	$ 46,155.00	
Mayor	$ 6,870.00	
Ord. Revision & Update	$ 50.00	
Retirement	$ 760.00	
S.S. & Med. (FICA)	$ 500.00	
Worker's Comp.	$ 182.00	
Contingency	$ 20,313.00	
TOTAL EXPENDITURES	$ 144,830.00	

SEWER BUDGET

Cash Carry Forward		$ 1,549,424.00
REVENUES:		
Farm Income	$ 30,000.00	
Farm Rentals	$ 9,000.00	
Other	$ 230.00	
Receipts	$ 887,000.00	
Capacity Fees	$ 40,000.00	
USDA RD GRANT/LOAN	$ 750,000.00	
DEQ LOAN	$ 300,000.00	
ACOE	& 113,000.00	
Sewer Tap Fee	$ 10,000.00	
Sewer Reserve Fund	$ 10,000.00	
TOTAL REVENUES	$ 2,149,230.00	
TOTAL CASH AVAILABLE		$ 3,698,654.00
EXPENDITURES:		
Attorney	$ 3,500.00	
Audit	$ 1,890.00	
Backhoe Lease	$ 4,000.00	
Capital Improvements	$ 800,000.00	
Council & Mayor Salary	$ 4,120.00	
Engineer	$ 10,000.00	
Farm Expenses	$ 22,000.00	
Gas, Oil & Repair	$ 10,000.00	
Health Insurance	$ 28,000.00	
Health Insurance Repay	$ 10,000.00	
Heat	$ 30,000.00	
Lab Testing	$ 12,000.00	
Maintenance	$ 25,000.00	
Ord. Revision & Update	$ 195.00	
Power	$ 60,000.00	
Pump Back Station	$ 5,500.00	
Pump Maintenance	$ 20,000.00	
Radio/Repair	$ 600.00	
Retirement	$ 10,100.00	
S.S. & Med. (FICA)	$ 8,000.00	
Salaries	$ 85,000.00	
Schools (Training)	$ 2,500.00	
Sewer Line Replacement	$ 25,000.00	
Special Sewer Reserve	$ 57,000.00	
USDA RD GRANT/LOAN	$ 780,000.00	
DEQ LOAN	$ 300,000.00	
Telephone	$ 2,300.00	
Bond Pymt	$ 538,022.00	
Bond Reserve	$ 538,000.00	
Unemployment	$ 500.00	
ACOE	$ 113,000.00	
Worker's Comp.	$ 4,460.00	
Contingency	$ 87,967.00	
TOTAL EXPENDITURES	$ 3,698,654.00	

STATE REVENUE SHARING BUDGET

Cash Carry Forward		$ 143,332.00
REVENUES:		
Receipts	$ 72,000.00	
TOTAL REVENUES	$ 72,000.00	
TOTAL CASH AVAILABLE		$ 215,332.00
EXPENDITURES:		
General		
A.D.A. Compliance	$ 250.00	
City Building Repair	$ 15,000.00	
Computer Updates	$ 6,000.00	
Contingency	$ 144,382.00	
Police		
Equipment	$ 1,500.00	
Inoculations	$ 200.00	
Pole Building	$ 2,000.00	
Fire		
B.A. Upgrade	$ 6,500.00	
Building Maint.	$ 3,000.00	
Inoculations	$ 1,000.00	
Fire Hose	$ 2,500.00	
Fire Truck Equip.	$ 3,000.00	
Turnouts	$ 6,000.00	
Q.R.U.		
Equipment	$ 2,000.00	
Gas, Oil & Repairs	$ 2,000.00	
Training	$ 1,000.00	
Wtr/Sewer/Streets		
Maint.Equipment	$ 10,000.00	
COMMUNITY SERVICE		
Community Service	$ 3,800.00	
Gem Community	$ 100.00	
Rural Develop. Dues	$ 3,500.00	
Senior Citizens	$ 1,600.00	
TOTAL EXPENDITURES	$ 215,332.00	

LIABILITY INSURANCE

Cash Carry Forward		$ 153,025.00
REVENUES:		
Taxes	$ 51,137.00	
TOTAL REVENUES	$ 51,137.00	
TOTAL CASH AVAILABLE		$ 204,162.00
EXPENDITURES:		
Liability Insurance	$ 35,000.00	
Contingency	$ 169,162.00	
TOTAL EXPENDITURES	$ 204,162.00	

HEALTH INSURANCE FUND

Cash Carry Forward		$ 287,043.00
REVENUES:		
Sewer Fund Repay	$ 10,000.00	
Transfers	$ 0.00	
TOTAL	$ 10,000.00	
TOTAL CASH AVAILABLE		$ 297,043.00
EXPENDITURES:		
Insurance Reimbursements	$ 0.00	
Contingency	$ 297,043.00	
TOTAL EXPENDITURES	$ 297,043.00	

TOTAL BUDGET FOR 2012-2013	$ 7,836,993.00

Appendix G

Sanitary Survey

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

FILE COPY

1363 Fillmore Street • Twin Falls, Idaho 83301 • (208) 736-2190

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

May 25, 2010

Mr. Bud Compher
City of Filer
P.O. Box 140
Filer, ID 83328

Re: PWS ID5420021- Enhanced Sanitary Survey conducted on April 15, 2010

Dear Mr. Compher:

Enclosed is a copy of the Enhanced Sanitary Survey form for Public Water System ID5420021 for your records. A list of the significant deficiencies and/or recommended improvements for your system is also enclosed.

Pursuant to IDAPA 58.01.08.302.03, the water system operator must respond in writing not later than forty-five (45) days after receipt of the sanitary survey report describing how and on what schedule the system will address significant deficiencies identified in the survey.

For all new water systems or modifications to existing water systems, an engineering report shall be submitted to the Department of Environmental Quality's (DEQ) review and approval prior to or concurrent with the submittal of plans and specifications as required in Subsection 551.04, pursuant to IDAPA 58.01.08.551.01.

Prior to construction of new public water supply systems or modifications or existing public water supply systems, plans and specifications must be submitted to the DEQ for review, and approved, pursuant to IDAPA 58.01.08.551.04.a.

This system will be in substantial compliance with regulations if the significant deficiencies of this survey are implemented. Thank you for your time and cooperation in the completion of this survey. If you have any questions, please contact me at 736-2190.

Sincerely,

Josh Barron REHS/RS
Drinking Water Program Coordinator

JB:gl

Enclosures: Enhanced Sanitary Survey Inspection Forms

City of Filer
PWS#: 5420021
April 15, 2010
Recommendations and Deficiencies

Recommendations
Groundwater Source:
Storage:
#17: The 600,000 gallon storage structure was observed to be leaking at the time of inspection which is not in accordance with IDAPA 58.01.08.550.01 which incorporates by reference the Recommended Standards for Water Works 7.0.

DEQ recommends that the leak be repaired by the PWS.

Disinfection:
#26: Continuous chlorine leak detection equipment is not provided in accordance with IDAPA 58.01.08.550.01 which incorporates by reference the Recommended Standards for Water Works 5.3.3.

No leak detection equipment is provided.

#27: The leak detector is not equipped with both an audible alarm and a warning light in accordance with IDAPA 58.01.08.550.01 which incorporates by reference the Recommended Standards for Water Works 5.3.3.

No leak detection equipment is provided.

#32: The chlorine room is not provided with doors equipped with panic hardware, assuring ready means of exit and opening outward only to the building exterior in accordance with IDAPA 58.01.08.550.01 which incorporates by reference the Recommended Standards for Water Works 5.4.1.a.3.

The door to the chlorine room opens inward, and is not equipped with panic hardware.

#37: Outside switches are not protected from vandalism in accordance with IDAPA 58.01.08.550.01 which incorporates by reference the Recommended Standards for Water Works 5.4.1.c.5.

Josh Barron REHS/RS
Drinking Water Program Coordinator
DEQ – Twin Falls Regional Office

JB:gl

State of Idaho Public Water System Enhanced Sanitary Survey

WATER SYSTEM INVENTORY INFORMATION

SURVEY DATE: 4//15210 (mm/dd/yyyy)

PWS #: 5420021

Name of Public Water System: City of Filer

\# of Groundwater Sources: 5
\# of Surface Water Sources: 0
\# of Storage Facilities: 2
Total Storage: 1.6M gal.

Date of Last Survey: 04/27/2005

Health District: [x] N/A

DEQ Region: [ ] N/A — TFRO

County: Twin Falls

Number of Service Connections: 665

Residential Population: 1800

Status: [x] Approved [ ] Disapproved

Water Purchased From: [x] N/A
Name:
PWS #:

Water Sold To: [x] N/A
Name:
PWS #:

Owner Type: Local Gov't

Legal Entity: Gov't Agency

[x] Community Water System
[ ] Nontransient Noncommunity
[ ] Transient Noncommunity - TNC

Combined Source? [x] Yes [ ] No
If yes, [ ] Well Fields [x] Manifolds
Sources Manifolded: 2, 3, 5, 7

System Certification Class: Dist. II

Seasonal Operation Dates: [x] N/A
Date Open:
Date Closed:

Responsible Person In Charge (RIC): (Identify Operator here for TNC PWS)
[x] Mr. [ ] Ms. Bud Compher

RIC Properly Certified? [x] Yes [ ] No [ ] N/A-TNC

Certification Level: Dist. 2 [ ] N/A

Mailing Address: P.O. Box 140

City, State, Zip Code: Filer, ID 83328

Telephone
Day: 326-5000
Cell: 308-9007
Fax:

E-mail:

Legal Owner's Name:
[ ] Mr. [ ] Ms. City of Filer

Mailing Address: P.O. Box 140

City, State, Zip Code: Filer, ID 83328

Telephone
Day: 326-5000
Night:
Fax:

E-mail:

Substitute (RIC): [ ] No Sub. RIC Identified [ ] N/A (N/A for TNC PWS)
[x] Mr. [ ] Ms. Joe Baratti

Sub.RIC Properly Certified? [x] Yes [ ] No [ ] N/A-TNC

Certification Level: Dist. 1 [ ] N/A

Mailing Address: same as above

City, State, Zip Code: same as above

Telephone
Day: same as above
Night:
Fax:

E-mail:

Personnel present during evaluation:

Name	Title
Name: Bud Compher	Title: Public Works Director
Name:	Title:
Name:	Title:

Physical location of the PWS (Township, Range, Section):

Samples taken at the time of survey by inspector?
[ ] Yes [x] No
If yes, what:

Survey performed by:
Name: Josh Barron
Title: Regional Drinking Water Program Coordinator
Phone #: 208-736-2190

Agency:
[x] IDEQ
[ ] Health Dept.
[ ] Other:__________

General Information

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	1. Have modifications been made to the PWS since the last ESS?
[x]	[ ]	[ ]	[ ]	[ ]	2. If yes, are the modifications considered to be significant?
[x]	[ ]	[ ]	[ ]	[ ]	3. If yes, were plans and specs submitted to and approved by DEQ?

Comments:

Sanitary Survey Index

Modules used:
[x] General Information
[x] Groundwater Source
[x] Storage
[ ] Hydropneumatic Tanks
[x] Distribution
[x] Pumping
[x] Financial Capacity
[x] Managerial Capacity
[x] Treatment Application
  [x] Disinfection
[ ] Notes
[x] Photo Log and Photos

GROUNDWATER SOURCE

SURVEY D/ 4/15/2010 *(mm/dd/yyyy)* PWS # 5420021

A separate sources form must be filled out for each groundwater source in the PWS.

Tag #: E0006705	Common Name of Source: Well #1	Source: [x] Well [ ] Spring [ ] Infiltration Gallery	Is this Source Treated? [x] Yes [ ] No [ ] N/A
Physical Location: S. Abel St.			Treatment Objective: Disinfection
Is there a well log for the groundwater source? [ ] Yes [x] No [ ] N/A [ ] Unk			Treatment Types: [ ] N/A Gas Chlorination

Pump Capacity (GPM)	Casing Size (in)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
120 [ ] Unk	6 [ ] Unk	[ ] Unk	800 [ ] Unk	[ ] Unk	[ ] Unk	75 [ ] Unk

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

Latitude (Decimal):

Longitude (Decimal):

(+) IF A GROUNDWATER SOURCE HAS BEEN DETERMINED TO FALL UNDER THE DIRECT INFLUENCE OF SURFACE WATER, THE SURFACE WATER SYSTE INSPECTION RESULTS AND TURBIDITY SECTIONS MUST BE FILLED OUT IN ADDITION TO THE GROUNDWATER SYSTEM INSPECTION RESULTS SECTION.

GROUNDWATER SOURCE

1. This source is:
   [x] Active [ ] Proposed
   [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: 6/27/01
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDISW determination been done for this source? Date: 4/27/05
[x]	[ ]	[ ]	[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance for 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77)
[x]	[ ]	[ ]	[ ]	[ ]	5. Is the well lot owned in fee simple by the supplier of water or controlled by lease with a term of not less than the usefull life of the well?
					6. Are the following minimum distances from the PWS well being met?
[x]	[ ]	[ ]	[ ]	[ ]	- Sewer line.....50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home septic tank.....100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home disposal field.....100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home seepage pit.....100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Privies.....100 Ft.
[x]	[ ]	[ ]	[ ]	[ ]	- Livestock.....50 Ft.
[ ]	[x]	[ ]	[ ]	[x]	- Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.....50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Any other potential source of contamination observed at time of inspection.....50 Ft.
[x]	[ ]	[ ]	[ ]	[x]	7. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	8. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	9. Is the well in a pit? If yes, Date constructed: ________
[ ]	[ ]	[x]	[ ]	[ ]	10. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	11. If pit was installed prior to 11/5/64 – Does the pit have water tight floors and wall construction and is an acceptable floor drain provided?
[x]	[ ]	[ ]	[ ]	[ ]	12. Is the source protected from unauthorized entry?
[x]	[ ]	[ ]	[ ]	[ ]	13. Does the casing extend a minimum of 12 inches above the finished ground surface and 6 inches above the well house floor?
[x]	[ ]	[ ]	[ ]	[ ]	14. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the floor?
[x]	[ ]	[ ]	[ ]	[ ]	15. Is the well cap sanitary seal properly installed and maintained?
[x]	[ ]	[ ]	[ ]	[ ]	16. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCES PG. 2

Common Name	SURVEY DATE	(mm/dd/yyyy)	PWS #
Well	4/10/2010		5420021

COMMENTS:
(Please indicate question number)

yes	no	n/a	unk	note	GROUNDWATER SOURCE (cont.)
☑	☐	☐	☐	☐	17. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐	18. Is a totalizing flow meter installed on the discharge line of the well and is it maintained and working properly? 532557 gal.
☑	☐	☐	☐	☐	19. Is a pressure gauge provided at all installations and is it maintained and working properly? 48 psi.
☑	☐	☐	☐	☐	20. Can the well be pumped to waste via an approved air gap?
☐	☑	☐	☐	☐	21. Has the source been known to have caving or sand problems?

yes	no	n/a	unk	note	WELL HOUSE
☑	☐	☐	☐	☐	22. Is the source located in a well house?
☑	☐	☐	☐	☐	23. Is the well house kept clean and in good repair?
☑	☐	☐	☐	☐	24. Is the well house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Are all non-sample taps installed in the well house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	26. Is ventilation provided in the well house to remove excess heat and moisture during peak summer temperatures?
☑	☐	☐	☐	☐	27. Is a thermostatically regulated heater installed in the well house to prevent moisture buildup during cold weather?
☑	☐	☐	☐	☐	28. Is the well house protected from flooding and does it have adequate drainage?
☐	☐	☑	☐	☐	29. Is the sump for well 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?

yes	no	n/a	unk	note	SPRING INFORMATION
☐	☐	☑	☐	☐	31. Is the entire area within one hundred (100) feet of the spring owned by the supplier or controlled by a long term lease?
☐	☐	☑	☐	☐	32. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	33. Is surface water and drainage ditches diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	34. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	35. Is a sample tap provided?
☐	☐	☑	☐	☐	36. Is a flow meter or other flow measuring device provided?
☐	☐	☑	☐	☐	37. Is there a screened overflow and drain pipe?
☐	☐	☑	☐	☐	38. Is the supply intake located above the floor of the collection chamber and screened?

yes	no	n/a	unk	note	INFILTRATION GALLERY INFORMATION
☐	☐	☑	☐	☐	39. Is there a lid over the gallery?
☐	☐	☑	☐	☐	40. Is the lid watertight and locked?
☐	☐	☑	☐	☐	41. Is the collector in sound condition and maintained as necessary?

GROUNDWATER SOURCE

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY D.: 4/15/2010 (mm/dd/yyyy)

PWS #: 5420021

Tag #: E0006708	Common Name of Source: Well #2	Source: [x] Well [ ] Spring [ ] Infiltration Gallery	Is this Source Treated? [x] Yes [ ] No [ ] N/A
Physical Location: 300 Main St.			Treatment Objective: Disinfection
Is there a well log for the groundwater source? [ ] Yes [x] No [ ] N/A [ ] Unk			Treatment Types: [ ] N/A Sodium Hypochlorite

Pump Capacity (GPM)	Casing Size (in)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
100 [ ] Unk	6 [ ] Unk	[ ] Unk	900 [ ] Unk	[ ] Unk	[ ] Unk	25 [ ] Unk

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

Latitude (Decimal):

Longitude (Decimal):

(+) IF A GROUNDWATER SOURCE HAS BEEN DETERMINED TO FALL UNDER THE DIRECT INFLUENCE OF SURFACE WATER, THE SURFACE WATER SYSTE INSPECTION RESULTS AND TURBIDITY SECTIONS MUST BE FILLED OUT IN ADDITION TO THE GROUNDWATER SYSTEM INSPECTION RESULTS SECTION.

GROUNDWATER SOURCE

COMMENTS: (Please indicate question number)

1. This source is: [ ] Active [ ] Proposed [ ] Inactive [x] Emergency (<60 days per year)

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: 6/27/01
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDISW determination been done for this source? Date: 4/27/05
[x]	[ ]	[ ]	[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance for 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77)
[x]	[ ]	[ ]	[ ]	[ ]	5. Is the well lot owned in fee simple by the supplier of water or controlled by lease with a term of not less than the usefull life of the well?
					6. Are the following minimum distances from the PWS well being met?
[x]	[ ]	[ ]	[ ]	[ ]	- Sewer line....................50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home septic tank....................100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home disposal field....................100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home seepage pit....................100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Privies....................100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Livestock....................50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Any other potential source of contamination observed at time of inspection....................50 Ft.
[ ]	[x]	[ ]	[ ]	[ ]	7. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	8. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	9. Is the well in a pit? If yes, Date constructed: ______
[ ]	[ ]	[x]	[ ]	[ ]	10. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	11. If pit was installed prior to 11/5/64 -- Does the pit have water tight floors and wall construction and is an acceptable floor drain provided?
[x]	[ ]	[ ]	[ ]	[ ]	12. Is the source protected from unauthorized entry?
[x]	[ ]	[ ]	[ ]	[ ]	13. Does the casing extend a minimum of 12 inches above the finished ground surface and 6 inches above the well house floor?
[x]	[ ]	[ ]	[ ]	[ ]	14. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the floor?
[x]	[ ]	[ ]	[ ]	[ ]	15. Is the well cap sanitary seal properly installed and maintained?
[x]	[ ]	[ ]	[ ]	[ ]	16. Is the well cased and sealed in such a manner that surface water cannot enter the well?

Page ______ Of ______

GROUNDWATER SOURCES PG. 2

Common Name	SURVEY DATE (mm/dd/yyyy)	PWS #
Well	4/1/2705	5420021

COMMENTS: (Please indicate question number)

GROUNDWATER SOURCE (cont.)

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	17. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☐	☑	☐	☐	☐	18. Is a totalizing flow meter installed on the discharge line of the well and is it maintained and working properly? ____________ gal.
☐	☑	☐	☐	☐	19. Is a pressure gauge provided at all installations and is it maintained and working properly? ________ psi.
☑	☐	☐	☐	☐	20. Can the well be pumped to waste via an approved air gap?
☐	☑	☐	☐	☐	21. Has the source been known to have caving or sand problems?

WELL HOUSE

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	22. Is the source located in a well house?
☑	☐	☐	☐	☐	23. Is the well house kept clean and in good repair?
☑	☐	☐	☐	☐	24. Is the well house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Are all non-sample taps installed in the well house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	26. Is ventilation provided in the well house to remove excess heat and moisture during peak summer temperatures?
☑	☐	☐	☐	☐	27. Is a thermostatically regulated heater installed in the well house to prevent moisture buildup during cold weather?
☑	☐	☐	☐	☐	28. Is the well house protected from flooding and does it have adequate drainage?
☐	☐	☑	☐	☐	29. Is the sump for well 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?

SPRING INFORMATION

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	31. Is the entire area within one hundred (100) feet of the spring owned by the supplier or controlled by a long term lease?
☐	☐	☑	☐	☐	32. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	33. Is surface water and drainage ditches diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	34. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	35. Is a sample tap provided?
☐	☐	☑	☐	☐	36. Is a flow meter or other flow measuring device provided?
☐	☐	☑	☐	☐	37. Is there a screened overflow and drain pipe?
☐	☐	☑	☐	☐	38. Is the supply intake located above the floor of the collection chamber and screened?

INFILTRATION GALLERY INFORMATION

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	39. Is there a lid over the gallery?
☐	☐	☑	☐	☐	40. Is the lid watertight and locked?
☐	☐	☑	☐	☐	41. Is the collector in sound condition and maintained as necessary?

GROUNDWATER SOURCE

SURVEY D. 4/415/2010 (mm/dd/yyyy)

PWS # 5420021

A separate sources form must be filled out for **each** groundwater source in the PWS.

Tag #: E0006707	Common Name of Source: Well #3	Source: [x] Well [ ] Spring [ ] Infiltration Gallery	Is this Source Treated? [x] Yes [ ] No
Physical Location: 135 Fair Ave. N			Treatment Objective: [ ] N/A Disinfection
Is there a well log for the groundwater source? [ ] Yes [x] No [ ] N/A [ ] Unk			Treatment Types: [ ] N/A Sodium Hypochlorite

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
450 [ ] Unk	10 [ ] Unk	[ ] Unk	700 [ ] Unk	[ ] Unk	[ ] Unk	45 [ ] Unk

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

Latitude (Decimal):

Longitude (Decimal):

(+) IF A GROUNDWATER SOURCE HAS BEEN DETERMINED TO FALL UNDER THE DIRECT INFLUENCE OF SURFACE WATER, THE SURFACE WATER SYSTE INSPECTION RESULTS AND TURBIDITY SECTIONS MUST BE FILLED OUT IN ADDITION TO THE GROUNDWATER SYSTEM INSPECTION RESULTS SECTION.

GROUNDWATER SOURCE

1. This source is:
   [x] Active [ ] Proposed
   [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: 6/27/01
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDISW determination been done for this source? Date: 4/27/05
[x]	[ ]	[ ]	[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance for 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77)
[x]	[ ]	[ ]	[ ]	[ ]	5. Is the well lot owned in fee simple by the supplier of water or controlled by lease with a term of not less than the usefull life of the well?
					6. Are the following minimum distances from the PWS well being met?
[x]	[ ]	[ ]	[ ]	[ ]	- Sewer line.......50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home septic tank.......100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home disposal field.......100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home seepage pit.......100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Privies.......100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Livestock.......50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Any other potential source of contamination observed at time of inspection.......50 Ft.
[ ]	[x]	[ ]	[ ]	[ ]	7. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	8. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	9. Is the well in a pit? If yes, Date constructed: ______
[ ]	[ ]	[x]	[ ]	[ ]	10. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	11. If pit was installed prior to 11/5/64 – Does the pit have water tight floors and wall construction and is an acceptable floor drain provided?
[x]	[ ]	[ ]	[ ]	[ ]	12. Is the source protected from unauthorized entry?
[x]	[ ]	[ ]	[ ]	[ ]	13. Does the casing extend a minimum of 12 inches above the finished ground surface and 6 inches above the well house floor?
[x]	[ ]	[ ]	[ ]	[ ]	14. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the floor?
[x]	[ ]	[ ]	[ ]	[ ]	15. Is the well cap sanitary seal properly installed and maintained?
[x]	[ ]	[ ]	[ ]	[ ]	16. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCES PG. 2

Common Name	SURVEY DATE (mm/dd/yyyy)	PWS #
Well	4/15/2010	5420021

yes	no	n/a	unk	note	GROUNDWATER SOURCE (cont.)
✓					17. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
✓					18. Is a totalizing flow meter installed on the discharge line of the well and is it maintained and working properly? 226847 gal.
✓					19. Is a pressure gauge provided at all installations and is it maintained and working properly? ________ psi.
✓					20. Can the well be pumped to waste via an approved air gap?
	✓				21. Has the source been known to have caving or sand problems?

yes	no	n/a	unk	note	WELL HOUSE
✓					22. Is the source located in a well house?
✓					23. Is the well house kept clean and in good repair?
✓					24. Is the well house protected from unauthorized personnel?
✓					25. Are all non-sample taps installed in the well house equipped with an appropriate backflow prevention device?
✓					26. Is ventilation provided in the well house to remove excess heat and moisture during peak summer temperatures?
✓					27. Is a thermostatically regulated heater installed in the well house to prevent moisture buildup during cold weather?
✓					28. Is the well house protected from flooding and does it have adequate drainage?
		✓			29. Is the sump for well 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?

yes	no	n/a	unk	note	SPRING INFORMATION
		✓			31. Is the entire area within one hundred (100) feet of the spring owned by the supplier or controlled by a long term lease?
		✓			32. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
		✓			33. Is surface water and drainage ditches diverted from the 100 foot protection zone around the spring?
		✓			34. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
		✓			35. Is a sample tap provided?
		✓			36. Is a flow meter or other flow measuring device provided?
		✓			37. Is there a screened overflow and drain pipe?
		✓			38. Is the supply intake located above the floor of the collection chamber and screened?

yes	no	n/a	unk	note	INFILTRATION GALLERY INFORMATION
		✓			39. Is there a lid over the gallery?
		✓			40. Is the lid watertight and locked?
		✓			41. Is the collector in sound condition and maintained as necessary?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCE

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY D.	4/15/2010 (mm/dd/yyyy)
PWS #	5420021
Tag #:	E0006706
Common Name of Source:	Well #5
Source:	[x] Well [ ] Spring [ ] Infiltration Gallery
Physical Location:	3975 N 2200 E
Is this Source Treated?	[x] Yes [ ] No
Treatment Objective:	[ ] N/A — Disinfection
Treatment Types:	[ ] N/A — Sodium Hypochlorite
Is there a well log for the groundwater source?	[x] Yes [ ] No [ ] N/A [ ] Unk
Pump Capacity (GPM)	450 [ ] Unk
Casing Size (In)	14 [ ] Unk
Date Drilled:	1982 [ ] Unk
Well Depth (Ft)	650 [ ] Unk
Casing Depth (Ft)	650 [ ] Unk
Grout Depth(Ft)	80 [ ] Unk
Static Water Depth (Ft)	23 [ ] Unk
Is the Casing Screened?	[ ] Yes [x] No [ ] Unk [ ] N/A
Screen Depth (Ft):	[x] N/A [ ] Unk
Is the Casing Perforated?	[x] Yes [ ] No [ ] Unk [ ] N/A
Perforation Depth (Ft):	[ ] N/A [ ] Unk From: 525 To: 645
Latitude (Decimal):	
Longitude (Decimal):	

(+) IF A GROUNDWATER SOURCE HAS BEEN DETERMINED TO FALL UNDER THE DIRECT INFLUENCE OF SURFACE WATER, THE SURFACE WATER SYSTE INSPECTION RESULTS AND TURBIDITY SECTIONS MUST BE FILLED OUT IN ADDITION TO THE GROUNDWATER SYSTEM INSPECTION RESULTS SECTION.

GROUNDWATER SOURCE

1. This source is:
   [x] Active [ ] Proposed
   [ ] Inactive [ ] Emergency (<60 days per year)

yes	no	n/a	unk	note	Question
[x]	[ ]	[ ]	[ ]	[ ]	2. Has there been a Source Water Assessment conducted for the source? Date: 6/27/01
[x]	[ ]	[ ]	[ ]	[ ]	3. Has a final GWUDISW determination been done for this source? Date: 4/27/05
[x]	[ ]	[ ]	[ ]	[ ]	4. Is the well on a separate lot that is large enough to provide a minimum distance for 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77)
[x]	[ ]	[ ]	[ ]	[ ]	5. Is the well lot owned in fee simple by the supplier of water or controlled by lease with a term of not less than the usefull life of the well?
					6. Are the following minimum distances from the PWS well being met?
[x]	[ ]	[ ]	[ ]	[ ]	- Sewer line............50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home septic tank............100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home disposal field............100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Individual home seepage pit............100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Privies............100 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Livestock............50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances.........50 Ft.
[ ]	[ ]	[x]	[ ]	[ ]	- Any other potential source of contamination observed at time of inspection............50 Ft.
[ ]	[x]	[ ]	[ ]	[ ]	7. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	8. Are pesticides, herbicides, or fertilizers applied to the well lot?
[ ]	[x]	[ ]	[ ]	[ ]	9. Is the well in a pit? If yes, Date constructed: ________
[ ]	[ ]	[x]	[ ]	[ ]	10. Was the well that is located in a pit installed after 11/5/64?
[ ]	[ ]	[x]	[ ]	[ ]	11. If pit was installed prior to 11/5/64 – Does the pit have water tight floors and wall construction and is an acceptable floor drain provided?
[x]	[ ]	[ ]	[ ]	[ ]	12. Is the source protected from unauthorized entry?
[x]	[ ]	[ ]	[ ]	[ ]	13. Does the casing extend a minimum of 12 inches above the finished ground surface and 6 inches above the well house floor?
[x]	[ ]	[ ]	[ ]	[ ]	14. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the floor?
[x]	[ ]	[ ]	[ ]	[ ]	15. Is the well cap sanitary seal properly installed and maintained?
[x]	[ ]	[ ]	[ ]	[ ]	16. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCES PG. 2

Common Name	SURVEY DATE		PWS #
Well	4/15/2010	(mm/dd/yyyy)	5420021

GROUNDWATER SOURCE (cont.)

yes	no	n/a	unk	note	GROUNDWATER SOURCE (cont.)
☑	☐	☐	☐	☐	17. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐	18. Is a totalizing flow meter installed on the discharge line of the well and is it maintained and working properly? 961290 gal.
☑	☐	☐	☐	☐	19. Is a pressure gauge provided at all installations and is it maintained and working properly? ________ psi.
☑	☐	☐	☐	☐	20. Can the well be pumped to waste via an approved air gap?
☐	☐	☐	☐	☐	21. Has the source been known to have caving or sand problems?

WELL HOUSE

yes	no	n/a	unk	note	WELL HOUSE
☑	☐	☐	☐	☐	22. Is the source located in a well house?
☑	☐	☐	☐	☐	23. Is the well house kept clean and in good repair?
☑	☐	☐	☐	☐	24. Is the well house protected from unauthorized personnel?
☐	☑	☐	☐	☑	25. Are all non-sample taps installed in the well house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	26. Is ventilation provided in the well house to remove excess heat and moisture during peak summer temperatures?
☑	☐	☐	☐	☐	27. Is a thermostatically regulated heater installed in the well house to prevent moisture buildup during cold weather?
☑	☐	☐	☐	☐	28. Is the well house protected from flooding and does it have adequate drainage?
☐	☐	☑	☐	☐	29. Is the sump for well 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?

SPRING INFORMATION

yes	no	n/a	unk	note	SPRING INFORMATION
☐	☐	☑	☐	☐	31. Is the entire area within one hundred (100) feet of the spring owned by the supplier or controlled by a long term lease?
☐	☐	☑	☐	☐	32. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	33. Is surface water and drainage ditches diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	34. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	35. Is a sample tap provided?
☐	☐	☑	☐	☐	36. Is a flow meter or other flow measuring device provided?
☐	☐	☑	☐	☐	37. Is there a screened overflow and drain pipe?
☐	☐	☑	☐	☐	38. Is the supply intake located above the floor of the collection chamber and screened?

INFILTRATION GALLERY INFORMATION

yes	no	n/a	unk	note	INFILTRATION GALLERY INFORMATION
☐	☐	☑	☐	☐	39. Is there a lid over the gallery?
☐	☐	☑	☐	☐	40. Is the lid watertight and locked?
☐	☐	☑	☐	☐	41. Is the collector in sound condition and maintained as necessary?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCE

A separate sources form must be filled out for each groundwater source in the PWS.

SURVEY D/ 4/15/2010 *(mm/dd/yyyy)*

PWS # 5420021

Tag #:	Common Name of Source: Well #7	Source: ☑ Well ☐ Spring ☐ Infiltration Gallery	Is this Source Treated? ☑ Yes ☐ No
Physical Location: 135 Fair Ave. N			Treatment Objective: ☐ N/A Disinfection
Is there a well log for the groundwater source? ☑ Yes ☐ No ☐ N/A ☐ Unk			Treatment Types: ☐ N/A Sodium Hypochlorite

Pump Capacity (GPM)	Casing Size (In)	Date Drilled:	Well Depth (Ft)	Casing Depth (Ft)	Grout Depth(Ft)	Static Water Depth (Ft)
200 ☐ Unk	16 ☐ Unk	2002 ☐ Unk	410 ☐ Unk	120 ☐ Unk	☐ Unk	☑ Unk

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

Latitude (Decimal):

Longitude (Decimal):

(+) IF A GROUNDWATER SOURCE HAS BEEN DETERMINED TO FALL UNDER THE DIRECT INFLUENCE OF SURFACE WATER, THE SURFACE WATER SYSTE INSPECTION RESULTS AND TURBIDITY SECTIONS MUST BE FILLED OUT IN ADDITION TO THE GROUNDWATER SYSTEM INSPECTION RESULTS SECTION.

GROUNDWATER SOURCE

1. This source is:
☑ Active ☐ Proposed
☐ Inactive ☐ Emergency (<60 days per year)

yes	no	n/a	unk	note	
☑	☐	☐	☐	☐	2. Has there been a Source Water Assessment conducted for the source? Date: 6/9/04
☑	☐	☐	☐	☐	3. Has a final GWUDISW determination been done for this source? Date: 4/27/05
☑	☐	☐	☐	☐	4. Is the well on a separate lot that is large enough to provide a minimum distance for 50 feet between the well and the nearest property line? (applicable if constructed after 11/1/77)
☑	☐	☐	☐	☐	5. Is the well lot owned in fee simple by the supplier of water or controlled by lease with a term of not less than the usefull life of the well?
					6. Are the following minimum distances from the PWS well being met?
☑	☐	☐	☐	☐	- Sewer line....50 Ft.
☐	☐	☑	☐	☐	- individual home septic tank....100 Ft.
☐	☐	☑	☐	☐	- Individual home disposal field....100 Ft.
☐	☐	☑	☐	☐	- Individual home seepage pit....100 Ft.
☐	☐	☑	☐	☐	- Privies....100 Ft.
☐	☐	☑	☐	☐	- Livestock....50 Ft.
☐	☐	☑	☐	☐	- Canals, streams, ditches, lakes, ponds and tanks used to store nonpotable substances....50 Ft.
☐	☐	☑	☐	☐	- Any other potential source of contamination observed at time of inspection....50 Ft.
☐	☑	☐	☐	☐	7. Are pesticides, herbicides, fertilizers, portable containers of petroleum products, or other toxic or hazardous materials stored on the well lot?
☐	☑	☐	☐	☐	8. Are pesticides, herbicides, or fertilizers applied to the well lot?
☐	☑	☐	☐	☐	9. Is the well in a pit? If yes, Date constructed: ______
☐	☐	☑	☐	☐	10. Was the well that is located in a pit installed after 11/5/64?
☐	☐	☑	☐	☐	11. If pit was installed prior to 11/5/64 – Does the pit have water tight floors and wall construction and is an acceptable floor drain provided?
☑	☐	☐	☐	☐	12. Is the source protected from unauthorized entry?
☑	☐	☐	☐	☐	13. Does the casing extend a minimum of 12 inches above the finished ground surface and 6 inches above the well house floor?
☑	☐	☐	☐	☐	14. Is the well vented with the open end of the vent screened and terminated downward at least 18 inches above the floor?
☑	☐	☐	☐	☐	15. Is the well cap sanitary seal properly installed and maintained?
☑	☐	☐	☐	☐	16. Is the well cased and sealed in such a manner that surface water cannot enter the well?

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCES PG. 2

Common Name	SURVEY DATE (mm/dd/yyyy)	PWS #
Well	4/15/2010	5420021

COMMENTS:
(Please indicate question number)

GROUNDWATER SOURCE (cont.)

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	17. Is there a smooth nosed sample tap provided on the well discharge pipe prior to treatment? (Threaded tap is approved with backflow preventer)
☑	☐	☐	☐	☐	18. Is a totalizing flow meter installed on the discharge line of the well and is it maintained and working properly? ____________ gal.
☑	☐	☐	☐	☐	19. Is a pressure gauge provided at all installations and is it maintained and working properly? ____________ psi.
☑	☐	☐	☐	☐	20. Can the well be pumped to waste via an approved air gap?
☐	☑	☐	☐	☐	21. Has the source been known to have caving or sand problems?

WELL HOUSE

yes	no	n/a	unk	note	Question
☑	☐	☐	☐	☐	22. Is the source located in a well house?
☑	☐	☐	☐	☐	23. Is the well house kept clean and in good repair?
☑	☐	☐	☐	☐	24. Is the well house protected from unauthorized personnel?
☑	☐	☐	☐	☐	25. Are all non-sample taps installed in the well house equipped with an appropriate backflow prevention device?
☑	☐	☐	☐	☐	26. Is ventilation provided in the well house to remove excess heat and moisture during peak summer temperatures?
☑	☐	☐	☐	☐	27. Is a thermostatically regulated heater installed in the well house to prevent moisture buildup during cold weather?
☑	☐	☐	☐	☐	28. Is the well house protected from flooding and does it have adequate drainage?
☐	☐	☑	☐	☐	29. Is the sump for well 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?

SPRING INFORMATION

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	31. Is the entire area within one hundred (100) feet of the spring owned by the supplier or controlled by a long term lease?
☐	☐	☑	☐	☐	32. Is the entire area within a one hundred (100) foot radius of the spring box fenced to prevent trespassing of livestock and void of buildings, dwellings and sources of contamination?
☐	☐	☑	☐	☐	33. Is surface water and drainage ditches diverted from the 100 foot protection zone around the spring?
☐	☐	☑	☐	☐	34. Is the spring housed in a permanent structure and protected from contamination including the entry of surface water, animals and dust?
☐	☐	☑	☐	☐	35. Is a sample tap provided?
☐	☐	☑	☐	☐	36. Is a flow meter or other flow measuring device provided?
☐	☐	☑	☐	☐	37. Is there a screened overflow and drain pipe?
☐	☐	☑	☐	☐	38. Is the supply intake located above the floor of the collection chamber and screened?

INFILTRATION GALLERY INFORMATION

yes	no	n/a	unk	note	Question
☐	☐	☑	☐	☐	39. Is there a lid over the gallery?
☐	☐	☑	☐	☐	40. Is the lid watertight and locked?
☐	☐	☑	☐	☐	41. Is the collector in sound condition and maintained as necessary?

STORAGE

SUR DATE: 4/15/2010 (mm/dd/yyyy) PWS #: 5420021

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

Storage Structure Name: AquaStore 6228

Storage Structure ID #: AquaStore 6228

Physical Location: S. Abel St.

Date in service: ☐ Unk — 1982

Volume (gal): ☐ Unk — 600,000

Storage Type: ☑ Reservoir/Tank ☐ Cistern ☐ Standpipe

Construction: ☐ Elevated ☑ Above Ground ☐ Below Ground ☐ Partially Below Ground

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

Total Days Supply (This structure): 2 to 3 ☐ Unk

Date Last: Cleaned: ☐ Unk — 2000 **Inspected:** ☐ Unk — 2000

How is the water level measured? ☐ Unk — transducer

COMMENTS: (Please indicate the question number)

17. Slight leak at time of inspection. The PWS plans to hire a storage structure firm to repair the leak.

yes	no	n/a	unk	note	STORAGE
☑	☐	☐	☐	☐	1. Is storage structure safely accessible to 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. Is there a minimum distance of 50 feet between any buried or partially buried storage reservoir and any sanitary sewers, storm sewers, or any other source of contamination.
☑	☐	☐	☐	☐	4. Is the bottom of the storage reservoir constructed a minimum of 4 feet above the high ground water table?
☑	☐	☐	☐	☐	5. Is the area surrounding the storage structure graded in a manner to protect it against flooding?
☑	☐	☐	☐	☐	6. Are all vents extended 12 inches above the roof and constructed and screened to exclude potential sources of contamination?
☑	☐	☐	☐	☐	7. Do overflows have a free fall discharges which open downward and are screened with twenty-four mesh noncorrodible screen installed within the pipe at a location least susceptible to damage by vandalism
☑	☐	☐	☐	☐	8. Are overflows and drains brought down to an elevation between 12 and 24 inches above the ground surface.
☑	☐	☐	☐	☐	9. Do overflows and drains discharge over a drainage inlet structure or a splash plate and not connected to a sewer? (storm or sanitary)
☑	☐	☐	☐	☐	10. Is the storage structure secure from unauthorized access?
☑	☐	☐	☐	☐	11. Does the storage reservoir have a watertight roof or cover and is it sloped so that water will drain?
☑	☐	☐	☐	☐	12. Is the storage water protected from contamination?
☑	☐	☐	☐	☐	13. Is the storage structure structurally sound?
☐	☑	☐	☐	☐	14. Could vegetation in the area potentially impact the storage structure?
☑	☐	☐	☐	☐	15. Is the storage structure designed so that it can be isolated from the distribution system without necessitating loss of pressure in the distribution system?
☐	☐	☐	☑	☐	16. Are removable silt stops provided to prevent sediment from entering the reservoir discharge pipe?
☑	☐	☐	☐	☑	17 Is leakage evident at time of inspection?
☐	☐	☐	☑	☐	18. Is the storage structure interior coating or liner peeling or cracked?
☑	☐	☐	☐	☐	19. Is storage structure used to store finished water?
☑	☐	☐	☐	☐	20. Are manhole openings overlapping, water tight, locked and four-inches or greater above the reservoir roof surface?
☐	☑	☐	☐	☐	21. Are there any unused subsurface water storage tanks that need to be abandoned?
☑	☐	☐	☐	☐	22. Do all water storage structures have ladders, ladder guards, balcony railings, and safely located entrance hatches provided where applicable?
☐	☐	☑	☐	☐	23. Do all elevated tanks with riser pipes over eight inches in diameter have protective bars over the riser openings inside the tank?

Page ______ Of ______

STORAGE

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

SURVEY DATE		PWS #
4/15/2010	(mm/dd/yyyy)	5420021

Storage Structure Name: Front St.

Storage Structure ID #:

Physical Location: 311 Front St.

Date in service: ☐ Unk — 2000

Volume (gal): ☐ Unk — 1,000,000

Storage Type: ☑ Reservoir/Tank ☐ Cistern ☐ Standpipe

Construction: ☐ Elevated ☐ Above Ground ☐ Below Ground ☑ Partially Below Ground

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

Total Days Supply (This structure): 3 to 5 ☐ Unk

Date Last: Cleaned: ☐ Unk — 2000 **Inspected:** ☐ Unk — 2000

How is the water level measured? ☐ Unk — Transducer

COMMENTS: (Please indicate the question number)

yes	no	n/a	unk	note	STORAGE
☑	☐	☐	☐	☐	1. Is storage structure safely accessible to 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. Is there a minimum distance of 50 feet between any buried or partially buried storage reservoir and any sanitary sewers, storm sewers, or any other source of contamination.
☑	☐	☐	☐	☐	4. Is the bottom of the storage reservoir constructed a minimum of 4 feet above the high ground water table?
☑	☐	☐	☐	☐	5. Is the area surrounding the storage structure graded in a manner to protect it against flooding?
☑	☐	☐	☐	☐	6. Are all vents extended 12 inches above the roof and constructed and screened to exclude potential sources of contamination?
☑	☐	☐	☐	☐	7. Do overflows have a free fall discharges which open downward and are screened with twenty-four mesh noncorrodible screen installed within the pipe at a location least susceptible to damage by vandalism
☑	☐	☐	☐	☐	8. Are overflows and drains brought down to an elevation between 12 and 24 inches above the ground surface.
☑	☐	☐	☐	☐	9. Do overflows and drains discharge over a drainage inlet structure or a splash plate and not connected to a sewer? (storm or sanitary)
☑	☐	☐	☐	☐	10. Is the storage structure secure from unauthorized access?
☑	☐	☐	☐	☐	11. Does the storage reservoir have a watertight roof or cover and is it sloped so that water will drain?
☑	☐	☐	☐	☐	12. Is the storage water protected from contamination?
☑	☐	☐	☐	☐	13. Is the storage structure structurally sound?
☐	☑	☐	☐	☐	14. Could vegetation in the area potentially impact the storage structure?
☑	☐	☐	☐	☐	15. Is the storage structure designed so that it can be isolated from the distribution system without necessitating loss of pressure in the distribution system?
☐	☐	☐	☑	☐	16. Are removable silt stops provided to prevent sediment from entering the reservoir discharge pipe?
☐	☑	☐	☐	☐	17 Is leakage evident at time of inspection?
☐	☑	☐	☐	☐	18. Is the storage structure interior coating or liner peeling or cracked?
☑	☐	☐	☐	☐	19. Is storage structure used to store finished water?
☑	☐	☐	☐	☐	20. Are manhole openings overlapping, water tight, locked and four-inches or greater above the reservoir roof surface?
☐	☑	☐	☐	☐	21. Are there any unused subsurface water storage tanks that need to be abandoned?
☑	☐	☐	☐	☐	22. Do all water storage structures have ladders, ladder guards, balcony railings, and safely located entrance hatches provided where applicable?
☐	☐	☑	☐	☐	23. Do all elevated tanks with riser pipes over eight inches in diameter have protective bars over the riser openings inside the tank?

Page ______ Of ______

DISTRIBUTION DATA

SU[illegible]Y DATE: 4/15/2010 (mm/dd/yyyy) PWS #: 5420021

A separate distribution form must be filled out for each distribution system in the PWS.

What are water lines made of:

Material(s): ☐ Unk

☐ Steel ☐ HDPE (black) ☐ Asbestos/Cement

☑ PVC ☑ Cast Iron ☐ Other:..................

Size(s): ☐ Unk

6", 8", 10", 12"

How many services are metered? 665 out of 665

Number of Fire Hydrants: 186

COMMENTS:
(Please indicate the question number)

yes	no	n/a	unk	note	DISTRIBUTION
☐	☑	☐	☐	☐	1. Have there been any interruptions in service during the past year? (including pressure loss)
☐	☐	☑	☐	☐	2. If a loss of pressure occurred, was the PWS placed on boil order?
☐	☑	☐	☐	☐	3. Are there areas with chronic low pressure problems?
☐	☐	☑	☐	☐	4. Was the pressure observed at a service connection?
					5. If yes, psi: ____________ Location: ____________ Time: ____________ ☐ A.M. ☐ P.M.
☑	☐	☐	☐	☐	6. Do all water mains that provide fire flow have a diameter of at least 6 inches?
☐	☑	☐	☐	☐	7. Are there any main lines that have a diameter less than 3 inches?
☑	☐	☐	☐	☐	8. Are valves exercised regularly? If yes, how often? Annually
☑	☐	☐	☐	☐	9. Is there a leak detection program?
☐	☑	☐	☐	☐	10. Is 15% or more of the water unaccounted for?
☑	☐	☐	☐	☐	11. Is a water conservation program in effect?
☑	☐	☐	☐	☐	12. Is an adequate map of the distribution system maintained?
☐	☐	☑	☐	☐	13. Are all dead end water mains equipped with a means to flush
☐	☐	☑	☐	☐	14. If yes, are the deadends flushed at least semiannully?
☐	☑	☐	☐	☐	15. Are there any distribution materials used that should not be in contact with the drinking water? If yes, explain in comments section.
☐	☑	☐	☐	☐	16. Was asbestos/cement pipe used in the system?
☐	☐	☑	☐	☐	17. If yes, has asbestos analysis been done?
☑	☐	☐	☐	☐	18. Is system adequately protected from freezing?
☑	☐	☐	☐	☐	19. Is there a cross connection control program? (Community PWSs Only)
☑	☐	☐	☐	☐	20. Is the operator trained in cross connection control?
☐	☑	☐	☐	☐	21. Were any cross connections observed during the course of the survey?
☐	☐	☑	☐	☐	22. 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)
☐	☑	☐	☐	☐	23. Are there any water supply wells that are no longer being used that need to be abandoned?

PUMPING DATA

One form for all Pumps.

S /EY DATE		PWS #
4/15/2010	*(mm/dd/yyyy)*	5420021

PUMPS, PUMPHOUSES, AND CONTROLS

Pump ID#	Physical Location:	Type of Pump:	Brand:	Model:	Horsepower:	Purpose:
1	311 Front St.	Vertical Turbine	US Electrical Motor	7222-BEM	100	Booster
2	311 Front St.	Vertical Turbine	US Electrical Motor	7220-BEM	50	Booster
3	311 Front St.	Vertical Turbine	US Electrical Motor	7220-BEM	60	Booster
4	S. Abel St.	Centrifugal	Gould	256TCZ	25	Distribution
5	S. Abel St.	Centrifugal	Unimount 125	254JP	15	Distribution
6	135 Fair Ave. N	Vertical Turbine	US Electrical Motor	326TP	50	Distribution
7	135 Fair Ave. N	Vertical Turbine	US Electrical Motor	7322-BEM	125	Distribution
8	300 Main St.	Centrifugal	Peerless Pumps	unknown	unknown	Distribution

yes	no	n/a	unk	note	PUMPING
☑	☐	☐	☐	☐	1. Is the pump(s) in good operating condition?
☑	☐	☐	☐	☐	2. Is the pumphouse(s) clean and orderly?
☑	☐	☐	☐	☐	3. Are there spare pump parts or a replacement pump that is capable of providing the maximum daily pumping demand?
☑	☐	☐	☐	☐	4. Are gate valves located on the suction and/or discharge sides of each pump?
☑	☐	☐	☐	☐	5. Is a positive-acting check valve located above ground on the discharge side between each pump and the shut-off valve?
☐	☑	☐	☐	☐	6. Does the pump(s) cycle excessively?
☑	☐	☐	☐	☐	7. Is the pump station(s) adequately lighted throughout?
☑	☐	☐	☐	☐	8. If the system has a vertical turbine motor driven pump(s), is an air release valve located between the source and check valve?
☐	☐	☑	☐	☐	9. If the pump(s) is "oil lubricated", is oil NSF approved and suitable for human consumption?
☑	☐	☐	☐	☑	10. Is there auxiliary power on-site?
☑	☐	☐	☐	☐	11. Is auxiliary power tested?
☐	☐	☐	☑	☐	12. If a diesel or gasoline fueled engine is used on the well lot; is the fuel tank and connecting piping double walled?
☑	☐	☐	☐	☐	13. Is the fuel tank above ground?
☑	☐	☐	☐	☐	14. Is a certified operator present during the filling of the fuel tank?
					15. If the engine is in the well house;
☑	☐	☐	☐	☐	- Is the engine exhaust directly discharged outside the well house?
☑	☐	☐	☐	☐	- Is a spill containment structure surrounding all fuel tanks adequate? (Secondary containment - 150% fuel tank capacity)

COMMENTS:
(Please indicate the question number)

10. Auxiliary power exists for Well #1 only.

PUMPING DATA PG. 2

(/EY DATE		PWS #
4/15/2010	*(mm/dd/yyyy)*	5420021

yes	no	n/a	unk	note	BOOSTER PUMPS
☑	☐	☐	☐	☐	16. Is the pump facility properly protected against unauthorized entry?
☑	☐	☐	☐	☐	17. Does the booster pump maintain an operating pressure of 20 psi or greater?
☑	☐	☐	☐	☐	18. Is a standard pressure gauge installed on the discharge line?
☑	☐	☐	☐	☐	19. Is the booster pump 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, is the booster pump supplied with an automatic cutoff when intake pressure is equal to or less than 2.5 psi?
☑	☐	☐	☐	☐	22. Is a water pressure relief valve installed where the pump is directly connected to the distribution system?
☐	☑	☐	☐	☐	23. Is an instantaneous and totalizing flow meter installed where the booster pump is directly connected to the distribution system?
☑	☐	☐	☐	☐	24. Is the building that encloses the booster pump provided with an electric ventilation fan or an automated air flow system that will remove heat and moisture during peak summer temperatures?
☑	☐	☐	☐	☐	25. Is a thermostatically regulated heater installed in the booster pump house to prevent moisture buildup during cold weather?
☑	☐	☐	☐	☐	26. Is proper drainage provided?
☑	☐	☐	☐	☐	27. Is the pump station properly protected from flooding?

COMMENTS:
(Please indicate the question number)

Page ______ Of ________

DISINFECTION

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

Survey date (mm/dd/yyyy)	PWS #
4/15/2010	5420021

Treatment Facility Name:	Treatment Facility Location:	Date Online:	Treated Water (GPD):
S. Abel St.	Well #1	1964 ☐ Unk	☑ Unk

Select all disinfection types used:

☑ Gas cl2 ☐ UV Light ☐ Sodium Hypochlorite ☐ Calcium Hypochlorite ☐ Miox ☐ Other

yes	no	n/a	unk	note	DISINFECTION
☑	☐	☐	☐	☐	1. Is disinfection used on a voluntary basis to prevent bacterial contamination of the distribution system?
☐	☑	☐	☐	☐	2. Any interruptions in disinfection in the past year? If yes, comment.
☐	☑	☐	☐	☐	3. Have any changes been made to this treatment facility since the last ESS?
☐	☐	☑	☐	☐	4. If yes, were plans and specs submitted to DEQ? Date approved:__________
☑	☐	☐	☐	☐	5. Is the treatment facility protected from contamination?
☑	☐	☐	☐	☐	6. Does the system have a means of measuring the residual disinfectant concentrations of free chlorine, combined chlorine (chloramines), and chlorine dioxide?
☑	☐	☐	☐	☐	7. Are measures taken to prevent the addition of disinfectant when no water is flowing?
☑	☐	☐	☐	☐	8. Is cross-connection control provided on the service water lines that discharge to the solution tanks?
☑	☐	☐	☐	☐	9. Is the chlorine solution injector/diffuser compatible with the point of application to provide a rapid and thorough mix with all the water being treated? (The center of a pipeline is the preferred application point)
☑	☐	☐	☐	☐	10. Is a treated water tap provided?
☐	☑	☐	☐	☐	11. Are chemicals that are incompatible stored or handled together?
☑	☐	☐	☐	☐	12. Is the chlorine solution piping and fittings made of rubber, PVC, polyethylene, or other materials recommended by the Chlorine Institute?
☐	☑	☐	☐	☐	13. Are nylon products used in any part of the chlorine solution piping system?
					VOLUNTARY DISINFECTION
☑	☐	☐	☐	☐	14. Is a measurable free chlorine residual maintained throughout the distribution system?
☑	☐	☐	☐	☐	15. Is the free chlorine residual being measured daily? (Not Required)
☑	☐	☐	☐	☐	16. Is a chlorine residual being recorded when all compliance total coliform samples are being taken?
					REQUIRED DISINFECTION
☐	☐	☑	☐	☐	17. Is the free chlorine residual being measured daily?
☐	☐	☑	☐	☐	18. Is the daily free chlorine residual being recorded and kept on file for a minimum of 5 years?
☐	☐	☑	☐	☐	19. Is a free chlorine residual of at least 0.2 parts per million maintained in the treated water after an actual contact period of at least 30 minutes at maximum hourly demand before delivery to the first consumer?
☐	☐	☑	☐	☐	20. Where chlorination is required for protection of the supply, is there standby equipment of sufficient capacity available to replace the largest unit?
☐	☐	☑	☐	☐	21. If primary disinfection is accomplished using ozone, chlorine dioxide, or some other chemical that does not provide a residual disinfectant, is chlorine added to provide a residual disinfectant?

Comments:
(Please indicate the question number)

26. & 27. No leak detection equipment is provided.
32. The outside door to the chlorine room opens inward, and is not equipped with panic hardware.
37. Outside switches are not protected from vandalism.
38. No signal light exists.

DISINFECTION PG. 2

Treatment Facility Location:	Survey Date (mm/dd/yyyy)	PWS #
S. Abel St.	4/15/[illegible]10	5420021

GAS DISINFECTION ONLY - Fill out any time Gas Chlorination is connected to the PWS.

yes	no	n/a	unk	note	***Protection Equipment***
☑	☐	☐	☐	☐	22. Is respiratory protection equipment, meeting the requirements of NIOSH available where chlorine gas is handled, and is it stored at a convenient location, but not inside any room where chlorine is used or stored?
☑	☐	☐	☐	☐	23. Does the respiratory protection equipment consist of compressed air, that has at least a 30 minute capacity, and is compatible with or exactly the same as units used by the fire department responsible for the plant?

yes	no	n/a	unk	note	***Chlorine Leak Detection***
☑	☐	☐	☐	☐	24. Is a bottle of ammonium hydroxide (56 percent ammonia solution) available for chlorine leak detection?
☐	☐	☑	☐	☐	25. Where ton containers are used, is a leak repair kit approved by the Chlorine Institute provided?
☐	☑	☐	☐	☑	26. Is continuous chlorine leak detection equipment provided?
☐	☑	☐	☐	☑	27. Where a leak detector is provided, is it equipped with both an audible alarm and a warning light?

yes	no	n/a	unk	note	***Chlorine Room***
☑	☐	☐	☐	☐	28. Are the pipes carrying elemental liquid or dry gaseous chlorine under pressure made of Schedule 80 seamless steel tubing or other materials recommended by the Chlorine Institute (never use PVC)?
☐	☑	☐	☐	☐	[illegible] Same as 41?
☑	☐	☐	☐	☐	30. Is the chlorine room provided with a shatter resistant inspection window installed in an interior wall?
☑	☐	☐	☐	☐	31. Is the chlorine room constructed in such a manner that all openings between the chlorine room and the remainder of the plant are sealed?
☐	☑	☐	☐	☑	32. Are the chlorine room doors equipped with panic hardware, assuring ready means of exit and opening outward only to the building exterior?
☑	☐	☐	☐	☐	33. Where chlorine gas is used, does each room have a ventilating fan.
☑	☐	☐	☐	☐	34. Does the ventilating fan take suction near the floor and discharge away from any air inlets?
☑	☐	☐	☐	☐	35. Are all air inlets through louvers near the ceiling?
☑	☐	☐	☐	☐	36. Are there separate switches for the fan and lights located outside of the chlorine room and at the inspection window?
☐	☑	☐	☐	☑	37. Are outside switches protected from vandalism?
☐	☑	☐	☐	☑	38. Is there a signal light indicating fan operation visible at each enterance?
☑	☐	☐	☐	☐	39. Are floor drains discharged to the outside of the building and not connected to other internal or external drainage systems?
☑	☐	☐	☐	☐	40. Are chlorinator rooms heated to 60 °F, and protected from excessive heat?
☐	☑	☐	☐	☐	[illegible] Same as 29?

yes	no	n/a	unk	note	***Chlorine Gas Cylinders***
☑	☐	☐	☐	☐	42. Are full and empty cylinders of chlorine gas isolated from operating areas?
☑	☐	☐	☐	☐	43. Are full and empty cylinders of chlorine gas restrained in position to prevent upset?
☐	☐	☑	☐	☐	44. Are full and empty cylinders of chlorine gas stored in rooms separate from ammonia storage?
☑	☐	☐	☐	☐	45. Are full and empty cylinders of chlorine gas stored in areas that are not in the direct sunlight or exposed to excessive heat?
☑	☐	☐	☐	☐	46. Is a weight scale provided for weighing cylinders, at all plants utilizing chlorine gas?
☑	☐	☐	☐	☐	47. Is the weight scale capable of providing reasonable precision in relation to average daily dose?
☑	☐	☐	☐	☐	48. Is there an automatic switch-over of chlorine cylinders provided, where necessary, to assure continuous disinfection?

Comments:
(Please indicate the question number)

DISINFECTION

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

Surve ite	4/15/2010	*(mm/dd/yyyy)*	PWS # 5420021

Treatment Facility Name:	Treatment Facility Location:	Date Online:	Treated Water (GPD):
Front St. Booster Station	Wells #2, #3, #5, and #7	2004 ☐ Unk	100,000+ ☐ Unk

Select all disinfection types used:

☐ Gas cl2 ☐ UV Light ☑ Sodium Hypochlorite ☐ Calcium Hypochlorite ☐ Miox ☐ Other

yes	no	n/a	unk	note	DISINFECTION
☑	☐	☐	☐	☐	1. Is disinfection used on a voluntary basis to prevent bacterial contamination of the distribution system?
☐	☑	☐	☐	☐	2. Any interruptions in disinfection in the past year? If yes, comment.
☐	☑	☐	☐	☐	3. Have any changes been made to this treatment facility since the last ESS?
☐	☐	☑	☐	☐	4. If yes, were plans and specs submitted to DEQ? Date approved:__________
☑	☐	☐	☐	☐	5. Is the treatment facility protected from contamination?
☑	☐	☐	☐	☐	6. Does the system have a means of measuring the residual disinfectant concentrations of free chlorine, combined chlorine (chloramines), and chlorine dioxide?
☑	☐	☐	☐	☐	7. Are measures taken to prevent the addition of disinfectant when no water is flowing?
☑	☐	☐	☐	☐	8. Is cross-connection control provided on the service water lines that discharge to the solution tanks?
☑	☐	☐	☐	☐	9. Is the chlorine solution injector/diffuser compatible with the point of application to provide a rapid and thorough mix with all the water being treated? (The center of a pipeline is the preferred application point)
☑	☐	☐	☐	☐	10. Is a treated water tap provided?
☐	☐	☑	☐	☐	11. Are chemicals that are incompatible stored or handled together?
☑	☐	☐	☐	☐	12. Is the chlorine solution piping and fittings made of rubber, PVC, polyethylene, or other materials recommended by the Chlorine Institute?
☐	☑	☐	☐	☐	13. Are nylon products used in any part of the chlorine solution piping system?
					VOLUNTARY DISINFECTION
☑	☐	☐	☐	☐	14. Is a measurable free chlorine residual maintained throughout the distribution system?
☑	☐	☐	☐	☐	15. Is the free chlorine residual being measured daily? (Not Required)
☑	☐	☐	☐	☐	16. Is a chlorine residual being recorded when all compliance total coliform samples are being taken?
					REQUIRED DISINFECTION
☐	☐	☑	☐	☐	17. Is the free chlorine residual being measured daily?
☐	☐	☑	☐	☐	18. Is the daily free chlorine residual being recorded and kept on file for a minimum of 5 years?
☐	☐	☑	☐	☐	19. Is a free chlorine residual of at least 0.2 parts per million maintained in the treated water after an actual contact period of at least 30 minutes at maximum hourly demand before delivery to the first consumer?
☐	☐	☑	☐	☐	20. Where chlorination is required for protection of the supply, is there standby equipment of sufficient capacity available to replace the largest unit?
☐	☐	☑	☐	☐	21. If primary disinfection is accomplished using ozone, chlorine dioxide, or some other chemical that does not provide a residual disinfectant, is chlorine added to provide a residual disinfectant?

Comments:
(Please indicate the question number)

TREATMENT APPLICATION & CO^^TROL

A separate form must be filled out for each Treatmen...pplication in the PWS.

Survey Date		PWS #
4/15/..10	(mm/dd/yyyy)	5420021

Purpose of Treatment:	Treatment Facility Location:	Date Online:	Treated Water (GPD):
Disinfection	Well #1	1964 ☐ Unk	☑ Unk

What process is used in the treatment train?: ☐ N/A

- ☐ Sedimentation Basin
- ☐ Detention Basin
- ☐ Filtration
- ☐ Chemical Coagulation
- ☐ Oxidation
- ☐ Softening
- ☐ Ion Exchange
- ☑ Disinfection (Complete Disinfection Mod.)
- ☐ Sequestration by Polyphosphates
- ☐ Sequestration by Sodium Silicates

Sources Treated by Facility: (Tag #)	Equipment Manufacturer:	Model #:
1. Well #1	1. Wallace & Tiernan	1. V-100
2.	2.	2.
3.	3.	3.

Chemical Trade Name:	Chemical Manufacturer:	NSF 60 Approved?
1. Gaseous Chlorine	1. All Pure Chemical	☑ Yes ☐ No ☐ Unk
2.	2.	☐ Yes ☐ No ☐ Unk
3.	3.	☐ Yes ☐ No ☐ Unk

yes	no	n/a	unk	note	Question
					WASTE HANDLING and DISPOSAL
☐	☐	☑	☐	☐	1. Are provisions made for proper disposal of water treatment plant waste such as sanitary, laboratory, clarification sludge, softening sludge, iron sludge, filter backwash water, brines and treatment media?
		☑		☐	2. If yes, how are wastes being disposed of? (Identify in comments)
					SAMPLE TAPS
☑	☐	☐	☐	☐	3. Are smooth-nosed sampling taps provided prior to and after treatment?
					CHEMICAL APPLICATION If no chemical applied, questions 4-26 are n/a
☑	☐	☐	☐	☐	4. Are chemicals introduced in such a manner as to minimize potential for corrosion?
☑	☐	☐	☐	☐	5. Are spare parts available for all feeders to replace parts which are subject to wear and damage?
					6. Are the feeders manually or automatically controlled? ☐ Manual ☑ Automatic
☑	☐	☐	☐	☐	7. Is a means to measure water flow provided in order to determine chemical feed rates?
☑	☐	☐	☐	☐	8. Are provisions made for measuring the quantities of chemicals used?
☑	☐	☐	☐	☐	9. Is cross-connection control provided on the service water lines that discharge to the solution tanks?
☐	☐	☑	☐	☐	10. Is cross-connection control provided so that liquid chemical solutions cannot be siphoned through solution feeders into the water supply?
☑	☐	☐	☐	☐	11. Is the chemical feed equipment readily accessible for servicing, repair, and observation of operation?
☑	☐	☐	☐	☐	12 Is space provided for convenient/efficient storage and handling of chemicals?
☐	☐	☑	☐	☐	13. Are chemicals that are incompatible stored or handled together?
☐	☐	☑	☐	☐	14. Are chemical solution tanks kept covered?
☐	☐	☑	☐	☐	15. Are chemical solution tank overflow pipes, when provided, turned downward with the end screened?
☐	☐	☑	☐	☐	16. Do chemical solution tank overflow pipes, when provided, have free fall discharge?
☐	☐	☑	☐	☐	17. Are day tanks and tank refilling line entry points properly labeled to designate the chemical contained?
☑	☐	☐	☐	☐	18. Are feed lines made of durable, corrosion-resistant material?
☐	☑	☐	☐	☐	19. Do feed lines have problems with scale-forming or solids deposits?
☑	☐	☐	☐	☐	20. Are floor surfaces smooth and impervious, slip-proof and well drained with 3 inches per 10 feet minimum slope?
☑	☐	☐	☐	☐	21. Are vents from feeders, storage facilities and equipment exhaust discharged to the outside atmosphere above grade and remote from air intakes?
☑	☐	☐	☐	☐	22. Are chemical shipping containers fully labeled to include chemical name, purity, concentration, supplier name and address?
☐	☐	☑	☐	☐	23. Are acids and caustics kept in closed corrosion-resistant shipping containers or storage units?
☑	☐	☐	☐	☐	24. Are at least one pair of rubber gloves, a dust respirator of a type certified by NIOSH for toxic dusts, an apron or other protective clothing and goggles or face mask provided for each operator as required by the reviewing authority?
☐	☐	☑	☐	☐	25. Is a deluge shower and/or eyewashing device installed where strong acids and alkalis are used or stored?

Comments:
(Please indicate the question number)

TREATMENT APPLICATION & CONTROL

A separate form must be filled out for each Treatment Application in the PWS.

Survey Date		PWS #
4/15/2010	(mm/dd/yyyy)	5420021

Purpose of Treatment:	Treatment Facility Location:	Date Online:	Treated Water (GPD):
Disinfection	Wells #2, #3, #5, and #7	2004 ☐ Unk	100,000+ ☐ Unk

What process is used in the treatment train?: ☐ N/A

☐ Sedimentation Basin ☐ Detention Basin ☐ Filtration ☐ Chemical Coagulation ☐ Oxidation ☐ Softening ☐ Ion Exchange ☑ Disinfection (Complete Disinfection Mod.) ☐ Sequestration by Polyphosphates ☐ Sequestration by Sodium Silicates

Sources Treated by Facility: (Tag #)	Equipment Manufacturer:	Model #:
1. Wells #2, #3, #5, and #7	1. LMI Milton-Roy	1. B921-92S
2.	2.	2.
3.	3.	3.

Chemical Trade Name:	Chemical Manufacturer:	NSF 60 Approved?
1. Liquichlor 12.5%	1. Univar	☑ Yes ☐ No ☐ Unk
2.	2.	☐ Yes ☐ No ☐ Unk
3.	3.	☐ Yes ☐ No ☐ Unk

yes	no	n/a	unk	note	WASTE HANDLING and DISPOSAL
☐	☐	☑	☐	☐	1. Are provisions made for proper disposal of water treatment plant waste such as sanitary, laboratory, clarification sludge, softening sludge, iron sludge, filter backwash water, brines and treatment media?
		☑		☐	2. If yes, how are wastes being disposed of? (Identify in comments)
yes	**no**	**n/a**	**unk**	**note**	**SAMPLE TAPS**
☑	☐	☐	☐	☐	3. Are smooth-nosed sampling taps provided prior to and after treatment?
yes	**no**	**n/a**	**unk**	**note**	**CHEMICAL APPLICATION** If no chemical applied, questions 4-26 are n/a
☑	☐	☐	☐	☐	4. Are chemicals introduced in such a manner as to minimize potential for corrosion?
☑	☐	☐	☐	☐	5. Are spare parts available for all feeders to replace parts which are subject to wear and damage?
					6. Are the feeders manually or automatically controlled? ☐ Manual ☑ Automatic
☑	☐	☐	☐	☐	7. Is a means to measure water flow provided in order to determine chemical feed rates?
☑	☐	☐	☐	☐	8. Are provisions made for measuring the quantities of chemicals used?
☑	☐	☐	☐	☐	9. Is cross-connection control provided on the service water lines that discharge to the solution tanks?
☑	☐	☐	☐	☐	10. Is cross-connection control provided so that liquid chemical solutions cannot be siphoned through solution feeders into the water supply?
☑	☐	☐	☐	☐	11. Is the chemical feed equipment readily accessible for servicing, repair, and observation of operation?
☑	☐	☐	☐	☐	12. Is space provided for convenient/efficient storage and handling of chemicals?
☐	☐	☑	☐	☐	13. Are chemicals that are incompatible stored or handled together?
☑	☐	☐	☐	☐	14. Are chemical solution tanks kept covered?
☑	☐	☐	☐	☐	15. Are chemical solution tank overflow pipes, when provided, turned downward with the end screened?
☑	☐	☐	☐	☐	16. Do chemical solution tank overflow pipes, when provided, have free fall discharge?
☑	☐	☐	☐	☐	17. Are day tanks and tank refilling line entry points properly labeled to designate the chemical contained?
☑	☐	☐	☐	☐	18. Are feed lines made of durable, corrosion-resistant material?
☐	☑	☐	☐	☐	19. Do feed lines have problems with scale-forming or solids deposits?
☑	☐	☐	☐	☐	20. Are floor surfaces smooth and impervious, slip-proof and well drained with 3 inches per 10 feet minimum slope?
☑	☐	☐	☐	☐	21. Are vents from feeders, storage facilities and equipment exhaust discharged to the outside atmosphere above grade and remote from air intakes?
☑	☐	☐	☐	☐	22. Are chemical shipping containers fully labeled to include chemical name, purity, concentration, supplier name and address?
☐	☐	☑	☐	☐	23. Are acids and caustics kept in closed corrosion-resistant shipping containers or storage units?
☐	☑	☐	☐	☑	24. Are at least one pair of rubber gloves, a dust respirator of a type certified by NIOSH for toxic dusts, an apron or other protective clothing and goggles or face mask provided for each operator as required by the reviewing authority?
☐	☐	☑	☐	☐	25. Is a deluge shower and/or eyewashing device installed where strong acids and alkalis are used or stored?

Comments:
(Please indicate the question number)

24. No personal protective equipment was available.

FINANCIAL CAPACITY

SURVEY DA		PWS #
4/15/2010	(mm/dd/yyyy)	5420021

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: $ 24.50 per month
☑	☐	☐	☐	☐	3. Is the PWS in the business of selling water? - If no, identify why in the comments section and mark "N/A" on questions 4 - 21.
☑	☐	☐	☐	☐	4. Does the PWS provide and use an annual budget?
☑	☐	☐	☐	☐	5. Does the PWS use a chart of accounts for its books and records?
☐	☐	☐	☑	☐	6. Does the PWS use the modified accrual or accrual method of accounting?
☑	☐	☐	☐	☐	7. If applicable, Is the PWS fund separate from the waste water/sewer utility fund?
☑	☐	☐	☐	☐	8. Do water system revenues exceed expenditures?
☑	☐	☐	☐	☐	9. Are controls established to prevent expenditures from exceeding revenues? If yes, describe in the comments section.
☐	☐	☐	☑	☐	10. Has an independent financial audit been completed?
☐	☐	☐	☑	☐	11. If yes, is a copy of the most recent balance sheet for the water system available?
☑	☐	☐	☐	☐	12. Does the water system include a cash budget within its annual budget for cash flow?
☑	☐	☐	☐	☐	13. Does the water system management review the user fee, user charge, or rate system at least annually?
					14. When was the last user fee, user charge, or rate system adjustment? ________ mm/dd/yyyy
☐	☐	☐	☑	☐	15. Does the water system management review financial reports at least monthly?
☑	☐	☐	☐	☐	16. Does the PWS provide and use a capital budget?
☑	☐	☐	☐	☐	17. Has this PWS produced and does it currently utilize a capital improvements plan?
					18. If yes, when was the capital improvements budget produced? ________ mm/dd/yyyy
☐	☐	☐	☑	☐	19. Has the capital improvement budget been updated in the last 18 months?
☑	☐	☐	☐	☐	20. Does the water system budget provide funding for depreciation of existing plant in service and/or for the funding of reserves for system replacement?
☑	☐	☐	☐	☐	21. Are there sufficient funds for training personnel?

COMMENTS:
(Please indicate the question number)

Page ________ Of ________

MANAGERIAL CAPACITY

SURVE ATE		PWS #
04/15/2010	*(mm/dd/yyyy)*	5420021

yes	no	n/a	unk	note	MANAGERIAL CAPACITY
✓					1. Is a certified operator available at all times? (N/A for TNC PWS)
✓					2. Is there a Certified Drinking Water Protection Plan developed for this system? Date: 11/14/02
✓					3. Does this PWS have a governing body or board of directors? If no, please indicate

- ☐ Sole Proprietorship
- ☐ Partnership
- ☐ Limited Liability Corp.
- ☑ Other: City Council

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

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

yes	no	n/a	unk	note	5. Are the following records maintained onsite or located near by?
✓					- Bacteriological Analysis - **5 years retention.**
✓					- Chemical Analysis - **10 years retention.**
✓					- Records of actions taken to correct violations - **3 years retention.**
✓					- Copies of reports, summaries or communication related to sanitary surveys - **10 years retention.**
✓					- Reports concerning variances or exemptions - **5 years retention.**
✓					- Copies of public notices issued - **3 years retention.**
✓					6. Are routine operation and maintenance records kept?
✓					7. Are routine maintenance schedules established.
✓					8. Is there a clear plan of organization and control among the people responsible for management and operations of the water system?

yes	no	n/a	unk	note	9. Are any samples of the following parameters past due?
	✓				Coliform
	✓				Nitrates
	✓				Nitrites
	✓				Lead and Copper
	✓				IOCs
	✓				VOCs
	✓				SOCs
	✓				Disinfection Byproducts
	✓				Radionuclide
✓					10. Is a total coliform rule (TCR) sample siting plan available for review?
✓					11. Does the (TCR) sample siting plan meet the minimum requirements?
✓					12. Does the system have a sufficient supply of approved sampling bottles properly stored?
✓					13. Does the PWS provide stairways, ladders and handrails where needed?
✓					14. Are treads of non-slip material provided where needed?
	✓				15. Is a health hazard produced from inadequately protected electrical wiring?
		✓			16. Are all confined space entry requirements considered?

COMMENTS:
(Please indicate the question number)

Appendix H

Consumer Confidence Report

Quality on Tap Report

City of Filer
2012

We're pleased to present to you this year's Annual Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. This years report has mandatory language required by USEPA. Please take time to read and ask questions about the mandatory language.

This report also includes an update on federal and state regulations that will be implemented in the near future according to the code of federal regulations, part 141. First, is the new "Revised public notification requirements". This revision goes in to effect May 6, 2002.Second, is the disinfection bi-product rule. The rule goes into effect January 1, 2004 and requires that your drinking water must be tested for bi-products that are produced when chlorine comes in contact with water. The new arsenic has three compliance dates: January 23, 2006 for "Maximum Contaminant Levels" (MCL); February 22, 2002 for " Consumer Confidence Rule" reporting and ; January 22, 2004 for other arsenic regulations. While the City of Filer does not agree with the new arsenic rule, we are none-the-less compelled to include in this years report mandatory health-effect language: " *While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenics possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. Some people who drink water containing water in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have a increased risk of getting skin cancer."*

Our water source is from an aquifer characterized by the Department of Water Resources as an idavada aquifer. The City of Filer draws it's water from five deep wells: Well #1 located at the south end of so. Adell Ave; Well #2 at Main St. and Yakima Ave; Wells # 3&7 located on North Fair Ave and Well #5 located on North Stevens Ave.

All of these sights have been retrofitted with dedicated main lines which brings the water from the well to a storage tank. As the water enters the tank, it is chlorinated and then retained in the tank for a short period to facilitate disinfection. This is just a small portion of the up grades that are being made to our water system at this time.

The City of filer now has a "source water protection plan". The plan is required under the "Safe Drinking Water Act Amendments of 1996" and requires IDEQ to assess every source of public drinking water in Idaho for it's relative sensitivity to contaminants regulated by the act. The City of Filer's plan rated Wells # 1,2,3,5 and 7 as moderate, in terms of total susceptibility, for IOCs, VOCs, SOCs and microbial contaminants. The moderate ratings are due mainly to agriculture

land use, high countrywide farm chemical use and the presence of nitrate and SOC priority areas in the delineated source water assessment areas for each well.
The city of filer water system has had levels of arsenic above drinking water standards. Although it is not an emergency, as our customer, you have the right to know what happened, what you should do, and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminates. Test results we received in 2012 show that our system exceeded the standard, or maximum contaminate level (MCL), for arsenic. The standard for arsenic is 10 parts per billion(ppb). The level of arsenic over the last year was 12.0 ppb for a high and 10.1ppb for a low. New samples taken in January 2013 had a high of 8.9 ppb and a low of 7.4 ppb.

What should I do? You do not need to use an alternative water supply. However if you have a specific health concern, consult your doctor.

What does this mean? This is not an immediate risk, if it had been, you would have been notified immediately. However, some people drinking water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

What happened? What is being done? The city of filer is working with jub engineers, local and state agencies to evaluate the water supply and research options to correct the problem. These options may include treating the water to remove arsenic. We have increased the frequency of water testing to quarterly to better monitor arsenic levels.

For more information, please contact Joe Baratti at 326-5001 or write the city of filer, PO Box 140, Filer, ID. 83328.

I'm pleased to report that our drinking water is safe and meets federal and state requirements.

This report shows our water quality and what it means.

If you have any questions about this report or concerning your water utility, please contact The Filer City Office at 300 Main Street or call 326-**5000** we will be happy to answer any questions, we want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the first Tuesday of each month at 7:30 PM, This is held in the filer Council Chamber at the north end of the city hall, near the alley.

The City of Filer routinely monitors for constituents in your drinking water according to Federal and State laws. This table shows the results of our monitoring for the period of January 1st to December 31st, 2012. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It's important to remember that the presence of these constituents does not necessarily pose a health risk.
In this table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

The City of Filer has prepared this report in good faith and any errors or omissions are unintentional.

N/A – Not Applicable.

Non-Detects *(ND)* - laboratory analysis indicates that the constituent is not present.

Parts per million *(ppm) or Milligrams per liter (mg/l)* - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion *(ppb) or Micrograms per liter* - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion *(ppt) or Nanograms per liter (nanograms/l)* - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

Parts per quadrillion *(ppq) or Picograms per liter (picograms/l)* - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.

Picocuries per liter *(pCi/L)* - Picocuries per liter is a measure of the radioactivity in water.

Millirems per year *(mrem/yr)* - measure of radiation absorbed by the body.

Million Fibers per Liter *(MFL)* - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.
Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique *(TT)* - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The "Goal"(MCLG) is 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.

TEST RESULTS						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination

Microbiological Contaminants						
1. Total Coliform Bacteria	N	N/D		0	Presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment
2. Fecal coliform and *E.coli*	N	N/D		0	A routine sample and repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive	Human and animal fecal waste
3. Turbidity	N	N/D		n/a	TT	Soil runoff
Radioactive Contaminants						
4. Beta/photon emitters	N	6.0	PCi/1	0	50	Decay of natural and man-made deposits
5. Alpha emitters	N	7.1	pCi/1	0	15	Erosion of natural deposits
6. Combined radium	N	0.05	pCi/1	0	5	Erosion of natural deposits
Inorganic Contaminants						
7. Antimony	N	ND	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
8. Arsenic	Y	11.3	ppb	n/a	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
9. Asbestos	N	0.16	MFL	7	7	Decay of asbestos cement water mains; erosion of natural deposits
10. Barium	N	0.02	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
11. Beryllium	N	ND	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
12. Cadmium	N	ND	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
13. Chromium	N	ND	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
14. Copper	N	0.178	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
15. Cyanide	N	N/D	ppb	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
16. Fluoride	N	N/A	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
17. Lead	N	5.0	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
18. Mercury (inorganic)	N	ND	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland

19. Nitrate (as Nitrogen)	N	3.73	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
20. Nitrite (as Nitrogen)	N	ND	ppm	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
21. Selenium	N	N/A	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
22. Thallium	N	N/A	ppb	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Synthetic Organic Contaminants including Pesticides and Herbicides						
23. 2,4-D	N	ND	ppb	70	70	Runoff from herbicide used on row crops
24. 2,4,5-TP (Silvex)	N	ND	ppb	50	50	Residue of banned herbicide
25. Acrylamide	N	ND		0	TT	Added to water during sewage/wastewater treatment
26. Alachlor	N	ND	ppb	0	2	Runoff from herbicide used on row crops
27. Atrazine	N	ND	ppb	3	3	Runoff from herbicide used on row crops
28. Benzo (a) pyrene (PAH)	N	ND	nanograms/l	0	200	Leaching from linings of water storage tanks and distribution lines
29. Carbofuran	N	ND	ppb	40	40	Leaching of soil fumigant used on rice and alfalfa
30. Chlordane	N	ND	ppb	0	2	Residue of banned termiticide
31. Dalapon	N	ND	ppb	200	200	Runoff from herbicide used on rights of way
32. Di (2-ethylhexyl) adipate	N	ND	ppb	400	400	Discharge from chemical factories
33. Di (2-ethylhexyl) phthalate	N	ND	ppb	0	6	Discharge from rubber and chemical factories
34. Dibromochloropropane	N	ND	nanograms/1	0	200	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
35. Dinoseb	N	ND	ppb	7	7	Runoff from herbicide used on soybeans and vegetables
36. Diquat	N	ND	ppb	20	20	Runoff from herbicide use
37. Dioxin [2,3,7,8-TCDD]	N	ND	picograms/l	0	30	Emissions from waste incineration and other combustion; discharge from chemical factories
38. Endothall	N	ND	ppb	100	100	Runoff from herbicide use
39. Endrin	N	ND	ppb	2	2	Residue of banned insecticide
40. Epichlorohydrin	N	ND		0	TT	Discharge from industrial chemical factories; an impurity of some water treatment chemicals
41. Ethylene dibromide	N	ND	nanograms/1	0	50	Discharge from petroleum refineries
42. Glyphosate	N	ND	ppb	700	700	Runoff from herbicide use
43. Heptachlor	N	ND	nanograms/1	0	400	Residue of banned termiticide
44. Heptachlor epoxide	N	ND	nanograms/1	0	200	Breakdown of heptachlor
45. Hexachlorobenzene	N	ND	ppb	0	1	Discharge from metal refineries and agricultural chemical factories
46. Hexachlorocyclo-pentadiene	N	ND	ppb	50	50	Discharge from chemical factories

47. Lindane	N	ND	nanograms/l	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
48. Methoxychlor	N	ND	ppb	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
49. Oxamyl [Vydate]	N	ND	ppb	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
50. PCBs [Polychlorinated biphenyls]	N	ND	nanograms/l	0	500	Runoff from landfills; discharge of waste chemicals
51. Pentachlorophenol	N	ND	ppb	0	1	Discharge from wood preserving factories
52. Picloram	N	ND	ppb	500	500	Herbicide runoff
53. Simazine	N	ND	ppb	4	4	Herbicide runoff
54. Toxaphene	N	ND	ppb	0	3	Runoff/leaching from insecticide used on cotton and cattle
Volatile Organic Contaminants						
55. Benzene	N	ND	ppb	0	5	Discharge from factories; leaching from gas storage tanks and landfills
56. Carbon tetrachloride	N	ND	ppb	0	5	Discharge from chemical plants and other industrial activities
57. Chlorobenzene	N	ND	ppb	100	100	Discharge from chemical and agricultural chemical factories
58. o-Dichlorobenzene	N	ND	ppb	600	600	Discharge from industrial chemical factories
59. p-Dichlorobenzene	N	ND	ppb	75	75	Discharge from industrial chemical factories
60. 1,2 - Dichloroethane	N	ND	ppb	0	5	Discharge from industrial chemical factories
61. 1,1 - Dichloroethylene	N	ND	ppb	7	7	Discharge from industrial chemical factories
62. cis-1,2-ichloroethylene	N	ND	ppb	70	70	Discharge from industrial chemical factories
63. trans - 1,2 - Dichloroethylene	N	ND	ppb	100	100	Discharge from industrial chemical factories
64. Dichloromethane	N	ND	ppb	0	5	Discharge from pharmaceutical and chemical factories
65. 1,2-Dichloropropane	N	ND	ppb	0	5	Discharge from industrial chemical factories
66. Ethylbenzene	N	ND	ppb	700	700	Discharge from petroleum refineries
67. Styrene	N	ND	ppb	100	100	Discharge from rubber and plastic factories; leaching from landfills
68. Tetrachloroethylene	N	ND	ppb	0	5	Leaching from PVC pipes; discharge from factories and dry cleaners
69. 1,2,4 - Trichlorobenzene	N	ND	ppb	70	70	Discharge from textile-finishing factories
70. 1,1,1 - Trichloroethane	N	ND	ppb	200	200	Discharge from metal degreasing sites and other factories
71. 1,1,2 -Trichloroethane	N	ND	ppb	3	5	Discharge from industrial chemical factories
72. Trichloroethylene	N	ND	ppb	0	5	Discharge from metal degreasing sites and other factories
73. TTHM [Total trihalomethanes]	N	ND	ppb	0	100	By-product of drinking water chlorination
74. Toluene	N	ND	ppm	1	1	Discharge from petroleum factories
75. Vinyl Chloride	N	ND	ppb	0	2	Leaching from PVC piping; discharge from plastics factories
76. Xylenes	N	ND	ppm	10	10	Discharge from petroleum factories; discharge from chemical factories

Microbiological Contaminants:
(1) **Total Coliform**. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
(2) **Fecal coliform/E.Coli**. 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 can 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.
(3) **Turbidity**. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
Radioactive Contaminants:
(4) **Beta/photon emitters**. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
(5) **Alpha emitters**. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
(6) **Combined Radium 226/228**. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Inorganic Contaminants:
(7) **Antimony**. Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
(8) **Arsenic**. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
(9) **Asbestos**. Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
(10) **Barium**. Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
(11) **Beryllium**. Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
(12) Cadmium. Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
(13) **Chromium**. Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
(14) **Copper**. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.
(15) **Cyanide**. Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
(16) **Fluoride**. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.
(17) **Lead**. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
(18) **Mercury** (inorganic). Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
(19) **Nitrate**. 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.
(20) **Nitrite**. 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.
(21) **Selenium**. Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or

problems with their circulation.
(22) **Thallium**. Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic organic contaminants including pesticides and herbicides:
(23) **2,4-D**. Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
(24) **2,4,5-TP** (Silvex). Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
(25) **Acrylamide**. Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
(26) **Alachlor**. Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
(27) **Atrazine**. Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
(28) **Benzo** (a) pyrene [PAH]. Some people who drink water containing benzo (a) pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
(29) **Carbofuran**. Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
(30) **Chlordane**. Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
(31) **Dalapon**. Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
(32) **Di (2-ethylhexyl) adipate**. Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.
(33) **Di (2-ethylhexyl) phthalate**. Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
(34) **Dibromochloropropane** (DBCP). Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
(35) **Dinoseb**. Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
(36) **Dioxin** (2,3,7,8-TCDD). Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
(37) **Diquat**. Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
(38) **Endothall**. Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
(39) **Endrin**. Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
(40) **Epichlorohydrin**. Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.
(41) **Ethylene dibromide**. Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
(42) **Glyphosate**. Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
(43) **Heptachlor**. Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
(44) **Heptachlor epoxide**. Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
(45) **Hexachlorobenzene**. Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
(46) **Hexachlorocyclopentadiene**. Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
(47) **Lindane**. Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
(48) **Methoxychlor**. Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.

(49) **Oxamyl** [Vydate]. Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
(50) **PCBs** [Polychlorinated biphenyls]. Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
(51) **Pentachlorophenol**. Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
(52) **Picloram**. Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
(53) Simazine. Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
(54) **Toxaphene**. Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Contaminants:
(55) **Benzene**. Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
(56) **Carbon Tetrachloride**. Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
(57) **Chlorobenzene.** Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
(58) **o-Dichlorobenzene**. Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
(59) **p-Dichlorobenzene.** Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
(60) **1,2-Dichloroethane**. Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
(61) **1,1-Dichloroethylene**. Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
(62) **cis-1,2-Dichloroethylene**. Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
(63) **trans-1,2-Dicholoroethylene**. Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
(64) **Dichloromethane**. Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
(65) **1,2-Dichloropropane**. Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
(66) **Ethylbenzene**. Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
(67) **Styrene**. Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
(68) **Tetrachloroethylene**. Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
(69) **1,2,4-Trichlorobenzene**. Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
(70) **1,1,1,-Trichloroethane**. Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
(71) **1,1,2-Trichloroethane**. Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
(72) **Trichloroethylene**. Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
(73) **TTHMs** [Total Trihalomethanes]. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
(74) **Toluene**. Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
(75) **Vinyl Chloride**. Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

(76) **Xylenes**. Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water IS SAFE at these levels.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Please call our office if you have questions, **326-5000**

We at the city of filer water dept. work around the clock to provide top quality water to every tap, said Joe Baratti, We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.

Water System Name: City of Filer
PWS# 5420021

The community water system named above hereby confirms that the consumer confidence report has been distributed to customers (and or appropriate notices of availability have been given). Further, the system certifies that the information contained in the report is correct to the best of it's knowledge and ability, and is consistent with the compliance monitoring data previously submitted to the State Division of Environmental Quality.

Copies of this report are available at the City Office.

Certified by: Joe Baratti

Appendix I

Cross Connection Program

CHAPTER 6

CROSS-CONNECTIONS

SECTION:

7-6-1: **PURPOSE AND SCOPE:**

A. The purpose of this Chapter is to protect the public health of water consumers by the control of actual and potential cross-connections.

B. Rules and regulations of the State Department of Health and Welfare pertaining to public water supplies have specific provisions to control cross-connections in public water systems. For the purpose of protecting the health of consumers receiving water from the City, it is considered that the requirements established by the State Department of Health and Welfare in Idaho, Regulations for Public Drinking Water Systems, November 1977, sections 1-8306.01 through 1-8306.08 should be adopted by the City.

C. This Chapter is adopted for the benefit of public health to water users receiving their water supply from the City by protecting the public water system of the City from actual or potential contamination. (Ord. 385, 7-1-80)

7-6-2: **DEFINITIONS:** The following are established as definitions for the purpose of this Chapter:

BACKFLOW: The flow, other than the intended direction of flow, of any foreign liquids, gases or substances into the City's public water supply distribution system.

BACKFLOW PREVENTION DEVICE: A device to counteract back pressure or to prevent back siphonage.

CROSS-CONNECTION: Any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other device which contains or may contain contaminated water, sewage or other waste or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply system of this City as a result of backflow.

All definitions contained in the Idaho Regulation for Public Drinking Water (November 1977), as the same may hereafter be revised or amended, shall be considered as definitions within the meaning of this Chapter. (Ord. 385, 7-1-80)

7-6-3: **PROTECTION OF CITY WATER SUPPLY; NUISANCE DECLARED:** No water service connection from the City's water system to any premises shall be installed or maintained unless the City's water supply is protected, as determined to be necessary, by backflow prevention devices as required by rules and regulations of the State Department of Health and Welfare and by this Chapter. The installation or maintenance of a cross-connection which will endanger the water quality of this City's water supply system is prohibited. Any such cross-connection now existing or hereafter installed is hereby declared a nuisance and shall be abated. The control and/or elimination of cross-connection within the distribution system of the City shall be in accordance with the State Department of Health and Welfare, Division of Environment Rules and Regulations as well as the Rules and Regulations of the City. The City Council may establish requirements of cross-connection control within the City more stringent than said State regulations if it determines that conditions so dictate. (Ord. 385, 7-1-80)

7-6-4: **CONNECTION AND DISCONTINUANCE OF SERVICE:** Service to any property, landowner or water users receiving its water supply from the City's water supply system shall be contingent upon compliance with all requirements of the rules and regulations of the State Department of Health and Welfare and of this Chapter pertaining to cross-connections. Service shall be discontinued to any premises, water user or property owner for failure to comply with such regulations of the State Department of Health and Welfare and of this Chapter pertaining to cross-connections, and any discontinued service will not be re-established until the Superintendent has approved compliance by that particular premises or water user or landowner with such requirements of the rules and regulations of the State Department of Health and Welfare and of this Chapter pertaining to cross-connections. (Ord. 385, 7-1-80; 1994 Code)

7-6-5: **DEVICES REQUIRED:** Backflow prevention devices shall be installed where, in the judgment of the Superintendent, the nature and extent of activities or the materials stored on the premises would present an immediate and dangerous hazard to health and/or be deleterious to the quality of the water should a cross-connection occur, even though such cross-connection does not exist at the time. Backflow prevention devices shall be installed under circumstances, including but not limited to the following:

A. Premises having an auxiliary water supply unless the quality of the auxiliary supply is in compliance with State Drinking Water Regulations[1] and is acceptable to the City Council.

B. Premises having internal cross-connections that are not correctable or intricate plumbing arrangements which make it impracticable to ascertain whether or not cross-connections exist.

C. Premises where entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.

---

1. I.C. §37-2102.

D. Premises having a repeated history of cross-connections being established or re-established.

E. Premises on which any substance is handled under pressure so as to permit entry into the public water supply or where a cross-connection could reasonably be expected to occur. This shall include the handling of process waters and cooling waters.

F. Premises where materials of a toxic or hazardous nature are handled in such a way that if back siphonage should occur, a serious health hazard might result.

G. The following types of facilities will fall into one of the above categories where a backflow prevention device is required to protect the public water supply. A backflow prevention device shall be installed at these facilities unless the City Council determines that no hazard exists:

Chemical plants using a water process
Food or beverage processing plants
Hospitals, mortuaries, clinics
Laboratories
Metal plating industries
Petroleum processing or storage plants
Piers and docks
Radioactive material processing plants or nuclear reactors
Sewage treatment plants
Others specified by the City Council

H. Other premises, as specified by the City Council, where backflow prevention devices are required to protect the public water supply. (Ord. 385, 7-1-80; 1994 Code)

7-6-6: **TYPE OF PROTECTIVE DEVICE:** The type of protective device required shall depend on the degree of hazard which exists:

A. An air-gap separation or a reduced pressure principle backflow prevention device shall be installed where the public water supply may be contaminated with sewage, industrial waste of a toxic nature or other contaminant which could cause a health or system hazard.

B. In the case of a substance which may be objectionable but not hazardous to health, a double check valve assembly, air-gap separation or a reduced pressure principle backflow prevention device shall be installed. (Ord. 385, 7-1-80)

7-6-7: **PLACE OF INSTALLATION:** Backflow prevention devices required by this Chapter shall be installed at the meter, at the property line of the premises when meters are not used or at a location designated by the City. The device shall be located so as to be readily accessible for maintenance and testing and furthermore, where no part of the device will be submerged. (Ord. 385, 7-1-80)

7-6-8: **INSTALLATION:** Backflow prevention devices required by this Chapter shall be installed under the supervision of, and with the approval of, the City. (Ord. 385, 7-1-80)

7-6-9: **TESTING:** Any protective device required by this Chapter shall be a model approved by the City. A double check valve assembly or a reduced pressure principle backflow prevention device will be approved if it has successfully passed performance tests of the American Waterworks Association (A.W.W.A.) or other testing laboratories satisfactory to the City. These devices shall be furnished and installed by, and at the expense of the water user. (Ord. 385, 7-1-80)

7-6-10: **INSPECTIONS:**

A. Generally: Backflow prevention devices installed pursuant to this Chapter, except atmospheric vacuum breakers, shall be inspected and tested annually, or more often if necessary. Inspections, tests and maintenance shall be at the customer's expense. Whenever the devices are found to be defective, they shall be repaired, overhauled or replaced at the customer's expense. Inspections, tests, repairs and records thereof shall be accomplished under the City's supervision by certified testers.

B. Cross-Connection Inspections:

1. No water shall be delivered to any structure hereafter built within the City or within areas served by City water until the same have been inspected by the City for possible cross-connections and been approved as being free of same.

2. Inspection shall be made periodically by the City of all buildings, structures or improvements of any nature now receiving water through the City system for the purpose of ascertaining whether cross-connections exist. (Ord. 385, 7-1-80)

7-6-11: **SPRINKLER PERMITS; INSPECTION FEE:** No underground sprinkling device will be installed without a permit issued by the City and without adequate backflow prevention devices at the point from which the water for irrigation is taken from the public water supply. Application for the permit must be accompanied by a thirty dollar ($30.00) inspection fee. (Ord. 385, 7-1-80; 1994 Code)

7-6-12: **ENFORCEMENT:** For the purposes of carrying out this Chapter, the City Council or its authorized agents shall be authorized to inspect all premises receiving water service from the water supply system of the City, as the City Council determines to be necessary in order to exercise effective cross-connection control. (Ord. 385, 7-1-80)

7-6-13: **INSTALLATION PERMITS:** If cross-connection control devices are found to be necessary, the owner of property served must apply to the City for a specific installation device. (Ord. 385, 7-1-80)

7-6-14: **ADDITIONAL REMEDIES:** In the event an improper cross-connection is not corrected within the time limit set by the City, or in the event the City is refused access to any property for the purpose of determining whether or not cross-connections exist, delivery of water to the property shall cease until the deficiency is corrected to the City's satisfaction. In addition, the City may effect the necessary repairs or modifications at the property owner's expense and refuse delivery of water to the property until the cost thereof shall have been paid. (Ord. 385, 7-1-80)

Appendix J

Wellhead Protection Plan

Adopted 8-6-02

SOURCE WATER/WELLHEAD PROTECTION PLAN FOR THE CITY OF FILER

PWS # **5420021**

REVIEW AND UPDATE BI-ANNUALLY

Date Reviewed	Reviewed By	Comments (attach additional document as needed)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

Drinking Water Protection is a voluntary program implemented at the local level (Note 1). The City of Filer has developed this Drinking Water Protection Plan to outline the process that will be used to help prevent contamination of ground water that supplies the community drinking water. Because the City of Filer uses ground water for 100 percent of its drinking water supply, protection of this resource is critical to the health and welfare of the residents. Drinking Water Protection will help protect this resource from ground water contamination by monitoring land use that occurs within the area overlying the aquifer from which the well or wells draw water.

NOTE 1: The term "Drinking Water Protection" is the same as Wellhead Protection for ground water sources of drinking water and Source Water Protection for ground water and surface water sources. The term "Drinking Water Protection" will be used throughout this Plan and is synonymous with Source Water/Wellhead Protection.

Many materials such as pesticides, fertilizers, organic chemicals, and human and animal wastes can contaminate ground water. The degree of contamination depends on many factors including; soil characteristics, volume of contaminant, contaminant properties, climate and ground water flow. Once ground water becomes contaminated it is often difficult and expensive to clean up. A public water system that is supplied by an aquifer that has become contaminated will probably be required to do additional monitoring and may need to install water treatment equipment or find a new source of drinking water. The most cost-effective approach is to prevent contamination before it occurs, rather than attempting to remedy contamination problems after they have occurred.

1.1 Drinking Water System

The City of Filer wells are community wells that serve approximately 1700 people through approximately 625 connections. The wells are located in Twin Falls County, to the east of Salmon Falls Creek and to the south of the Snake River (Figure 1). The public drinking water system for the City of Filer is currently comprised of four wells: Well #1, Well #2, Well #3, and Well #5.

1.2 Drinking Water Protection Steps

The City of Filer prepared this Drinking Water Protection Plan in accordance with the Idaho Source Water/Wellhead Protection Plan, and followed the 5-step process for Source Water/Wellhead Protection. These five steps are:

Step 1: Form a community planning team
Step 2: Delineate the land area to be protected
Step 3: Identify potential sources of contamination
Step 4: Manage the Drinking Water Protection Area
Step 5: Plan for the future

This plan was developed during 2002 with technical assistance from the Idaho Rural Water Association and the Idaho Department of Environmental Quality, Twin Falls Regional Office.

1.3 Drinking Water Protection and Source Water Assessment

Source Water Assessment involves two of the five Drinking Water Protection steps discussed above. These two steps are delineation (Step 2 above) and contaminant inventory (Step 3 above). An additional Source Water Assessment step includes a susceptibility analysis, which helps identify contaminant threats to the system by evaluating land use, contaminant sources, well construction, and hydrologic conditions such as geology and soil type.

By pursuing Drinking Water Protection the City of Filer is addressing the primary goal of the Source Water Assessment process.

2.0 COMMUNITY TEAM (PLANNING TEAM)

The members of the City of Filer Drinking Water Protection planning team include the following individuals listed in Table 1:

Table 1. City of Filer Drinking Water Protection Planning Team

City of Filer Source Water/Source Water/Wellhead Protection Planning Team	
Russell Sheridan	Past Mayor, City of Filer
Bud Compher	Public Works Director
Joe Baratti	Public Works Forman
John Hurley	Public Works
John Bokor	Idaho Rural Water Association

Technical Assistance was provided by:
Dave Anderson Idaho Department of Environmental Quality
Steve Staufer Idaho Department of Environmental Quality
John Bokor Source Water/, Idaho Rural Water Association

2.1 Duties of the Planning Team

The Public Works Director, Bud Compher, was elected to be the Team Coordinator and has the responsibility of planning future team meetings and following through with the implementation schedule. The Team Coordinator will also be the designated contact in case of a water system emergency, and will be the lead contact for any outside references to this Plan. The Idaho Department of Environmental Quality and the Idaho Rural Water Association will provide continued support and technical assistance to the planning team regarding any of the Plans strategic components. Below is the "Scope of Work" that will be used by the Planning Team to implement their source water protection strategy outlined throughout this Plan.

2.2 Implementation Duties (Scope of Work)

- The Planning Team will hold biannual meetings (to be held in city council chambers) to review and update the Plan and its components.
- Update the potential contaminant source inventory.
  - Remove potential contaminant sources that no longer exist and no longer pose a threat.
  - Add any new sources of potential contaminants found in the protection area. (see Appendix C)
- Evaluate new sources for their risk to the system.
- Prioritize the contaminant risk of point sources within Zone 1A or 1B, and then develop and implement a protection strategy to manage the potential contaminant.
- Assess nonpoint sources, determine potential risk, develop and implement a protection strategy and add new strategies to the implementation schedule.
  - Review and update the Contingency Plan (Appendix E);
  - Review and update the Implementation Schedule for Future Activities.

- Use information materials found in "*Protecting Drinking Water Sources in Idaho*" manual to implement public education and outreach activities in accordance with the Implementation Schedule.
  Examples:
  - Plan fertilizer (nutrient) management planning workshops with help of the U of I Extension, Local Fertilizer Retailers, and the Natural Resources Conservation Service;
  - Hold annual household hazardous waste collection events
  - Mail fact sheet summarizing the Source Water/Wellhead Protection Plan to public water system users.
  - Mail out frequent water quality reminders with the water bill;
  - Join the Groundwater Guardian Community Program;
  - Make the drinking water protection materials listed throughout the Plan available.
- Evaluate the need and applicability of adopting the City of Filer Drinking Water Protection Ordinance (Appendix D).
- Initiate zoning discussions with Twin Falls County Planning and Zoning to promulgate the process of changing drinking water protection areas zoning to "Wellhead Protection Area" on County overlay map as provided for under county ordinance.

3.0 DRINKING WATER PROTECTION AREA DELINEATION

The City of Filer *Source Water Assessment Report* provides a detailed description of the delineated source water protection area. In 1989, the Idaho Legislature enacted the Ground Water Quality Protection Act that set forth the development of the State Wellhead Protection Plan also known as Source Water Protection. The State Plan provides that the Drinking Water Protection Area (WHPA) is divided into four zones (IA, IB, II, and III). All zones are designed to prevent microbial or chemical contamination of the four water supply wells. Zone 1A is the sanitary setback zone designed to prevent microbial contamination within a 100-foot radius of the well. This setback zone is established in the Idaho Rules for Drinking Water Supplies (IDAPA 16.01.08) and requires that: sewer lines, livestock, canals, and streams be 50 feet from the Drinking Water/Wellhead and that: home septic tanks, seepage pits, disposal fields, and privies are 100 feet away. The 3-year time of travel corresponds to WHPA Zone IB; 6-year time of travel corresponds to WHPA Zone II, and the 10-year time of travel corresponds to WHPA Zone III. Time related capture zones for the City of Filer wells are presented in Appendix A.

3.1 Hydrogeology

All four wells extract waters from the Banbury Basalt and possibly the Idavada Volcanics. The Idavada Volcanics unit consists of welded ash and tuff, rhyolite, and some basalt flows. The Idavada Volcanics are up to 2,000 feet thick in the Filer area and contain fractures and columnar joints, allowing some mixing of the geothermal groundwater in the Idavada Volcanics with groundwater in the Banbury Basalt, which overlies the Idavada Volcanics (Lewis and Young, 1989). The Banbury Basalt is of variable thickness and is the primary non-geothermal aquifer in the Filer area (Moffat and Jones, 1984). Basalt flows fracture at the surface as they cool. The fractures occur in the horizontal direction throughout the flow. The Banbury Basalt is fractured and contains thin sedimentary interbeds. These fractures and sedimentary interbeds comprise the water producing zones in the Banbury Basalt. A shallow, perched aquifer exists above the Banbury Basalt and extends from Buhl east to Twin Falls (Cosgrove, et al., 1997). Regional ground water flow is to the north, but may vary with proximity to major creeks and the Snake River (Lewis and Young, 1989).

3.2 Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the time-of-travel (TOT) zones for water associated with the Salmon Falls – Rock Creek aquifer in the vicinity of the City of Filer. The computer model used site-specific data, assimilated by DEQ from a variety of sources including local area well logs and hydrogeologic reports summarized below.

The delineated source water assessment areas for the City of Filer wells can best be described as corridors, approximately 1.0 mile wide and 2 miles long, extending to the south from the City of Filer (Appendix A – Figures 1,2, 3 and 4). The actual data used by DEQ in determining the source water assessment delineation areas are available upon request.

4.0 POTENTIAL SOURCES OF GROUND WATER CONTAMINATION

An inventory of potential point sources of contamination is the third step of a Drinking Water Protection Plan. Point sources are facilities and/or activities that store, use, or produce, potential contaminants regulated under the Safe Drinking Water Act. There must be a potential for a release of those potential contaminants at a high enough level that could effect drinking water quality. It is important to understand that a release may never occur from a listed point source, particularly if the facility is using best management practices that are designed to reduce contamination risks. If a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that they are in violation of any local, state, or federal environmental law or regulation. What it does mean is that the **potential** for contamination exists due to the nature of the business, industry, or operation.

There are a number of methods water systems can use to work cooperatively with facilities generating a potential contaminant source. These involve education and encouraging regular inspections of stored materials. Identifying activities that may pose a potential threat to ground water quality provides communities with an understanding of the possibility of contamination and basic information that can be useful for designing different controls and determining the areas in which they should be applied.

Sources that could potentially contaminate the drinking water supply for the City of Filer include both point and nonpoint sources of contamination. Point sources of contamination occur at distinct locations. They are often regulated and require permits or registration for facilities that use, store or sell those materials (such as gas stations with leaking underground storage tanks). Nonpoint sources of contamination often occur over large areas and can result from normal every day activities such as lawn chemical usage or agricultural activities.

4.1 Point Sources

A two-phased potential contaminant inventory of the study area was conducted. The first phase involved identifying and documenting potential contaminant sources within the City of Filer Drinking Water Protection/Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by IDEQ.

A contaminant inventory of the study area was conducted in April of 2001. This involved identifying and documenting potential contaminant sources within the City of Filer Source Water Assessment Areas through the use of computer databases and Geographic Information System maps developed by DEQ. Bud Compher, the Filer Public Works Superintendent, confirmed this information.

Since the delineations all differ from one another, the potential contaminant sites located within each of the delineated source water areas differ. Descriptions of the sites are found in Appendix A. The Well #1 delineation has no potential point sources. The Well #2) and Well #3 delineations have leaking underground storage tank (LUST) sites, underground storage tank (UST) sites, commercial and municipal facilities, a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) site, and a Resource Conservation Recovery Act (RCRA) site. The Well #5 delineation has a LUST site, multiple UST sites, commercial and municipal facilities, and a dairy.

Additionally, Highway 30, Cedar Draw, and the Low Line Canal are major sources that cross the delineations. If an accidental spill occurred in any of these sources, IOCs, VOCs, SOCs, or microbial contaminants could be added to the aquifer system.

The second or enhanced phase of the potential contaminant inventory involved conducting an on-the-ground identification of potential sources and validation of sources identified in phase one. *The enhanced inventory was conducted in June 2001 by the planning team, however, appropriate changes were not carried over to the maps. This will need to be accomplished as stated in the implementation schedule.*

Below is a list of potential contaminant sources as identified by IDEQ through its data bases.

Table 2. City of Filer, Well #1, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
	Cedar Draw	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 3. City of Filer, Well #2, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – impact: ground water	0-3	Database Search	VOC, SOC
2	LUST – cleanup completed	0-3	Database Search	VOC, SOC
3	LUST – cleanup completed	0-3	Database Search	VOC, SOC
4 (see map id #1)	UST – closed	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	VOC, SOC
6 (see map id #2)	UST – open	0-3	Database Search	VOC, SOC
7	UST – open	0-3	Database Search	VOC, SOC
8 (see map id #3)	UST – open	0-3	Database Search	VOC, SOC
9	UST – closed	0-3	Database Search	VOC, SOC
10	UST – open	0-3	Database Search	VOC, SOC
11	Farm equipment manufacturer	0-3	Database Search	IOC, VOC, SOC
12	Automobile – repair and service	0-3	Database Search	IOC, VOC, SOC
13	Fire Department	0-3	Database Search	VOC, SOC
14	Household appliance manufacturer	0-3	Database Search	IOC, VOC, SOC
15	Janitor Service	0-3	Database Search	IOC, VOC, SOC, Microbes
16	Commercial printing shop	0-3	Database Search	IOC, VOC
17	Woodworkers	0-3	Database Search	IOC, VOC, SOC
18	CERCLA	0-3	Database Search	IOC, VOC, SOC, Microbes

19 (see map id #11)	RCRA	0-3	Database Search	IOC, VOC, SOC, Microbes
	Cedar Draw	6-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, CERCLA = Comprehensive Environmental Response Compensation and Liability Act, RCRA = Resource Conservation Recovery Act
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 4. City of Filer, Well #3, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – impact: ground water	0-3	Database Search	VOC, SOC
2	LUST – cleanup completed	0-3	Database Search	VOC, SOC
3 (see map id #1)	UST – closed	0-3	Database Search	VOC, SOC
4	UST – closed	0-3	Database Search	VOC, SOC
5 (see map id #5)	UST – open	0-3	Database Search	VOC, SOC
6	UST – open	0-3	Database Search	VOC, SOC
7	UST – closed	0-3	Database Search	VOC, SOC
8	UST – open	0-3	Database Search	VOC, SOC
9	Farm equipment manufacturer	0-3	Database Search	IOC, VOC, SOC
10	Automobile – repair and service	0-3	Database Search	IOC, VOC, SOC
11	Gas station	0-3	Database Search	VOC, SOC
12	Household appliance manufacturer	0-3	Database Search	IOC, VOC, SOC
13	Janitor Service	0-3	Database Search	IOC, VOC, SOC, Microbes
14	Commercial printing shop	0-3	Database Search	IOC, VOC
15	Welding Shop	0-3	Database Search	IOC, VOC, SOC
16	Woodworkers	0-3	Database Search	IOC, VOC, SOC
17	CERCLA	0-3	Database Search	IOC, VOC, SOC, Microbes
18 (see map id #9)	RCRA	0-3	Database Search	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, CERCLA = Comprehensive Environmental Response Compensation and Liability Act, RCRA = Resource Conservation Recovery Act
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 5. City of Filer, Well #5, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – cleanup incomplete	0-3	Database Search	VOC, SOC
2	UST – closed	0-3	Database Search	VOC, SOC
3 (see map id #1)	UST – open	0-3	Database Search	VOC, SOC
4	UST – closed	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	IOC, VOC, SOC, Microbes
6	Automobile – used car dealer	0-3	Database Search	IOC, VOC, SOC
7	Door manufacturer	0-3	Database Search	IOC, VOC, SOC

8	Fire Department	0-3	Database Search	VOC, SOC
9	Welding shop	0-3	Database Search	IOC, VOC, SOC
10	Welding shop	0-3	Database Search	IOC, VOC, SOC
11	Truck – washing and cleaning	0-3	Database Search	IOC, VOC, SOC
12	Household and commercial storage	0-3	Database Search	IOC, VOC, SOC, Microbes
13	Dairy - ≤ 200 cows	6-10	Database Search	IOC, SOC
	Cedar Draw	6-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the City of Filer, drinking water protection activities should first focus on correcting deficiencies, if any exist, outlined in the Sanitary Survey. Since total coliform bacteria were detected in the Well #3 water and the distribution system, the City of Filer should maintain their disinfection program, which could be used to treat this problem. However, the City of Filer should be aware that current disinfection practices have led to the detection of THM in the water. This should be carefully monitored. Any spills from the potential contaminant sources listed in Tables 1 through 4 should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated drinking water protection areas should be implemented. The City of Filer should consider the addition of a reverse osmosis or other system to reduce the levels of natural arsenic in the water. Currently, the EPA has stated that these upgrades must be completed by the year 2006. Most of the designated areas are outside the direct jurisdiction of the City of Filer. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside the direct jurisdiction of the City of Filer. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

4.2 Nonpoint Sources

The dominant land use outside the City of Filer area is irrigated agriculture. Land use within the immediate area of the wellheads consists of residential property, commercial and light industrial, and agricultural. Highway 30, Cedar Draw, and the Low Line Canal also run through the area. Additionally, delineations for the City of Filer wells fall within a IDEQ designated "nitrate priority area".

5.0 DRINKING WATER PROTECTION MANAGEMENT TOOLS

A combination of regulatory and non-regulatory methods will be utilized to manage contaminant sources located within the Drinking Water Protection Area. Regulatory methods can include zoning ordinances that address land uses, design standards on new or existing facilities, and mandatory use of certain practices to reduce or prevent pollution.

Non-regulatory approaches rely on voluntary implementation of education and information outreach programming to be effective. The ultimate goal of public education is to empower the public so they can implement Drinking Water Protection efforts (Table 6).

5.1 Regulatory Approaches

The City of Filer will cite the Idaho Rules Governing Public Drinking Water Systems, which prohibits any potential contaminant source from within the setback area of a public drinking water well. The City will also pursue a zoning change for the drinking water protection areas under the Twin Falls County Wellhead Protection Ordinance to protect the City's drinking water from potential contaminating activities that occur outside the City's jurisdiction. Other regulatory options the City may pursue include overlay district development, zoning and comprehensive plan modifications. All of these approaches can be used to help reduce ground water contamination risks from specific potential contaminant sources. An example of a Drinking Water/Wellhead Protection Ordinance designed to protect drinking water can be found in Appendix D. Section 9.5.1 discusses regulatory measures that could be adopted by the City of Filer to protect water quality.

A City ordinance may be passed to help protect that portion of the Drinking Water Protection Area located within the City limits of Filer. Other regulatory options the City may pursue include overly district development, zoning, and comprehensive plan modifications. All of these approaches can be used to help reduce ground water contamination risks from specific contaminant sources

5.2 Non-regulatory Approaches

These management approaches are intended to reach as broad a spectrum of the community as possible. Protection of the communities' drinking water is really possible only if the whole community cooperates to achieve protection. Public education is an essential tool for Drinking Water Protection, and the majority of the non-regulatory approaches discussed below rely on public educational for effective implementation. The implementation strategy is also discussed in many of the following approaches.

5.2.1 Groundwater Guardian Community

The Groundwater Guardian Program supports, recognizes, and connects communities protecting ground water. It is designed to empower local citizens and communities to take voluntary steps toward protecting their ground water resources and can be a catalyst for programs such as Source Water/Wellhead protection. To achieve Groundwater Guardian status, a community must submit annual entry forms and develop and implement Result Oriented Activities (ROAs). The Groundwater Guardian Program application materials are available on-line via The Groundwater Foundation's web site – www.groundwater.org – in the Groundwater Guardian section.

5.2.2 Public Education

Ongoing public education will be provided to the general public, the business community, and municipal officials on the necessity of protecting the water supply. This education includes many of the Public Participation activities and events described below within Sections 6.0 and 9.0. These public participation activities and events include public hearings, City Council Meetings, informational mailings in Water Bills, and school district activities.

5.2.3 Pollution Prevention

Pollution prevention is waste prevention and resource conservation. Today, the emphasis is on preventing the waste from being generated in the first place versus recycling an unused, over purchased, waste material. The goals are to conserve natural resources and protect the quality of the land, the water, and the air. Work toward reuse of items, using products with long lives, using natural resources efficiently and using processes that reduce consumption and waste. Pollution prevention is source reduction or any practice that reduces the amount of any pollutant entering any waste stream.

A good example of a pollution prevention problem is runoff and leaching of lawn fertilizer applications. The source of the problem is the over application of fertilizer associated with an over application of water, or a normal application of fertilizer with an over application of water. One pollution prevention answer would be to address reducing the amount of fertilizer and other chemicals applied to the lawn along with the proper application of water.

The City of Filer will provide information on pollution prevention practices relevant to homeowners and businesses alike. Pollution prevention will be most effective at reducing the amount of household hazardous waste stored on site by creating awareness of recycling opportunities. The IDEQ Regional Office Pollution Prevention Program and a non-profit P2 organization called GEMStars will carry out pollution prevention activities for businesses. Information on GEMStars (www.idahogemstars.org) will be distributed by the City of Filer to the potential contaminant source locations/operators listed in Appendix A. The City of Filer will also distribute waste minimization information tailored to the specific activity at each site included in Appendix A. In addition, the owners of each potential contaminant source will be made aware of Idaho's "Voluntary Pollution Prevention Program" and the additional assistance these program personnel can provide.

5.2.4 Home*A*Syst

The Home*A*Syst Project (H*A*S) is designed to help homeowners become aware of conditions or practices on their property that increase the risk of drinking water contamination. The H*A*S materials allow a homeowner, farmer, or rancher to assess homestead practices and activities for their potential to contaminate groundwater. The fact sheets provide information about practices and structures that can help reduce the risk of ground-water contamination. The project is coordinated by the Idaho Association of Soil Conservation Districts and is available at no cost to interested parties. Copies of Home*A*Syst Project materials will be made available at the Filer City Hall.

5.2.5 Best Management Practices

Best Management Practices (BMPs) applicable to many potential contaminant sources will either be distributed to in Appendix A or made available at City Hall. These BMPs can be applicable to both point and nonpoint sources of contamination such as abandoned wells, agricultural and homeowner usage of fertilizers and pesticides, spill prevention within businesses where chemicals are handled, USTs, and agrichemical mixing and storage. Information on how to obtain technical and financial assistance for BMP implementation will also be provided where available. The DEQ will assist the City in locating appropriate BMPs or identifying agencies or entities that can help provide BMPs and implementation assistance.

5.2.6 Household Hazardous Waste Collection

City officials will encourage development of a local household hazardous waste collection day and at a minimum will inform residents of household hazardous waste collection events within Twin Falls County.

5.2.7 Water Conservation

Another non-regulatory management approach that will be pursued by the City will be to encourage water conservation. Water conservation can help a community in two ways:

1) Reduce the total quantity of water withdrawn from ground water aquifers thus slowing the movement of contaminants within the aquifer and allowing a longer period of time for natural processes to degrade them; and

2) Allow the more efficient use of water within the City of Filer to defer capital expenditures to increase the water system capacity.
3) Control over application of lawn and garden irrigation water to limit leaching of agricultural chemicals into the ground water.

5.2.8 Water Quality Data Reviews
Water quality data from the Filer City wells and any ground water quality monitoring results in the vicinity of the Filer Drinking Water Protection Area will be reviewed by the City Drinking Water Protection Coordinator and IDEQ at least once every three years prior to recertifiation (certification is for a period of three years) or more often if significant new data is made available or water quality problems are identified in the vicinity. This will help evaluate trends or identify threats to the City's drinking water. Ground water quality monitoring results from private wells in the Filer area can be provided by the IDEQ, the Idaho State Department of Agriculture, or the U.S. Geological Survey. Relevant information will be made available to the community via the City Drinking Water Protection Coordinator or the appropriate State or Federal Agency.

6.0 MANAGEMENT TOOLS AND PROTECTION MEASURES FOR PRIORITY POTENTIAL CONTAMINANT SOURCES
The City of Filer Drinking Water Protection Planning Team has not prioritized any specific potential contaminant sources at this writing. The focus of initial implementation will be adopting a City Drinking Water Protection Ordinance, initiating zoning changes at the county level and public education and awareness.

The Planning Team will evaluate and identify any specific potential contaminant sources as part of the biannual plan review. Appropriate management tools and protection measures will be initiated as priority potential contaminate sources are identified.

6.1 Management Tools
An education program will be initiated and utilized to create public awareness of the vulnerability of the City's drinking water sources to potential contaminant sources. Section 9 outlines a suggested implementation strategy and schedule.

7.0 CONTINGENCY PLAN
A contingency plan is a blueprint outlining roles and responsibilities in the event that the system experiences a disruption due to contamination, loss of power, natural, disasters such as drought or flooding, or other circumstances where it cannot provide services. The contingency plan will help the city council make a well thought-out, educated decision under the most adverse conditions. Appendix E contains the contingency plan for the drinking water supply for the City of Filer. This contingency plan is designed to assist and facilitate community actions in the event of a drinking water emergency. Copies of the contingency plan will be located in the Filer City Hall and at the public works shop.

The development and implementation of a contingency plan increases the likelihood that correct and immediate action will be taken and that any damage or potential health risk, both in the long and short term, will be minimized.

7.1 Emergency Spill Response
The primary concern during any hazardous materials spill is immediate public safety. In the event of a release of hazardous materials the designated personnel will contact appropriate state and federal agencies for a rapid and concise response. The Idaho Bureau of Hazardous Materials action plan and Emergency Spill Response flow chart (Appendix F) will be referred to. The City will also implement

their contingency plan in case the water system is impacted. Additional information on state and federal agencies with emergency planning roles including phone numbers can be found in Section 7 of the contingency plan.

8.0 PROTECTION STRATEGIES FOR NEW WELLS

When a potential need is identified, Drinking Water Protection Areas will be estimated for to determine the safest location for the new well. The delineation for the new well site will be inventoried for any potential contaminant sources and the risk evaluated. The anticipated pumping rate and existing knowledge of the aquifer will be used to determine which proposed location would provide the least risk of contamination. The City could then take actions to prevent unwanted development near the new well.

9.0 IMPLEMENTATION STRATEGY

The strategy for implementing this Drinking Water Protection Plan is an important component of any local Drinking Water Protection Program. Without the continued efforts and support of the community planning team and the community as a whole the protection of the City's drinking water may not be accomplished as intended within this plan. Table 6 contains the schedule outlining the protection strategy developed by the Planning Team.

This schedule is a guide that the City of Filer can use to implement Drinking Water Protection activities. The schedule is designed to implement protection activities that will create a sustainable Drinking Water Protection Program addressing the potential contaminant sources identified in the Source Water Assessment.

Table 6. Implementation Schedule, City of Filer

Goal Date	Protection Activity Scope of Work	Potential Contaminant Source Addressed/Method
YEAR 2002	1. Promote City adoption of the **City of Filer Ordinance establishing a "Wellhead Protection Overlay District".** To reduce the chance of contamination of its public water supply	Future development impacts: Subdivisions-water/wastewater (Septic and leach field vs. large capacity storage), automotive, industrial, and stormwater runoff injection to the subsurface. Fertilizer use. Number and type of Septic Systems installed in protection area. Future point-sources..
	2. Begin development of a **brochure** that **summarizes the Drinking Water Protection Plan** in layman's terms. This brochure will be mailed out with the water bill.	All Sources/Public Awareness Campaign
	3. Apply to Twin Falls County for **Zoning Change** of Drinking Water Protection area to Wellhead Protection Area under county code.	Future development impacts: Subdivisions-water/wastewater (Septic and leach field vs. large capacity storage), automotive, industrial, and stormwater runoff injection to the subsurface. Fertilizer use. Number and type of Septic Systems installed in protection area. Future point-sources.
	4. Compare and evaluate attached **"Enhanced Inventory of Potential Contaminants"** to insure they have been considered for final local assessment.	Potential source evaluation and prioritization.
	5. Apply to IDEQ for **Drinking Water Protection Plan Certification.**	

YEAR 2003	1. Place **"Entering Drinking Water Protection Area"** signs at appropriate locations in source water protection areas and/or City limits. 2. With help from the U of I Extension conduct **lawn care maintenance** workshop for homeowners. 3. **Evaluate current security measure** and insure that they are adequate to prevent tampering with water source and distribution system. 4. Initiate a **City of Filer Water Awareness Booth** at the Twin Falls County Fair	Public education campaign reminding people that they are entering a drinking water area sensitive to pollution. Nonpoint source of nitrate from chemical fertilizer applications/ Educate people about following label rates and not over-irrigating. Protection of source in light of the events of 9/11/01 terrorist attack. Public awareness/Education
YEAR 2004	1. Initiate a **Household Hazardous Waste Collection Day** 2. Review and Evaluate Plan and **"Implementation Efforts"** for effectiveness. Update Plan as needed and prepare implementation schedule for next three years. 3. Apply for **State Re-certification of Drinking Water Protection Plan**	Public education, waste reduction and elimination of some potential contaminants. Plan evaluation, update and continued implementation/all sources

9.1 Plan for the future.

To assure a safe water supply for the City of Filer, the Planning Team will implement this Source Water/Wellhead Protection Plan as a long-term protection strategy for the drinking water supply. The strategy outlined in this plan will be reviewed and updated as necessary (preferably biannually) to accommodate changes due to population growth, economic development or changes in land use. Table (page 15) is the implementation schedule for 2001 - 2002. It will need to be updated along with the contingency plan when the Planning Team meets to update this plan. The Filer Source Water Assessment will be utilized as a tool to help assess potential hazards to drinking water quality. The IDEQ will provide technical assistance to the Planning Team whenever new potential contaminant sources need to be addressed.

9.2 Community Team

The Drinking Water Protection planning team for the City of Filer will meet biannually to coordinate Drinking Water Protection activities and to review and update the implementation schedule. The biannual meetings should focus on evaluating how well the Drinking Water Protection activities are working and to determine whether more outreach needs to be done. These meetings should also review and update the potential contaminant inventory, the contingency plan, and other sections as appropriate. Meeting notices should be made public to increase participation from members within the community.

9.3 Delineation
New drinking water sources will be delineated in a manner consistent with the delineation process used for the existing drinking water sources. If there are major changes to an existing source's construction, discharge rate or pumping rate, then the existing delineation should be reviewed to ensure that it still represents the appropriate source water protection zones. Delineation's may be updated or modified if significant new information becomes available.

9.4 Potential Contaminant Inventory
The community planning team will update the potential contaminant inventory for the Drinking Water Protection Area as new, significant potential contaminant sources are noted within the Drinking Water Protection Area through general observations. If new point sources of contamination are found they will need to be added to the existing inventory. New point sources will also need to be assessed for pollution prevention.

9.5 Contaminant Management Practice
The planning team will coordinate efforts to implement the contaminant management practices within Section 5.0 and in accordance with the Drinking Water Protection Implementation Schedule (page 15). The implementation strategy for the City of Filer includes both regulatory and non-regulatory approaches, with the focus on non-regulatory approaches. Public education and community involvement are important implementation components. The planning team will organize public education with the assistance of partnering local, state and federal agencies.

9.5.1 Regulatory Approaches
The planning team will evaluate the need and desirability of the regulatory approaches described below.

Zoning Overlay- Overlay zones can be used in conjunction with conventional zoning and to create special districts to protect the source water protection area. Overlay zones are applied to areas singled out for special protection, such as the source water protection area, and add regulations to those controls already in place. This method helps address "grandfathered" potential contaminant sources in source water protection areas.

Zoning Ordinance- Zoning ordinances typically are comprehensive land-use requirements designed to direct the development of an area. Many local governments have used zoning to restrict or regulate certain land uses, which have the potential to contaminate water within source water protection areas.

Subdivision Ordinances- Subdivision ordinances are applied to land divided into two or more subunits for sale or development. Local governments use this tool to protect water areas in which ongoing development is causing contamination. An example of a subdivision ordinance would be to require a minimum lot size for single family homes using septic systems so as to limit septic system density and subsequent ground water contamination.

Potential Source Prohibitions or Restrictions- Source prohibitions or restrictions are regulations that prohibit or place restrictions on the use of certain chemicals that pose a high risk to water contamination such as Atrazine or Trichloroethene; or prohibit or place restrictions on the placement of some high-risk potential contaminant sources such as underground storage tanks, underground injection wells, lagoons, feedlots, and or landfills.

Building Codes- Local building codes offer protection through special standards applicable to facilities which are remodeled or constructed in the source water protection area. Building codes can require low flow fixtures, backflow prevention and other design features to conserve and protect water quality.

Design Standards- Design standards typically are regulations that apply to the design and construction of buildings or structures. This tool can be used to ensure that new buildings or structures placed within a source water protection area are designed so as not to pose a threat to the water supply, such as requiring an impermeable liner on a settling pond.

Operating Standards- Operating standards are regulations that apply to ongoing land-use activities to promote safety or environmental protection. Such standards can minimize the threat to the source water protection area from ongoing activities such as the storage and use of hazardous substances through requirements such as secondary containment and spill response capabilities, or requiring that septic systems be properly maintained.

Site Plan Review- Site plan reviews are regulations requiring developers to submit for approval plans for developments occurring within a given area. This tool ensures compliance with regulations or other requirements made within a source water protection area.

Performance Standards- Performance standards are used to regulate development within source water protection areas by enforcing predetermined standards for water quality. They may be applied at a predetermined ground water monitoring compliance point, at the point of injection, or through the use of contaminant source modeling. One example is the requirement that the amount of storm water runoff be the same before and after construction when developing or improving a site.

Special Permitting or Reviews- Special permits or reviews are used to set conditions for certain uses and activities that pose a high risk to water contamination within source water protection areas if left unregulated. One example is to require that new feedlots within certain source water protection area zones be required to have a city or county permit or review that requires ground water quality monitoring and the use of certain water quality protection management practices.

Bonding- Facilities may be required to post a bond prior to operation in a source protection area. Bonds can cover costs associated with spill response or remediation efforts.

Transport Prohibitions- The transport of chemical compounds, which pose a high risk to water quality, if spilled, can be restricted within a source water protection area by requiring alternative transportation routes.

9.5.2 Non-regulatory Approaches

The planning team will coordinate efforts to implement non-regulatory approaches to drinking water protection, with the City of Filer taking the lead role toward implementing many of the approaches found in Section 5.2, including Groundwater Guardian Community and educational activities discussed under Sections 5.2.1 and 5.2.2. A major component of the implementation strategy is to work with the local community and the various local, State, and Federal programs and personnel available for implementation assistance. This includes obtaining assistance from the Home*A*Syst coordinator and IDEQ Pollution Prevention Program personnel as discussed under Sections 5.2.3 and 5.2.4.

The IDEQ Source Water/Wellhead Protection Coordinator located at the IDEQ-Boise regional Office and other appropriate IDEQ support personnel, as requested by the planning team, can assist in the area of coordinating support among the various local, State, and Federal programs. The IDEQ Source Water/Wellhead Protection Coordinator will also help with water quality data reviews (Section 5.2.8) and can assist with public education outreach on the best management practices (Sections 5.2.2 and 5.2.5).

The planning team will work with the local community where desirable to help identify and pursue available funding opportunities for implementing different approaches. This can include working with the Natural Resources Conservation Service to obtain Environmental Quality Improvement Project funds for agricultural BMP implementation or working with the DEQ to obtain Nonpoint Source Section 319 BMP implementation funding.

9.6 Additional Implementation Considerations

The City of Filer contingency plan and efforts associated with planning new well locations will be updated on an as-needed basis as determined by the planning team. Once Source Water Assessment information is made available, the planning team will evaluate the information; particularly the susceptibility analyses, and decides if there are any needed modifications or additions to this Plan or its implementation. Information from capacity development and the City's water system master plan will also be taken into consideration for drinking water protection planning and implementation purposes, as determined by the planning team.

10.0 PUBLIC PARTICIPATION

Public participation during the development of this Drinking Water Protection Plan has included the below listed items. Additional public participation will be pursued as part of the implementation process.

- Public meetings
- Discussion at City Council meetings
- Drinking Water Report Newsletters
- Articles in local news
- Discussion with Twin Falls County

Citizens can obtain updated information on the City of Filer Drinking Water Protection Plan, implementation efforts, Source Water Assessments, and drinking water issues at City Hall.

11.0 REFERENCES

1. *City of Filer (PWS 5420021) Source Water Assessment Final Report,* Idaho Department of Environmental Quality (September 26, 2000)

APPENDIX A

Figure 2. City of Filer Delineation Map and Potential Contaminant Source Locations

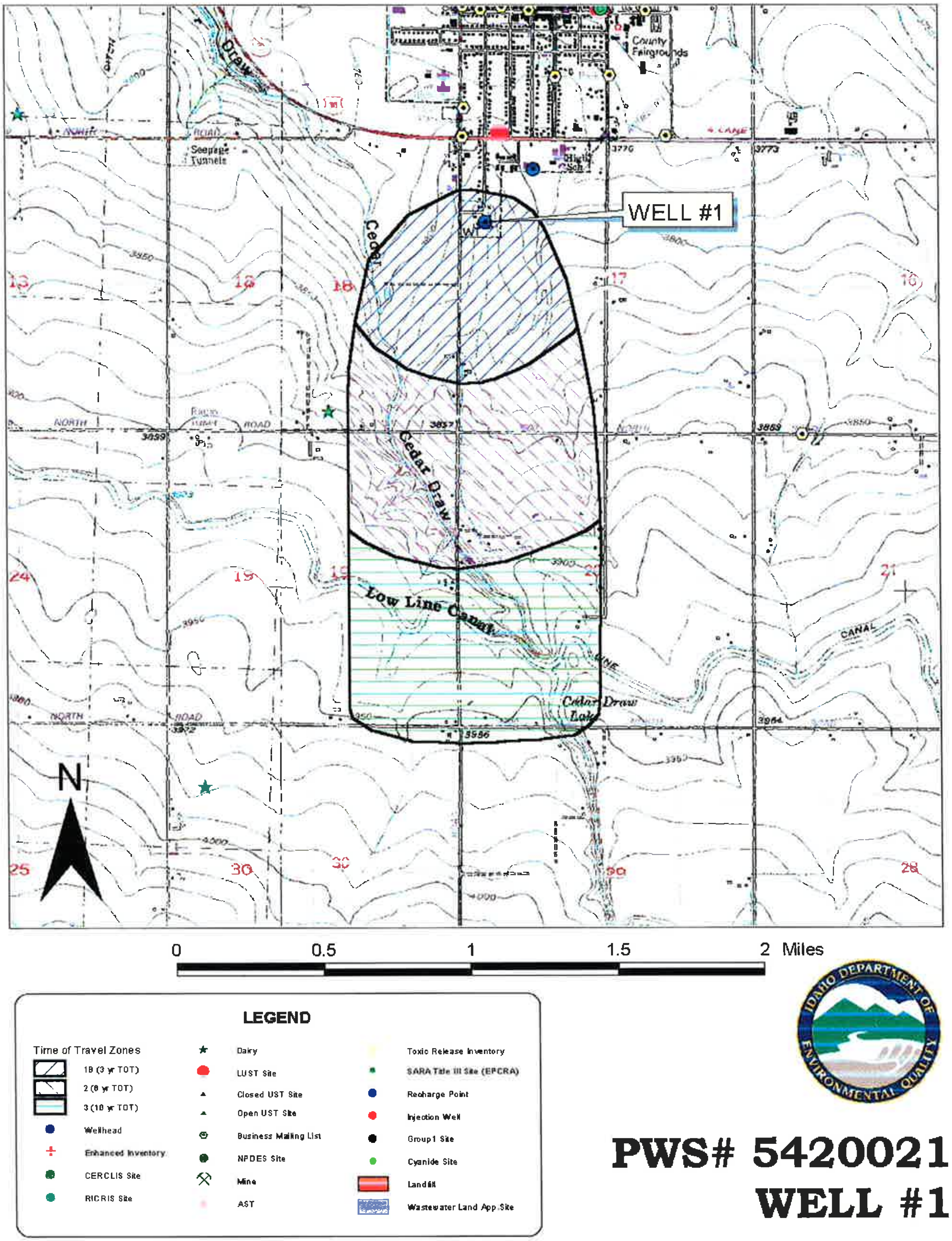


Table 1. City of Filer, Well #1, Potential Contaminant Inventory

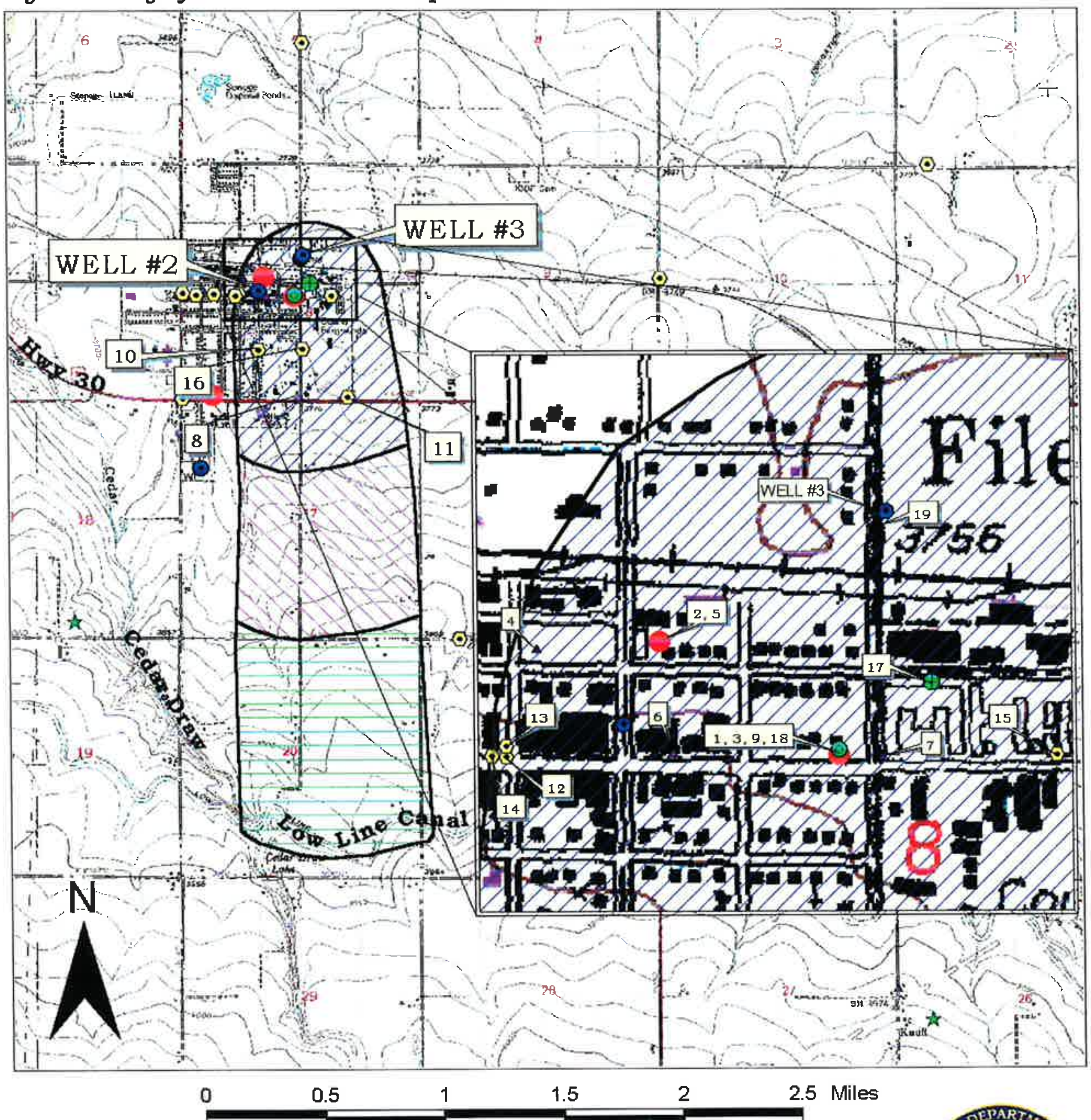
Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
	Cedar Draw	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

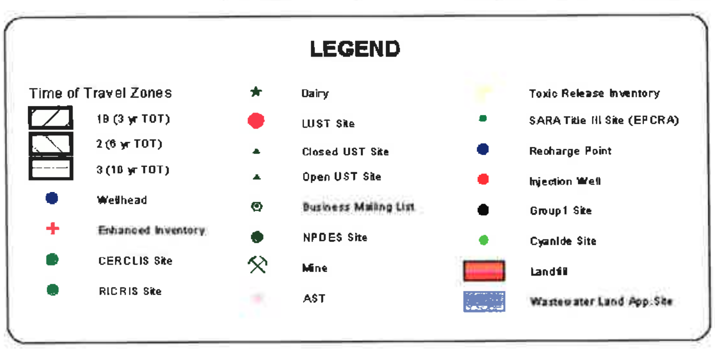
[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 2. City of Filer, Well #2, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – impact: ground water	0-3	Database Search	VOC, SOC
2	LUST – cleanup completed	0-3	Database Search	VOC, SOC
3	LUST – cleanup completed	0-3	Database Search	VOC, SOC
4 (see map id #1)	UST – closed	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	VOC, SOC
6 (see map id #2)	UST – open	0-3	Database Search	VOC, SOC
7	UST – open	0-3	Database Search	VOC, SOC
8 (see map id #3)	UST – open	0-3	Database Search	VOC, SOC
9	UST – closed	0-3	Database Search	VOC, SOC
10	UST – open	0-3	Database Search	VOC, SOC
11	Farm equipment manufacturer	0-3	Database Search	IOC, VOC, SOC
12	Automobile – repair and service	0-3	Database Search	IOC, VOC, SOC
13	Fire Department	0-3	Database Search	VOC, SOC
14	Household appliance manufacturer	0-3	Database Search	IOC, VOC, SOC
15	Janitor Service	0-3	Database Search	IOC, VOC, SOC, Microbes
16	Commercial printing shop	0-3	Database Search	IOC, VOC
17	Woodworkers	0-3	Database Search	IOC, VOC, SOC
18	CERCLA	0-3	Database Search	IOC, VOC, SOC, Microbes
19 (see map id #11)	RCRA	0-3	Database Search	IOC, VOC, SOC, Microbes
	Cedar Draw	6-10	GIS Map	IOC, VOC, SOC, Microbes

Figure 4. City of Filer Delineation Map and Potential Contaminant Source Locations





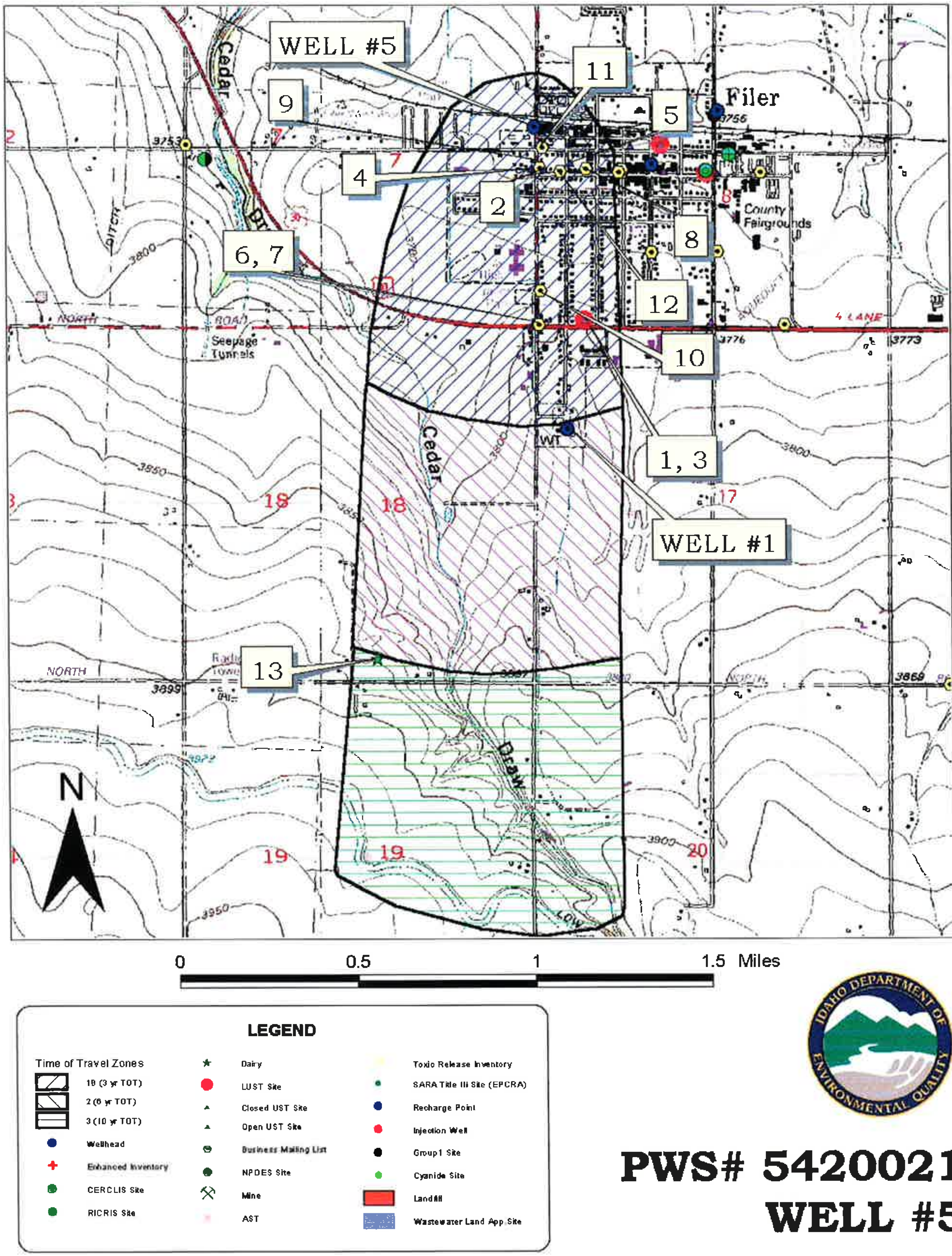
PWS# 5420021
WELL #3

Table 3. City of Filer, Well #3, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – impact: ground water	0-3	Database Search	VOC, SOC
2	LUST – cleanup completed	0-3	Database Search	VOC, SOC
3 (see map id #1)	UST – closed	0-3	Database Search	VOC, SOC
4	UST – closed	0-3	Database Search	VOC, SOC
5 (see map id #5)	UST – open	0-3	Database Search	VOC, SOC
6	UST – open	0-3	Database Search	VOC, SOC
7	UST – closed	0-3	Database Search	VOC, SOC
8	UST – open	0-3	Database Search	VOC, SOC
9	Farm equipment manufacturer	0-3	Database Search	IOC, VOC, SOC
10	Automobile – repair and service	0-3	Database Search	IOC, VOC, SOC
11	Gas station	0-3	Database Search	VOC, SOC
12	Household appliance manufacturer	0-3	Database Search	IOC, VOC, SOC
13	Janitor Service	0-3	Database Search	IOC, VOC, SOC, Microbes
14	Commercial printing shop	0-3	Database Search	IOC, VOC
15	Welding Shop	0-3	Database Search	IOC, VOC, SOC
16	Woodworkers	0-3	Database Search	IOC, VOC, SOC
17	CERCLA	0-3	Database Search	IOC, VOC, SOC, Microbes
18 (see map id #9)	RCRA	0-3	Database Search	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, CERCLA = Comprehensive Environmental Response Compensation and Liability Act, RCRA = Resource Conservation Recovery Act
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 5. City of Filer Delineation Map and Potential Contaminant Source Locations



PWS# 5420021
WELL #5

Table 4. City of Filer, Well #5, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – cleanup incomplete	0-3	Database Search	VOC, SOC
2	UST – closed	0-3	Database Search	VOC, SOC
3 (see map id #1)	UST – open	0-3	Database Search	VOC, SOC
4	UST – closed	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	IOC, VOC, SOC, Microbes
6	Automobile – used car dealer	0-3	Database Search	IOC, VOC, SOC
7	Door manufacturer	0-3	Database Search	IOC, VOC, SOC
8	Fire Department	0-3	Database Search	VOC, SOC
9	Welding shop	0-3	Database Search	IOC, VOC, SOC
10	Welding shop	0-3	Database Search	IOC, VOC, SOC
11	Truck – washing and cleaning	0-3	Database Search	IOC, VOC, SOC
12	Household and commercial storage	0-3	Database Search	IOC, VOC, SOC, Microbes
13	Dairy - ≤ 200 cows	6-10	Database Search	IOC, SOC
	Cedar Draw	6-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

APPENDIX B

1-9-89 Re: City of Filer Wells

9 a.m. c/o Scott Bybee and Jim Lichtiter

Index Filer Wells

* 1. At tank on ~~Sdell St.~~

47-4144

2. Main & Yakima — not used, but Pump installed & used occasionally for fire suppression

47-4145 (intermittent use)

* 3. Steven's beet dump site

47-7840

4. ~~School~~ Site NW/of elementary School

47-7171 ~~=~~ (not used)

* 5. Beet dump on Fair Ave. N. of RR track

G-32219   47-7717 (Redrilled to improve flow)

6. Swimming Pool — ~~no point~~ used.

47-7623 47-7623

(Second Well abandoned at site ~~where~~ slab

2/

Well # 2 Main & Yakima next to City Hall — High Floride Well — Warm — used only for fire suppression

47-4145 Claim # filed 1-16-80

Well drilled in 1954 by H.H. Frances

500 gpm
37' static water level

11-10-53 to 3-25-54

480 GPM pumping test 4.25 Hrs.

653' plugged

Well used periodically for domestic water supply for all uses in City

.28 CFS Claimed (1 CFS = 450 inches)

Claim for fire suppression.

3/ #4 W. of elementary School

Drilled, capped, not used. On school property. Permit denied for failure to show beneficial use in 1978. It was not producing enough water to make its use for domestic water economic or feasible for the City. Cap welded shut. High in solids and iron content.

No permit - no claim to be made.

Liquid Engineering Corporation

Steel Water Reservoir Interior Grading Report

[To be used in conjunction with separate Liquid Engineering Inspection Worksheet]

FORM 4

Job No. 9681 Utility City of Filer Tank 016 600KG

Inspector Y. Wiggins Dive Controller J. Stewart Date 9-7-99

LEGEND

SSPC
Society for Protective Coatings
[ANSI/SSPC – Vis 2-82 / ASTM – D610-85]

RUST GRADE	DESCRIPTION
10	No rusting, or < 0.01% of surface is rusted
9	Minute rusting, < 0.03% of surface is rusted
8	Few isolated rust spots, < 0.1% of surface is rusted
7	Few isolated rust spots, < 0.3% of surface is rusted
6	Extensive rust spots, < 1% of surface is rusted
5	Rusting to the extent of 3% of surface area
4	Rusting to the extent of 10% of surface area
3	Approximately 1/6th of the surface (17%) is rusted
2	Approximately ½ of the surface (50%) is rusted
1	Approximately 100% of the surface is rusted

NACE
National Association of Corrosion Engineers
[ASM/NACE RP0178-91 (App. A, B, C)]

CORROSION GRADE	DESCRIPTION
A	Satisfactory
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell
E	Galvanic
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular
I	Dealloying

AWS
American Welding Society
[ANSI/AWS B1.11-88]

WELD GRADE	DESCRIPTION
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to Evaluate – welds masked by surface coating / rust

ROOF [1]

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	10	A	L	—	—	—	—	—	—	—	—	—
Roof Panels	10	A	L	10	A	L	10	A	L	10	A	L
Trusses	10	A	L	10	A	L	10	A	L	10	A	L
Joists	—	—	—	—	—	—	—	—	—	—	—	—
Roof Truss Gussets	10	A	L	10	A	L	10	A	L	10	A	L
Painting Ring	—	—	—	—	—	—	—	—	—	—	—	—
Roof Bracing Structure	10	A	L	10	A	L	10	A	L	10	A	L

WALLS [1]

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	B	L	10	A	L	10	A	L	10	A	L
No.1 Ring (Bottom)	9	B	L	9	B	L	9	B	L	9	B	L
No.2 Ring	9	B	L	9	B	L	9	B	L	9	B	L
No.3 Ring	9	B	L	9	B	L	9	B	L	9	B	L
No.4 Ring	9	B	L	9	B	L	9	B	L	9	B	L
No.5 Ring	9	B	L	9	B	L	9	B	L	9	B	L
No.6 Ring	9	B	L	9	B	L	9	B	L	9	B	L
~~No.7 Ring~~	—	—	—	—	—	—	—	—	—	—	—	—
No. —	—	—	—	—	—	—	—	—	—	—	—	—
No. —	—	—	—	—	—	—	—	—	—	—	—	—
~~Ladder Structure~~	—	—	—	—	—	—	—	—	—	—	—	—

~~SUPPORT COLUMNS [1]~~

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A			N/A			N/A			N/A		
Column Base Structures												
Column to Roof Structure												

FLOOR [1]

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	9	B	←	9	B	—	9	B	—	9	B	—
Concrete Floor Sketches (Panels)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Inlet Structure	9	B	L	—	—	—	—	—	—	—	—	—
Outlet Structure	7	B	L	—	—	—	—	—	—	—	—	—
Overflow Structure	—	—	—	—	—	—	—	—	—	9	B	L
Other Clean Out Hatch	—	—	—	—	—	—	—	—	—	8	B	L

[1] See inspection Worksheet for specific areas

☐ SEE ATTACHED SUPPLEMANTAL REPORT

DISCLAIMER

Unless otherwise noted, the findings contained in this report were neither prepared nor reviewed by a licensed Professional Engineer, but are based on the experience, training and *visual examination* of the inspecting Dive Maintenance Technician.

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job No. 9681 Utility City of Filer Tank 016 600KG

Inspector V. Wiggins Team Leader N. Eitchner Date 9-7-99 **Form 1**

Complies With: AWWA • OSHA • ANSI • NIOSH • API 553 • NAVFAC MO - 210.9 • NFPAC - 22/25/26

• Contamination & Health Checklist •

Air Vents # 1 Screens Yes Attachments Good Caps Yes Condition Good

Hatches # 1 Hinges Yes Locking Mechanism Yes Gaskets Yes Seal Properly Yes

Hatch Lip Height: 4" in. (4" min.) Overall Hatch Condition Good Other

Exterior Overflow Cover Yes Hinge Yes Screen No Gasket No Condition Good

Cathodic Protection Covers # None Covers in Place — Gaskets — Properly Sealed —

Water Level Sensor Penetrations Sealed Properly Yes Other —

Roof Low Spot(s) Describe Location None

Standing Water on Roof None Welds/Seams Condition Good

Roof to Wall Joint Welded — Other Bolted Sealed Properly Yes

Roof Integrity Holes None Other —

Wall Integrity Holes None Other —

Topside Water Visibility General Appearance Excellent Odor None Other —

Floating Surface Debris Type None Quantity — Source —

Bottom Debris Type None Quantity — Source —

Animal/Insect Debris Type None Quantity — Source —

Plant Debris Type None Quantity — Source —

Debris Samples Taken No X Yes Location — Disposition —

Hypalon Floating Cover None X General Condition —

Other Discrepancies None

[Use Additional Sheet if Necessary]

• Facility Safety Compliance Checklist •

Exterior Ladder

Ladder Vandal Guard Yes Properly Locked No

Ladder Attachments Welded Bolted X Other Condition Good

Ladder Rails & Rungs Damage None General Condition Good

Rung Spacing & Depth Spacing: 12 in. (max 12") Toe depth: 7 in. (min. 7") Missing/Damaged Rungs None

Ladder Offset Landings Number None Railings, Posts & Welds — Toe Rail —

Overall Ladder Condition Good

Safety Climb System None Ladder Cage X Notched Rail Cable/Bar Grab Other

Safety Climb Condition Operates Properly Yes Condition Good

LEC Team Used Portable Safety Climb System: (Yes) No Condition Good

Client Harnesses Not Inspected X Replace — Condition —

Client Grabs/Lanyards Not Inspected X Replace — Condition —

Other Discrepancies None

[Use additional sheet if necessary]

Hatches

Safety Tie-Off Points # 10+ Satisfactory Yes Condition Good

Hatch Cage & Railing Condition None

Hatch Cage Toe Rail Condition None

Other Discrepancies None

[Use additional sheet if necessary]

Balcony

Hand Rails Height (42" min.) No. Rails (min. 2) Other

Hand Rail Posts Rigid & Anchored (200# min. force) Other

Toe Rail Height (4" min.) Other

Deck/Walkway Condition

Welds/Attachments Condition

Overall Structure Condtion

Other Discrepancies

[Use additional sheet if necessary]

N/A

Roof

Soft Spots None

Interior Rafters Good

Roof Support Columns None

~~Welds~~/Bolts/~~Rivets~~ Good

LEC Team Used Fall Prevention Equipment: (Yes) No Condition Good

Other Discrepancies None

[Use additional sheet if necessary]

☐ **SEE ATTACHED SUPPLEMENTAL REPORT**

AURORA PUMP
A SUBSIDIARY OF THE AURORA PUMP
UNIT OF GENERAL SIGNAL
1760 Kimberly Rd., P.O. Box 892, Twin Falls, ID 83301

DEEP WELL TURBINE PUMP

ESTIMATE / ORDER SHEET

SOLD TO: City of Filer

DATE 4-22-80

ADDRESS:

P. O. NO.

SHIP TO:

QUOTATION NO.

ADDRESS:

BID DATE

SHIP VIA: COLLECT / PREPAID

NO. OF PUMPS

CUSTOMER JOB NO. LOCATION

ITEM NO.

Well Diameter (Inside) 12 Inches	Type		No. Stages		RPM		
Well Depth Feet	Impellor				Curve No.		
Static Water Level Feet	K. Value		Total Thrust			Lbs.	
Drawdown Feet	GPM	HEAD	% EFF.	BHP			
Pumping Level Feet	90	285	69	10		Laboratory	
Dsch. Pressure (psig) Feet	90	5		3		Losses	
Total Pumping Head 280 Feet	90	280		13		Field	
Pump Capacity 90 GPM	Motor Eff.	% (full load)	% (¾ load)	% (½ load)		Overall Eff.	%

DESCRIPTION	PRICING SCHEDULE			Approx. Wgt.
1 MOTOR: Make HP RPM Volts				
Phase Cycle Type Frame No.	By customer			
Special Features: N R R				
2 HEAD SIZE:				
Companion Flanges				
(Surface Dschg.) (Below Ground Dschg. " Base to ℄ Dschg.)				
3 DISCHARGE PIPE: Ft. of " Std. Pipe				
4 COL. 250 Ft. 4 " Std. Pipe x " Tube x 1 " Shaft, per Ft. $				
5 BOWLS: Size 6 Type TM No. Stages				
6 SUCTION PIPE: 30 Ft. of 4 " Std. Pipe				
7 STRAINER: Size " Type Matl.				
8 AIR LINE: Ft. of " (Galv.) (Copper) $ Ft.				
9. ALTITUDE GAUGE & FITTINGS: Hand Pump				
10 STARTING EQUIPMENT				
11				
12				
13				
14				
15 ACCESSORIES, SPECIAL CONSTRUCTION, VARIATIONS:				
16				
17 1 - 4" foot valve			6,510.00	
18				
19				
20 ACCESSORIES, SPECIAL CONSTRUCTION, VARIATIONS:				
21				
22				
23				
24				
25				
26				
27				
28 TOTALS				
INSTALLATION SERVICE			450.00	
WIRING				
NET TOTAL EACH				
NET TOTAL - UNITS			6,960.00	

REMARKS: *Possible 4 weeks availability.*

Form LB-88

QUOTED BY Dick Estes

Form 16 - 2M
5-5-65

well #2

STATE OF IDAHO

DEPARTMENT OF RECLAMATION

Boise, Idaho

Permit No. G-32219

* * * * * * *

PROOF OF APPLICATION OF WATER TO BENEFICIAL USE
and Completion of Works

DEPOSITION OF HOLDER

Ques. 1. State your name, residence occupation and postoffice address: City of Filer, Filer, Idaho, by Ralph Pitts, Mayor.

Ques. 2. If acting in behalf of corporation, state its name, principal place of business (if foreign corporation, give name of postoffice of statutory agent), your position with reference to same, and your authority for appearing in its behalf:

City of Filer, Filer, Idaho; Mayor.

Ques. 3. State number, approval date of permit, and date of priority:

G-32219 - February 5, 1965 - February 3, 1965.

Ques. 4. State source of water supply: Subterranean
Give location of point of diversion, showing subdivision, section, township and range

SW¼NE¼, Sec. 8, T. 10 S., R. 16, E.B.M., Twin Falls County

Ques. 5. Describe your works of diversion: 8 inch bowls, 6 inch column, 300 H.P. Diesel; state amount of water they are capable of conveying from point of diversion to place of use: 1.4 CFS; Give name of canal or ditch or other works by which water is conducted to such place of use: ______; if a well, state depth of well 360 ft.; depth and size of casing 119' 10"; depth to water 65 ft.; if pump is used, state discharge of pump: ______; tell how it was measured or determined ______; if sprinkler irrigation, give number and size of nozzles and operating pressure: ______

Ques. 6. State for what purpose water is used: Municipal
(If for irrigation, name each subdivision in which used and number of acres in each subdivision that have actually been irrigated with said water:

Well #2

State nature of all improvements which have been made as a direct result of said use:

____

Ques. 6-a: If this is a ground water permit, give name and address of person that drilled the well: Mack Gray Well Drilling, Kimberly, Idaho.

Ques. 7. If for other than irrigation purposes, show full legal description of place of use and state purpose for which water is used:

SW"NE", Sec. 8, T. 10 S., R. 16 E, B.M. (City of Filer and Vicinity); Municipal.

Ques. 8: If you are not the person or representative of the corporation to whom above mentioned permit was originally issued, please state how ownership was acquired by present holder:

____

Quest. 9: State when and in what amount the water diverted under above mentioned permit has been first used: ____________ - Time used since first use:

____

Ques. 10. Describe all other water rights appurtenant to same place of use: ________

____

ATTEST: CITY OF FILER, IDAHO

________________ (sign) By ________________

City Clerk. Mayor.

* * * * * * * * * *

I hereby certify that the foregoing testimony was read to the above subscribed, before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me, at my office in Twin Falls, County of Twin Falls State of Idaho, on this 4th day of October, A. D. 1967.

____

My commission expires: ________________

Well #3
filed on 3-11-81

QUITCLAIM DEED.

FOR VALUE RECEIVED AMALGAMATED SUGAR COMPANY does hereby convey, release, remise and forever quit claim unto the CITY OF FILER, A Municipal Corporation, the following described premises, to-wit:

A parcel of land located in the SW SW NE Section 8, T. 10 S., R. 16EB.M., Twin Falls County, Idaho, described as follows:

Beginning at the center of said Sec. 8;
Thence N 0° 13' W along the centerline of said Sec. 8 for a distance of 584.5 feet;
Thence N 89° 57' E for a distance of 25 feet to the true point of beginning;
Thence N 0° 13' W for a dist. of 32 feet;
Thence N 89° 57' E for a dist. of 40 feet;
Thence S 0° 13' E for a dist. of 32 feet;
Thence S 89° 57' W for a dist. of 40 feet to the true point of beginning.
Above described parcel of land containing .029 acres, more or less,

together with their appurtenances.

Dated this 4th day of March, 1964.

AMALGAMATED SUGAR COMPANY

G.J. VERTI-LINE PUMPS, INC.
1970 Highland Ave. East • P.O. Box 892
Twin Falls, Idaho 83303
(208) 733-4278

WELL TEST REPORT

NAME City of Filer DATE 1/22/99

LOCATION Beet Dump

WELL DEPTH WELL SIZE CASING 10"

TEST PUMP SETTING 260' with Airline 6" pipe BOWLS 8" ORIFICE SIZE 8" STD x 6½"

STATIC WATER LEVEL STARTING TIME 10:30 AM

TIME	PUMPING LEVEL	ORIFICE READING	G.P.M.	MINERS INCHES	
10:33	72'	3"	340	33"	
10:40	77'	6"	480	53"	
11:15	88'	13"	710	79"	
11:20	116'	31½"	1100	122"	very fine Sand
11:50	116'	31½"	1100	122"	
12:15	118'	31"	1090	121"	
1:00	118'	31"	1090	121"	clean
	Recovery Check				
1:00	118'	31"	1090	121"	
1:15	109'	22"	920	102"	
1:30	95'	13½"	720	80"	
1:45	84'	6½"	500	55"	
2:00	81'	2½"	300	33"	

REMARKS:

The pump is tight at 260'

60° Temp

BALL POINT PEN

State of Idaho
Department of Water Administration

well #3
Fair Ave

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

1. WELL OWNER

Name City of Filer
Address Filer, Idaho
Owner's Permit No. ______

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Test
☒ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 12 inches Total depth 366 feet
Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
[illegible] inches	___ inches	___ feet	___ feet
.250 inches	10 inches	[illegible] feet	119 feet
.250 inches	12 inches	+1 feet	6 feet
___ inches	8 inches	___ feet	___ feet
___ inches	___ inches	___ feet	___ feet

Was a packer or seal used? ☐ Yes ☐ No
Perforated? ☐ Yes ☐ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation ___ inches by ___ inches

Number		From	To
___	perforations	___ feet	___ feet
___	perforations	___ feet	___ feet
___	perforations	___ feet	___ feet

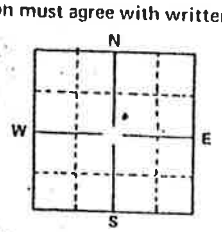
Well screen installed? ☐ Yes ☐ No
Manufacturer's name ______
Type ______ Model No. ______
Diameter ___ Slot size ___ Set from ___ feet to ___ feet
Diameter ___ Slot size ___ Set from ___ feet to ___ feet

Gravel packed? ☐ Yes ☐ No Size of gravel ______
Placed from ______ feet to ______ feet

Surface seal? ☒ Yes ☐ No To what depth 119 feet
Material used in seal ☒ Cement grout ☐ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



County Twin Falls
SW ¼ NE ¼ Sec. 8, T. 10S N/S, R. 16 E/W

7. WATER LEVEL

Static water level 65 feet below land surface
Flowing? ☐ Yes ☒ No G.P.M. flow ______
Temperature ___ °F. Quality ______
Artesian closed in pressure ______ p.s.i.
Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
650	2 feet	3 ½

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
12	0	4	Top soil		
	4	48	Firm Grey Lava		
	48	76	Firm Red Lava	X	
	76	92	Firm Black Lava		
	92	101	Firm Brown Lava		
	101	107	Firm Grey Lava		
	107	111	Soft Brown Lava		
	111	119	Firm Brown Lava		
10 in	119	124	Soft Brown & Clay [illegible]		
hole	124	140	Firm Black Broken Lava		
	140	152	Dark Grey Lava		
	152	156	[illegible] Lava		
	156	161	Firm Black Lava		
	161	187	[illegible] layers [illegible] & Brown Lava of [illegible]	[illegible]	
	187	198	Firm Grey & Black Lava		
	198	209	Soft Red Lava		
	209	218	[illegible] Lava		
	218	225	[illegible] Black porous Lava	[illegible]	
8 in	225	251	[illegible]		
	251	260	Firm Grey Lava		
	260	266	Soft [illegible] Brown [illegible]		
	266	285	[illegible]		
	285	336	[illegible]		
	336	352	[illegible] Grey Lava		
	352	366	Soft Red Lava		
	366		Hard Grey Lava		

10. Work started 4/23/64 finished 6/16/64

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Driller's or Firm's Name: Harry (Pete) Austin Number: 73
Address: Kimberly, Idaho 83341
Signed By: Pete Austin Date: 8/20/72

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE [illegible]

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

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

Stevens & E/K

1. WELL OWNER

Name Filer City Well # 6

Address Filer, Idaho

Owner's Permit No. ______

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) ______

3. PROPOSED USE

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

4. METHOD DRILLED

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

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other ______

Thickness		Diameter		From		To	
.375	inches	14	inches +	1	feet	82	feet
.250	inches	8	inches	520	feet	650	feet
	inches		inches		feet		feet
	inches		inches		feet		feet

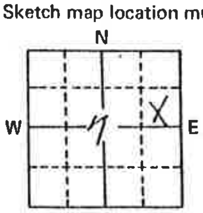
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☒ Yes ☐ No
How perforated? ☒ Factory ☐ Knife ☐ Torch
Size of perforation 1/8 inches by 3 inches

Number		From		To	
	perforations	525	feet	645	feet
	perforations		feet		feet
	perforations		feet		feet

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

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name ______

Lot No. ______ Block No. ______

County Twin Falls

SE ¼ NE ¼ Sec. 7, T. 10 N/S, R. 16 E/W.

7. WATER LEVEL

Static water level 23' feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow ______
Artesian closed-in pressure ______ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ______ °F. Quality ______

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other ______

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	4	Top Soil		
	4	8	Hard Pan		
	8	14	Sand & Lava		
	14	28	Broken Brown Lava		
	28	36	Grey Lava		
	36	55	Brown Lava		
	55	58	Broken Grey Lava & Sand	X	
	58	81	Hard Grey Lava		
	81	89	Hard Grey Lava		
	89	90	Broken Grey Lava & Talc	X	
	90	102	Grey Lava		
	102	105	Broken Grey Lava & Blue Talc		
	105	116	Grey Lava		
	116	119	Black Broken Lava & Blue Talc	X	
	119	150	Black Lava Hard		
	154	166	Black Lava		
	166	183	Grey Lava		
	183	191	Soft Grey Lava		
	191	200	Black Lava & Seams of Blue Clay	X	
	200	206	Soft Black Lava	X	
	206	244	Hard Black Lava		
	244	248	Hard Brown & Black Lava		
	248	270	Hard Black Lava		
	270	296	Hard Black Lava		
	296	304	Brown Lava		
	304	324	Hard Black Lava		
	324	335	" Brown "		
	335	350	" Black "		
	350	352	Red Lava Ash	X	
	352	370	Hard Black Lava		
	370	406	" " "		
	406	418	Hard Brown Lava		
	418	444	Hard Grey Lava		
	444	460	Redish Brown Lava		
	460	462	Redish Brown Lava		
	462	469	Grey Lava		

10. Look next sheet attached

Work started 9-16-82 finished 10-1-82

11. DRILLERS CERTIFICATION

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

Firm Name Elsing Drilling Firm No. 31

Address Box 919 Date Oct 20 82

Signed by (Firm Official) [signature]

and

(Operator) [signature]

APPENDIX C

OVERVIEW OF POTENTIAL CONTAMINANT SOURCES

Table 10 provides an overview of potential contaminant sources and the contaminants that may be associated with each source. These sources represent many of the businesses, industries, operations, land uses, and environmental conditions that handle, generate, store, apply, dispose of, or provide a pathway for the contaminants of concern. The sources are separated into four categories:

1) Commercial/Industrial,
2) Agricultural/Rural,
3) Residential/ Municipal, and
4) Miscellaneous.

These sources can apply to either ground water or surface water, and many can apply to both ground and surface water. Where a potential contaminant source generally applies to only ground water or surface water, it is noted within Table 9.

Table 2. Potential Contaminant Sources (Ground and Surface Water)

Source		Potential Contaminants [1,2,3]
Commercial/Industrial		
Automobile	Body Shops/ Repair Shops	Waste oils, gasoline and diesel fuels; solvents, acids, paints, automotive wastes[4,] miscellaneous cutting oils.
Automobile	Car Washes	Soaps, detergents, waxes, miscellaneous chemicals, hydrocarbons.
Automobile	Gas Stations	Petroleum fuels, oil, solvents, miscellaneous wastes.
Boat Services/Repair/Refinishing		Gasoline and diesel fuels, oil, septage from boat waste disposal area, wood preservative and treatment chemicals, paints, waxes, varnishes, automotive wastes[4].
Cement/Concrete Plants		Diesel fuel, solvents, oils, miscellaneous wastes.
Chemical/Petroleum Processing/Storage		Hazardous chemicals, solvents, hydrocarbons, heavy metals.
Dry Cleaners		Solvents (tetrachloroethylene, petroleum solvents), spotting chemicals (trichloroethane, methyl chloroform, ammonia, peroxides, hydrochloric acid, rust removers, amyl acetate).
Electrical/Electronic Manufacturing		Cyanides, metal sludge, caustic (chromic acid), solvents, oils, alkalis, acids, paints and paint sludges, PCBs.
Fleet/Trucking/Bus Terminals		Waste oil, solvents, gasoline and diesel fuel from vehicles and storage tanks, fuel oil, other automotive wastes[4].
Food Processing		Nitrates, salts, phosphorous, miscellaneous food wastes,

Source	Potential Contaminants [1,2,3]
	chlorine, ammonia, ethylene glycol.
Furniture Repair/Manufacturing	Paints, solvents, degreasing and solvent recovery sludges, lacquers, sealants.
Hardware/Lumber/Parts Stores	Hazardous chemical products in inventories, heating oil and fork lift fuel from storage tanks, wood-staining and treating products such as creosote, paints, thinners, lacquers, varnishes.
Home Manufacturing	Solvents, paints, glues and other adhesives, waste insulation, lacquers, tars, sealants, epoxy wastes, miscellaneous chemical wastes.
Junk/Scrap/Salvage Yards	Automotive wastes[4], PCB contaminated wastes, any wastes from businesses[5] and households[6], oils, lead.
Machine Shops	Solvents, metals, miscellaneous organics, sludges, oily metal shavings, lubricant and cutting oils, degreasers (tetrachloroethylene), metal marking fluids, mold-release agents.
Metal Plating/Finishing/Fabricating	Sodium and hydrogen cyanide, metallic salts, hydrochloric acid, sulfuric acid, chromic acid, boric acid, paint wastes, heavy metals, plating wastes, oils, solvents.
Mines/Gravel Pits	Mine spills or tailings that often contain metals, acids, highly corrosive mineralized waters, metal sulfides, metals, acids, minerals sulfides, other hazardous and nonhazardous chemicals, petroleum products and fuels.
Photo Processing/Printing	Biosludges, silver sludges, cyanides, miscellaneous sludges, solvents, inks, dyes, oils, photographic chemicals.
Plastics/Synthetics Producers	Solvents, oils, miscellaneous organic and inorganics (phenols, resins), paint wastes, cyanides, acids, alkalis, wastewater treatment sludges, cellulose esters, surfactant, glycols, phenols, peroxides, etc.
Research/University/Hospital Laboratories	X-ray developers and fixers[7], infectious wastes, radiological wastes, biological wastes, disinfectants, asbestos, beryllium, solvents, infectious materials, drugs, disinfectants, miscellaneous chemicals.
Wood Preserving/Treating	Wood preservatives: creosote, pentachlorophenol, arsenic, heavy metals.
Wood/Pulp/Paper Processing and Mills	Metals, acids, sulfides, other hazardous and nonhazardous chemicals, organic sludges, sodium hydroxide, chlorine, hypochlorite, chlorine dioxide, hydrogen peroxide, methanol, paint sludges, solvents, creosote, coating and gluing wastes.

Source	Potential Contaminants [1,2,3]
Agricultural/Rural	
Livestock Auction Lots/Boarding Stables	Nitrates, phosphorous, bacteria, and viruses, total dissolved solids.
Confined Animal Feeding Operations Slaughter House and Butcher Facilities	Nitrates, phosphorous, chloride, chemical sprays and dips for controlling insect, bacteria and viruses, total dissolved solids.
Farm Machinery Repair	Automotive wastes[4], solvents, fuel.
Crops - Irrigated and Non-irrigated	Pesticides[8], nitrate & phosphorous (from fertilizers), salts, sediment (from runoff)
Wastewater/Sludge/Manure Land Application or Disposal Locations	Nitrates, metals, salts, bacteria and viruses.
Lagoons/Liquid Wastes	Nitrates, livestock sewage wastes, salts, bacteria.
Pesticide/Fertilizer/Petroleum Storage & Transfer Areas	Pesticides[8] , nitrate, phosphorous, petroleum residues.
Residential/Municipal	
Airports (Maintenance/Fueling Areas)	Jet fuels, deicers, diesel fuel, chlorinated solvents, automotive wastes[4], heating oil, building wastes[5].
Camp Grounds/RV Parks, Marinas	Septage, gasoline, diesel fuel from boats, pesticides[8], household hazardous wastes from recreational vehicles (RVs)[6].
Drinking Water Treatment plants	Treatment chemicals
Golf Courses	Pesticides[8], nitrate, phosphorous, arsenic.
Landfills/Dumps	Organic and inorganic chemical contaminants; waste from households[6] and businesses[5], nitrates, oils, metals, solvents.
Motor Pools	Automotive wastes[4]: solvents, waste oils, fuel storage.
Railroad Yards/Maintenance/Fueling Areas	Diesel fuel; herbicides for rights-of-way[8], creosote from preserving wood ties, solvents, paints, waste oils.
School Maintenance Facilities	Machinery/vehicle serving wastes, gasoline.[4].
Septic Systems (large community systems or 10 single systems on 40 acres)	Bacteria, viruses, nitrates, salts, dissolved solids, improperly disposed of household or business wastes[5,6,9].
Utility Stations/Maintenance Areas	PCBs from transformers and capacitors, oils, solvents, sludges, acid solution, metal plating solutions (chromium, nickel, cadmium).

Source	Potential Contaminants [1,2,3]
Waste Transfer/Recycling Stations	Residential and commercial solid waste residues.
Wastewater Effluent to Surface Waters (primarily surface water concern)	Municipal wastewater, sludge[10], treatment chemicals[11], nitrates, heavy metals, bacteria, nonhazardous wastes
Miscellaneous	
Above Ground Storage Tanks	Diesel, gasoline, other chemicals.
Construction/Demolition Areas (Plumbing, Heating, and Air Conditioning, Painting, Carpentry, Flooring, Roofing and Sheet Metal etc.)	Solvents, asbestos, paints, glues and other adhesives, wastes insulation, lacquers, tars, sealants, epoxy waste, miscellaneous chemical wastes, explosives, sediment.
Historic Gas Stations	Diesel fuel, gasoline, kerosene.
Historic Waste Dumps/Landfills	Leachate, organic and inorganic chemicals, waste from households[6], and businesses[5], nitrates, oils, heavy metals, solvents.
Injection Wells/Dry Wells/Sumps (primarily ground water concern)	Storm water runoff, used oils, antifreeze, gasoline, solvents, other petroleum products, pesticides[8], and other chemical substances.
Storm Water Drainage to Surface Waters (primarily surface water concern)	Storm water runoff, oils, antifreeze, metals, sediment, and pesticides, and a wide variety of other substances.
Military Installations	Wide variety of hazardous and nonhazardous wastes depending on the nature of the facility, diesel fuels, jet fuels, solvents, paints, waste oils, heavy metals, radioactive wastes, explosives.
Surface Water - Stream/Lakes/Rivers/Recharge Sites	Ground Water: bacteria and viruses, cryptosporidium Surface Water: nitrates, pesticides, sediment from Ag. return drains.
Transportation Corridors	Herbicides in highway right-of-way[8], road salt (sodium and calcium chloride), road salt anti-corrosives (phosphate and sodium ferrocyanide), automotive wastes[4], nitrate or phosphorous from fertilizer use.
Forest Roads /Logging (primarily surface water concern)	Sediment, fuel spills.
Landslides/Burn Areas (primarily surface water concern)	Sediment.
Underground Storage Tanks	Diesel, gasoline, heating oil, other chemical and petroleum products.

Source	Potential Contaminants [1,2,3]
Unsealed or Abandoned Wells, and Test Holes (primarily ground water concern)	Storm water runoff, solvents, nitrates, septic tanks, hydrocarbons, and a wide variety of other substances.

1 In general, surface or ground water contamination stems from the misuse and improper disposal of liquid and solid wastes; the illegal dumping or abandonment of household, commercial, or industrial chemicals; the accidental spilling of chemicals from trucks, railways, aircraft, handling facilities, and storage tanks; or the improper siting, design, construction, operation, or maintenance of agricultural, residential, municipal, commercial, and industrial drinking water wells and liquid and solid waste disposal facilities. Contaminants also can stem from atmospheric pollutants, such as airborne sulfur and nitrogen compounds, which are created by smoke, flue dust, aerosols, and automobile emissions, fall as acid rain, and percolate through the soil. When the sources list in these tables are used and managed properly, water contamination is not likely to occur.

2 Contaminants can reach ground water from activities occurring on the land surface, such as industrial waste storage; from sources below the land surface but above the water table, such as septic systems; from structures beneath the water table, such as wells; or from contaminated recharge water.

3 This table lists the most common potential contaminants, but not all-potential contaminants. For example, it is not possible to list all potential contaminants contained in storm water runoff or from military installations.

4 Automobile wastes can include gasoline; antifreeze; automatic transmission fluid; battery acid; engine and radiator flushes; engine and metal degreasers; hydraulic (brake) fluid; and motor oils.

5 Common wastes from public and commercial buildings include automotive wastes; and residues from cleaning products that may contain chemicals such a xylenols, glycol esters, isopropanol, 1, 1, 1, -trichloroethane, sulfonates, chlorinated phenols, and cresol.

6 Households wastes include common household products that can contain a wide variety of toxic or hazardous components.

7 X-ray developers and fixers may contain reclaimable silver, glutaldehyde, hydroquinone, potassium bromide, sodium sulfite, sodium carbonate, thiosulfates, and potassium alum.

8 Pesticides include herbicides, insecticides, rodenticides, and fungicide. EPA has registered approximately 50,000 different pesticide products for use in the United States. Many are highly toxic and quite mobile in the subsurface.

9 Septic tank/cesspool cleaners include synthetic organic chemicals such as 1, 1, 1,-trichloroethane, tetrachloroethylene, carbon tetrachlorine, and methylene chloride.

10 Municipal wastewater treatment sludge can contain organic matter, nitrates; inorganic salts; heavy metals; coliform and noncoliform bacteria; and viruses.

11 Municipal wastewater treatment chemicals include calcium oxide; alum; activated alum; polymers; ion exchange resins; sodium hydroxide; chlorine; ozone; and corrosion inhibitors.

Source: Adapted from EPA (1993).

APPENDIX D

ORDINANCE NO. ______

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FILER, IDAHO, AMENDING THE FILER CITY CODE BY ENACTING A NEW CHAPTER 16, TITLE 9, ESTABLISHING A WELLHEAD PROTECTION OVERLAY ZONE.

WHEREAS, The Filer City Council deems it necessary to enact regulations to reduce the chance of contamination of its public water supply and to provide a sustainable, safe potable water supply.

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF FILER, IDAHO:

Section 1: That Filer City Code, Title 9, is amended by the addition of a new Chapter 16 entitled "Wellhead Protection Overlay Zone", as follows:

"WELLHEAD PROTECTION OVERLAY ZONE

9-16-1: **PURPOSE:** It is the purpose of this Chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to contamination of the public water supply, and to formalize ground water protection/pollution abatement and control procedures. Specific goals are to protect human life and health, to ensure that the public is provided with a sustainable, safe potable water supply, to minimize expenditure of public money for pollution remediation projects, to minimize regulations on land, and to minimize business interruptions.

9-16-2: **DEFINITIONS:**

HAZARDOUS WASTE DISPOSAL FACILITY: A hazardous waste treatment, storage, or disposal facility which receives hazardous material as described in Part 40, Chapter 260.1, C.F.R.

HAZARDOUS WASTE OR MATERIAL: Any waste or material which, because of its quantity, concentration, physical, chemical or infectious characteristics, may:

A. Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or,
B. Pose a substantial present or potential hazard to human health or to the environment when improperly treated, stored, transported, disposed of or otherwise managed; or,
C. Any material or substance designated as a hazardous or toxic substance defined by Part 40, Chapter 261.3 of the C.F.R., or any material or substance designated as a hazardous or toxic substance by the State of Idaho, DEQ.

INJECTION: The subsurface emplacement of fluids.

LIVESTOCK CONFINEMENT OPERATION: As defined in the County Ordinance.

PUBLIC WATER SYSTEM: A system that provides the public with piped water for human consumption.

SANITARY LANDFILL: A solid waste disposal operation where the wastes are spread on land in thin layers, compacted to the smallest practical volume, and covered with cover material once each day of operation in order to safeguard against environmental pollution, nuisances, and health hazards.

STORM WATER RUNOFF: Water discharged as a result of rain, snow, or other precipitation.

UNDERGROUND INJECTION WELL: Any excavation or artificial opening into the ground which meets the following three criteria: It is a bored, drilled or dug hole, or is a driven mine shaft or a driven well point; and, it is deeper than its largest straight-line surface dimension; and, it is used for or intended to be used for injection.

WELLHEAD PROTECTION OVERLAY ZONE: A zoning designation on the zoning map that modifies the basic underlying designation in some specific manner. The map will define specific area zones centering around wells supplying drinking water to the public water system.

WELLHEAD PROTECTION OVERLAY ZONE A: A minimum fixed radius extending no less than fifty feet (50') radially from the wellhead supplying potable water to the public water supplies.

WELLHEAD PROTECTION OVERLAY ZONE B: A three (3) year "time of travel (TOT) zone.

WELLHEAD PROTECTION OVERLAY ZONE C: A six (6) year "time of travel (TOT) zone.

WELLHEAD PROTECTION OVERLAY ZONE D: A ten (10) year "time of travel (TOT) zone.

9-16-3: **ESTABLISHMENT OF WELLHEAD PROTECTION OVERLAY ZONE:** There is hereby established a Wellhead Protection Overlay Zone identified and described as all the area shown on the Filer City and Area of Impact Zoning Map. It is further established that these areas be composed of four subzones: Wellhead Protection Overlay Zone A, Wellhead Protection Overlay Zone B, Wellhead Protection Overlay Zone C, and Wellhead Protection Overlay Zone D, as they are defined herein.

9-16-4: **WELLHEAD PROTECTION OVERLAY ZONE A:** Uses permitted within Wellhead Protection Overlay Zone A shall be limited to necessary public water supply wellhead equipment including the following: wellhead facility buildings, water storage tanks, disinfection equipment, disinfection chemical storage and approved landscaping. All other uses shall be prohibited.

9-16-4: **WELLHEAD PROTECTION OVERLAY ZONE B:** The following uses or conditions shall be and are hereby prohibited within Wellhead Protection Overlay Zone B:

Sanitary landfills.
Livestock confinement operations.
Hazardous waste disposal facilities.
Injection wells unless they are closed systems.
All manufacturing or industrial businesses involving the collection, handling, manufacture, use, storage, transfer or disposal of any hazardous solid or liquid material or waste having potential impact on ground water.
Existing sewer lines shall not be closer than one hundred feet (100') of a wellhead or of new sanitary systems and sewer lines shall no be closer than one hundred fifty feet (150') of a wellhead.
Existing septic tanks or drain fields shall not be closer than one hundred feet (100') of a wellhead and new installation of septic tanks or drain fields shall not be closer than two hundred feet (200') away from the wellhead.
Junk or salvage yards.
Disposal of waste oil, oil filters, tires and all other petroleum products.

9-16-4: **WELLHEAD PROTECTION OVERLAY ZONE C:** The following uses or conditions shall be and are hereby prohibited within Wellhead Protection Overlay Zone C:

A. Sanitary landfills.
B. Hazardous waste facilities.

C. Injection wells, except for deep well injection (below 18 feet in depth) geothermal heat, heat pump return, and cooling water return, and except for shallow well injection for storm runoff, aquifer recharge aquifer remediation and septic systems.
D. Land use activities posing a hazard or threat to existing ground water quality.

9-16-4: **WELLHEAD PROTECTION OVERLAY ZONE D:** The following uses or conditions shall be and are hereby prohibited within Wellhead Protection Overlay Zone D:

A. Injection wells, except for deep well injection (below 18 feet in depth) geothermal heat, heat pump return, and cooling water return, and except for shallow well injection for storm runoff, aquifer recharge aquifer remediation and septic systems.
B. Land use activities posing a hazard or threat to existing ground water quality.

9-16-5: **NONCONFORMING USES:** Any legal use existing at the time of the adoption of this Chapter and listed as a prohibited use herein, shall become a legal nonconforming use and may not be expanded or improved except as otherwise provided in this Title.

PASSED BY THE CITY COUNCIL , 2000.
SIGNED BY THE MAYOR , 2000.

MAYOR

ATTEST:

CITY CLERK

APPENDIX E

City Of Filer Public Works Department

DRINKING WATER SUPPLY CONTINGENCY PLAN
CITY OF FILER, IDAHO

I. INTRODUCTION

The purpose of contingency planning is to establish, provide and keep updated certain emergency response procedures which may become necessary in the event of a partial or total loss of public water supply service as a result of natural disasters, chemical contamination, mechanical failure, or civil disorders. This Contingency Plan is the procedural guide for responding to such emergencies. This Plan is coordinated with the Idaho Division of Environmental Quality.

The four-well water system allows the City of Filer some flexibility in case of contamination of one well. However, because the wells draw from the same aquifer and are located relatively close together, the potential exists that all wells could become contaminated. If contamination of one of the water wells should occur, the other wells will be sampled more frequently (the frequency will be determined with IDEQ) to assure that the water supply is safe.

Public notification of the need for temporary water conservation, or water rationing may be used to help assure that the remaining wells can supply the water needs of the community.

II. IDENTIFICATION OF POSSIBLE DISRUPTION THREATS

The principal threat to the City of Filer Public Water Supply has been identified as a spill, leak, or discharge in the delineated wellhead protection areas which could contaminate the source water by entering through the well bore or perhaps along with contaminated shallow groundwater through a failed casing. Included are spills from vehicles, spills from mobile liquid holding tanks, leaks from above or underground tanks, and leaks from waste carrying pipes.

Highway 30, Cedar Draw, and the Low Line Canal are major sources that cross the delineated drinking water protection areas. If an accidental spill occurred in any of these sources, IOCs, VOCs, SOC, or microbial contaminants could be added to the aquifer system contaminating the drinking water source.

III. PUBLIC WATER SUPPLY CHARACTERISTICS

There do not appear to be any physical system limitations that would prevent the City from providing adequate water supplies if one well became contaminated. A detailed hydraulic analysis of the entire water system was not conducted, however some specific characteristics include:

Storage:	600,000 gallons(sufficient to supply 1 or more days of domestic use without landscape/lawn irrigation)
Distribution Line Sizes:	14", 12", 10'', 8'', 6'' and 4'' lines
Supply Source:	4 wells
Treatment:	Chlorine gas
People Served:	625 Water Meter Accounts
Distribution:	Pressurized system by: gravity

WELL INFORMATION

	WELL # 1	WELL # 2	WELL # 5	Well # 9
Well Capacity (GPM)	100 G.P.M.	120 G.P.M.	550 GPM	350 G.P.M.
Pumping Depth	250 Feet	180 Feet	110 Feet	277 Feet
Total Depth	820 Feet	360 Feet	360 Feet	650 Feet
Production (GPM)	90 GPM	100 GPM	450 GPM	250 Feet
Latitude				
Longitude				

NOTE: Refer to well logs, appendix B for additional well information.

SOUTH ADELL AVENUE BOOSTER STATIONS

4 Booster Pumps @ South Adell Ave. Booster #1 = 7.5 HP @ 120 GPM Booster #2 = 10 HP @ 325 GPM Booster #3 = 15 HP @ 650 GPM Booster #4 = 25 HP @ 1,200 GPM Total = 2,295 GPM

IV PRIORITY OF WATER USERS DURING WATER SUPPLY EMERGENCY

Water supply priorities in the event of an emergency will be for domestic water usage (non-irrigation) and fire control. Water needs can be estimated based on a daily consumption of During the summer season, consumption can reach a maximum of 1.8 MGD per day due to landscape/lawn irrigation. In the event of an emergency, landscape/lawn irrigation will not be a priority and water conservation notifications will be announced.

V SHORT TERM REPLACEMENT ALTERNATIVES

A. Surface water source and necessary treatment: No surface water sources available.

B. Bottled water and other alternatives:
- Albertsons
- Ridleys

- Idaho National Guard
- Department of Emergency Services, Twin Falls County (911)
- Idaho State Emergency Response, Phone (800) 632-8000

VI INVENTORY OF AVAILABLE EQUIPMENT AND MATERIALS FOR USE IN EMERGENCY

A. City of Filer: Back up Generator @ South Adel, Well # 1
B. City of Filer: Back up Generator @ Filer Fire Station/Well #2
C. Department of Emergency Services, Twin Falls County (911) or Contact Person Jackie Frey Pager # 543-6379.

VII NOTIFICATION PROCEDURES - PERSONNEL CONTACT PLAN AND LIST OF TELEPHONE NUMBERS

A. Lead Coordinating Contacts and Organizations

Contact/Organization	Name	Home Phone	Work Phone
Water System Personnel	Bud Compher, Superintendent of Public Works	(208) 326-4207	(208) 326-5001
	Joe Baratti, Forman, Public Works	(208) 326-4871	(208) 326-5001
	John Hurley, Public Works	(208) 326-5420	(208) 326-5001
	Willie Tyree, Public Works	(208) 326-5089	(208) 326-5001
City Mayor	Jay Fort	(208) 326-4868	(208) 326-4345
Board Member Incident Coordinator	Bob Parent	(208) 326-3296	(208) 326-5906
Fire Chief	Bud Compher	(208) 326-4207	(208) 326-5001
Supt. Of Schools	Bill Feusahrens	(208) 733-4905	(208) 326-5981
Police Chief	Cliff Johnson	(208) 326-5845	(208) 326-4123
Ambulance/Hospital	Magic Valley Regional Medical Center	911	(208) 737-2065
Twin Falls County Emergency Services	Jackie Frey, Coordinator	Pager # (208) 543-6379	(208) 736-4089
Filer Highway District	Archie Thompson	(208) 543-4785	(208) 326-4415
Idaho Department of Environmental Quality, Twin Falls Regional Office	Dave Anderson		(208) 736-2190

B. Local Incident Assessment Team

Position	Name	Home Phone	Work Phone
City Mayor	Jay Fort	(208) 326-4868	(208) 326-4345
Council Member	Jay Fort	(208) 326-4868	(208) 326-4345
Police Chief		(208) 365 - 5544	(208) 365 - 6055
Water System Personnel	Bud Compher, Superintendent of Public Works	(208) 326-4207	(208) 326-5001
	Joe Baratti, Forman, Public Works	(208) 326-4871	(208) 326-5001
	John Hurley, Public Works	(208) 326-5420	(208) 326-5001
	Willie Tyree, Public Works	(208) 326-5089	(208) 326-5001
Fire Chief	Bud Compher	(208) 326-4207	(208) 326-5001

VIII PUBLIC ANNOUNCEMENT PLAN

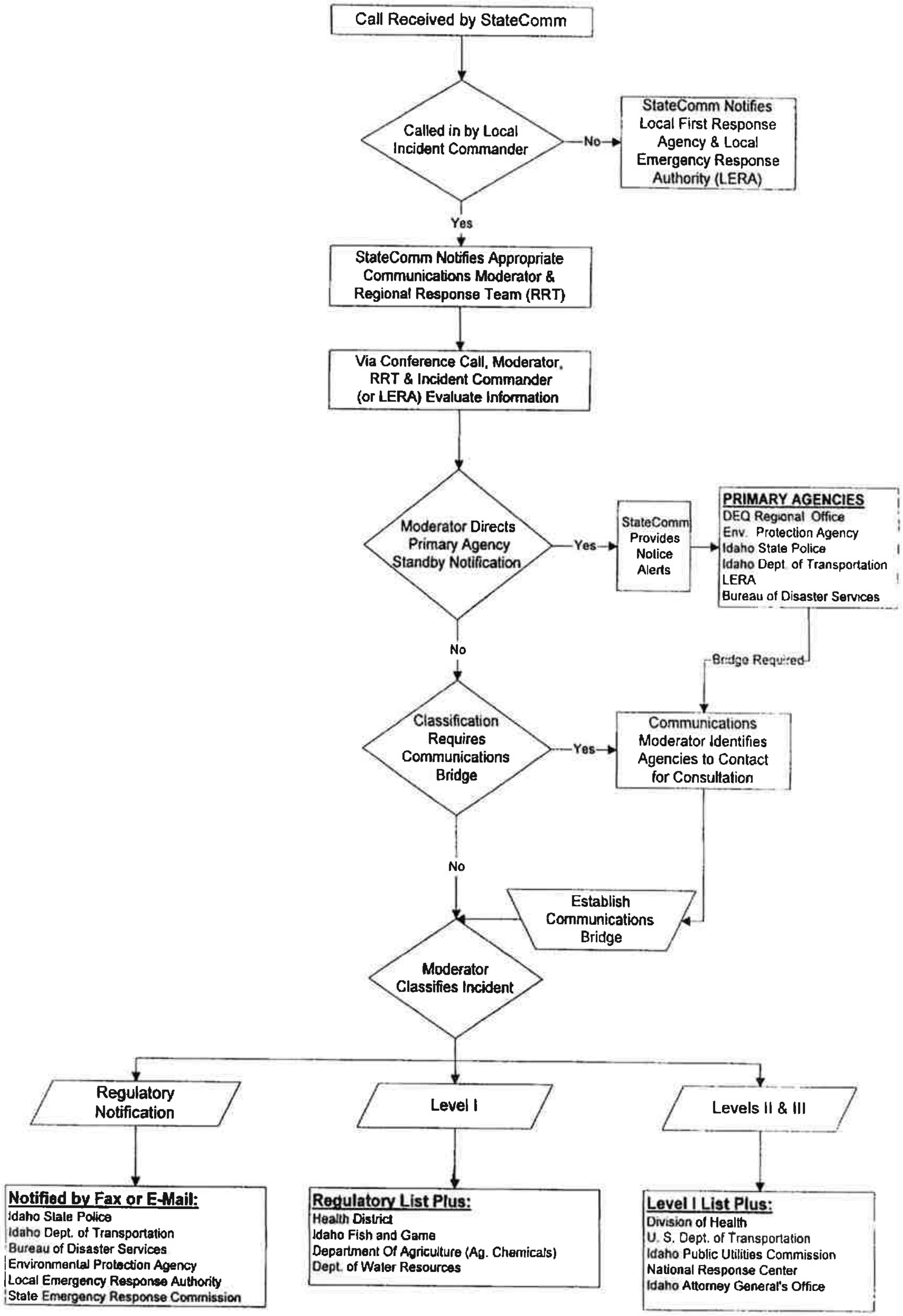
Public announcements regarding system emergencies and contingency plan implementation will be accomplished via local radio and other media, and via the public address systems on fire trucks for any immediate verbal notification needs, such as water conservation. Local Media & Radio Stations and addresses:

Local Newspapers
Buhl Herald, (208) 543-4335
Times News, (208) 733-0931

Local TV Media
KBCI – TV CHANNEL 2 CBS 24 hour News Channel (208) 336 – 5222
KIVI – IDAHO 6 ABC (208) 467 – 3301
KTRV FOX 12 (208) 466 – 1200
KTVB – NBC IDAHO'S NEWSCHANNEL 7 (208) 375 – 7277

Local Radio Stations
KBOI - TALK RADIO AM 670 (208) 336 – 1821
KQFC – FM – 98 (208) 336 – 3671
KTSY – FM – 89.5 (208) 459 - 5879

APPENDIX F


Call Received by StateComm
Called in by Local Incident Commander
No
StateComm Notifies Local First Response Agency & Local Emergency Response Authority (LERA)
Yes
StateComm Notifies Appropriate Communications Moderator & Regional Response Team (RRT)
Via Conference Call, Moderator, RRT & Incident Commander (or LERA) Evaluate Information
Moderator Directs Primary Agency Standby Notification
Yes
StateComm Provides Notice Alerts
PRIMARY AGENCIES
DEQ Regional Office
Env. Protection Agency
Idaho State Police
Idaho Dept. of Transportation
LERA
Bureau of Disaster Services
Bridge Required
No
Classification Requires Communications Bridge
Yes
Communications Moderator Identifies Agencies to Contact for Consultation
No
Establish Communications Bridge
Moderator Classifies Incident
Regulatory Notification
Level I
Levels II & III
Notified by Fax or E-Mail:
Idaho State Police
Idaho Dept. of Transportation
Bureau of Disaster Services
Environmental Protection Agency
Local Emergency Response Authority
State Emergency Response Commission
Regulatory List Plus:
Health District
Idaho Fish and Game
Department Of Agriculture (Ag. Chemicals)
Dept. of Water Resources
Level I List Plus:
Division of Health
U. S. Dept. of Transportation
Idaho Public Utilities Commission
National Response Center
Idaho Attorney General's Office

APPENDIX G

Source Water Protection Plan Certification Checklist

Public Water System Name: ______________________________

Local Contact: ______________________________

Date Returned to Water System: ______________________________

Source Water Protection Plan **Approved** ____ **Disapproved** ____

Idaho Source Water Protection Plan guidance - *Protecting Drinking Water Sources in Idaho, August 2000* Pg. 28 of the document states "If a plan is found to satisfy all eight elements, then the community will be recognized by IDEQ as having a "State Certified Plan". Additionally, supporting information describing each of the required elements is referenced as well.

Required Elements of Certified Source Water Protection Plan		**Element Addressed**	
Element 1	Description of Planning Team Participant Roles and Duties (reference *Step 1:* Formation *of a Community Planning Team*)	**Yes**	**No**
Element 2	Delineation of the Source Water Protection Area (Reference *Step 2: Delineation of the Land Area to be Protected*)	**Yes**	**No**
Element 3	An Inventory of Potential Sources of Contamination (Reference *Step 3: Identification of Potential Contaminant Sources*)	**Yes**	**No**
Element 4	Management Tools and Protection Measures that will be Pursued to Manage Potential Sources of Contamination (Reference *Step 4: Development and Implementation of a Management Plan for Source Water Protection Area*)	**Yes**	**No**
Element 5	A Contingency Plan (reference *Step 5a: Development of a Contingency Plan*)	**Yes**	**No**
Element 6	A Protection Strategy for New Wells or Intakes (reference *5b: Planning for Future Drinking Water Sources*)	**Yes**	**No**
Element 7	A Public Participation and Education component	**Yes**	**No**
Element 8	An Implementation Strategy (what will be done, when will it be done, and by whom	**Yes**	**No**

If a plan is found to satisfy all eight elements, then the community will be recognized by IDEQ as having a "State Certified Plan". This certification will cover a three year period, after which recertification can be pursued by the community. Recertification will include an evaluation of the community's success in implementing source water protection as a measure of the community's strategy. (element 8)

Reviewers	**Agency/Affiliation**
________________	________________________
________________	________________________
________________	________________________
________________	________________________

APPENDIX H

Glossary

Aquifer – A geologic formation, group of formations, or part of a formation that is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

Aquitard - A low-permeability geologic unit that can store groundwater and also transmit it slowly from one aquifer to another.

AST (Aboveground Storage Tank) – Sites with aboveground storage tanks.

Best Management Practices (BMPs) – Conservation practices or systems of practices and management measures that (1) reduce water quality degradation caused by nutrients, animal waste, toxics, and sediment, as well as control soil loss; and (2) minimize adverse impacts on surface water, groundwater flow, and circulation patterns and on the biological, chemical, and physical characteristics of wetlands.

Capacity – The flow rate that a pump is capable of producing; a water utility's ability to have resources available to meet the water service needs of its customers. In this context, capacity is the combination of plant- and service-related activities necessary to meet the quantity, quality, peak loads, and other service needs of the various customers or classes of customers served by the utility.

Community System – A public water system serving at least 15 service connections used by year-round residents or regularly serving at least 25 year-round residents.

Contaminant – Any physical, chemical, biological, or radiological substance or matter in water.

Contaminant Source Inventory – A record of the activities on a watershed or aquifer recharge area that have a potential to contaminate water.

Contingency Plan – A document that details the intended actions of a water utility under specified adverse conditions.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – A well discharging under pressure to a deep subsurface stratum. Such a well is often used to dispose of liquid waste streams to a suitable confined poor-water-quality aquifer that is generally considered unusable for other purposes; injection wells regulated under the Idaho Department of Water Resources generally for the disposal of storm water runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced

inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.
Group I Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Inorganic Contaminant (IOC) – An inorganic substance regulated by the US Environmental Protection Agency in terms of compliance monitoring for drinking water. Contained on the agency's list are contaminants as diverse as asbestos, nitrate (NO_3^-), cyanide, and nickel. This abbreviation came into common use in the US Environmental Protection Agency's Phase V drinking water regulations. An inorganic contaminant is sometimes called an inorganic chemical.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Maximum Contaminant Level (MCL) – A value defined under the Safe Drinking Water Act Section 1401 (3) as the maximum permissible level (concentration) of a contaminant in water delivered to any user of a public water system. Maximum contaminant levels are the legally enforced standards in the United States.

Microbes – A microscopic organism, either plant or animal, invisible to the naked eye. Examples are algae, bacteria, fungi, protozoa, and viruses.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

Nonpoint Source – Waste material that enters a water body from overland flow rather than out of a pipe or channel; an unconfined discharge of waste.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

P2 – An acronym for pollution prevention.

Perched Aquifer – A small lens of unconfined groundwater separated from an underlying main body of groundwater by an impermeable unsaturated zone.

Point Source – A discharge that comes out of the end of a pipe – as opposed to runoff or a discharge from a field or similar source, which is called a nonpoint source.

Sanitary Survey – An on-site review of a water utility's water source, facilities, equipment, and operations and maintenance records for the purpose of evaluating the system's adequacy in producing and distributing safe drinking water.

Synthetic Organic Chemical (SOC) – An organic compound that is commercially made. Some synthetic organic chemicals are contaminants in drinking water and are regulated by the US Environmental Protection Agency. The regulated synthetic organic contaminants include volatile organic chemicals, pesticides, herbicides, polychlorinated biphenyls, selected treatment chemicals (e.g. acrylamide), and polynuclear aromatic hydrocarbons.

Time of Travel (TOT) – The determination, usually by modeling, of the time in years for groundwater recharge to travel from a certain field point to the wellhead.

Vadose Zone – The unsaturated portion of the soil column between the land surface and the water table. A better term is *unsaturated zone*.

Volatile Organic Compound (VOC) – A class or organic compounds that includes gases and volatile liquids. Many volatile organic chemicals are used as solvents. A number of these compounds are regulated by the US Environmental Protection Agency.

Wastewater Land Application Site – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

Zone IA – Sanitary setback zone designed to prevent microbial contamination within a 100-foot radius of the wellhead. This setback zone is established in the Idaho Rules for Drinking Water Supplies (IDAPA 16.01.08) and requires that: sewer lines, livestock, canals, and streams be 50 feet from the source water/wellhead and that: home septic tanks, seepage pits, disposal fields, and privies are 100 feet away.

Zone IB – Corresponds with the 3-year time of travel for a contaminant to reach the wellhead.

Zone II – Corresponds with the 6-year time of travel for a contaminant to reach the wellhead.

Zone III – Corresponds with the 10-year time of travel for a contaminant to reach the wellhead.

APPENDIX I

CITY OF FILER SOURCES OF POTENTIAL CONTAMINATION

1. Acme 500 Main St.	solvents and paints
2. Allisons, 405 Front St.	Salt, animal feed processing
3. Seminis, 529 North St.	Treated seeds
4. ??	
5. ??	
6. Filer High School	Chemistry Lab
7. Filer Middle School, 299 Hwy. 30	Chemistry Lab
8. Taylor's Texico, 120 Hwy 30	USTs, Car wash
9. Kelley Bean, 92 E. Midway	Treated Seed
10. Haney Seed??	
11. Knutsons Kustom Kutting, 375 Main	Meat processing
12. Vances One Stop, 506 Hwy. 30	UST (gasoline)
13. Filer Auto Parts, 306 Stevens	Oil, solvents, site of old Jaspers gas station, USTs?
14. Shelly's Signs, 351 Main	Paints and solvents
15. Print Shoppe, 303 Main	Solvents
16. Larve's Veterinarian Clinic,	Medical waste
17. Williams Store, 130 Hwy. 30	???
18. Vona's Hair Salon, 130 Hwy 30	Solvents, Chemicals
19. Shirley's Beauty Center, 144 Hwy 30	Solvents, Chemicals
20. Huds Blacksmith, 120 Main	??? Fabricating
21. Kuest Enterprises, 311 Main	Solvents, automotive waste???
22. Filer Hwy. District, 220 Midway	UST (gas), fuel oil
23. Fairgrounds	AGS??, fuel
24. Central Auto, 695 Hwy 30	Old gas station, car wash, USTs?,
25. Beet Dump	Plant waste material??
26. Agriculture	
27. Railroad	Agricultural chemicals, fuel?
28. Test well, located at grade school, West 6TH & Thurman	
29. Well by Bank, Fair Avenue & Hwy. 30	Abandoned, sealed????
30. Acme 500 Main St.	solvents and paints
31. Allisons, 405 Front St.	Salt, animal feed processing
32. Seminis, 529 North St.	Treated seeds
33. ??	
34. ??	
35. Filer High School	Chemistry Lab
36. Filer Middle School, 299 Hwy. 30	Chemistry Lab
37. Taylor's Texico, 120 Hwy 30	USTs, Car wash
38. Kelley Bean, 92 E. Midway	Treated Seed
39. Haney Seed??	
40. Knutsons Kustom Kutting, 375 Main	Meat processing
41. Vances One Stop, 506 Hwy. 30	UST (gasoline)
42. Filer Auto Parts, 306 Stevens	Oil, solvents, site of old Jaspers gas station, USTs?
43. Shelly's Signs, 351 Main	Paints and solvents
44. Print Shoppe, 303 Main	Solvents
45. Larve's Veterinarian Clinic,	Medical waste
46. Williams Store, 130 Hwy. 30	???
47. Vona's Hair Salon, 130 Hwy 30	Solvents, Chemicals

48. Shirley's Beauty Center, 144 Hwy 30 — Solvents, Chemicals
49. Huds Blacksmith, 120 Main — ??? Fabricating
50. Kuest Enterprises, 311 Main — Solvents, automotive waste???
51. Filer Hwy. District, 220 Midway — UST (gas), fuel oil
52. Fairgrounds — AGS??, fuel
53. Central Auto, 695 Hwy 30 — Old gas station, car wash, USTs?,
54. Beet Dump — Plant waste material??
55. Agriculture
56. Railroad — Agricultural chemicals, fuel?
57. Test well, located at grade school, West 6TH & Thurman
58. Well by Bank, Fair Avenue & Hwy. 30 — Abandoned, sealed????

Appendix K

Source Water Assessment Plan

CITY OF FILER (PWS 5420021)
SOURCE WATER ASSESSMENT FINAL REPORT

June 26, 2001

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for the City of Filer,* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The City of Filer drinking water system (PWS 5420021) consists of four ground water well sources; Well #1, Well #2, Well #3, and Well #5.

The following inorganic contaminants (IOCs) have been detected in the sampled water. In December 1997 and again in August 2000, arsenic was detected in all the wells at concentrations of 0.010 milligrams per liter (mg/l) to 0.030 mg/l. The Maximum Contaminant Level (MCL) for arsenic is currently 0.05 mg/l. The United States Environmental Protection Agency (EPA) is in the process of lowering the MCL for arsenic in the near future to a level of about 0.010 mg/l. Since the arsenic concentrations appear to be a natural constituent of the aquifer, the City of Filer will have to deal with this problem. From February 1994 to August 2000, nitrate levels in the wells ranged from 1.75 mg/l to 4.82 mg/l. Though the nitrate concentrations do not currently approach the MCL for nitrate (10 mg/l), Well #2 does show an upward trend of nitrate concentrations (statistical significance of 88%) for the measured time frame. Additional IOCs such as selenium, fluoride, and barium have been detected in the sampled drinking water, but at levels well below the MCLs for those contaminants.

In August 1993 and October 1999, the volatile organic contaminants (VOCs) total trihalomethanes (THM) were detected in Well #1 and Well #5. These contaminants are associated with the chlorination process and not the actual ground water. The VOC tetracloroethylene, commonly referred to as PCE, was detected in a composite sample of Wells #2 and #3 (August 1993) and Well #3 (December 1996) at the concentrations of 1 part per billion (ppb), well below the MCL for PCE of 5 ppb. Additionally, in April 1999, Well #3 water recorded the repeat detection of total coliform bacteria. No synthetic organic contaminants (SOCs) were detected in the wells.

Each of the delineations for the four city wells is different, leading to differences in potential contaminant sources and differences in available information. As such, varying agricultural land uses, the nearby location of multiple potential contaminant sources, current water quality, the hydraulic sensitivity of the aquifer, and the differing construction of the wells leads to differing susceptibilities for the different wells to the different types of contaminants. In terms of total susceptibility, Wells #1, #2, and #3 rated high for all categories. Well #5 rated high for IOCs and moderate for all other contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Filer, source water protection activities should first focus on correcting deficiencies, if any exist, outlined in the Sanitary Survey. Since total coliform bacteria were detected in the Well #3 water and the distribution system, the City of Filer should maintain their disinfection program, which could be used to treat this problem. However, the City of Filer should be aware that current disinfection practices have led to the detection of THM in the water. This should be carefully monitored. Any spills from the potential contaminant sources listed in Tables 1 through 4 should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. The City of Filer should consider the addition of a reverse osmosis or other system to reduce the levels of natural arsenic in the water. Currently, the EPA has stated that these upgrades must be completed by the year 2006. Most of the designated areas are outside the direct jurisdiction of the City of Filer. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside the direct jurisdiction of the City of Filer. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE CITY OF FILER, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings, used to develop this assessment, is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Filer wells are community wells that serve approximately 1700 people through approximately 625 connections. The wells are located in Twin Falls County, to the east of Salmon Falls Creek and to the south of the Snake River (Figure 1). The public drinking water system for the City of Filer is currently comprised of four wells: Well #1, Well #2, Well #3, and Well #5.

The main IOC water chemistry issue recorded in the public water system is arsenic. The background levels, though below the current MCL, will exceed the proposed MCL of 10 ppb that is currently being assessed by EPA. The IOC nitrate has been detected in all the wells, but at levels less than ½ the current MCL. The VOC tetrachloroethylene has been detected in Well #2 and Well #3. Total trihalomethanes, a VOC associated with chlorination practices, were detected in Well #1 and Well #5. No SOCs were detected in the wells. Total coliform bacteria has been detected at Well #3 as well as in the distribution system.

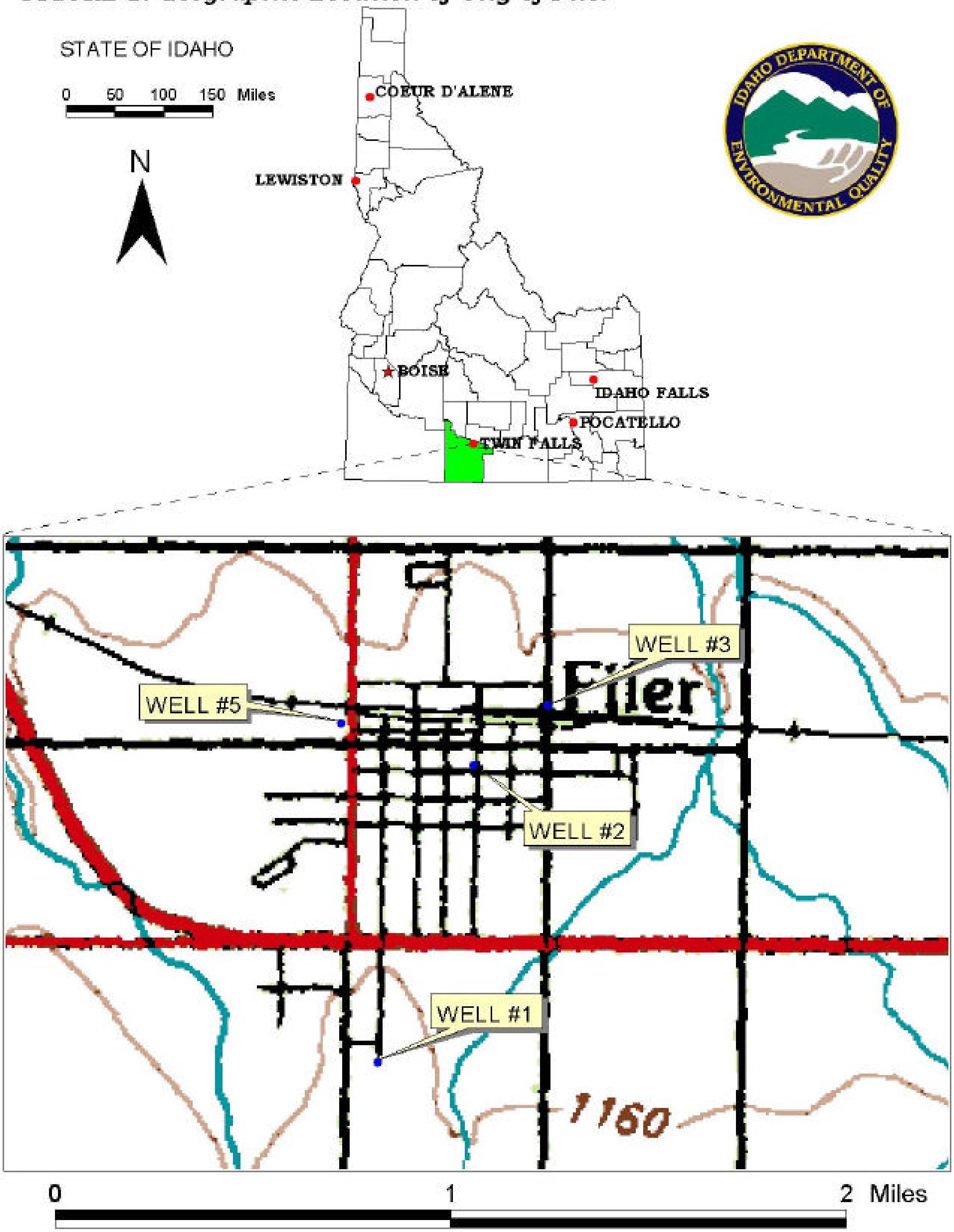
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the time-of-travel (TOT) zones for water associated with the Salmon Falls – Rock Creek aquifer in the vicinity of the City of Filer. The computer model used site-specific data, assimilated by DEQ from a variety of sources including local area well logs and hydrogeologic reports summarized below.

All four wells extract waters from the Banbury Basalt and possibly the Idavada Volcanics. The Idavada Volcanics unit consists of welded ash and tuff, rhyolite, and some basalt flows. The Idavada Volcanics are up to 2,000 feet thick in the Filer area and contain fractures and columnar joints, allowing some mixing of the geothermal groundwater in the Idavada Volcanics with groundwater in the Banbury Basalt, which overlies the Idavada Volcanics (Lewis and Young, 1989). The Banbury Basalt is of variable thickness and is the primary non-geothermal aquifer in the Filer area (Moffat and Jones, 1984). Basalt flows fracture at the surface as they cool. The fractures occur in the horizontal direction throughout the flow. The Banbury Basalt is fractured and contains thin sedimentary interbeds. These fractures and sedimentary interbeds comprise the water producing zones in the Banbury Basalt. A shallow, perched aquifer exists above the Banbury Basalt and extends from Buhl east to Twin Falls (Cosgrove, et al., 1997). Regional ground water flow is to the north, but may vary with proximity to major creeks and the Snake River (Lewis and Young, 1989).

The delineated source water assessment areas for the City of Filer wells can best be described as corridors, approximately 1.0 mile wide and 2 miles long, extending to the south from the City of Filer (Appendix A – Figures 2, 3, 4, and 5). The actual data used by DEQ in determining the source water assessment delineation areas are available upon request.

FIGURE 1. Geographic Location of City of Filer



Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and the City of Filer and from available databases.

The dominant land use outside the City of Filer area is irrigated agriculture. Land use within the immediate area of the wellheads consists of residential property, commercial and light industrial, and agricultural. Highway 30, Cedar Draw, and the Low Line Canal also run through the area.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted in April of 2001. This involved identifying and documenting potential contaminant sources within the City of Filer Source Water Assessment Areas through the use of computer databases and Geographic Information System maps developed by DEQ. Bud Compher, the Filer Public Works Superintendent, confirmed this information.

Since the delineations all differ from one another, the potential contaminant sites located within each of the delineated source water areas differ. Descriptions of the sites are found in Tables 1 through 4 and the locations relative to the sources are depicted in Figures 2 through 5 (Appendix A). The Well #1 (Table 1, Figure 2) delineation has no potential point sources. The Well #2 (Table 2, Figure 3) and Well #3 (Table 3, Figure 4) delineations have leaking underground storage tank (LUST) sites, underground storage tank (UST) sites, commercial and municipal facilities, a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) site, and a Resource Conservation Recovery Act (RCRA) site. The Well #5 (Table 4, Figure 5) delineation has a LUST site, multiple UST sites, commercial and municipal facilities, and a dairy.

Additionally, Highway 30, Cedar Draw, and the Low Line Canal are major sources that cross the delineations. If an accidental spill occurred in any of these sources, IOCs, VOCs, SOCs, or microbial contaminants could be added to the aquifer system.

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity was high for all four wells (see Table 5). This reflects the well drained nature of the soil, a vadose zone composed of fractured rock, the lack of thick fine-grained layers retarding the downward movement of contaminants, and the depth to ground water of less than 300 feet.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The City of Filer drinking water system consists of four wells that extract ground water for community uses. Wells #1, #2, and #3 rated moderate susceptibility for system construction and Well #5 rated low. The 2000 Sanitary Survey found that the wellhead and surface seal were maintained in all the wells. All were protected from surface flooding. Well logs for Well #2, Well #3, and Well #5 indicate the highest production interval is greater than 100 feet below the water table. The Well #5 log also indicates that that the casing and annular seal were extended into low permeability units. Though the City of Filer wells met well construction standards at the time of installation, current standards are stricter.

The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Six-inch diameter wells require a casing thickness of at least 0.288-inches, eight-inch diameter wells require a casing thickness of 0.322-inches, ten-inch diameter wells require a casing thickness of 0.365-inches, and twelve-inch diameter wells require a casing thickness of 0.375-inches. Each of the City of Filer wells received an additional point in the system construction category because they do not meet current well construction standards.

Potential Contaminant Source and Land Use

Well #1 rated high for IOCs (i.e. arsenic, nitrate), moderate for VOCs (i.e. petroleum products) and SOCs (i.e. pesticides), and low for microbial contaminants (i.e. bacteria). Irrigated agricultural land, Cedar Draw, and the Low Line Canal contributed the largest numbers of points to the contaminant inventory rating. Well #2, Well #3, and Well #5 each high for IOCs, VOCs, and SOCs and low for microbial contamination. Commercial potential contaminant sources added to the high scores. County level nitrogen fertilizer use, county level herbicide use, and total county level ag-chemical use are rated as high for all four wells. In addition, the delineations fall within a nitrate priority area.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. In this case, Well #2 automatically rated high for VOCs due to the detection of PCE in August 1993. Well #3 automatically rated high for VOCs due to the detection of PCE in December 1996 and for microbial contamination due to the repeat detection of total coliform bacteria in April 1999. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, Wells #1, #2, and #3 rated high for all categories. Well #5 rated high for IOCs and moderate for all other categories.

Table 5. Summary of the City of Filer Susceptibility Evaluation

Source	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	M	M	L	M	H	H	H	H
Well #2	H	H	H	H	L	M	H	H(*)[2]	H	H
Well #3	H	H	H	H	L	M	H	H(*)	H	H(*)
Well #5	H	H	H	H	L	L	H	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
[2]H(*) = Well rated high and automatically high due to detection of VOC or total coliform bacteria

Susceptibility Summary

In terms of total susceptibility, Wells #1, #2, and #3 rated high for all categories. Well #5 rated high for IOCs and moderate for all other categories. Multiple commercial and industrial potential contaminant sources, agricultural land uses, high county wide nitrogen fertilizer use, high county wide herbicide use, Cedar Draw, the Low Line Canal, and Highway 30 contributed the most land use points to the susceptibility rating. High hydrologic sensitivity also contributed heavily to the overall scores.

The following IOCs have been detected in the sampled water. In December 1997 and again in August 2000, arsenic was detected in all the wells at concentrations of 0.010 mg/l to 0.030 mg/l. The MCL for arsenic is currently 0.05 mg/l. The EPA is in the process of lowering the MCL for arsenic in the near future to a level of about 0.010 mg/l. Since the arsenic concentrations appear to be a natural constituent of the aquifer, the City of Filer will have to deal with this problem. From February 1994 to August 2000, nitrate levels in the wells ranged from 1.75 mg/l to 4.82 mg/l. Though the nitrate concentrations do not currently approach the MCL for nitrate (10 mg/l), Well #2 does show an upward trend of nitrate concentrations (statistical significance of 88%) for the measured time frame. Additional IOCs such as selenium, fluoride, and barium have been detected in the sampled drinking water, but at levels well below the MCLs for those contaminants.

In August 1993 and October 1999, the VOCs, total trihalomethanes (THM) were detected in Well #1 and Well #5. These contaminants are associated with the chlorination process and not the actual ground water. The VOC tetracloroethylene, commonly referred to as PCE, was detected in Well #2 (August 1993) and Well #3 (December 1996) at the concentration of 1 ppb. The MCL for PCE is 5 ppb. Additionally, in April 1999, Well #3 water recorded the repeat detection of total coliform bacteria. No SOCs were detected in the wells.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the City of Filer, source water protection activities should first focus on correcting deficiencies, if any exist, outlined in the Sanitary Survey. Since total coliform bacteria were detected in the Well #3 water and the distribution system, the City of Filer should maintain their disinfection program, which could be used to treat this problem. However, the City of Filer should be aware that current disinfection practices have led to the detection of THM in the water. This should be carefully monitored. Any spills from the potential contaminant sources listed in Tables 1 through 4 should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. The City of Filer should consider the addition of a reverse osmosis or other system to reduce the levels of natural arsenic in the water. Currently, the EPA has stated that these upgrades must be completed by the year 2006. Most of the designated areas are outside the direct jurisdiction of the City of Filer. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside the direct jurisdiction of the City of Filer. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Cosgrove, D. M., Johnson, G. S., Brockway, C. E., Robison, C. W., *Geohydrology and Development of a Steady State Ground Water Model for the Twin Falls, Idaho Area*, 1997, Idaho Water Resources Research Institute, University of Idaho, Research Technical Completion Report.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho State Department of Agriculture, 1998. Unpublished Data.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Administration, 1966. Groundwater conditions in Idaho. Water Information Bulletin No. 1.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Lewis, R. E., Young, H. W., *The Hydrothermal System in Central Twin Falls County, Idaho*, 1989, USGS Paper 88-4152.

Lewis, R. E., Young, H. W., *Geothermal Resources in the Banbury Hat Springs Area, Twin Falls County, Idaho*, 1982, USGS Water Supply Paper 2186.

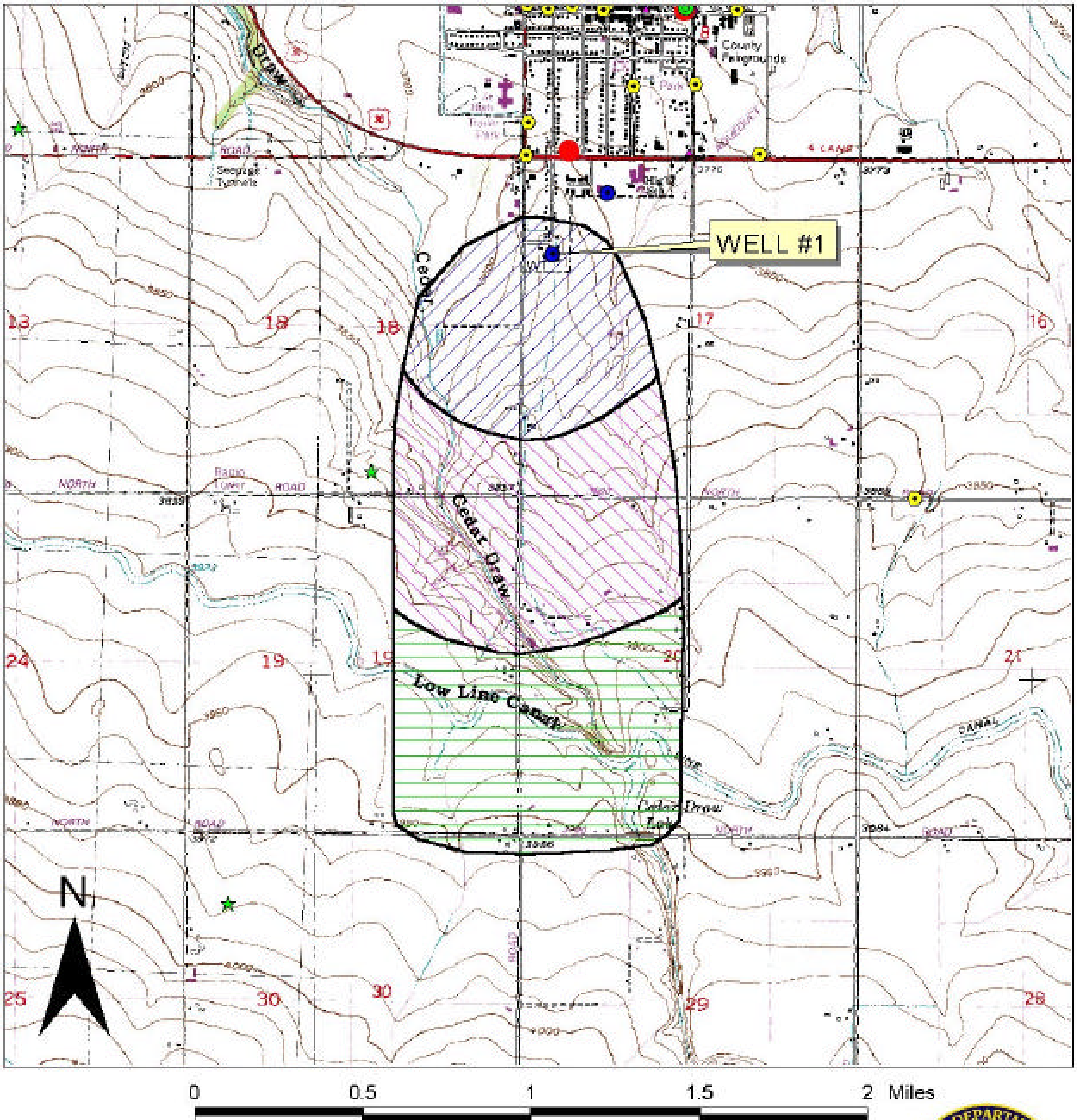
Moffatt, R.L., Jones M. L., *Availability and Chemistry of Ground Water on the Bruneau Plateau and Adjacent Eastern Plain in Twin Falls County, South-Central Idaho*, 1984, USGS Water Resources Investigation Report 8404056.

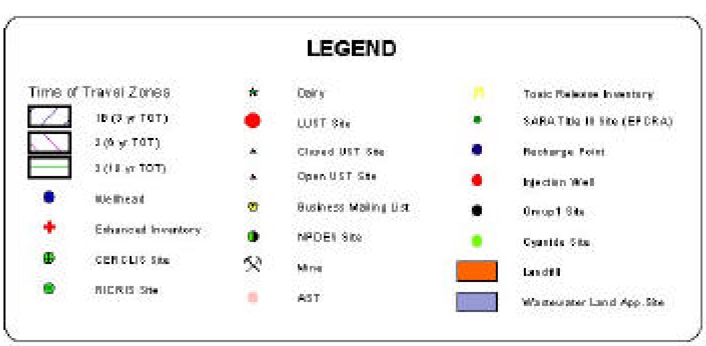
Ralston, D. R., Young, N. C., *Water Resources of the Twin Falls Tract Twin Falls County, Idaho,* 1971, Idaho Department of Water Administration, Water Information Bulletin No. 22.

Appendix A

Delineation Figures and Potential Contaminant Tables

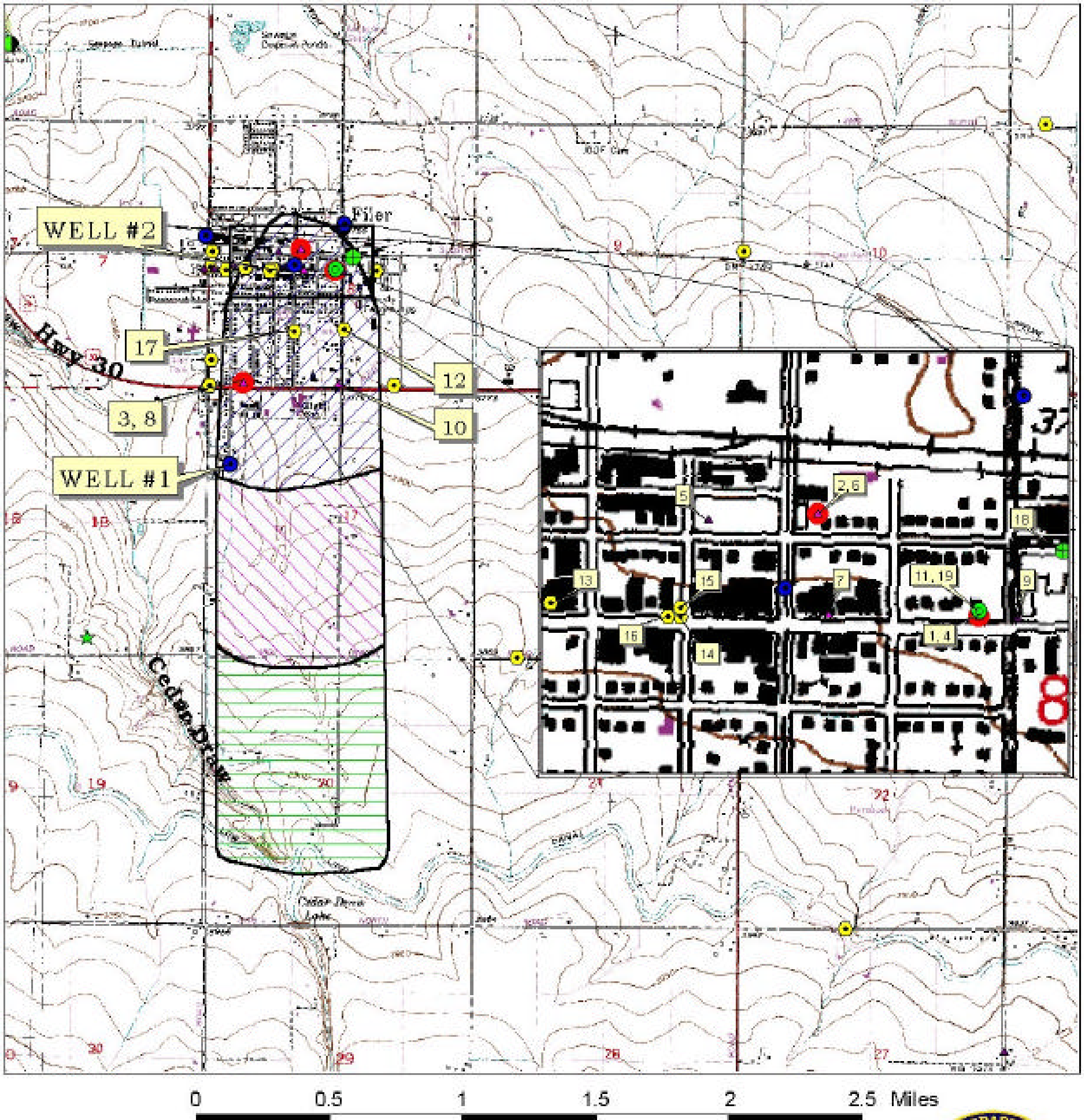
Figure 2. City of Filer Delineation Map and Potential Contaminant Source Locations

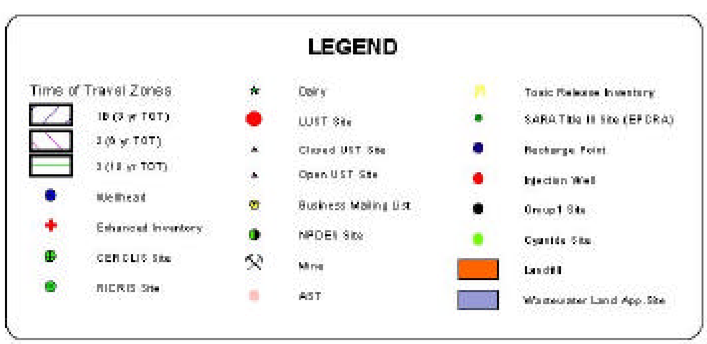




PWS# 5420021
WELL #1

Figure 3. City of Filer Delineation Map and Potential Contaminant Source Locations





PWS# 5420021
WELL #2

Table 1. City of Filer, Well #1, Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
	Cedar Draw	0-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

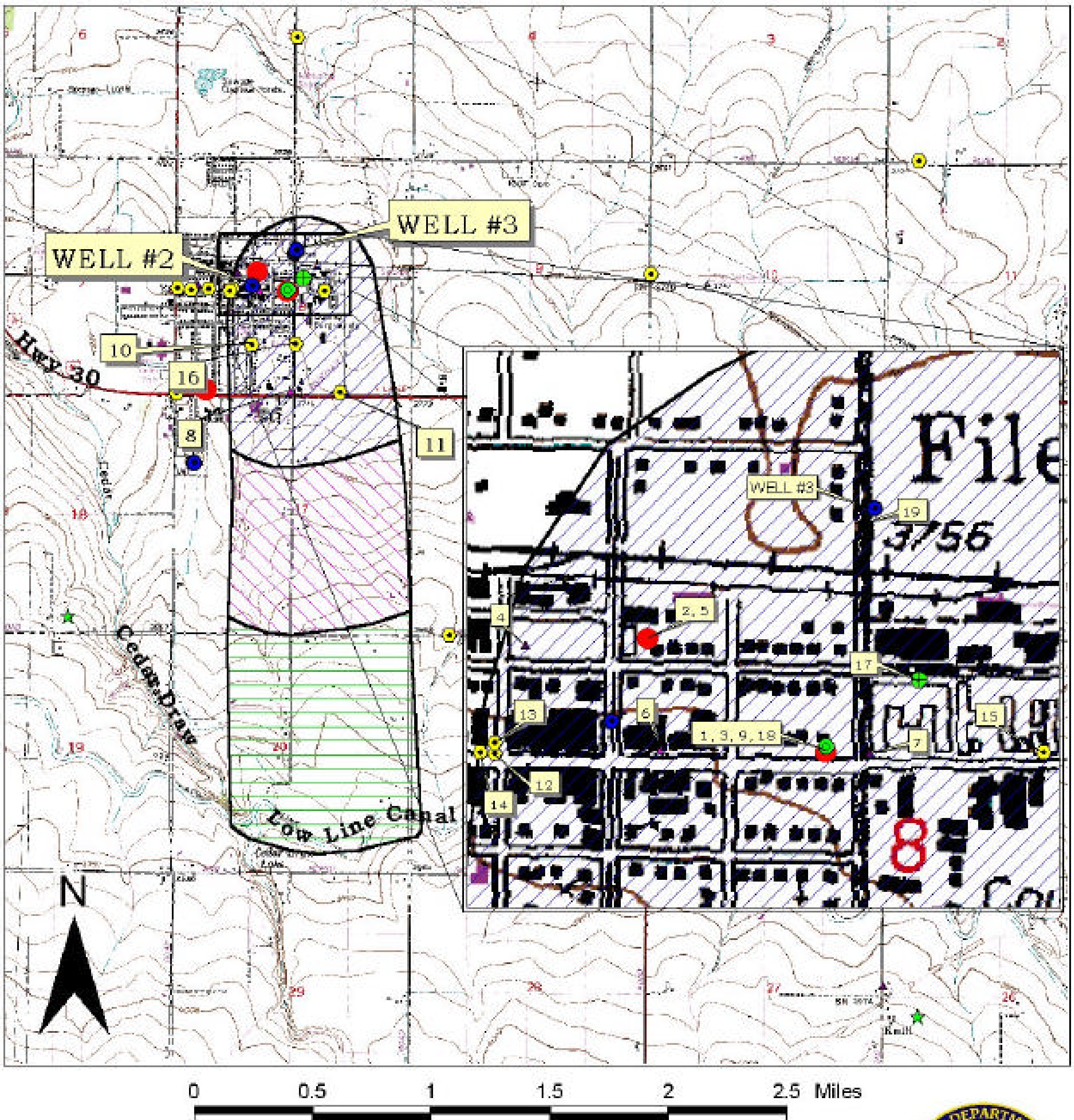
[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

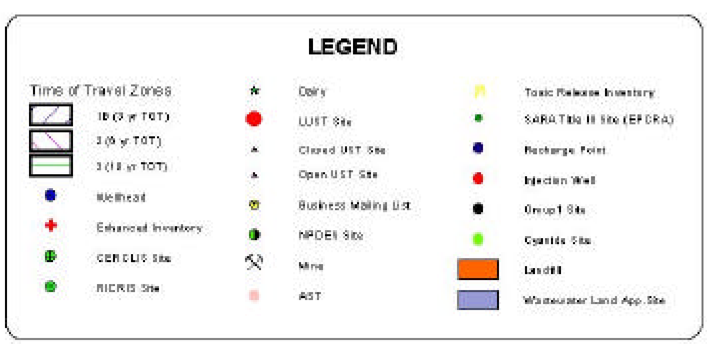
Table 2. City of Filer, Well #2, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – impact: ground water	0-3	Database Search	VOC, SOC
2	LUST – cleanup completed	0-3	Database Search	VOC, SOC
3	LUST – cleanup completed	0-3	Database Search	VOC, SOC
4 (see map id #1)	UST – closed	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	VOC, SOC
6 (see map id #2)	UST – open	0-3	Database Search	VOC, SOC
7	UST – open	0-3	Database Search	VOC, SOC
8 (see map id #3)	UST – open	0-3	Database Search	VOC, SOC
9	UST – closed	0-3	Database Search	VOC, SOC
10	UST – open	0-3	Database Search	VOC, SOC
11	Farm equipment manufacturer	0-3	Database Search	IOC, VOC, SOC
12	Automobile – repair and service	0-3	Database Search	IOC, VOC, SOC
13	Fire Department	0-3	Database Search	VOC, SOC
14	Household appliance manufacturer	0-3	Database Search	IOC, VOC, SOC
15	Janitor Service	0-3	Database Search	IOC, VOC, SOC, Microbes
16	Commercial printing shop	0-3	Database Search	IOC, VOC
17	Woodworkers	0-3	Database Search	IOC, VOC, SOC
18	CERCLA	0-3	Database Search	IOC, VOC, SOC, Microbes
19 (see map id #11)	RCRA	0-3	Database Search	IOC, VOC, SOC, Microbes
	Cedar Draw	6-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, CERCLA = Comprehensive Environmental Response Compensation and Liability Act, RCRA = Resource Conservation Recovery Act
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 4. City of Filer Delineation Map and Potential Contaminant Source Locations





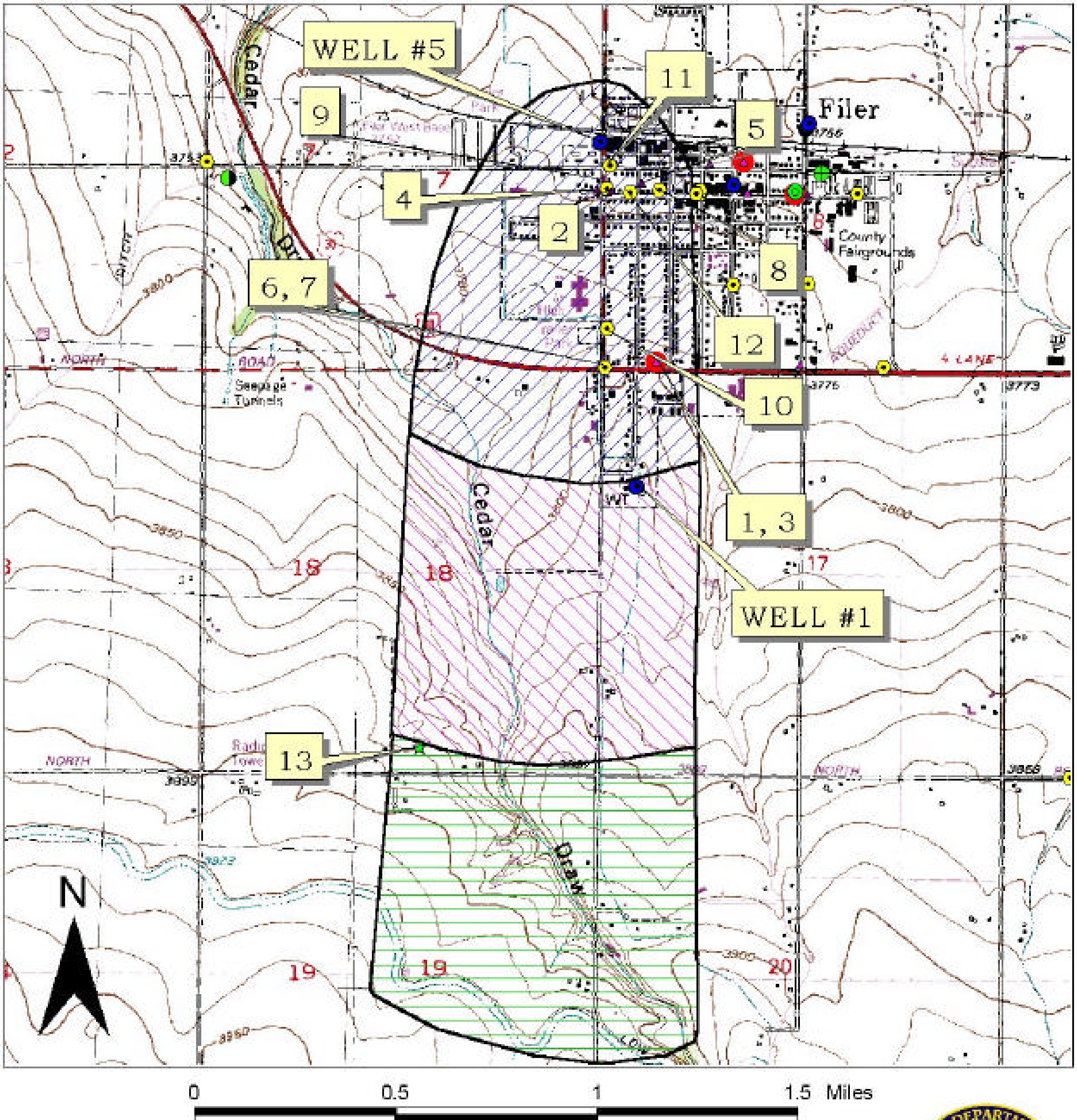
PWS# 5420021
WELL #3

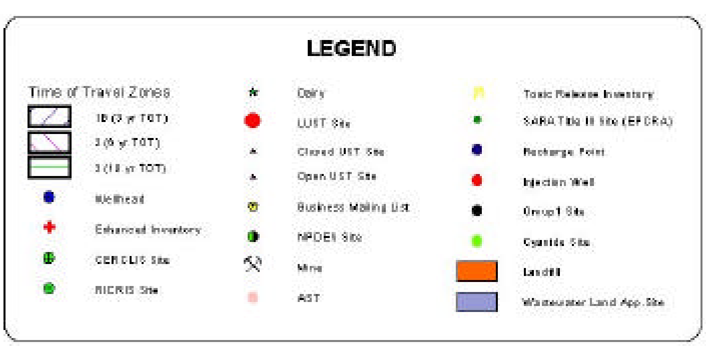
Table 3. City of Filer, Well #3, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – impact: ground water	0-3	Database Search	VOC, SOC
2	LUST – cleanup completed	0-3	Database Search	VOC, SOC
3 (see map id #1)	UST – closed	0-3	Database Search	VOC, SOC
4	UST – closed	0-3	Database Search	VOC, SOC
5 (see map id #5)	UST – open	0-3	Database Search	VOC, SOC
6	UST – open	0-3	Database Search	VOC, SOC
7	UST – closed	0-3	Database Search	VOC, SOC
8	UST – open	0-3	Database Search	VOC, SOC
9	Farm equipment manufacturer	0-3	Database Search	IOC, VOC, SOC
10	Automobile – repair and service	0-3	Database Search	IOC, VOC, SOC
11	Gas station	0-3	Database Search	VOC, SOC
12	Household appliance manufacturer	0-3	Database Search	IOC, VOC, SOC
13	Janitor Service	0-3	Database Search	IOC, VOC, SOC, Microbes
14	Commercial printing shop	0-3	Database Search	IOC, VOC
15	Welding Shop	0-3	Database Search	IOC, VOC, SOC
16	Woodworkers	0-3	Database Search	IOC, VOC, SOC
17	CERCLA	0-3	Database Search	IOC, VOC, SOC, Microbes
18 (see map id #9)	RCRA	0-3	Database Search	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank, CERCLA = Comprehensive Environmental Response Compensation and Liability Act, RCRA = Resource Conservation Recovery Act
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 5. City of Filer Delineation Map and Potential Contaminant Source Locations





PWS# 5420021
WELL #5

Table 4. City of Filer, Well #5, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
1	LUST – cleanup incomplete	0-3	Database Search	VOC, SOC
2	UST – closed	0-3	Database Search	VOC, SOC
3 (see map id #1)	UST – open	0-3	Database Search	VOC, SOC
4	UST – closed	0-3	Database Search	VOC, SOC
5	UST – closed	0-3	Database Search	IOC, VOC, SOC, Microbes
6	Automobile – used car dealer	0-3	Database Search	IOC, VOC, SOC
7	Door manufacturer	0-3	Database Search	IOC, VOC, SOC
8	Fire Department	0-3	Database Search	VOC, SOC
9	Welding shop	0-3	Database Search	IOC, VOC, SOC
10	Welding shop	0-3	Database Search	IOC, VOC, SOC
11	Truck – washing and cleaning	0-3	Database Search	IOC, VOC, SOC
12	Household and commercial storage	0-3	Database Search	IOC, VOC, SOC, Microbes
13	Dairy - ≤ 200 cows	6-10	Database Search	IOC, SOC
	Cedar Draw	6-10	GIS Map	IOC, VOC, SOC, Microbes
	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] LUST = leaking underground storage tank, UST = underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Attachment B

City of Filer
Susceptibility Analysis
Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report | Public Water System Name : FILER WATER WORKS | Well# : WELL #1

Public Water System Number 5420021 | 05/23/2001 11:31:40 AM

1. System Construction		SCORE			
Drill Date	02/06/1958				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	5	1	1	
4 Points Maximum		4	1	1	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
	Total Potential Contaminant Source / Land Use Score - Zone 1B	12	7	7	6
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		24	17	19	8
4. Final Susceptibility Source Score		15	13	14	13
5. Final Well Ranking		High	High	High	High

1. System Construction		SCORE			
Drill Date	03/25/1954				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	8	16	15	3
(Score = # Sources X 2) 8 Points Maximum		8	8	8	6
Sources of Class II or III leacheable contaminants or	YES	5	7	4	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
	Total Potential Contaminant Source / Land Use Score - Zone 1B	16	14	14	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	YES	1	0	0	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	3	2	2	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		26	21	23	10
4. Final Susceptibility Source Score		14	13	14	13
5. Final Well Ranking		High	High	High	High

1. System Construction		SCORE			
Drill Date	04/30/1963				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	NO	YES
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	10	16	15	3
(Score = # Sources X 2) 8 Points Maximum		8	8	8	6
Sources of Class II or III leacheable contaminants or	YES	5	7	4	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
	Total Potential Contaminant Source / Land Use Score - Zone 1B	16	14	14	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	YES	1	0	0	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	3	2	2	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		26	21	23	10
4. Final Susceptibility Source Score		14	13	14	13
5. Final Well Ranking		High	High	High	High

1. System Construction		SCORE			
Drill Date	10/01/1982				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	1			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	9	12	13	3
(Score = # Sources X 2) 8 Points Maximum		8	8	8	6
Sources of Class II or III leacheable contaminants or	YES	4	5	2	
4 Points Maximum		4	4	2	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
	Total Potential Contaminant Source / Land Use Score - Zone 1B	16	14	12	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	0	0	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	5	4	4	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		28	23	23	10
4. Final Susceptibility Source Score		13	12	12	11
5. Final Well Ranking		High	Moderate	Moderate	Moderate

Appendix L

Operator Certification

IDAHO DISTRIBUTION SYSTEM CLASSIFICATION WORKSHEET

OFFICE USE ONLY DO NOT WRITE HERE
System Class Dist II
Notes:
Approved by B. Reed
Date 7/29/14

DÉCLASSIFIED

DEQ will use this information to classify your system.

PWS System No. ID 5420021
(Example: ID1234567)

Name of Public Water System: City of Filer

System Address: P.O. Box 140 ##

City: Filer State: Id Zip Code: 83328

Contact Person: Bud Title: Director of Public works

Business Phone Number: 208 326 5000 Email: budc@filerfire.com

Population served by this distribution system: 2508
(The number of people, not the number of connections)

Name of Water Source(s): Wells # 1 - 2 - 3 - 5 - 7
(Example: Well #16, Johnson Well or East Fork of Miller Creek, etc.)

Bobby L Campbell DPW 6-15-2011

Signature Date

***Please note*: Your PWS may also be a treatment facility* as defined here:**
*** Treatment Facility** - Any place(s) where a public drinking water system or non-transient noncommunity water system alters the physical or chemical characteristics of the drinking water. Chlorination may be considered as a function of a distribution system. (IDAPA 58.01.08.003.74)

If your PWS is also a treatment facility, submit a treatment facility worksheet which can be found at http://www.idahocertificationtraining.com/forms.htm#worksheet3.

Mail the completed, signed form to your regional Department of Environmental Quality or Health District drinking water contact.

Distribution system classification is based on complexity and population served as follows:

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)

TRIM # 2014AGE67

Your license must be shown on demand.

carry this copy

display this copy

10/18/2013

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

DRINKING WATER DISTRIBUTION OPERATOR
CLASS II

JOSEPH W BARATTI
2114 E 4300 N
FILER ID 83328

Tana Cory
Chief, B.O.L.

DWD2-10034
Number

11/15/2014
Expires

Nlyles
209

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

WASTEWATER TREATMENT OPERATOR
CLASS II

JOSEPH W BARATTI
2114 E 4300 N
FILER ID 83328

Tana Cory
Chief, B.O.L.

WWT2-18550
Number

11/15/2014
Expires

Nlyles
213

Your license must be shown on demand.

carry this copy

display this copy

10/18/2013

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

WASTEWATER TREATMENT OPERATOR
LAND APPLICATION

JOSEPH W BARATTI
2114 E 4300 N
FILER ID 83328

Tana Cory
Chief, B.O.L.

WWTLA-18234
Number

11/15/2014
Expires

Nlyles
214

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

BACKFLOW ASSEMBLY TESTER

JOSEPH W BARATTI
2114 E 4300 N
FILER ID 83328

Tana Cory
Chief, B.O.L.

BAT-321
Number

11/15/2014
Expires

Nlyles
206

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

DRINKING WATER DISTRIBUTION OPERATOR
CLASS I

WILLIAM D TYREE
502 6TH ST
FILER ID 83328

Tana Cory
Chief, B.O.L.

DWD1-11694
Number

07/16/2014
Expires

Your license must be shown on demand.

carry this copy

display this copy

06/12/2013

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

DRINKING WATER DISTRIBUTION OPERATOR
CLASS I

WILLIAM D TYREE
502 6TH ST
FILER ID 83328

Tana Cory
Chief, B.O.L.

DWD1-11694
Number

07/16/2014
Expires

WILLIAM D TYREE
PO BOX 390
FILER ID 83328

Nlyes

266

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

WASTEWATER TREATMENT OPERATOR
CLASS I

WILLIAM D TYREE
502 6TH ST
FILER ID 83328

Tana Cory
Chief, B.O.L.

WWT1-16877
Number

07/16/2014
Expires

Your license must be shown on demand.

carry this copy

display this copy

06/18/2013

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)

WASTEWATER TREATMENT OPERATOR
CLASS I

WILLIAM D TYREE
502 6TH ST
FILER ID 83328

Tana Cory
Chief, B.O.L.

WWT1-16877
Number

07/16/2014
Expires

WILLIAM D TYREE
PO BOX 390
FILER ID 83328

Sincerely,

Tana Cory

Tana Cory
Bureau Chief

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)
DRINKING WATER DISTRIBUTION OPERATOR
CLASS I

LARRY L ORSLAND
2050 E 3500 N
FILER ID 83328

Tana Cory
Tana Cory
Chief, B.O.L.

DWD1-19163
Number

01/18/2015
Expires

Your license must be shown on demand.

← carry this copy

display this copy →

* D W D 1 - 1 9 1 6 3 *

Bureau of Occupational Licenses
Department of Self Governing Agencies
The person named has met the requirements for licensure and is entitled under the laws and rules of the State of Idaho to operate as a(n)
DRINKING WATER DISTRIBUTION OPERATOR
CLASS I

LARRY L ORSLAND
2050 E 3500 N
FILER ID 83328

Tana Cory
Tana Cory
Chief, B.O.L.

DWD1-19163
Number

01/18/2015
Expires

Appendix M

ISRB Fire Flow Requirements

Needed Fire Flows for P Code 129 FILER

Stories	N.F.F.	PPC & W	OWNER	Address	
2	5,000	04 I-1	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
1	5,000	06 I-1	SCHOOL DIST 413	700 STEVENS AVE	FILER
There are(is) 2 in this group					
1	4,000	06 I-1	MAGIC VALLEY LIVESTOCK FEED	405 FRONT ST	FILER
2	4,000	06 I-1	MAGIC VALLEY LIVESTOCK FEED	405 FRONT ST	FILER
There are(is) 2 in this group					
1	3,500	04	TWIN FALLS COUNTY FAIR ASSOC	215 FAIR AVE	FILER
1	3,500	04 I-1	SNAKE RIVER METAL	193 FAIR AVE	FILER
There are(is) 2 in this group					
1	3,000	04	SCHOOL DIST 413	299 HWY 30	FILER
1	3,000	04	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
There are(is) 2 in this group					
2	2,500	04	MAGIC VALLEY LIVESTOCK FEED	405 FRONT ST	FILER
1	2,500	04	CEDAR LANES	405 HWY 30	FILER
1	2,500	04	KELLY BEAN	FRONT ST	FILER
1	2,500	04	IDAPRO LLC	604 FRONT ST	FILER
1	2,500	04	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
There are(is) 5 in this group					
1	2,250	04	FILER SUPER SERVICE	506 HWY 30	FILER
1	2,250	04	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
There are(is) 2 in this group					
1	2,000	04	KELLY BEAN COMPANY	MIDWAY AVE	FILER
1	2,000	04	NOFFSINGER MFG CO INC	505 MIDWAY ST	FILER
1	2,000	04	NOFFSINGER MFG CO INC	502 MAIN ST	FILER
1	2,000	04	LOGANS MARKET	130 HWY 30	FILER
1	2,000	04	MAGIC VALLEY LIVESTOCK FEED	405 FRONT ST	FILER
1	2,000	04	KELLY BEAN	FRONT ST	FILER
There are(is) 6 in this group					
2	1,750	03	GOLDEN GRAIN GRINDER	309 311 MAIN ST	FILER
1	1,750	04	TRACYS RESTAURANT	410 HWY 30	FILER
1	1,750	04	MAGIC VALLEY LIVESTOCK FEED	405 FRONT ST	FILER
1	1,750	04	WAYMENT MFG., INC.	417 MAIN ST	FILER
1	1,750	04	NOFFSINGER MFG CO INC	413 MIDWAY ST	FILER
There are(is) 5 in this group					
1	1,500	04	NOFFSINGER MFG CO INC	416 MAIN ST	FILER
2	1,500	04	SQUARE ONE CREATIONS	218 MAIN ST	FILER
1	1,500	04	RUSSEL SHERIDAN	320 HWY 30	FILER
1	1,500	04	KNUTSON KUSTOM KUTTING	375 MAIN ST	FILER
There are(is) 4 in this group					
1	1,250	04	KELLY BEAN	FRONT ST	FILER
1	1,250	04	TWIN FALLS COUNTY FAIR ASSOC	215 FAIR AVE	FILER
1	1,250	04	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
1	1,250	04	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
1	1,250	04	KELLY BEAN COMPANY	MIDWAY AVE	FILER
There are(is) 5 in this group					
1	1,000	04	TWIN FALLS COUNTY FAIR ASSOC	215 FAIR AVE	FILER
1	1,000	04	KELLY BEAN COMPANY	129 MIDWAY AVE	FILER

Needed Fire Flows for P Code 129 | FILER

Stories	N.F.F.	PPC & W	OWNER	Address	
There are(is) 2 in this group					
4	750	04	KELLY BEAN	FRONT ST	FILER
1	750	04	TWIN FALLS COUNTY FAIR ASSOC	215 FAIR AVE	FILER
5	750	04	ALLISON MILLS INC	405 FRONT ST	FILER
1	750	04	NOFFSINGER MFG CO INC	518 MAIN ST	FILER
1	750	04	HUDS BLACKSMITH SHOP	120 MAIN ST	FILER
1	750	04	NOFFSINGER MFG CO INC	500 MAIN ST	FILER
There are(is) 6 in this group					
1	500	04	KELLY BEAN	FRONT ST	FILER
2	500	09	HANEY SEED	CLOVER RD	FILER
4	500	04	KELLY BEAN	FRONT ST	FILER
1	500	04	MAGIC VALLEY LIVESTOCK FEED	405 FRONT ST	FILER
2	500	04	KELLY BEAN COMPANY	MIDWAY AVE	FILER
1	500	04	KELLY BEAN COMPANY	129 MIDWAY AVE	FILER
2	500	09	HANEY SEED	CLOVER RD	FILER
3	500	04	ALLISON ELEVATOR	YAKIMA ST	FILER
2	500	04	ALLISON MILLS INC	405 FRONT ST	FILER
There are(is) 9 in this group					
1	0	04 P-1	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
1	0	04 P-1	EVERTON MATTRESS FACTORY	529 NORTH ST	FILER
1	0	04 P-1	FILER SCHOOL DIST 413	3915 N 2300 RD EAST	FILER
There are(is) 3 in this group					

Average Needed Fire Flow is 1,673

Test No.	Location	Needed Fire Flow	Serv. Level	Pressure (psi)			Orifice	GPM Results	
				Static	Residual	Pitot		Flowing	Flowing @ 20 psi
1	High School	850		63	30	24	2.50 "	820	900
2	Highway 30 @ Middle Schl.	3500		63	36	25	2.50 "	840	1100
3	Highway 3o @ Middle Schl.	1500		63	36	2.5	2.50 "	270	300
4	Stevens Rd. @ Grade Schl.	4500		64	55	36	2.50 "	1010	2400
5	Stevens Rd. @ Grade Schl.	1500		64	55	36	2.50 "	1010	2400
6	Union and 6th.	1250		65	42	34	2.50 "	980	1400
7	Fair Ave @ Fairgrounds	5000		69	60	54	2.50 "	1230	3100
8	Fair Ave @ Fairgrounds	2500		69	60	54	2.50 "	1230	3100
9	North and Stevens	2500		75	65	54	2.50 "	1230	3100
10	Cantel Ave.	750		66	59	48	2.50 "	1160	3200
11	Yakima and 5th.	2000		66	56	53	2.50 "	1220	2800
12	Front and Idaho	3000		75	67	58	2.50 "	1280	3600
13	Stevens S. of Highway	2500		60	56	35	2.50 "	990	3400

Gary Vance

From: Gary Haderlie
Sent: Tuesday, June 17, 2014 11:55 AM
To: Gary Vance
Subject: FW: Required fire flows

From: Joseph C. Harbacheck [mailto:jharbacheck@isrb.com]
Sent: Monday, November 25, 2013 4:13 PM
To: Gary Haderlie
Subject: RE: Required fire flows

Additional data:
2 hr duration for flows up to 2500 gpm
3 hr duration for flows up to 3500 gpm
4 hr duration for flows greater than 3501 gpm

Joe Harbacheck, CIC
Secretary - General Manager
Idaho Surveying & Rating Bureau, Inc.
1871 S Cobalt Point Way – Meridian ID 83642
Ph. 208.343.5483x25
jharbacheck@isrb.com
Visit our website at http://www.isrb.com

Our job is to make your job easier!

From: Gary Haderlie [mailto:ghaderlie@jub.com]
Sent: Monday, November 25, 2013 1:21 PM
To: Joseph C. Harbacheck
Subject: FW: Required fire flows

See below.

If you could start on Twin Falls
Jerome next.

From: Gary Haderlie
Sent: Monday, November 25, 2013 12:21 PM

Appendix N

Water Model Results

CITY OF FILER
PEAK HOUR PRESSURES

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-101	11.11	3,821.00	3,911.01	38.92
J-307	0.00	3,821.00	3,911.59	39.17
J-100	1.04	3,821.00	3,912.31	39.49
J-2	0.00	3,821.00	3,912.87	39.73
291-B	0.00	3,820.00	3,912.87	40.16
290-B	0.00	3,820.00	3,913.53	40.45
J-340	19.44	3,812.47	3,909.92	42.14
J-310	0.00	3,814.00	3,911.45	42.14
J-309	0.00	3,814.00	3,911.45	42.14
J-308	0.00	3,814.00	3,911.49	42.16
J-102	8.33	3,808.00	3,909.42	43.86
J-103	13.35	3,804.00	3,908.72	45.29
J-341	17.58	3,805.74	3,911.38	45.68
J-106	17.78	3,802.00	3,908.77	46.17
J-110	27.50	3,801.00	3,908.62	46.54
J-339	3.36	3,799.32	3,908.71	47.3
J-104	0.00	3,797.00	3,908.71	48.31
J-107	14.42	3,796.00	3,908.65	48.71
J-315	0.00	3,797.00	3,911.31	49.43
J-311	33.32	3,796.00	3,911.34	49.88
J-113	0.00	3,793.00	3,908.64	50.01
J-111	46.10	3,792.00	3,908.64	50.44
J-109	0.00	3,792.00	3,908.64	50.44
J-271	0.00	3,792.00	3,908.64	50.44
J-108	0.00	3,792.00	3,908.64	50.44
J-352	12.27	3,791.78	3,908.67	50.55
J-151	0.00	3,790.00	3,908.64	51.31
J-350	7.03	3,788.31	3,908.64	52.03
J-130	10.55	3,788.00	3,908.65	52.17
J-137	13.89	3,788.00	3,908.70	52.2
J-105	0.00	3,788.00	3,908.71	52.2
J-281	0.00	3,787.00	3,908.64	52.6
J-139	0.00	3,787.00	3,908.70	52.63
J-336	24.61	3,785.91	3,908.63	53.06
J-337	15.49	3,785.89	3,908.64	53.08
J-314	0.00	3,788.00	3,911.31	53.32
J-297	0.00	3,784.00	3,908.20	53.71
J-294	0.00	3,784.00	3,908.20	53.71
J-142	8.20	3,784.00	3,908.61	53.89
J-143	0.00	3,784.00	3,908.62	53.89
J-316	11.85	3,784.00	3,908.64	53.9
J-114	0.00	3,784.00	3,908.67	53.91

J16	0.00	3,784.00	3,908.72	53.93
J-338	14.06	3,783.77	3,908.65	54
J-147	0.00	3,783.00	3,908.31	54.19
J-146	0.00	3,783.00	3,908.32	54.19
J-148	0.00	3,783.00	3,908.32	54.19
J-145	0.00	3,783.00	3,908.39	54.22
J18	0.00	3,783.00	3,908.45	54.25
J-116	0.00	3,783.00	3,908.67	54.34
J-313	0.00	3,784.00	3,911.31	55.05
J-262	15.23	3,781.00	3,908.65	55.2
J-234	14.58	3,780.00	3,908.09	55.39
J-293	0.00	3,780.00	3,908.13	55.41
J-277	0.00	3,780.00	3,908.23	55.45
J-220	28.85	3,780.00	3,908.27	55.47
J-312	24.99	3,783.00	3,911.31	55.49
J14	0.00	3,780.00	3,908.72	55.66
J-302	14.58	3,779.00	3,908.08	55.82
J-230	0.00	3,779.00	3,908.10	55.83
J-295	23.44	3,779.00	3,908.20	55.87
J-224	0.00	3,779.00	3,908.22	55.88
J-278	0.00	3,779.00	3,908.27	55.9
J-135	21.09	3,779.00	3,908.63	56.05
J-276	38.33	3,778.00	3,908.13	56.27
J-223	5.86	3,778.00	3,908.21	56.31
J-161	0.00	3,778.00	3,908.31	56.35
J-158	28.67	3,778.00	3,908.36	56.37
J-306	9.38	3,778.00	3,908.61	56.48
J-305	3.34	3,778.00	3,908.61	56.48
J-280	31.64	3,778.00	3,908.64	56.49
J-141	0.00	3,778.00	3,908.70	56.52
J-301	28.26	3,777.00	3,908.07	56.68
J-300	0.00	3,777.00	3,908.08	56.68
J-231	16.66	3,777.00	3,908.10	56.69
J-232	0.00	3,777.00	3,908.11	56.7
J-298	0.00	3,777.00	3,908.11	56.7
J-219	4.69	3,777.00	3,908.35	56.8
J-333	10.55	3,776.55	3,908.19	56.92
J-129	8.20	3,777.00	3,908.86	57.02
J-160	17.32	3,776.00	3,908.31	57.21
J-115	0.00	3,776.00	3,908.70	57.38
J-275	0.00	3,775.00	3,908.11	57.56
J-226	16.41	3,775.00	3,908.18	57.59
J-227	0.00	3,775.00	3,908.20	57.6
J-144	0.00	3,775.00	3,908.63	57.79
J-162	0.00	3,775.00	3,908.64	57.79
J-117	27.78	3,775.00	3,908.72	57.83
J-351	30.78	3,774.82	3,908.67	57.88

J-222	5.86	3,774.00	3,908.21	58.04
J-165	0.00	3,774.00	3,908.49	58.16
J10	0.00	3,774.00	3,908.51	58.16
J-159	0.00	3,774.00	3,908.56	58.19
J-267	21.09	3,774.00	3,908.63	58.22
J-266	12.76	3,774.00	3,908.63	58.22
J-279	0.00	3,774.00	3,908.67	58.24
J-118	0.00	3,774.00	3,908.84	58.31
J-335	0.00	3,773.24	3,908.10	58.32
J-164	0.00	3,774.00	3,909.49	58.59
J-163	0.00	3,773.00	3,908.62	58.65
J-268	0.00	3,773.00	3,908.65	58.66
J-149	0.00	3,773.00	3,908.65	58.66
J-131	0.00	3,773.00	3,908.69	58.68
J-166	18.75	3,773.00	3,908.72	58.69
J-119	0.00	3,773.00	3,908.87	58.75
J-303	0.00	3,772.00	3,908.08	58.85
J-225	5.86	3,772.00	3,908.18	58.89
J-218	34.36	3,772.00	3,908.35	58.96
J-217	0.00	3,772.00	3,908.65	59.09
J-156	11.72	3,772.00	3,908.67	59.1
J-272	0.00	3,772.00	3,908.68	59.11
J-150	10.94	3,772.00	3,908.69	59.11
J-168	0.00	3,772.00	3,908.73	59.13
J-169	0.00	3,772.00	3,908.74	59.13
J-299	0.00	3,771.00	3,908.16	59.31
J-257	4.69	3,771.00	3,908.20	59.33
J-221	68.36	3,771.00	3,908.21	59.33
J-332	10.55	3,771.55	3,908.76	59.34
J-170	17.53	3,771.00	3,908.81	59.59
J-304	0.00	3,770.00	3,908.08	59.71
295-A	0.00	3,753.00	3,891.75	60
588-B	0.00	3,752.00	3,890.75	60
J-233	15.23	3,769.00	3,908.09	60.15
297-B	0.00	3,752.00	3,891.47	60.31
J-1049	0.00	3,752.08	3,891.73	60.39
J-334	0.00	3,768.37	3,908.13	60.44
J-236	12.89	3,768.00	3,908.08	60.57
J-179	9.32	3,769.00	3,909.15	60.6
J-182	5.47	3,769.00	3,909.19	60.62
J-181	0.00	3,769.00	3,909.19	60.62
J-1041	0.00	3,751.07	3,891.47	60.71
J-171	15.23	3,768.00	3,908.95	60.95
J-229	0.00	3,767.00	3,908.10	61.01
J-330	12.84	3,767.95	3,909.17	61.07
J-125	0.00	3,767.00	3,908.84	61.33
J-126	0.00	3,767.00	3,908.84	61.33

J-120	47.04	3,767.00	3,909.00	61.41
J-270	0.00	3,767.00	3,909.01	61.41
J-235	0.00	3,766.00	3,908.08	61.44
J-178	16.80	3,767.00	3,909.20	61.49
J-183	0.00	3,767.00	3,909.49	61.62
J-155	0.00	3,766.00	3,908.68	61.7
J-124	0.00	3,766.00	3,908.84	61.77
J-228	0.00	3,765.00	3,908.10	61.88
J-157	8.20	3,765.00	3,908.68	62.13
J-197	0.00	3,747.00	3,890.75	62.16
J-237	0.00	3,764.00	3,908.08	62.3
J-259	0.00	3,765.00	3,909.08	62.3
J-180	0.00	3,765.00	3,909.46	62.47
J-184	0.00	3,765.00	3,909.49	62.48
J-154	0.00	3,764.00	3,908.68	62.56
J-123	2.08	3,764.00	3,908.84	62.63
J-127	0.00	3,764.00	3,908.84	62.63
J-121	0.00	3,764.00	3,909.04	62.72
J-329	10.77	3,763.86	3,909.63	63.03
J-128	0.00	3,763.00	3,908.84	63.06
J-241	0.00	3,763.00	3,909.10	63.18
J-176	11.20	3,763.00	3,909.31	63.27
J-188	21.14	3,763.00	3,909.43	63.32
J-122	0.00	3,762.00	3,908.84	63.5
J-239	22.27	3,761.00	3,908.07	63.6
J-200	0.00	3,762.00	3,909.41	63.75
J-260	6.67	3,762.00	3,909.46	63.77
J-328	1.12	3,761.93	3,909.87	63.98
J-238	0.00	3,760.00	3,908.10	64.04
J-242	0.00	3,761.00	3,909.11	64.05
J-201	0.00	3,761.00	3,909.40	64.17
J-205	0.00	3,743.00	3,891.47	64.2
J-203	0.00	3,743.00	3,891.47	64.2
J-208	0.00	3,743.00	3,891.55	64.24
J-185	0.00	3,761.00	3,909.99	64.43
J-175	11.72	3,760.00	3,909.08	64.47
J-327	2.24	3,760.15	3,909.49	64.58
J-331	13.86	3,759.41	3,909.29	64.82
J-240	0.00	3,759.00	3,909.09	64.91
J-173	0.00	3,759.00	3,909.11	64.91
J-244	17.33	3,759.00	3,909.11	64.91
J-245	0.00	3,759.00	3,909.12	64.92
J-247	0.00	3,759.00	3,909.12	64.92
J-326	1.12	3,760.08	3,910.22	64.92
J-186	10.57	3,759.00	3,910.06	65.32
J-243	0.00	3,758.00	3,909.13	65.35
J-246	0.00	3,758.00	3,909.13	65.35

J-174	0.00	3,758.00	3,909.29	65.42
J-167	0.00	3,759.00	3,910.34	65.45
J-209	0.00	3,740.00	3,891.52	65.52
J-189	0.00	3,758.00	3,909.53	65.53
J-325	2.24	3,758.00	3,909.60	65.56
J-194	0.00	3,758.00	3,909.66	65.58
J-190	0.00	3,758.00	3,909.68	65.59
J-251	0.00	3,757.00	3,909.13	65.79
J-252	0.00	3,757.00	3,909.13	65.79
J-249	0.00	3,757.00	3,909.15	65.79
J-324	5.47	3,756.70	3,909.77	66.19
J-248	34.66	3,756.00	3,909.21	66.25
J-204	0.00	3,738.00	3,891.47	66.37
J-191	0.00	3,756.00	3,909.51	66.38
J-269	0.00	3,756.00	3,909.66	66.45
J-187	16.66	3,756.00	3,909.68	66.46
J-250	0.00	3,755.00	3,909.21	66.69
J-254	0.00	3,755.00	3,909.23	66.69
J-253	0.00	3,755.00	3,909.25	66.7
J-192	0.00	3,755.00	3,909.63	66.87
J-193	6.98	3,755.00	3,909.67	66.88
J-261	0.00	3,754.00	3,909.36	67.18
J-210	5.86	3,736.00	3,891.51	67.25
295-B	0.00	3,753.00	3,909.07	67.49
J-199	5.55	3,753.00	3,909.24	67.56
J-213	14.58	3,735.00	3,891.52	67.68
J-195	0.00	3,753.00	3,909.53	67.69
297-A	0.00	3,752.00	3,909.35	68.04
J-202	0.00	3,752.00	3,909.35	68.04
J-196	0.00	3,752.00	3,909.48	68.1
588-A	0.00	3,752.00	3,909.48	68.1
J-322	13.89	3,751.51	3,909.16	68.17
J-323	19.44	3,751.46	3,909.29	68.25
J-206	1.12	3,751.00	3,909.27	68.44
J-207	55.54	3,751.00	3,909.37	68.48
J-282	0.00	3,750.00	3,909.10	68.8
J-212	13.67	3,732.00	3,891.51	68.98
J-211	0.00	3,729.00	3,891.50	70.27
J-216	0.00	3,729.00	3,891.50	70.27
J-214	0.00	3,729.00	3,891.50	70.27
J-215	0.00	3,729.00	3,891.50	70.27
J-292	8.20	3,728.00	3,891.48	70.7
J-274	0.00	3,726.00	3,891.47	71.56
J-289	0.00	3,725.00	3,891.47	71.99
J-321	27.77	3,723.03	3,891.45	72.83
J-291	16.41	3,721.00	3,891.47	73.72
J-282	0.00	3,750.00	3,908.22	68.42

J-1051	42.61	3,733.21	3,891.50	68.45
J-344	13.19	3,797.91	3,957.40	68.97
J-212	9.11	3,732.00	3,891.52	68.98
J-315	0.00	3,797.00	3,957.41	69.37
J-311	29.78	3,796.00	3,957.41	69.8
J-1028	0.00	3,730.00	3,891.50	69.84
J-214	0.00	3,729.00	3,891.52	70.28
J-211	0.00	3,729.00	3,891.52	70.28
J-215	0.00	3,729.00	3,891.52	70.28
J-216	0.00	3,729.00	3,891.52	70.28
J-292	5.47	3,728.00	3,891.51	70.71
J-343	14.27	3,792.58	3,957.39	71.27
J-274	0.00	3,726.00	3,891.52	71.58
J-289	0.00	3,725.00	3,891.50	72
J-319	0.00	3,790.00	3,957.40	72.39
J-321	34.19	3,723.03	3,891.49	72.85
J-314	0.00	3,788.00	3,957.40	73.25
J-291	10.94	3,721.00	3,891.51	73.73
J-313	0.00	3,784.00	3,957.39	74.98
J-312	23.92	3,783.00	3,957.39	75.41
J-290	0.00	3,705.00	3,891.49	80.64

CITY OF FILER
FUTURE PEAK HOUR PRESSURES

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-102	8.78	3,808.00	3,908.66	43.53
J-103	10.48	3,804.00	3,908.64	45.25
J-106	13.83	3,802.00	3,908.67	46.13
J-110	19.77	3,801.00	3,908.69	46.57
J-339	3.68	3,799.32	3,908.64	47.27
J-104	0.00	3,797.00	3,908.65	48.28
J-107	10.79	3,796.00	3,908.70	48.74
J-113	0.00	3,793.00	3,908.77	50.06
J-108	0.00	3,792.00	3,908.74	50.48
J-271	0.00	3,792.00	3,908.75	50.49
J-109	0.00	3,792.00	3,908.77	50.49
J-111	41.17	3,792.00	3,908.77	50.49
J-112	0.00	3,792.00	3,908.78	50.5
J-1005	0.00	3,792.00	3,908.83	50.52
J-352	9.14	3,791.78	3,908.65	50.54
J-151	0.00	3,790.00	3,908.75	51.35
J-1014	19.75	3,790.00	3,908.83	51.39
J-350	4.69	3,788.31	3,908.75	52.08
J-105	0.00	3,788.00	3,908.61	52.15
J-137	16.36	3,788.00	3,908.67	52.18
J-130	7.03	3,788.00	3,908.78	52.23
J-281	0.00	3,787.00	3,908.65	52.6
J-139	0.00	3,787.00	3,908.67	52.62
J-336	16.41	3,785.91	3,908.71	53.1
J-337	10.33	3,785.89	3,908.76	53.13
J-294	0.00	3,784.00	3,908.48	53.83
J-297	0.00	3,784.00	3,908.48	53.83
J-142	5.47	3,784.00	3,908.65	53.9
J-143	0.00	3,784.00	3,908.70	53.93
J-316	7.90	3,784.00	3,908.77	53.96
J-114	0.00	3,784.00	3,908.79	53.96
J16	0.00	3,784.00	3,908.83	53.98
J-338	9.38	3,783.77	3,908.79	54.06
J-147	0.00	3,783.00	3,908.55	54.29
J-148	0.00	3,783.00	3,908.56	54.29
J-146	0.00	3,783.00	3,908.56	54.29
J-145	0.00	3,783.00	3,908.60	54.31
J18	0.00	3,783.00	3,908.62	54.32
J-116	0.00	3,783.00	3,908.78	54.39
J-262	10.16	3,781.00	3,908.81	55.27
J-1047	0.00	3,780.47	3,908.60	55.41
J-234	9.72	3,780.00	3,908.41	55.53

J-293	0.00	3,780.00	3,908.44	55.54
J-277	0.00	3,780.00	3,908.49	55.57
J-220	19.23	3,780.00	3,908.52	55.58
J14	0.00	3,780.00	3,908.83	55.71
J12	0.00	3,780.00	3,908.88	55.73
J-302	9.72	3,779.00	3,908.40	55.96
J-230	0.00	3,779.00	3,908.41	55.96
J-295	15.63	3,779.00	3,908.48	55.99
J-224	0.00	3,779.00	3,908.49	56
J-278	0.00	3,779.00	3,908.52	56.01
J-135	14.06	3,779.00	3,908.74	56.1
J-276	25.55	3,778.00	3,908.44	56.4
J-223	3.91	3,778.00	3,908.48	56.43
J-161	0.00	3,778.00	3,908.54	56.45
J-158	19.11	3,778.00	3,908.59	56.47
J-273	0.00	3,778.00	3,908.60	56.48
J-306	6.25	3,778.00	3,908.68	56.51
J-141	0.00	3,778.00	3,908.68	56.51
J-305	2.23	3,778.00	3,908.68	56.51
J-280	21.09	3,778.00	3,908.68	56.51
J-301	18.84	3,777.00	3,908.40	56.82
J-300	0.00	3,777.00	3,908.40	56.82
J-231	13.86	3,777.00	3,908.41	56.83
J-232	0.00	3,777.00	3,908.42	56.83
J-298	0.00	3,777.00	3,908.42	56.83
J-219	3.13	3,777.00	3,908.56	56.89
J-129	5.47	3,777.00	3,908.87	57.03
J-333	7.03	3,776.55	3,908.47	57.05
J-160	11.55	3,776.00	3,908.54	57.31
J-115	0.00	3,776.00	3,908.83	57.44
J-275	0.00	3,775.00	3,908.42	57.7
J-226	10.94	3,775.00	3,908.47	57.72
J-227	0.00	3,775.00	3,908.48	57.72
J-144	0.00	3,775.00	3,908.72	57.83
J-162	0.00	3,775.00	3,908.73	57.83
J-117	24.95	3,775.00	3,908.83	57.87
J-351	20.52	3,774.82	3,908.85	57.96
J-222	3.91	3,774.00	3,908.48	58.15
J-165	0.00	3,774.00	3,908.66	58.23
J10	0.00	3,774.00	3,908.66	58.23
J-159	0.00	3,774.00	3,908.70	58.25
J-266	8.51	3,774.00	3,908.73	58.26
J-279	0.00	3,774.00	3,908.77	58.28
J-267	14.06	3,774.00	3,908.80	58.29
J-118	0.00	3,774.00	3,908.87	58.32
J-335	10.35	3,773.24	3,908.41	58.45
J-164	0.00	3,774.00	3,909.19	58.46

J-163	0.00	3,773.00	3,908.74	58.7
J-268	0.00	3,773.00	3,908.81	58.73
J-149	0.00	3,773.00	3,908.82	58.73
J-166	12.50	3,773.00	3,908.82	58.73
J-131	0.00	3,773.00	3,908.87	58.76
J-119	0.00	3,773.00	3,908.88	58.76
J-303	0.00	3,772.00	3,908.41	58.99
J-225	3.91	3,772.00	3,908.46	59.01
J-218	22.91	3,772.00	3,908.56	59.05
J-217	0.00	3,772.00	3,908.67	59.1
J-169	0.00	3,772.00	3,908.83	59.17
J-168	0.00	3,772.00	3,908.83	59.17
J-150	7.29	3,772.00	3,908.88	59.19
J-101	19.97	3,821.00	3,957.88	59.19
J-307	0.00	3,821.00	3,957.88	59.19
J-156	7.81	3,772.00	3,908.90	59.2
J-272	0.00	3,772.00	3,908.90	59.2
J-100	16.80	3,821.00	3,957.90	59.2
J-2	0.00	3,821.00	3,957.92	59.21
J-332	7.03	3,771.55	3,908.88	59.39
J-299	0.00	3,771.00	3,908.45	59.44
J-257	3.13	3,771.00	3,908.48	59.45
J-221	45.57	3,771.00	3,908.48	59.45
J-170	11.68	3,771.00	3,908.95	59.65
J-304	0.00	3,770.00	3,908.41	59.85
295-A	0.00	3,753.00	3,891.75	60
J-233	10.16	3,769.00	3,908.41	60.28
588-B	0.00	3,752.00	3,891.52	60.33
297-B	0.00	3,752.00	3,891.59	60.36
J-1049	0.00	3,752.08	3,891.69	60.37
J-1018	0.00	3,769.00	3,908.86	60.48
J-334	5.83	3,768.37	3,908.43	60.57
J-179	7.38	3,769.00	3,909.07	60.57
J-182	3.65	3,769.00	3,909.09	60.58
J-181	0.00	3,769.00	3,909.09	60.58
J-236	8.59	3,768.00	3,908.40	60.72
J-1041	0.00	3,751.07	3,891.59	60.76
J-171	10.16	3,768.00	3,909.00	60.98
J-330	10.10	3,767.95	3,909.14	61.05
J-229	0.00	3,767.00	3,908.41	61.15
J-270	45.57	3,767.00	3,908.81	61.32
J-125	0.00	3,767.00	3,908.86	61.34
J-126	0.00	3,767.00	3,908.88	61.35
J-120	31.36	3,767.00	3,908.92	61.37
J-183	0.00	3,767.00	3,909.19	61.49
J-178	14.00	3,767.00	3,909.21	61.5
J-317	0.00	3,815.00	3,957.35	61.56

J-235	0.00	3,766.00	3,908.40	61.58
J-288	0.00	3,766.00	3,908.84	61.77
J-124	0.00	3,766.00	3,908.86	61.78
J-155	0.00	3,766.00	3,908.92	61.8
J-310	0.00	3,814.00	3,957.39	62.01
J-228	0.00	3,765.00	3,908.41	62.02
J-309	0.00	3,814.00	3,957.45	62.03
J-308	0.00	3,814.00	3,957.58	62.09
J-157	5.47	3,765.00	3,908.92	62.23
J-259	0.00	3,765.00	3,908.97	62.26
J-180	0.00	3,765.00	3,909.18	62.35
J-184	0.00	3,765.00	3,909.19	62.35
J-237	0.00	3,764.00	3,908.40	62.45
J-197	0.00	3,747.00	3,891.52	62.49
J-123	1.39	3,764.00	3,908.87	62.65
J-127	0.00	3,764.00	3,908.87	62.65
J-154	0.00	3,764.00	3,908.93	62.67
J-121	0.00	3,764.00	3,908.93	62.67
J-349	6.29	3,812.09	3,957.35	62.81
J-318	0.00	3,812.00	3,957.36	62.86
J-320	0.00	3,812.00	3,957.37	62.86
J-340	22.12	3,812.47	3,957.88	62.88
J-329	8.04	3,763.86	3,909.30	62.89
J-128	0.00	3,763.00	3,908.87	63.08
J-241	0.00	3,763.00	3,908.97	63.12
J-188	21.01	3,763.00	3,909.15	63.2
J-176	9.56	3,763.00	3,909.26	63.25
J-1034	0.00	3,745.00	3,891.52	63.36
J-122	0.00	3,762.00	3,908.87	63.51
J-200	0.00	3,762.00	3,909.14	63.63
J-260	5.73	3,762.00	3,909.19	63.65
J-239	14.84	3,761.00	3,908.40	63.74
J-328	1.68	3,761.93	3,909.51	63.82
J-242	0.00	3,761.00	3,908.98	63.99
J-201	0.00	3,761.00	3,909.12	64.05
J-348	5.39	3,809.01	3,957.35	64.15
J-238	0.00	3,760.00	3,908.41	64.18
J-208	0.00	3,743.00	3,891.54	64.24
J-203	0.00	3,743.00	3,891.59	64.26
J-347	5.70	3,808.76	3,957.36	64.26
J-185	0.00	3,761.00	3,909.61	64.26
J-205	0.00	3,743.00	3,891.61	64.27
J-175	7.81	3,760.00	3,909.01	64.44
J-327	3.12	3,760.15	3,909.22	64.46
J-331	10.83	3,759.41	3,909.20	64.77
J-326	1.99	3,760.08	3,909.89	64.78
J-1022	47.73	3,759.00	3,908.92	64.83

J-240	0.00	3,759.00	3,908.97	64.85
J-244	11.55	3,759.00	3,908.98	64.86
J-247	0.00	3,759.00	3,909.01	64.87
J-245	0.00	3,759.00	3,909.01	64.87
J-173	0.00	3,759.00	3,909.01	64.87
J-186	8.35	3,759.00	3,909.93	65.27
J-243	0.00	3,758.00	3,908.98	65.29
J-246	0.00	3,758.00	3,909.01	65.3
J-174	0.00	3,758.00	3,909.18	65.37
J-167	0.00	3,759.00	3,910.23	65.4
J-189	0.00	3,758.00	3,909.27	65.41
J-325	3.20	3,758.00	3,909.33	65.44
J-194	0.00	3,758.00	3,909.42	65.48
J-190	0.00	3,758.00	3,909.44	65.49
J-209	0.00	3,740.00	3,891.52	65.52
J-341	11.72	3,805.74	3,957.40	65.58
J-252	0.00	3,757.00	3,908.98	65.72
J-251	0.00	3,757.00	3,908.98	65.72
J-249	0.00	3,757.00	3,909.01	65.74
J-1052	51.50	3,739.17	3,891.50	65.87
J-346	12.70	3,804.47	3,957.34	66.11
J-324	4.23	3,756.70	3,909.61	66.12
J-248	23.10	3,756.00	3,909.03	66.18
J-191	0.00	3,756.00	3,909.35	66.31
J-269	0.00	3,756.00	3,909.49	66.37
J-187	12.62	3,756.00	3,909.51	66.38
J-204	0.00	3,738.00	3,891.57	66.41
J-342	5.75	3,803.74	3,957.37	66.43
J-254	0.00	3,755.00	3,908.98	66.59
J-250	0.00	3,755.00	3,908.99	66.59
J-253	0.00	3,755.00	3,909.04	66.61
J-192	0.00	3,755.00	3,909.41	66.77
J-193	5.64	3,755.00	3,909.43	66.78
J-261	0.00	3,754.00	3,908.86	66.97
295-B	0.00	3,753.00	3,908.05	67.05
J-210	3.91	3,736.00	3,891.51	67.25
J-199	5.61	3,753.00	3,908.62	67.3
J-195	0.00	3,753.00	3,909.22	67.55
J-213	9.72	3,735.00	3,891.53	67.69
J-322	17.86	3,751.51	3,908.37	67.83
297-A	0.00	3,752.00	3,909.08	67.93
J-202	0.00	3,752.00	3,909.08	67.93
588-A	0.00	3,752.00	3,909.12	67.95
J-196	0.00	3,752.00	3,909.12	67.95
J-345	12.96	3,800.14	3,957.35	67.98
J-323	27.07	3,751.46	3,908.86	68.07
J-206	3.81	3,751.00	3,908.75	68.22

J-207	71.97	3,751.00	3,908.90	68.28
J-282	0.00	3,750.00	3,908.16	68.39
J-1051	42.61	3,733.21	3,891.50	68.45
J-344	13.19	3,797.91	3,957.35	68.95
J-212	9.11	3,732.00	3,891.52	68.98
J-315	0.00	3,797.00	3,957.37	69.35
J-311	29.78	3,796.00	3,957.37	69.78
J-1028	0.00	3,730.00	3,891.50	69.84
J-215	0.00	3,729.00	3,891.52	70.28
J-216	0.00	3,729.00	3,891.52	70.28
J-211	0.00	3,729.00	3,891.52	70.28
J-214	0.00	3,729.00	3,891.52	70.28
J-292	5.47	3,728.00	3,891.51	70.71
J-343	14.27	3,792.58	3,957.34	71.25
J-274	0.00	3,726.00	3,891.52	71.58
J-289	0.00	3,725.00	3,891.50	72
J-319	0.00	3,790.00	3,957.35	72.37
J-321	34.19	3,723.03	3,891.49	72.85
J-314	0.00	3,788.00	3,957.35	73.23
J-291	10.94	3,721.00	3,891.51	73.73
J-313	0.00	3,784.00	3,957.35	74.96
J-312	23.92	3,783.00	3,957.35	75.4
J-290	0.00	3,705.00	3,891.49	80.64

CITY OF FILER
FUTURE PEAK DAY DEMANDS WITH FIRE FLOW

ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Available Flow at Hydrant (gpm)	Available Flow Pressure (psi)
J-202	0	67.93	3,909.08	5,000.00	25.11	5,212.43	20
J-305	2.23	56.51	3,908.68	5,000.00	25.44	5,356.61	20
J-129	5.47	57.03	3,908.87	1,000.00	29.27	1,178.28	20
J16	0	53.98	3,908.83	1,000.00	30.46	1,225.72	20
J-111	41.17	50.49	3,908.77	3,000.00	32.69	4,163.89	20
J-156	7.81	59.2	3,908.90	1,000.00	32.72	1,250.36	20
J-110	19.77	46.57	3,908.69	1,000.00	34.88	1,674.12	20
J-155	0	61.8	3,908.92	1,000.00	35.5	1,299.78	20
J-339	3.68	47.27	3,908.64	1,000.00	36.25	1,765.04	20
J-193	5.64	66.78	3,909.43	1,000.00	36.36	1,272.00	20
J-182	3.65	60.58	3,909.09	1,000.00	37.66	1,384.11	20
J-112	0	50.5	3,908.78	1,000.00	37.69	1,644.19	20
J-113	0	50.06	3,908.77	1,000.00	38.18	1,708.48	20
J-102	8.78	43.53	3,908.66	1,000.00	40.83	3,468.43	20
J-105	0	52.15	3,908.61	1,000.00	41.67	1,975.88	20
J-116	0	54.39	3,908.78	1,000.00	41.92	1,788.25	20
J-106	13.83	46.13	3,908.67	1,000.00	43.31	4,885.45	20
J-139	0	52.62	3,908.67	1,000.00	43.35	2,164.82	20
J-1014	19.75	51.39	3,908.83	1,000.00	43.41	2,262.15	20
J-104	0	48.28	3,908.65	1,000.00	44.33	3,981.00	20
J-1005	0	50.52	3,908.83	1,000.00	44.62	2,682.97	20
J-107	10.79	48.74	3,908.70	1,000.00	45.36	4,634.82	20
J-239	14.84	63.74	3,908.40	1,000.00	45.92	1,703.63	20
J-352	9.14	50.54	3,908.65	1,000.00	46.12	3,789.01	20
J-327	3.12	64.46	3,909.22	1,000.00	46.51	1,654.51	20
J-189	0	65.41	3,909.27	1,000.00	46.75	1,633.86	20
J-317	0	61.56	3,957.35	1,000.00	46.82	1,449.44	20
J-227	0	57.72	3,908.48	1,000.00	46.97	2,109.12	20
J-297	0	53.83	3,908.48	1,000.00	47	2,722.90	20
J-302	9.72	55.96	3,908.40	1,000.00	47.15	2,398.24	20
J-108	0	50.48	3,908.74	1,000.00	47.16	4,469.52	20
J-109	0	50.49	3,908.77	1,000.00	47.2	4,335.38	20
J-271	0	50.49	3,908.75	1,000.00	47.26	4,565.79	20
J-349	6.29	62.81	3,957.35	1,000.00	47.37	1,455.73	20
J-234	9.72	55.53	3,908.41	1,000.00	47.38	2,513.56	20
J-151	0	51.35	3,908.75	1,000.00	47.72	4,124.97	20
J-350	4.69	52.08	3,908.75	1,000.00	47.74	3,567.97	20
J-273	0	56.48	3,908.60	1,000.00	47.77	2,401.48	20
J-230	0	55.96	3,908.41	1,000.00	47.91	2,541.23	20
J-300	0	56.82	3,908.40	1,000.00	47.93	2,405.43	20
J-260	5.73	63.65	3,909.19	1,000.00	48.06	1,776.83	20
J-1047	0	55.41	3,908.60	1,000.00	48.18	2,687.60	20
J-281	0	52.6	3,908.65	1,000.00	48.18	3,921.50	20
J-137	16.36	52.18	3,908.67	1,000.00	48.22	4,243.78	20
J-336	16.41	53.1	3,908.71	1,000.00	48.28	3,479.49	20
J-337	10.33	53.13	3,908.76	1,000.00	48.34	3,357.82	20
J-130	7.03	52.23	3,908.78	1,000.00	48.36	3,852.59	20

J-301	18.84	56.82	3,908.40	1,000.00	48.38	2,518.90	20
J-294	0	53.83	3,908.48	1,000.00	48.59	3,370.79	20
J18	0	54.32	3,908.62	1,000.00	48.6	3,168.47	20
J-325	3.2	65.44	3,909.33	1,000.00	48.79	1,744.65	20
J-298	0	56.83	3,908.42	1,000.00	48.94	2,605.82	20
J-145	0	54.31	3,908.60	1,000.00	49.02	3,348.67	20
J-146	0	54.29	3,908.56	1,000.00	49.1	3,369.54	20
J-316	7.9	53.96	3,908.77	1,000.00	49.23	3,426.64	20
J-147	0	54.29	3,908.55	1,000.00	49.29	3,476.27	20
J-318	0	62.86	3,957.36	1,000.00	49.33	1,449.44	20
J14	0	55.71	3,908.83	1,000.00	49.45	2,816.60	20
J-338	9.38	54.06	3,908.79	1,000.00	49.55	3,511.02	20
J-346	12.7	66.11	3,957.34	1,000.00	49.69	1,462.14	20
J-348	5.39	64.15	3,957.35	1,000.00	49.83	1,454.83	20
J-293	0	55.54	3,908.44	1,000.00	49.84	3,283.11	20
J-142	5.47	53.9	3,908.65	1,000.00	49.92	4,414.72	20
J-231	13.86	56.83	3,908.41	1,000.00	50.01	2,936.50	20
J-320	0	62.86	3,957.37	1,000.00	50.12	1,449.44	20
J-335	10.35	58.45	3,908.41	1,000.00	50.16	2,598.77	20
J-310	0	62.01	3,957.39	1,000.00	50.32	1,449.45	20
J-347	5.7	64.26	3,957.36	1,000.00	50.51	1,455.14	20
J-232	0	56.83	3,908.42	1,000.00	50.55	3,110.50	20
J-143	0	53.93	3,908.70	1,000.00	50.61	4,983.12	20
J-276	25.55	56.4	3,908.44	1,000.00	50.74	3,373.91	20
J-262	10.16	55.27	3,908.81	1,000.00	50.87	3,637.58	20
J-333	7.03	57.05	3,908.47	1,000.00	50.91	3,120.64	20
J-295	15.63	55.99	3,908.48	1,000.00	51.13	3,750.54	20
J-220	19.23	55.58	3,908.52	1,000.00	51.36	4,170.59	20
J-135	14.06	56.1	3,908.74	1,000.00	51.37	3,665.68	20
J-275	0	57.7	3,908.42	1,000.00	51.37	3,136.86	20
J-224	0	56	3,908.49	1,000.00	51.39	3,886.09	20
J-303	0	58.99	3,908.41	1,000.00	51.39	2,789.34	20
J-290	0	80.64	3,891.49	1,000.00	51.44	1,488.04	20
J-277	0	55.57	3,908.49	1,000.00	51.44	4,295.08	20
J-223	3.91	56.43	3,908.48	1,000.00	51.5	3,696.54	20
J-226	10.94	57.72	3,908.47	1,000.00	51.76	3,237.49	20
J-304	0	59.85	3,908.41	1,000.00	51.87	2,725.02	20
J-309	0	62.03	3,957.45	1,000.00	51.88	1,449.44	20
J-278	0	56.01	3,908.52	1,000.00	52.15	4,579.62	20
J12	0	55.73	3,908.88	1,000.00	52.31	4,334.37	20
J-159	0	58.25	3,908.70	1,000.00	52.42	3,170.02	20
J-161	0	56.45	3,908.54	1,000.00	52.43	4,347.39	20
J-236	8.59	60.72	3,908.40	1,000.00	52.62	2,740.87	20
J-299	0	59.44	3,908.45	1,000.00	52.62	3,000.11	20
J-222	3.91	58.15	3,908.48	1,000.00	52.84	3,553.72	20
J-345	12.96	67.98	3,957.35	1,000.00	52.91	1,462.40	20
J-219	3.13	56.89	3,908.56	1,000.00	52.92	4,388.31	20
J-141	0	56.51	3,908.68	1,000.00	53.06	5,175.51	20
J-280	21.09	56.51	3,908.68	1,000.00	53.09	5,234.24	20
J-233	10.16	60.28	3,908.41	1,000.00	53.11	2,979.33	20
J-306	6.25	56.51	3,908.68	1,000.00	53.14	5,285.32	20

J-334	5.83	60.57	3,908.43	1,000.00	53.19	2,892.49	20
J-225	3.91	59.01	3,908.46	1,000.00	53.32	3,423.51	20
J-342	5.75	66.43	3,957.37	1,000.00	53.55	1,455.19	20
J-165	0	58.23	3,908.66	1,000.00	53.68	3,848.45	20
J-341	11.72	65.58	3,957.40	1,000.00	53.72	1,461.16	20
J-257	3.13	59.45	3,908.48	1,000.00	53.72	3,409.09	20
J-235	0	61.58	3,908.40	1,000.00	53.73	2,828.64	20
J10	0	58.23	3,908.66	1,000.00	53.82	3,973.76	20
J-117	24.95	57.87	3,908.83	1,000.00	53.92	4,095.00	20
J-115	0	57.44	3,908.83	1,000.00	54.02	4,551.65	20
J-229	0	61.15	3,908.41	1,000.00	54.13	3,050.94	20
J-344	13.19	68.95	3,957.35	1,000.00	54.33	1,462.63	20
J-237	0	62.45	3,908.40	1,000.00	54.45	2,823.07	20
J-217	0	59.1	3,908.67	1,000.00	54.49	3,818.10	20
J-221	45.57	59.45	3,908.48	1,000.00	54.6	3,952.31	20
J-308	0	62.09	3,957.58	1,000.00	54.63	1,449.44	20
J-218	22.91	59.05	3,908.56	1,000.00	54.8	4,278.97	20
J-351	20.52	57.96	3,908.85	1,000.00	54.82	4,980.57	20
J-228	0	62.02	3,908.41	1,000.00	54.83	3,024.85	20
J-118	0	58.32	3,908.87	1,000.00	54.91	4,545.50	20
J-238	0	64.18	3,908.41	1,000.00	54.93	2,589.70	20
J-144	0	57.83	3,908.72	1,000.00	54.99	5,354.39	20
295-B	0	67.05	3,908.05	1,000.00	55.05	2,137.84	20
J-162	0	57.83	3,908.73	1,000.00	55.07	5,354.38	20
J-119	0	58.76	3,908.88	1,000.00	55.25	4,447.18	20
J-266	8.51	58.26	3,908.73	1,000.00	55.25	5,362.89	20
J-343	14.27	71.25	3,957.34	1,000.00	55.43	1,463.71	20
J-123	1.39	62.65	3,908.87	1,500.00	55.61	4,524.94	20
J-279	0	58.28	3,908.77	1,000.00	55.64	5,354.35	20
J-272	0	59.2	3,908.90	1,000.00	55.88	4,657.61	20
J-267	14.06	58.29	3,908.80	1,000.00	55.88	5,368.45	20
J-268	0	58.73	3,908.81	1,000.00	55.89	5,354.38	20
J-149	0	58.73	3,908.82	1,000.00	55.94	5,354.38	20
J-332	7.03	59.39	3,908.88	1,000.00	56.11	4,919.80	20
J-168	0	59.17	3,908.83	1,000.00	56.31	5,354.39	20
J-166	12.5	58.73	3,908.82	1,000.00	56.33	5,366.85	20
J-131	0	58.76	3,908.87	1,000.00	56.44	5,354.38	20
J-150	7.29	59.19	3,908.88	1,000.00	56.57	5,361.62	20
J-169	0	59.17	3,908.83	1,000.00	56.79	5,354.39	20
J-315	0	69.35	3,957.37	1,000.00	56.85	1,449.44	20
290-B	0	59.64	3,957.92	1,000.00	56.95	1,449.44	20
292-B	0	59.64	3,957.92	1,000.00	56.97	1,449.45	20
J-1018	0	60.48	3,908.86	1,000.00	57.01	4,649.53	20
J-270	45.57	61.32	3,908.81	1,000.00	57.11	4,168.05	20
291-B	0	59.64	3,957.92	1,000.00	57.32	1,449.44	20
J-311	29.78	69.78	3,957.37	1,000.00	57.42	1,479.22	20
J-101	19.97	59.19	3,957.88	1,000.00	57.44	1,469.41	20
J-282	0	68.39	3,908.16	1,000.00	57.6	2,317.89	20
J-170	11.68	59.65	3,908.95	1,000.00	57.62	5,366.07	20
J-307	0	59.19	3,957.88	1,000.00	57.75	1,449.44	20
J-125	0	61.34	3,908.86	1,000.00	57.9	4,736.06	20

J-126	0	61.35	3,908.88	1,000.00	57.94	4,720.83	20
J-124	0	61.78	3,908.86	1,000.00	58.03	4,428.33	20
J-100	16.8	59.2	3,957.90	1,000.00	58.07	1,466.25	20
J-288	0	61.77	3,908.84	1,000.00	58.23	4,684.53	20
J-2	0	59.21	3,957.92	1,000.00	58.33	1,449.44	20
J-330	10.1	61.05	3,909.14	1,000.00	58.34	5,247.42	20
J-241	0	63.12	3,908.97	1,000.00	58.39	3,695.64	20
J-127	0	62.65	3,908.87	1,000.00	58.41	4,064.76	20
J-181	0	60.58	3,909.09	1,000.00	58.45	5,354.38	20
J-179	7.38	60.57	3,909.07	1,000.00	58.49	5,361.78	20
J-120	31.36	61.37	3,908.92	1,000.00	58.64	5,365.12	20
295-A	0	60	3,891.75	1,000.00	58.78	3,926.59	20
J-319	0	72.37	3,957.35	1,000.00	58.89	1,449.44	20
J-242	0	63.99	3,908.98	1,000.00	58.93	3,564.44	20
J-171	10.16	60.98	3,909.00	1,000.00	59.03	5,364.54	20
J-157	5.47	62.23	3,908.92	1,000.00	59.18	5,101.66	20
J-269	0	66.37	3,909.49	3,500.00	59.18	5,354.38	20
J-1049	0	60.37	3,891.69	1,000.00	59.24	4,061.45	20
J-122	0	63.51	3,908.87	1,000.00	59.4	4,219.34	20
J-322	17.86	67.83	3,908.37	1,000.00	59.47	2,720.84	20
J-259	0	62.26	3,908.97	1,000.00	59.75	5,354.39	20
J-178	14	61.5	3,909.21	1,000.00	59.89	5,368.40	20
297-B	0	60.36	3,891.59	1,000.00	59.98	3,815.02	20
588-B	0	60.33	3,891.52	1,000.00	60	4,235.22	20
J-326	1.99	64.78	3,909.89	4,000.00	60	5,356.38	20
J-154	0	62.67	3,908.93	1,000.00	60.02	5,354.39	20
J-247	0	64.87	3,909.01	1,000.00	60.09	3,736.69	20
J-1041	0	60.76	3,891.59	1,000.00	60.12	3,810.24	20
J-121	0	62.67	3,908.93	1,000.00	60.18	5,354.34	20
J-199	5.61	67.3	3,908.62	1,000.00	60.23	3,383.20	20
J-314	0	73.23	3,957.35	1,000.00	60.25	1,449.45	20
J-340	22.12	62.88	3,957.88	1,000.00	60.52	1,471.56	20
J-252	0	65.72	3,908.98	1,000.00	60.66	3,640.08	20
J-180	0	62.35	3,909.18	1,000.00	60.75	5,354.34	20
J-184	0	62.35	3,909.19	1,000.00	60.78	5,354.38	20
J-194	0	65.48	3,909.42	1,000.00	61.03	3,809.81	20
J-205	0	64.27	3,891.61	1,000.00	61.19	3,375.69	20
J-190	0	65.49	3,909.44	1,000.00	61.2	3,890.22	20
J-188	21.01	63.2	3,909.15	1,000.00	61.24	5,375.35	20
J-261	0	66.97	3,908.86	1,000.00	61.26	3,739.68	20
J-197	0	62.49	3,891.52	1,000.00	61.29	4,161.98	20
J-200	0	63.63	3,909.14	1,000.00	61.38	5,354.34	20
J-312	23.92	75.4	3,957.35	1,000.00	61.39	1,473.37	20
J-329	8.04	62.89	3,909.30	1,000.00	61.4	5,362.43	20
J-313	0	74.96	3,957.35	1,000.00	61.56	1,449.44	20
J-240	0	64.85	3,908.97	1,000.00	61.59	4,950.31	20
588-A	0	67.95	3,909.12	1,000.00	61.59	3,323.00	20
J-201	0	64.05	3,909.12	1,000.00	61.6	5,354.34	20
J-208	0	64.24	3,891.54	1,000.00	61.61	3,656.91	20
J-1022	47.73	64.83	3,908.92	1,000.00	61.61	5,105.04	20
J-176	9.56	63.25	3,909.26	1,000.00	61.76	5,363.95	20

J-243	0	65.29	3,908.98	1,000.00	61.77	4,706.25	20
J-175	7.81	64.44	3,909.01	1,000.00	61.79	5,362.15	20
J-206	3.81	68.22	3,908.75	1,000.00	61.79	3,518.00	20
J-244	11.55	64.86	3,908.98	1,000.00	61.8	5,123.83	20
J-245	0	64.87	3,909.01	1,000.00	61.81	5,084.83	20
J-251	0	65.72	3,908.98	1,000.00	62.06	4,586.57	20
J-1034	0	63.36	3,891.52	1,000.00	62.07	4,187.63	20
J-207	71.97	68.28	3,908.90	1,000.00	62.26	3,664.11	20
J-331	10.83	64.77	3,909.20	1,000.00	62.28	5,365.22	20
J-328	1.68	63.82	3,909.51	1,000.00	62.54	5,356.07	20
J-246	0	65.3	3,909.01	1,000.00	62.57	5,354.38	20
J-203	0	64.26	3,891.59	1,000.00	62.59	3,907.32	20
J-323	27.07	68.07	3,908.86	1,000.00	62.71	3,919.24	20
J-196	0	67.95	3,909.12	1,000.00	62.75	3,832.48	20
J-249	0	65.74	3,909.01	1,000.00	62.76	5,179.21	20
J-173	0	64.87	3,909.01	1,000.00	62.77	5,354.38	20
J-209	0	65.52	3,891.52	1,000.00	62.79	3,672.51	20
J-195	0	67.55	3,909.22	1,000.00	63	4,122.16	20
J-321	34.19	72.85	3,891.49	1,000.00	63.15	2,453.48	20
J-185	0	64.26	3,909.61	1,000.00	63.19	5,354.38	20
J-204	0	66.41	3,891.57	1,000.00	63.43	3,506.59	20
J-174	0	65.37	3,909.18	1,000.00	63.58	5,354.38	20
297-A	0	67.93	3,909.08	1,000.00	63.59	4,263.87	20
J-1052	51.5	65.87	3,891.50	1,000.00	63.72	3,958.57	20
J-250	0	66.59	3,908.99	1,000.00	63.82	5,354.34	20
J-248	23.1	66.18	3,909.03	1,000.00	63.83	5,377.48	20
J-254	0	66.59	3,908.98	1,000.00	63.86	5,354.33	20
J-253	0	66.61	3,909.04	1,000.00	64.1	5,354.38	20
J-213	9.72	67.69	3,891.53	1,000.00	64.24	3,487.82	20
J-192	0	66.77	3,909.41	1,000.00	64.36	5,354.38	20
J-210	3.91	67.25	3,891.51	1,000.00	64.59	3,786.74	20
J-186	8.35	65.27	3,909.93	1,000.00	64.67	5,362.73	20
J-191	0	66.31	3,909.35	1,000.00	64.78	5,354.39	20
J-324	4.23	66.12	3,909.61	1,000.00	64.92	5,358.61	20
J-187	12.62	66.38	3,909.51	1,000.00	65.11	5,367.00	20
J-167	0	65.4	3,910.23	1,000.00	65.21	5,354.34	20
J-1051	42.61	68.45	3,891.50	1,000.00	65.54	3,760.79	20
J-212	9.11	68.98	3,891.52	1,000.00	66.08	3,752.58	20
J-289	0	72	3,891.50	1,000.00	66.38	3,034.34	20
J-215	0	70.28	3,891.52	1,000.00	66.41	3,428.74	20
J-216	0	70.28	3,891.52	1,000.00	66.74	3,541.69	20
J-1028	0	69.84	3,891.50	1,000.00	67.06	3,806.74	20
J-214	0	70.28	3,891.52	1,000.00	67.16	3,702.81	20
J-292	5.47	70.71	3,891.51	1,000.00	67.34	3,630.55	20
J-211	0	70.28	3,891.52	1,000.00	67.43	3,819.54	20
J-274	0	71.58	3,891.52	1,000.00	67.68	3,465.87	20
J-291	10.94	73.73	3,891.51	1,000.00	68.25	3,119.49	20

Appendix O

Water Quality Data

2005 ARSENIC STUDY
ARSENIC DATA

CITY OF FILER - ARSENIC CONCENTRATIONS

Sample Date	Well #1 (µg/L)	Well #2 (µg/L)	Well #3 (µg/L)	Well #5 (µg/L)	Well #7 (µg/L)	Golden Spur (µg/L)	Smith (µg/L)	Bud's House 710 Idaho (µg/L)	Adell Tank #1 Old (µg/L)	Front St. Tank #2 New (µg/L)	MCL (µg/L)
28-Nov-73	10	10	10								
23-Feb-76							20				10
23-Mar-76				20							
9-Mar-78	15		10								
11-Apr-78							10				
23-Apr-81		12									
23-Jul-90	28.5										10
16-Dec-97	27	24	10	22							10
23-Aug-00						12					10
28-Aug-00	18	21	12	13							10
26-Feb-02	19	16		17					18		10
28-Mar-02					10						10
31-May-02	20	15	9	17							10
1-Jul-02	21	13	9	17							10
30-Jul-02	20.1	10.2	9.6	16.2							10
16-Sep-02	16	12	6	14							10
30-Oct-02	16	17	6	15							10
18-Feb-03	18	16	19	15	5						10
24-Sep-03	18	16	10	21	10						10
29-Oct-03	18	16	10	16	8						10
28-Apr-04										11	10
7-Jul-04	21	17	9	10	5					10	10
16-Aug-04	24.9	22.2	6.6	23.0	6.7					13.9	10
8-Jul-05			8							10	10
11-Aug-05					11					11	10
22-Aug-05			10							11	10
7-Sep-05			13		12						10
27-Sep-05	5	5	5		5						10
21-Sep-05			10							9	10
17-Nov-05			8		9					11	10
27-Dec-05				5							10
18-Dec-08					7					11	10
30-Dec-08	9	13									10
29-Jul-09	20	11	11	13							10
7-Jan-10	16.8	9.98	5.97	14.1	5.55						10
30-Mar-10	14.3	7.95	7.07	9.18	13.3						10
28-Jun-10	10	9	9	9	9						10
30-Aug-10	19.0	18.5	12.4	11.3	10.2						10
13-Dec-10	17.1	22.0	18.0	20.2	19.9					21.0	10
20-Jan-11	14.4	17.5	9.74	10.9	10.0				9.87	8.44	10
8-Feb-11			6.32		8.14					9.67	10
31-Mar-11			6.08	8.67	6.82					7.07	10
6-Apr-11			6.27		5.82					8.90	10
31-May-11			7.34		11.4					7.95	10
30-Jun-11			9.08		9.35			9.26			10
28-Jul-11										9.78	10
8-Aug-11			11.1		11.2					10.4	10
1-Sep-11			11.2		11.6					11.0	10
17-Oct-11			10.4		10.8					11.7	10
15-Nov-11			9.54		11.3					10.5	10
25-Jan-12			10.3		10.4					10.1	10
22-Mar-12			9.96		9.43					8.73	10
27-Apr-12			7.64		9.91					9.79	10
21-May-12			10.1		10.1					10.6	10
20-Jun-12			8.76		11.3					10.6	10
2-Jul-12			10.8		10.6					10.9	10
23-Jul-12			10.9		10.7					11.3	10
25-Sep-12			13.0		12.0					13.0	10
3-Dec-12			11.7		11.8					12.1	10
28-Jan-13										11.0	10
13-Feb-13										8.9	10
4-Apr-13										7.49	10
9-Sep-13										9.0	10
26-Nov-13										8.0	10
4-Feb-14										10.1	10
7-Apr-14										10.0	10

		Well #1	Well #2	Well #3	Well #5	Well #7	Golden Spur	Smith	Bud's House	Adell Tank #1	Front St. Tank #2
All Data	**Average**	**17.44**	**14.64**	**9.64**	**14.68**	**9.69**	**12.00**	**15.00**	**9.26**	**13.94**	**10.44**
From December 1997	**Average**	**17.39**	**14.97**	**9.62**	**14.43**	**9.69**	**12.00**		**9.26**	**13.94**	**10.44**
From 2008	**Average**	**15.08**	**13.62**	**9.75**	**12.04**	**10.30**			**9.26**	**9.87**	**10.32**
	Minimum	9.0	8.0	6.0	8.7	5.6			9.3	9.9	7.1
	Maximum	20.0	22.0	18.0	20.2	19.9			9.3	9.9	21.0
From December 2010	**Average**	**15.75**	**19.75**	**9.91**	**13.26**	**10.63**			**9.26**	**9.87**	**10.30**
	Minimum	14.4	17.5	6.1	8.7	5.8			9.3	9.9	7.1
	Maximum	17.1	22.0	18.0	20.2	19.9			9.3	9.9	21.0
From 2012	**Average**			**10.35**		**10.69**					**10.10**
	Minimum			7.6		9.4					7.5
	Maximum			13.0		12.0					13.0
From 2013	**Average**										**9.2**
	Minimum										7.5
	Maximum										11.0

Well No. 1 pumps to the tank at the south end of town
Well No.'s 2, 3, 5, & 7 pump to the new tank at the north end of town.
Well 3 & 7 cannot pump at the same time. (Only one or the other)
Golden Spur and Smith Well are not currently available to the City
Values in red were reported at less than the detection limit.

Avg

Record Nu	Lab Federal ID#	Compliance Sample	PWS #	PWS Name	Collector's Name	Date Reported	Collection Date	Collection Time	Received Date	Sampling Point	Lab Sample #	FRDS	Contaminant Name	Result	Unit	MCL
1	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		1,2,4-Trichlorobenzene	ND	µg/L	70
2	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		cls-1,2-Dichloroethylene	ND	µg/L	70
3	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Trihalomethanes - Total	22.40	µg/L	100
4	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Chloroform	NR	µg/L	70
5	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Bromoform	NR	µg/L	70
6	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Bromodichloromethane	NR	µg/L	70
7	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Dibromochloromethane	ND	µg/L	70
8	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Xylenes - Total	ND	µg/L	10000
9	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Dichloromethane	ND	µg/L	5
10	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		o-Dichlorobenzene	ND	µg/L	600
11	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		p-Dichlorobenzene	ND	µg/L	75
12	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Vinyl chloride	ND	µg/L	2
13	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		1,1-Dichloroethylene	ND	µg/L	7
14	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		trans-1,2-Dichloroethylene	ND	µg/L	100
15	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		1,2-Dichloroethane	ND	µg/L	5
16	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		1,1,1-Trichloroethane	ND	µg/L	200
17	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Carbon Tetrachloride	ND	µg/L	5
18	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		1,2-Dichloropropane	ND	µg/L	5
19	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Trichloroethylene	ND	µg/L	5
20	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		1,1,2-Trichloroethane	ND	µg/L	200
21	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Tetrachloroethylene	ND	µg/L	5
22	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Monochlorobenzene	ND	µg/L	100
23	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Benzene	ND	µg/L	5
24	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Toluene	ND	µg/L	1000
25	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Ethylbenzene	ND	µg/L	700
26	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	8/18/2011	7/28/2011	8:58 AM	7/28/2011	Yakima Storage 311 Front	1135861		Styrene	ND	µg/L	100
27	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		1,2,4-Trichlorobenzene	NR	µg/L	70
28	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		cls-1,2-Dichloroethylene	NR	µg/L	70
29	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Trihalomethanes - Total	NR	µg/L	100
30	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Chloroform	NR	µg/L	70
31	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Bromoform	NR	µg/L	70
32	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Bromodichloromethane	NR	µg/L	70
33	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Dibromochloromethane	NR	µg/L	70
34	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Xylenes - Total	NR	µg/L	10000
35	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Dichloromethane	NR	µg/L	5
36	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		o-Dichlorobenzene	NR	µg/L	600
37	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		p-Dichlorobenzene	NR	µg/L	75
38	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Vinyl chloride	NR	µg/L	2
39	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		1,1-Dichloroethylene	NR	µg/L	7
40	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		trans-1,2-Dichloroethylene	NR	µg/L	100
41	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		1,2-Dichloroethane	NR	µg/L	5
42	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		1,1,1-Trichloroethane	NR	µg/L	200
43	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Carbon Tetrachloride	0.01	µg/L	5
44	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		1,2-Dichloropropane	NR	µg/L	5
45	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Trichloroethylene	NR	µg/L	5
46	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		1,1,2-Trichloroethane	NR	µg/L	200
47	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Tetrachloroethylene	NR	µg/L	5
48	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Monochlorobenzene	NR	µg/L	100
49	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Benzene	0.04	µg/L	5
50	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Toluene	NR	µg/L	1000
51	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Ethylbenzene	NR	µg/L	700
52	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:00 AM	12/17/2010	500 Palamino	1081531		Styrene	NR	µg/L	100
53	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		1,2,4-Trichlorobenzene	NR	µg/L	70
54	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		cls-1,2-Dichloroethylene	NR	µg/L	70
55	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Trihalomethanes - Total	NR	µg/L	100
56	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Chloroform	NR	µg/L	70
57	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Bromoform	NR	µg/L	70
58	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Bromodichloromethane	NR	µg/L	70
59	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Dibromochloromethane	NR	µg/L	70
60	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Xylenes - Total	NR	µg/L	10000
61	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Dichloromethane	NR	µg/L	5
62	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		o-Dichlorobenzene	NR	µg/L	600
63	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		p-Dichlorobenzene	NR	µg/L	75
64	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Vinyl chloride	NR	µg/L	2
65	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		1,1-Dichloroethylene	NR	µg/L	7
66	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		trans-1,2-Dichloroethylene	NR	µg/L	100
67	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		1,2-Dichloroethane	NR	µg/L	5
68	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		1,1,1-Trichloroethane	NR	µg/L	200
69	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Carbon Tetrachloride	0.01	µg/L	5
70	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		1,2-Dichloropropane	NR	µg/L	5
71	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Trichloroethylene	NR	µg/L	5
72	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		1,1,2-Trichloroethane	NR	µg/L	200
73	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Tetrachloroethylene	NR	µg/L	5
74	ID00911	Yes	5420021	FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551		Monochlorobenzene	NR	µg/L	100

75	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551	Benzene	0.05	µg/L	5
76	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551	Toluene	NR	µg/L	1000
77	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551	Ethylbenzene	NR	µg/L	700
78	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	8:40 AM	12/17/2010	700 FAIR	1081551	Styrene	NR	µg/L	100
79	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	1,2,4-Trichlorobenzene	NR	µg/L	70
80	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	cls-1,2-Dichloroethylene	NR	µg/L	70
81	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Trihalomethanes - Total	NR	µg/L	100
82	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Chloroform	NR	µg/L	70
83	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Bromoform	NR	µg/L	70
84	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Bromodichloromethane	NR	µg/L	70
85	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Dibromochloromethane	NR	µg/L	70
86	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Xylenes - Total	NR	µg/L	10000
87	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Dichloromethane	NR	µg/L	5
88	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	o-Dichlorobenzene	NR	µg/L	600
89	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	p-Dichlorobenzene	NR	µg/L	75
90	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Vinyl chloride	NR	µg/L	2
91	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	1,1-Dichloroethylene	NR	µg/L	7
92	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	trans-1,2-Dichloroethylene	NR	µg/L	100
93	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	1,2-Dichloroethane	NR	µg/L	5
94	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	1,1,1-Trichloroethane	NR	µg/L	200
95	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Carbon Tetrachloride	0.01	µg/L	5
96	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	1,2-Dichloropropane	NR	µg/L	5
97	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Trichloroethylene	NR	µg/L	5
98	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	1,1,2-Trichloroethane	NR	µg/L	200
99	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Tetrachloroethylene	NR	µg/L	5
100	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Monochlorobenzene	NR	µg/L	100
101	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Benzene	0.04	µg/L	5
102	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Toluene	NR	µg/L	1000
103	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Ethylbenzene	NR	µg/L	700
104	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:05 AM	12/17/2010	905 PINE ST	1081561	Styrene	NR	µg/L	100
105	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	1,2,4-Trichlorobenzene	NR	µg/L	70
106	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	cls-1,2-Dichloroethylene	NR	µg/L	70
107	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Trihalomethanes - Total	NR	µg/L	100
108	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Chloroform	NR	µg/L	70
109	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Bromoform	NR	µg/L	70
110	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Bromodichloromethane	NR	µg/L	70
111	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Dibromochloromethane	NR	µg/L	70
112	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Xylenes - Total	NR	µg/L	10000
113	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Dichloromethane	NR	µg/L	5
114	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	o-Dichlorobenzene	NR	µg/L	600
115	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	p-Dichlorobenzene	NR	µg/L	75
116	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Vinyl chloride	NR	µg/L	2
117	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	1,1-Dichloroethylene	NR	µg/L	7
118	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	trans-1,2-Dichloroethylene	NR	µg/L	100
119	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	1,2-Dichloroethane	NR	µg/L	5
120	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	1,1,1-Trichloroethane	NR	µg/L	200
121	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Carbon Tetrachloride	0.01	µg/L	5
122	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	1,2-Dichloropropane	NR	µg/L	5
123	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Trichloroethylene	NR	µg/L	5
124	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	1,1,2-Trichloroethane	NR	µg/L	200
125	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Tetrachloroethylene	NR	µg/L	5
126	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Monochlorobenzene	NR	µg/L	100
127	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Benzene	0.04	µg/L	5
128	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Toluene	NR	µg/L	1000
129	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Ethylbenzene	NR	µg/L	700
130	ID00911	Yes	5420021 FILER CITY OF	BUD COMPHOR	1/13/2011	12/17/2010	9:45 AM	12/17/2010	FILER HIGH SCHOOL	1081571	Styrene	NR	µg/L	100
131	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	1,2,4-Trichlorobenzene	ND	µg/L	70
132	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	cls-1,2-Dichloroethylene	ND	µg/L	70
133	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Trihalomethanes - Total	ND	µg/L	100
134	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Chloroform	NR	µg/L	70
135	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Bromoform	NR	µg/L	70
136	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Bromodichloromethane	NR	µg/L	70
137	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Dibromochloromethane	NR	µg/L	70
138	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Xylenes - Total	ND	µg/L	10000
139	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Dichloromethane	ND	µg/L	5
140	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	o-Dichlorobenzene	ND	µg/L	600
141	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	p-Dichlorobenzene	ND	µg/L	75
142	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	Vinyl chloride	ND	µg/L	2
143	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	1,1-Dichloroethylene	ND	µg/L	7
144	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	trans-1,2-Dichloroethylene	ND	µg/L	100
145	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	1,2-Dichloroethane	ND	µg/L	5
146	ID00911	YES	5420021 FILER CITY OF	BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051571	1,1,1-Trichloroethane	ND	µg/L	200

147	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Carbon Tetrachloride	ND	µg/L	5
148	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	1,2-Dichloropropane	ND	µg/L	5
149	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Trichloroethylene	ND	µg/L	5
150	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	1,1,2-Trichloroethane	ND	µg/L	200
151	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Tetrachloroethylene	ND	µg/L	5
152	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Monochlorobenzene	ND	µg/L	100
153	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Benzene	ND	µg/L	5
154	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Toluene	ND	µg/L	1000
155	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Ethylbenzene	ND	µg/L	700
156	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	10/27/2010	8/30/2010	10:45 AM	8/30/2010 WELL #7	1051571	Styrene	ND	µg/L	100
157	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	1,2,4-Trichlorobenzene	ND	µg/L	70
158	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	cls-1,2-Dichloroethylene	ND	µg/L	70
159	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Trihalomethanes - Total	ND	µg/L	100
160	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Chloroform	NR	µg/L	70
161	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Bromoform	NR	µg/L	70
162	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Bromodichloromethane	NR	µg/L	70
163	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Dibromochloromethane	NR	µg/L	70
164	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Xylenes - Total	ND	µg/L	10000
165	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Dichloromethane	ND	µg/L	5
166	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	o-Dichlorobenzene	ND	µg/L	600
167	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	p-Dichlorobenzene	ND	µg/L	75
168	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Vinyl chloride	ND	µg/L	2
169	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	1,1-Dichloroethylene	ND	µg/L	7
170	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	trans-1,2-Dichloroethylene	ND	µg/L	100
171	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	1,2-Dichloroethane	ND	µg/L	5
172	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	1,1,1-Trichloroethane	ND	µg/L	200
173	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Carbon Tetrachloride	ND	µg/L	5
174	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	1,2-Dichloropropane	ND	µg/L	5
175	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Trichloroethylene	ND	µg/L	5
176	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	1,1,2-Trichloroethane	ND	µg/L	200
177	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Tetrachloroethylene	ND	µg/L	5
178	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Monochlorobenzene	ND	µg/L	100
179	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Benzene	ND	µg/L	5
180	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Toluene	ND	µg/L	1000
181	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Ethylbenzene	ND	µg/L	700
182	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	4:00 PM	7/30/2009 WELL #1	942331	Styrene	ND	µg/L	100
183	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	1,2,4-Trichlorobenzene	ND	µg/L	70
184	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	cls-1,2-Dichloroethylene	ND	µg/L	70
185	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Trihalomethanes - Total	ND	µg/L	100
186	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Chloroform	NR	µg/L	70
187	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Bromoform	NR	µg/L	70
188	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Bromodichloromethane	NR	µg/L	70
189	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Dibromochloromethane	NR	µg/L	70
190	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Xylenes - Total	ND	µg/L	10000
191	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Dichloromethane	ND	µg/L	5
192	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	o-Dichlorobenzene	ND	µg/L	600
193	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	p-Dichlorobenzene	ND	µg/L	75
194	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Vinyl chloride	ND	µg/L	2
195	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	1,1-Dichloroethylene	ND	µg/L	7
196	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	trans-1,2-Dichloroethylene	ND	µg/L	100
197	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	1,2-Dichloroethane	ND	µg/L	5
198	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	1,1,1-Trichloroethane	ND	µg/L	200
199	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Carbon Tetrachloride	ND	µg/L	5
200	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	1,2-Dichloropropane	ND	µg/L	5
201	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Trichloroethylene	ND	µg/L	5
202	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	1,1,2-Trichloroethane	ND	µg/L	200
203	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Tetrachloroethylene	ND	µg/L	5
204	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Monochlorobenzene	ND	µg/L	100
205	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Benzene	ND	µg/L	5
206	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Toluene	ND	µg/L	1000
207	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Ethylbenzene	ND	µg/L	700
208	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:49 PM	7/30/2009 WELL #7	942361	Styrene	ND	µg/L	100
209	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009 WELL #2	942431	1,2,4-Trichlorobenzene	ND	µg/L	70
210	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009 WELL #2	942431	cls-1,2-Dichloroethylene	ND	µg/L	70
211	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009 WELL #2	942431	Trihalomethanes - Total	ND	µg/L	100
212	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009 WELL #2	942431	Chloroform	NR	µg/L	70
213	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009 WELL #2	942431	Bromoform	NR	µg/L	70
214	ID00911	YES	5420021 FILER CITY OF BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009 WELL #2	942431	Bromodichloromethane	NR	µg/L	70

215	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Dibromochloromethane	NR	µg/L	70
216	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Xylenes - Total	ND	µg/L	10000
217	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Dichloromethane	ND	µg/L	5
218	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	o-Dichlorobenzene	ND	µg/L	600
219	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	p-Dichlorobenzene	ND	µg/L	75
220	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Vinyl chloride	ND	µg/L	2
221	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	1,1-Dichloroethylene	ND	µg/L	7
222	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	trans-1,2-Dichloroethylene	ND	µg/L	100
223	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	1,2-Dichloroethane	ND	µg/L	5
224	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	1,1,1-Trichloroethane	ND	µg/L	200
225	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Carbon Tetrachloride	ND	µg/L	5
226	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	1,2-Dichloropropane	ND	µg/L	5
227	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Trichloroethylene	ND	µg/L	5
228	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	1,1,2-Trichloroethane	ND	µg/L	200
229	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Tetrachloroethylene	ND	µg/L	5
230	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Monochlorobenzene	ND	µg/L	100
231	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Benzene	ND	µg/L	5
232	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Toluene	ND	µg/L	1000
233	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Ethylbenzene	ND	µg/L	700
234	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:45 PM	7/30/2009	WELL #2	942431	Styrene	ND	µg/L	100
235	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	1,2,4-Trichlorobenzene	ND	µg/L	70
236	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	cls-1,2-Dichloroethylene	ND	µg/L	70
237	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Trihalomethanes - Total	0.01	µg/L	100
238	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Chloroform	NR	µg/L	70
239	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Bromoform	NR	µg/L	70
240	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Bromodichloromethane	NR	µg/L	70
241	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Dibromochloromethane	NR	µg/L	70
242	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Xylenes - Total	ND	µg/L	10000
243	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Dichloromethane	ND	µg/L	5
244	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	o-Dichlorobenzene	ND	µg/L	600
245	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	p-Dichlorobenzene	ND	µg/L	75
246	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Vinyl chloride	ND	µg/L	2
247	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	1,1-Dichloroethylene	ND	µg/L	7
248	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	trans-1,2-Dichloroethylene	ND	µg/L	100
249	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	1,2-Dichloroethane	ND	µg/L	5
250	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	1,1,1-Trichloroethane	ND	µg/L	200
251	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Carbon Tetrachloride	ND	µg/L	5
252	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	1,2-Dichloropropane	ND	µg/L	5
253	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Trichloroethylene	ND	µg/L	5
254	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	1,1,2-Trichloroethane	ND	µg/L	200
255	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Tetrachloroethylene	ND	µg/L	5
256	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Monochlorobenzene	ND	µg/L	100
257	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Benzene	ND	µg/L	5
258	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Toluene	ND	µg/L	1000
259	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Ethylbenzene	ND	µg/L	700
260	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:30 PM	7/30/2009	WELL #5	942391	Styrene	ND	µg/L	100
261	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	1,2,4-Trichlorobenzene	ND	µg/L	70
262	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	cls-1,2-Dichloroethylene	ND	µg/L	70
263	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Trihalomethanes - Total	ND	µg/L	100
264	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Chloroform	NR	µg/L	70
265	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Bromoform	NR	µg/L	70
266	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Bromodichloromethane	NR	µg/L	70
267	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Dibromochloromethane	NR	µg/L	70
268	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Xylenes - Total	ND	µg/L	10000
269	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Dichloromethane	ND	µg/L	5
270	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	o-Dichlorobenzene	ND	µg/L	600
271	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	p-Dichlorobenzene	ND	µg/L	75
272	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Vinyl chloride	ND	µg/L	2
273	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	1,1-Dichloroethylene	ND	µg/L	7
274	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	trans-1,2-Dichloroethylene	ND	µg/L	100
275	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	1,2-Dichloroethane	ND	µg/L	5
276	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	1,1,1-Trichloroethane	ND	µg/L	200
277	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Carbon Tetrachloride	ND	µg/L	5
278	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	1,2-Dichloropropane	ND	µg/L	5
279	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Trichloroethylene	ND	µg/L	5
280	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	1,1,2-Trichloroethane	ND	µg/L	200
281	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Tetrachloroethylene	ND	µg/L	5
282	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Monochlorobenzene	ND	µg/L	100
283	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Benzene	ND	µg/L	5
284	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Toluene	ND	µg/L	1000
285	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Ethylbenzene	ND	µg/L	700

286	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	8/25/2009	7/29/2009	3:53 PM	7/30/2009	WELL #3	942471	Styrene	ND	µg/L	100
287	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	1,2,4-Trichlorobenzene	ND	µg/L	70
288	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	cls-1,2-Dichloroethylene	ND	µg/L	70
289	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Trihalomethanes - Total	ND	µg/L	100
290	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Chloroform	NR	µg/L	70
291	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Bromoform	NR	µg/L	70
292	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Bromodichloromethane	NR	µg/L	70
293	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Dibromochloromethane	NR	µg/L	70
294	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Xylenes - Total	ND	µg/L	10000
295	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Dichloromethane	ND	µg/L	5
296	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	o-Dichlorobenzene	ND	µg/L	600
297	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	p-Dichlorobenzene	ND	µg/L	75
298	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Vinyl chloride	ND	µg/L	2
299	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	1,1-Dichloroethylene	ND	µg/L	7
300	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	trans-1,2-Dichloroethylene	ND	µg/L	100
301	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	1,2-Dichloroethane	ND	µg/L	5
302	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	1,1,1-Trichloroethane	ND	µg/L	200
303	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Carbon Tetrachloride	ND	µg/L	5
304	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	1,2-Dichloropropane	ND	µg/L	5
305	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Trichloroethylene	ND	µg/L	5
306	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	1,1,2-Trichloroethane	ND	µg/L	200
307	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Tetrachloroethylene	ND	µg/L	5
308	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Monochlorobenzene	ND	µg/L	100
309	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Benzene	ND	µg/L	5
310	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Toluene	ND	µg/L	1000
311	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Ethylbenzene	ND	µg/L	700
312	ID00911	YES	5420021	FILER CITY OF	BUD COMPHOR	9/14/2007	8/9/2007	3:05 PM	8/9/2007	WELL #5	751231	Styrene	ND	µg/L	100
313	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	1,2,4-Trichlorobenzene	ND	µg/L	70
314	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	cls-1,2-Dichloroethylene	ND	µg/L	70
315	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Trihalomethanes - Total	32.20	µg/L	100
316	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Chloroform	6.60	µg/L	70
317	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Bromoform	4.70	µg/L	70
318	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Bromodichloromethane	9.90	µg/L	70
319	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Dibromochloromethane	11.00	µg/L	70
320	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Xylenes - Total	ND	µg/L	10000
321	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Dichloromethane	ND	µg/L	5
322	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	o-Dichlorobenzene	ND	µg/L	600
323	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	p-Dichlorobenzene	ND	µg/L	75
324	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Vinyl chloride	ND	µg/L	2
325	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	1,1-Dichloroethylene	ND	µg/L	7
326	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	trans-1,2-Dichloroethylene	ND	µg/L	100
327	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	1,2-Dichloroethane	ND	µg/L	5
328	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	1,1,1-Trichloroethane	ND	µg/L	200
329	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Carbon Tetrachloride	ND	µg/L	5
330	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	1,2-Dichloropropane	ND	µg/L	5
331	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Trichloroethylene	ND	µg/L	5
332	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	1,1,2-Trichloroethane	ND	µg/L	200
333	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Tetrachloroethylene	ND	µg/L	5
334	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Monochlorobenzene	ND	µg/L	100
335	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Benzene	ND	µg/L	5
336	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Toluene	ND	µg/L	1000
337	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Ethylbenzene	ND	µg/L	700
338	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:00 PM	9/27/2005	WELL #1	553421	Styrene	ND	µg/L	100
339	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	1,2,4-Trichlorobenzene	ND	µg/L	70
340	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	cls-1,2-Dichloroethylene	ND	µg/L	70
341	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Trihalomethanes - Total	ND	µg/L	100
342	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Chloroform	ND	µg/L	70
343	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Bromoform	1.40	µg/L	70
344	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Bromodichloromethane	ND	µg/L	70
345	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Dibromochloromethane	0.78	µg/L	70
346	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Xylenes - Total	ND	µg/L	10000
347	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Dichloromethane	ND	µg/L	5
348	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	o-Dichlorobenzene	ND	µg/L	600
349	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	p-Dichlorobenzene	ND	µg/L	75
350	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Vinyl chloride	ND	µg/L	2
351	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	1,1-Dichloroethylene	ND	µg/L	7
352	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	trans-1,2-Dichloroethylene	ND	µg/L	100
353	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	1,2-Dichloroethane	ND	µg/L	5
354	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	1,1,1-Trichloroethane	ND	µg/L	200
355	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Carbon Tetrachloride	ND	µg/L	5
356	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	1,2-Dichloropropane	ND	µg/L	5
357	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Trichloroethylene	ND	µg/L	5
358	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	1,1,2-Trichloroethane	ND	µg/L	200
359	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Tetrachloroethylene	ND	µg/L	5
360	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Monochlorobenzene	ND	µg/L	100
361	ID00911	YES	5420021	FILER CITY OF		11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451	Benzene	ND	µg/L	5

362	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451		Toluene	ND	µg/L	1000
363	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451		Ethylbenzene	ND	µg/L	700
364	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:10 PM	9/27/2005	WELL #2	553451		Styrene	ND	µg/L	100
365	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		1,2,4-Trichlorobenzene	ND	µg/L	70
366	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		cis-1,2-Dichloroethylene	ND	µg/L	70
367	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Trihalomethanes - Total	ND	µg/L	100
368	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Chloroform	ND	µg/L	70
369	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Bromoform	ND	µg/L	70
370	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Bromodichloromethane	ND	µg/L	70
371	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Dibromochloromethane	ND	µg/L	70
372	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Xylenes - Total	ND	µg/L	10000
373	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Dichloromethane	ND	µg/L	5
374	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		o-Dichlorobenzene	ND	µg/L	600
375	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		p-Dichlorobenzene	ND	µg/L	75
376	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Vinyl chloride	ND	µg/L	2
377	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		1,1-Dichloroethylene	ND	µg/L	7
378	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		trans-1,2-Dichloroethylene	ND	µg/L	100
379	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		1,2-Dichloroethane	ND	µg/L	5
380	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		1,1,1-Trichloroethane	ND	µg/L	200
381	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Carbon Tetrachloride	ND	µg/L	5
382	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		1,2-Dichloropropane	ND	µg/L	5
383	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Trichloroethylene	ND	µg/L	5
384	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		1,1,2-Trichloroethane	ND	µg/L	200
385	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Tetrachloroethylene	ND	µg/L	5
386	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Monochlorobenzene	ND	µg/L	100
387	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Benzene	ND	µg/L	5
388	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Toluene	ND	µg/L	1000
389	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Ethylbenzene	ND	µg/L	700
390	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #3	553481		Styrene	ND	µg/L	100
391	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		1,2,4-Trichlorobenzene	ND	µg/L	70
392	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		cis-1,2-Dichloroethylene	ND	µg/L	70
393	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Trihalomethanes - Total	ND	µg/L	100
394	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Chloroform	ND	µg/L	70
395	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Bromoform	ND	µg/L	70
396	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Bromodichloromethane	ND	µg/L	70
397	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Dibromochloromethane	ND	µg/L	70
398	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Xylenes - Total	ND	µg/L	10000
399	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Dichloromethane	ND	µg/L	5
400	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		o-Dichlorobenzene	ND	µg/L	600
401	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		p-Dichlorobenzene	ND	µg/L	75
402	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Vinyl chloride	ND	µg/L	2
403	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		1,1-Dichloroethylene	ND	µg/L	7
404	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		trans-1,2-Dichloroethylene	ND	µg/L	100
405	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		1,2-Dichloroethane	ND	µg/L	5
406	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		1,1,1-Trichloroethane	ND	µg/L	200
407	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Carbon Tetrachloride	ND	µg/L	5
408	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		1,2-Dichloropropane	ND	µg/L	5
409	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Trichloroethylene	ND	µg/L	5
410	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		1,1,2-Trichloroethane	ND	µg/L	200
411	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Tetrachloroethylene	ND	µg/L	5
412	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Monochlorobenzene	ND	µg/L	100
413	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Benzene	ND	µg/L	5
414	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Toluene	ND	µg/L	1000
415	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Ethylbenzene	ND	µg/L	700
416	ID00911	YES	5420021	FILER CITY OF	11/2/2005	9/27/2005	12:12 PM	9/27/2005	WELL #7	553511		Styrene	ND	µg/L	100
417	ID00911	YES	5420021	FILER CITY OF		3/28/2012	12:15 PM	3/28/2012	2212 ALEXANDER DR	1197031	2950	Trihalomethanes - Total	39.54	µg/L	80
418	ID00911	YES	5420021	FILER CITY OF		3/28/2012	12:15 PM	3/28/2012	2212 ALEXANDER DR	1197032	2456	Haloacetic Acids - Total	6.40	µg/L	60
419	ID00911	YES	5420021	FILER CITY OF		3/28/2012	12:35 PM	3/28/2012	905 CREEKSIDE	1197041	2950	Trihalomethanes - Total	42.61	µg/L	80
420	ID00911	YES	5420021	FILER CITY OF		3/28/2012	12:35 PM	3/28/2012	905 CREEKSIDE	1197042	2456	Haloacetic Acids - Total	7.40	µg/L	60
421	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:20 AM	7/28/2011	1701 W MIDWAY	1135871	2950	Trihalomethanes - Total	41.20	µg/L	80
422	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:20 AM	7/28/2011	1701 W MIDWAY	1135872	2456	Haloacetic Acids - Total	ND	µg/L	60
423	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:05 AM	7/28/2011	905 CREEKSIDE	1135881	2950	Trihalomethanes - Total	47.70	µg/L	80
424	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:05 AM	7/28/2011	905 CREEKSIDE	1135882	2456	Haloacetic Acids - Total	5.56	µg/L	60
425	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:40 AM	7/28/2011	FILER HIGH SCHOOL	1135891	2950	Trihalomethanes - Total	57.90	µg/L	80
426	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:40 AM	7/28/2011	FILER HIGH SCHOOL	1135892	2456	Haloacetic Acids - Total	ND	µg/L	60
427	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:50 AM	7/28/2011	170 FAIR AVE	1135901	2950	Trihalomethanes - Total	31.40	µg/L	80
428	ID00911	YES	5420021	FILER CITY OF		7/28/2011	9:50 AM	7/28/2011	170 FAIR AVE	1135902	2456	Haloacetic Acids - Total	6.78	µg/L	60
429	ID00911	YES	5420021	FILER CITY OF		7/28/2011	10:00 AM	7/28/2011	2212 ALEXANDER DR	1135911	2950	Trihalomethanes - Total	22.90	µg/L	80
430	ID00911	YES	5420021	FILER CITY OF		7/28/2011	10:00 AM	7/28/2011	2212 ALEXANDER DR	1135912	2456	Haloacetic Acids - Total	5.99	µg/L	60
431	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:01 AM	4/13/2011	2212 ALEXANDER DR	1107751	2950	Trihalomethanes - Total	38.30	µg/L	80
432	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:01 AM	4/13/2011	2212 ALEXANDER DR	1107752	2456	Haloacetic Acids - Total	6.30	µg/L	60
433	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:10 AM	4/13/2011	112 FAIR AVE	1107761	2950	Trihalomethanes - Total	31.40	µg/L	80
434	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:10 AM	4/13/2011	112 FAIR AVE	1107762	2456	Haloacetic Acids - Total	6.59	µg/L	60
435	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:37 AM	4/13/2011	FILER HIGH SCHOOL	1107771	2950	Trihalomethanes - Total	52.50	µg/L	80
436	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:37 AM	4/13/2011	FILER HIGH SCHOOL	1107772	2456	Haloacetic Acids - Total	8.66	µg/L	60
437	ID00911	YES	5420021	FILER CITY OF		4/13/2011	10:45 AM	4/13/2011	905 CREEKSIDE	1107781	2950	Trihalomethanes - Total	45.60	µg/L	80

438	ID00911	YES	5420021 FILER CITY OF	4/13/2011	10:45 AM	4/13/2011 905 CREEKSIDE	1107782	2456 Haloacetic Acids - Total	7.79 µg/L	60
439	ID00911	YES	5420021 FILER CITY OF	4/13/2011	10:30 AM	4/13/2011 1701 W MIDWAY	1107791	2950 Trihalomethanes - Total	36.60 µg/L	80
440	ID00911	YES	5420021 FILER CITY OF	4/13/2011	10:30 AM	4/13/2011 1701 W MIDWAY	1107792	2456 Haloacetic Acids - Total	7.02 µg/L	60
441	ID00911	YES	5420021 FILER CITY OF	8/30/2010	7:20 AM	8/30/2010 1701 W MIDWAY	1051591	2950 Trihalomethanes - Total	24.28 µg/L	80
442	ID00911	YES	5420021 FILER CITY OF	8/30/2010	7:20 AM	8/30/2010 1701 W MIDWAY	1051592	2456 Haloacetic Acids - Total	4.80 µg/L	60
443	ID00911	YES	5420021 FILER CITY OF	8/30/2010	7:55 AM	8/30/2010 2212 ALEXANDER DR	1051601	2950 Trihalomethanes - Total	22.89 µg/L	80
444	ID00911	YES	5420021 FILER CITY OF	8/30/2010	7:55 AM	8/30/2010 2212 ALEXANDER DR	1051602	2456 Haloacetic Acids - Total	4.40 µg/L	60
445	ID00911	YES	5420021 FILER CITY OF	8/30/2010	8:40 AM	8/30/2010 170 FAIR AVE	1051611	2950 Trihalomethanes - Total	18.93 µg/L	80
446	ID00911	YES	5420021 FILER CITY OF	8/30/2010	8:40 AM	8/30/2010 170 FAIR AVE	1051612	2456 Haloacetic Acids - Total	4.00 µg/L	60
447	ID00911	YES	5420021 FILER CITY OF	8/30/2010	9:15 AM	8/30/2010 FILER HIGH SCHOOL	1051621	2950 Trihalomethanes - Total	6.17 µg/L	80
448	ID00911	YES	5420021 FILER CITY OF	8/30/2010	9:15 AM	8/30/2010 FILER HIGH SCHOOL	1051622	2456 Haloacetic Acids - Total	5.30 µg/L	60
449	ID00911	YES	5420021 FILER CITY OF	8/30/2010	9:45 AM	8/30/2010 905 CREEKSIDE	1051631	2950 Trihalomethanes - Total	5.43 µg/L	80
450	ID00911	YES	5420021 FILER CITY OF	8/30/2010	9:45 AM	8/30/2010 905 CREEKSIDE	1651632	2456 Haloacetic Acids - Total	2.00 µg/L	60
451	ID00911	YES	5420021 FILER CITY OF	12/17/2010	8:20 AM	12/17/2010 2212 ALEXANDER DR	1081541	2950 Trihalomethanes - Total	40.30 µg/L	80
452	ID00911	YES	5420021 FILER CITY OF	12/17/2010	8:20 AM	12/17/2010 2212 ALEXANDER DR	1081542	2456 Haloacetic Acids - Total	7.09 µg/L	60
453	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:27 AM	6/17/2010 1701 W MIDWAY	1026751	2950 Trihalomethanes - Total	51.70 µg/L	80
454	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:27 AM	6/17/2010 1701 W MIDWAY	1026752	2456 Haloacetic Acids - Total	9.50 µg/L	60
455	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:39 AM	6/17/2010 170 FAIR AVE	1026761	2950 Trihalomethanes - Total	20.90 µg/L	80
456	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:39 AM	6/17/2010 170 FAIR AVE	1026762	2456 Haloacetic Acids - Total	5.30 µg/L	60
457	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:15 AM	6/17/2010 FILER HIGH SCHOOL	1026771	2950 Trihalomethanes - Total	41.98 µg/L	80
458	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:15 AM	6/17/2010 FILER HIGH SCHOOL	1026772	2456 Haloacetic Acids - Total	8.10 µg/L	60
459	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:30 AM	6/17/2010 2211 COUNTY RD	1026781	2950 Trihalomethanes - Total	25.20 µg/L	80
460	ID00911	YES	5420021 FILER CITY OF	6/17/2010	9:30 AM	6/17/2010 2211 COUNTY RD	1026782	2456 Haloacetic Acids - Total	5.60 µg/L	60
461	ID00911	YES	5420021 FILER CITY OF	6/17/2010	8:19 AM	6/17/2010 905 CREEKSIDE	1026791	2950 Trihalomethanes - Total	59.60 µg/L	80
462	ID00911	YES	5420021 FILER CITY OF	6/17/2010	8:19 AM	6/17/2010 905 CREEKSIDE	1026792	2456 Haloacetic Acids - Total	11.10 µg/L	60
463	ID00911	YES	5420021 FILER CITY OF	2/17/2010	12:35 PM	2/17/2010 170 FAIR AVE	994341	2950 Trihalomethanes - Total	24.30 µg/L	80
464	ID00911	YES	5420021 FILER CITY OF	2/17/2010	12:35 PM	2/17/2010 170 FAIR AVE	994342	2456 Haloacetic Acids - Total	21.70 µg/L	60
465	ID00911	YES	5420021 FILER CITY OF	2/17/2010	12:29 PM	2/17/2010 LARUE VET CLINIC	994351	2950 Trihalomethanes - Total	26.90 µg/L	80
466	ID00911	YES	5420021 FILER CITY OF	2/17/2010	12:29 PM	2/17/2010 LARUE VET CLINIC	994352	2456 Haloacetic Acids - Total	34.70 µg/L	60
467	ID00911	YES	5420021 FILER CITY OF	7/29/2009	4:20 PM	7/30/2009 905 CREEKSIDE	942511	2950 Trihalomethanes - Total	34.50 µg/L	80
468	ID00911	YES	5420021 FILER CITY OF	7/29/2009	4:20 PM	7/30/2009 905 CREEKSIDE	942512	2456 Haloacetic Acids - Total	34.45 µg/L	60
469	ID00911	YES	5420021 FILER CITY OF	7/29/2009	4:05 PM	7/30/2009 2212 ALEXANDER DR	942521	2950 Trihalomethanes - Total	22.90 µg/L	80
470	ID00911	YES	5420021 FILER CITY OF	7/29/2009	4:05 PM	7/30/2009 2212 ALEXANDER DR	942522	2456 Haloacetic Acids - Total	45.98 µg/L	60
471	ID00911	YES	5420021 FILER CITY OF	7/29/2009	4:35 AM	7/30/2009 1701 W MIDWAY	942531	2950 Trihalomethanes - Total	23.50 µg/L	80
472	ID00911	YES	5420021 FILER CITY OF	7/29/2009	4:35 AM	7/30/2009 1701 W MIDWAY	942532	2456 Haloacetic Acids - Total	59.10 µg/L	60
473	ID00911	YES	5420021 FILER CITY OF	8/26/2008	11:45 AM	8/26/2008 803 PINE ST. - STAGE 2 DE	858011	2950 Trihalomethanes - Total	67.00 µg/L	80
474	ID00911	YES	5420021 FILER CITY OF	8/26/2008	11:45 AM	8/26/2008 803 PINE ST. - STAGE 2 DE	858012	2456 Haloacetic Acids - Total	17.61 µg/L	60
475	ID00911	YES	5420021 FILER CITY OF	8/26/2008	11:30 AM	8/26/2008 2215 COUNTY RD. - STAGI	858021	2950 Trihalomethanes - Total	46.10 µg/L	80
476	ID00911	YES	5420021 FILER CITY OF	8/26/2008	11:30 AM	8/26/2008 2215 COUNTY RD. - STAGI	858022	2456 Haloacetic Acids - Total	17.96 µg/L	60
477	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:41 AM	8/26/2008 618 GOLDEN SPUR DRIVE	858031	2950 Trihalomethanes - Total	53.70 µg/L	80
478	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:41 AM	8/26/2008 618 GOLDEN SPUR DRIVE	858032	2456 Haloacetic Acids - Total	14.32 µg/L	60
479	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:08 AM	8/26/2008 715 PINE ST	858041	2950 Trihalomethanes - Total	56.10 µg/L	80
480	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:08 AM	8/26/2008 715 PINE ST	858042	2456 Haloacetic Acids - Total	14.89 µg/L	60
481	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:24 AM	8/26/2008 170 FAIR AVE	858051	2950 Trihalomethanes - Total	49.10 µg/L	80
482	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:24 AM	8/26/2008 170 FAIR AVE	858052	2456 Haloacetic Acids - Total	12.44 µg/L	60
483	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:32 AM	8/26/2008 2214 ALEX DR	858061	2950 Trihalomethanes - Total	43.20 µg/L	80
484	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:32 AM	8/26/2008 2214 ALEX DR	858062	2456 Haloacetic Acids - Total	17.38 µg/L	60
485	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:16 AM	8/26/2008 FILER HIGH SCHOOL	858071	2950 Trihalomethanes - Total	80.80 µg/L	80
486	ID00911	YES	5420021 FILER CITY OF	8/26/2008	9:16 AM	8/26/2008 FILER HIGH SCHOOL	858072	2456 Haloacetic Acids - Total	17.76 µg/L	60
487	ID00911	YES	5420021 FILER CITY OF	8/10/2007	12:45 PM	8/10/2007 803 PINE ST. - STAGE 2 DE	751531	2950 Trihalomethanes - Total	53.80 µg/L	80
488	ID00911	YES	5420021 FILER CITY OF	8/10/2007	12:45 PM	8/10/2007 803 PINE ST. - STAGE 2 DE	751532	2456 Haloacetic Acids - Total	83.32 µg/L	60
489	ID00911	YES	5420021 FILER CITY OF	8/10/2007	1:02 PM	8/10/2007 610 GOLDEN SPUR	751541	2950 Trihalomethanes - Total	31.82 µg/L	80
490	ID00911	YES	5420021 FILER CITY OF	8/10/2007	1:02 PM	8/10/2007 610 GOLDEN SPUR	751541	2456 Haloacetic Acids - Total	59.82 µg/L	60
491	ID00911	YES	5420021 FILER CITY OF	8/10/2007	1:16 PM	8/10/2007 2214 ALEX DR	751551	2950 Trihalomethanes - Total	32.48 µg/L	80
492	ID00911	YES	5420021 FILER CITY OF	8/10/2007	1:16 PM	8/10/2007 2214 ALEX DR	751552	2456 Haloacetic Acids - Total	38.42 µg/L	60
493	ID00911	YES	5420021 FILER CITY OF	8/10/2007	1:32 PM	8/10/2007 TWIN FALLS CO FAIR GRC	751561	2950 Trihalomethanes - Total	38.31 µg/L	80
494	ID00911	YES	5420021 FILER CITY OF	8/10/2007	1:16 PM	8/10/2007 TWIN FALLS CO FAIR GRC	751562	2456 Haloacetic Acids - Total	64.71 µg/L	60
495	ID00911	YES	5420021 FILER CITY OF	9/27/2006	2:05 PM	9/28/2006 610 GOLDEN SPUR	657331	2950 Trihalomethanes - Total	14.50 µg/L	80
496	ID00911	YES	5420021 FILER CITY OF	9/27/2006	2:05 PM	9/28/2006 610 GOLDEN SPUR	657332	2456 Haloacetic Acids - Total	11.10 µg/L	60
497	ID00911	YES	5420021 FILER CITY OF	9/27/2006	1:50 PM	9/28/2006 715 PINE ST	657341	2950 Trihalomethanes - Total	18.20 µg/L	80
498	ID00911	YES	5420021 FILER CITY OF	9/27/2006	1:50 PM	9/28/2006 715 PINE ST	657341	2456 Haloacetic Acids - Total	9.60 µg/L	60
499	ID00911	YES	5420021 FILER CITY OF	9/27/2006	2:20 PM	9/28/2006 170 FAIR AVE	657351	2950 Trihalomethanes - Total	11.60 µg/L	80
500	ID00911	YES	5420021 FILER CITY OF	9/27/2006	2:20 PM	9/28/2006 170 FAIR AVE	657352	2456 Haloacetic Acids - Total	9.70 µg/L	60
501	ID00911	YES	5420021 FILER CITY OF	9/27/2006	2:40 PM	9/28/2006 2214 ALEX DR	657361	2950 Trihalomethanes - Total	14.60 µg/L	80
502	ID00911	YES	5420021 FILER CITY OF	9/27/2006	2:40 PM	9/28/2006 2214 ALEX DR	657362	2456 Haloacetic Acids - Total	9.70 µg/L	60
503	ID00911	YES	5420021 FILER CITY OF	9/27/2006	3:00 PM	9/28/2006 FILER HIGH SCHOOL	657371	2950 Trihalomethanes - Total	16.60 µg/L	80
504	ID00911	YES	5420021 FILER CITY OF	9/27/2006	3:00 PM	9/28/2006 FILER HIGH SCHOOL	657371	2456 Haloacetic Acids - Total	1.90 µg/L	60
505	ID00911	YES	5420021 FILER CITY OF	12/28/2005	10:23 AM	12/28/2005 FILER HIGH SCHOOL	578941	2950 Trihalomethanes - Total	43.30 µg/L	80
506	ID00911	YES	5420021 FILER CITY OF	12/28/2005	10:23 AM	12/28/2005 FILER HIGH SCHOOL	578942	2456 Haloacetic Acids - Total	8.00 µg/L	60
507	ID00911	YES	5420021 FILER CITY OF	12/28/2005	10:36 AM	12/28/2005 QUALITY TRUSS	578951	2950 Trihalomethanes - Total	34.20 µg/L	80
508	ID00911	YES	5420021 FILER CITY OF	12/28/2005	10:36 AM	12/28/2005 QUALITY TRUSS	578952	2456 Haloacetic Acids - Total	7.00 µg/L	60
509	ID00911	YES	5420021 FILER CITY OF	9/27/2005	12:29 PM	9/27/2005 2205 ALEX DR	553391	2950 Trihalomethanes - Total	28.00 µg/L	80
510	ID00911	YES	5420021 FILER CITY OF	9/27/2005	12:29 PM	9/27/2005 2205 ALEX DR	553392	2456 Haloacetic Acids - Total	1.70 µg/L	60
511	ID00911	YES	5420021 FILER CITY OF	9/27/2005	12:28 PM	9/27/2005 218 GOLDEN SPUR DR	553401	2950 Trihalomethanes - Total	1.90 µg/L	80
512	ID00911	YES	5420021 FILER CITY OF	9/27/2005	12:28 PM	9/27/2005 218 GOLDEN SPUR DR	553402	2456 Haloacetic Acids - Total	8.00 µg/L	60
513	ID00911	YES	5420021 FILER CITY OF	8/12/2013	12:30 PM	8/12/2013 905 CREEKSIDE	1328401	2950 Trihalomethanes - Total	22.60 µg/L	80

514	ID00911	YES	5420021	FILER CITY OF	8/12/2013	12:30 PM	8/12/2013	905 CREEKSIDE	1328401	2456 Haloacetic Acids - Total	9.00 µg/L	60
515	ID00911	YES	5420021	FILER CITY OF	8/12/2013	10:40 AM	8/12/2013	2212 ALEXANDER DR	1328411	2950 Trihalomethanes - Total	15.20 µg/L	80
516	ID00911	YES	5420021	FILER CITY OF	8/12/2013	10:40 AM	8/12/2013	2212 ALEXANDER DR	1328411	2456 Haloacetic Acids - Total	6.00 µg/L	60
517	ID00911	YES	5420021	FILER CITY OF	8/12/2013	10:55 AM	8/12/2013	170 FAIR AVE	1328421	2950 Trihalomethanes - Total	26.60 µg/L	80
518	ID00911	YES	5420021	FILER CITY OF	8/12/2013	10:55 AM	8/12/2013	170 FAIR AVE	1328421	2456 Haloacetic Acids - Total	8.00 µg/L	60
519	ID00911	YES	5420021	FILER CITY OF	8/12/2013	11:20 AM	8/12/2013	FILER HIGH SCHOOL	1328431	2950 Trihalomethanes - Total	52.00 µg/L	80
520	ID00911	YES	5420021	FILER CITY OF	8/12/2013	11:20 AM	8/12/2013	FILER HIGH SCHOOL	1328431	2456 Haloacetic Acids - Total	2.00 µg/L	60
521	ID00911	YES	5420021	FILER CITY OF	8/12/2013	12:15 PM	8/12/2013	610 GOLDEN SPUR	1328441	2950 Trihalomethanes - Total	25.50 µg/L	80
522	ID00911	YES	5420021	FILER CITY OF	8/12/2013	12:15 PM	8/12/2013	610 GOLDEN SPUR	1328441	2456 Haloacetic Acids - Total	9.00 µg/L	60

City of Filer
Historical Water Quality Data

Record Number	Lab Federal ID#	Compliance Sample	PWS #	Collection Date	Collection Time	Received Date	Sampling Point	.ab Sample :	FRDS	ontaminant Nar	Result	Unit	MCL	MDL	Method	Analysis Date	Analyst	Contaminant Type	Contaminant Class
1			5420021	8/28/2000			WELL #1		1074	Antimony	0.005	mg/L	0.006		200.8			Primary	Inorganic Chemical (IOC)
2			5420021	9/16/2002			WELL #1		1074	Antimony	0.005	mg/L	0.006		200.8			Primary	Inorganic Chemical (IOC)
3			5420021	11/28/1973			WELL #1		1010	BARIUM	0.1	mg/L	2		200.8			Primary	Inorganic Chemical (IOC)
4			5420021	3/9/1978			WELL #1		1010	BARIUM	0.1	mg/L	2		200.8			Primary	Inorganic Chemical (IOC)
5			5420021	8/28/2000			WELL #1		1075	Beryllium	0.0005	mg/L	0.004		200.8			Primary	Inorganic Chemical (IOC)
6			5420021	9/16/2002			WELL #1		1075	Beryllium	0.0005	mg/L	0.004		200.8			Primary	Inorganic Chemical (IOC)
7			5420021	11/28/1973			WELL #1		1015	Cadmium	0.001	mg/L	0.005		200.8			Primary	Inorganic Chemical (IOC)
8			5420021	3/9/1978			WELL #1		1015	Cadmium	0.001	mg/L	0.005		200.8			Primary	Inorganic Chemical (IOC)
9			5420021	11/28/1973			WELL #1		1020	Chromium	0.01	mg/L	0.1		200.8			Primary	Inorganic Chemical (IOC)
10			5420021	3/9/1978			WELL #1		1020	Chromium	0.01	mg/L	0.1		200.8			Primary	Inorganic Chemical (IOC)
11			5420021	11/28/1973			WELL #1		1035	Mercury	0.001	mg/L	0.002		200.8			Primary	Inorganic Chemical (IOC)
12			5420021	3/9/1978			WELL #1		1035	Mercury	0.0005	mg/L	0.002		200.8			Primary	Inorganic Chemical (IOC)
13			5420021	8/28/2000			WELL #1		1036	Nickel	0.01	mg/L			200.8			Primary	Inorganic Chemical (IOC)
14			5420021	9/16/2002			WELL #1		1036	Nickel	0.01	mg/L			200.8			Primary	Inorganic Chemical (IOC)
15			5420021	3/9/1978			WELL #1		1045	Selenium	0.01	mg/L	0.05		200.8			Primary	Inorganic Chemical (IOC)
16			5420021	8/28/2000			WELL #1		1045	Selenium	0.001	mg/L	0.05		200.8			Primary	Inorganic Chemical (IOC)
17			5420021	11/28/1973			WELL #1		1052	Sodium	58	mg/L			200.7			Primary	Inorganic Chemical (IOC)
18			5420021	3/9/1978			WELL #1		1052	Sodium	54	mg/L			200.7			Primary	Inorganic Chemical (IOC)
19			5420021	8/28/2000			WELL #1		1052	Sodium	25	mg/L			200.7			Primary	Inorganic Chemical (IOC)
20			5420021	9/16/2002			WELL #1		1052	Sodium	33.6	mg/L			200.7			Primary	Inorganic Chemical (IOC)
21			5420021	8/28/2000			WELL #1		1085	Thallium	0.002	mg/L	0.002		200.8			Primary	Inorganic Chemical (IOC)
22			5420021	9/16/2002			WELL #1		1085	Thallium	0.002	mg/L	0.002		200.8			Primary	Inorganic Chemical (IOC)
23			5420021	11/28/1973			WELL #1		1025	Fluoride	1.8	mg/L	4		300			Primary	Inorganic Chemical (IOC)
24			5420021	7/15/1975			WELL #1		1025	Fluoride	1.58	mg/L	4		300			Primary	Inorganic Chemical (IOC)
25			5420021	3/9/1978			WELL #1		1025	Fluoride	1.8	mg/L	4		300			Primary	Inorganic Chemical (IOC)
26			5420021	11/28/1973			WELL #1		1017	CHLORIDE	3	mg/L	250		300			Secondary	Inorganic Chemical (IOC)
27			5420021	11/28/1973			WELL #1		1905	Color	5		15		110.2			Secondary	Inorganic Chemical (IOC)
28			5420021	11/28/1973			WELL #1		1028	Iron	0.09	mg/L	0.3		3111B			Secondary	Inorganic Chemical (IOC)
29			5420021	11/28/1973			WELL #1		1032	Manganese	0.01	mg/L	0.05		3111B			Secondary	Inorganic Chemical (IOC)
30			5420021	11/28/1973			WELL #1		1930	TDS	652	mg/L	500		160.1			Secondary	Inorganic Chemical (IOC)
31			5420021	11/28/1973			WELL #1		1095	Zinc	0.149	mg/L	5		3111B			Secondary	Inorganic Chemical (IOC)
32			5420021	11/28/1973			WELL #1		1050	Silver	0.001	mg/L	0.1		3111B			Secondary	Inorganic Chemical (IOC)
33			5420021	11/28/1973			WELL #1		1042	Potassium	4.1	mg/L			3111B			Secondary	Inorganic Chemical (IOC)
34			5420021	11/28/1973			WELL #1		1030	LEAD	0.01	mg/L	0.015		3113B			Secondary	Inorganic Chemical (IOC)
35			5420021	11/28/1973			WELL #1		1022	COPPER	0.001	mg/L	1		3111B			Secondary	Inorganic Chemical (IOC)
36			5420021	11/28/1973			WELL #1		1055	SULFATE	198	mg/L	250		300			Secondary	Inorganic Chemical (IOC)
37			5420021	7/15/1975			WELL #1		1017	CHLORIDE	2	mg/L	250		300			Secondary	Inorganic Chemical (IOC)
38			5420021	7/15/1975			WELL #1		1905	Color	5		15		110.2			Secondary	Inorganic Chemical (IOC)
39			5420021	7/15/1975			WELL #1		2905	Surfactants	0.08	mg/L			5540C			Secondary	Inorganic Chemical (IOC)
40			5420021	7/15/1975			WELL #1		1930	TDS	548	mg/L	500		160.1			Secondary	Inorganic Chemical (IOC)
41			5420021	7/15/1975			WELL #1		1915	HARDNESS	320	mg/L as $CaCO_3$			2340B			Secondary	Inorganic Chemical (IOC)
42			5420021	7/15/1975			WELL #1		1925	pH	7	s.u.	6.5-8.5		150.1			Secondary	Inorganic Chemical (IOC)
43			5420021	7/15/1975			WELL #1		1055	SULFATE	123	mg/L	250		300			Secondary	Inorganic Chemical (IOC)
44			5420021	3/9/1978			WELL #1		1017	CHLORIDE	24	mg/L	250		300			Secondary	Inorganic Chemical (IOC)
45			5420021	3/9/1978			WELL #1		1905	Color	5		15		110.2			Secondary	Inorganic Chemical (IOC)
46			5420021	3/9/1978			WELL #1		1028	Iron	0.02	mg/L	0.3		3111B			Secondary	Inorganic Chemical (IOC)
47			5420021	3/9/1978			WELL #1		1032	Manganese	0.01	mg/L	0.05		3111B			Secondary	Inorganic Chemical (IOC)
48			5420021	3/9/1978			WELL #1		1930	TDS	626	mg/L	500		160.1			Secondary	Inorganic Chemical (IOC)
49			5420021	3/9/1978			WELL #1		1095	Zinc	0.008	mg/L	5		3111B			Secondary	Inorganic Chemical (IOC)
50			5420021	3/9/1978			WELL #1		1050	Silver	0.01	mg/L	0.1		3111B			Secondary	Inorganic Chemical (IOC)
51			5420021	3/9/1978			WELL #1		1927	Alkalinity	235	mg/L as $CaCO_3$			310.1			Secondary	Inorganic Chemical (IOC)
52			5420021	3/9/1978			WELL #1		1003	Ammonia-N	0.071	mg/L			350.2			Secondary	Inorganic Chemical (IOC)
53			5420021	3/9/1978			WELL #1		1016	Calcium	97	mg/L			3111B			Secondary	Inorganic Chemical (IOC)
54			5420021	3/9/1978			WELL #1		1915	HARDNESS	338	mg/L as $CaCO_3$			2340B			Secondary	Inorganic Chemical (IOC)
55			5420021	3/9/1978			WELL #1		1031	Magnesium	12.4	mg/L			3111B			Secondary	Inorganic Chemical (IOC)
56			5420021	3/9/1978			WELL #1		1042	Potassium	5.9	mg/L			3111B			Secondary	Inorganic Chemical (IOC)
57			5420021	3/9/1978			WELL #1		1049	Silica	61.5	mg/L as SiO_2			200.8			Secondary	Inorganic Chemical (IOC)
58			5420021	3/9/1978			WELL #1		1030	LEAD	0.25	mg/L	0.015		3113B			Secondary	Inorganic Chemical (IOC)
59			5420021	3/9/1978			WELL #1		1022	COPPER	0.01	mg/L	1		3111B			Secondary	Inorganic Chemical (IOC)
60			5420021	3/9/1978			WELL #1		1055	SULFATE	150	mg/L	250		300			Secondary	Inorganic Chemical (IOC)
61			5420021	10/17/1995			WELL #1		1915	HARDNESS	323	mg/L as $CaCO_3$			2340B			Secondary	Inorganic Chemical (IOC)
62			5420021	11/28/1973			WELL #1			Turbidity	2	ntu						Water Quality	Inorganic Chemical (IOC)
63			5420021	11/28/1973			WELL #1		1040	NITRATE N	5.1	mg/L	10	0.3	EPA300.0			Water Quality	Inorganic Chemical (IOC)
64			5420021	7/15/1975			WELL #1			Turbidity	0.5	ntu						Water Quality	Inorganic Chemical (IOC)
65			5420021	7/15/1975			WELL #1		1040	NITRATE N	7.4	mg/L	10	0.3	EPA300.0			Water Quality	Inorganic Chemical (IOC)
66			5420021	3/9/1978			WELL #1			Turbidity	1.2	ntu						Water Quality	Inorganic Chemical (IOC)
67			5420021	3/9/1978			WELL #1		1040	NITRATE N	1.65	mg/L	10	0.3	EPA300.0			Water Quality	Inorganic Chemical (IOC)
68			5420021	11/28/1973			WELL #2		1010	BARIUM	0.1	mg/L	2		200.8			Primary	Inorganic Chemical (IOC)
69			5420021	11/28/1973			WELL #2		1015	Cadmium	0.001	mg/L	0.005		200.8			Primary	Inorganic Chemical (IOC)
70			5420021	11/28/1973			WELL #2		1020	Chromium	0.01	mg/L	0.1		200.8			Primary	Inorganic Chemical (IOC)
71			5420021	11/28/1973			WELL #2		1035	Mercury	0.001	mg/L	0.002		200.8			Primary	Inorganic Chemical (IOC)
72			5420021	11/28/1973			WELL #2		1052	Sodium	64	mg/L			200.7			Primary	Inorganic Chemical (IOC)
73			5420021	11/28/1973			WELL #2		1025	Fluoride	1.13	mg/L	4		300			Primary	Inorganic Chemical (IOC)
74			5420021	11/28/1973			WELL #2		1017	CHLORIDE	4	mg/L	250		300			Secondary	Inorganic Chemical (IOC)

75	5420021	11/28/1973	WELL #2	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
76	5420021	11/28/1973	WELL #2	1028	Iron	0.16	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
77	5420021	11/28/1973	WELL #2	1032	Manganese	0.02	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
78	5420021	11/28/1973	WELL #2	1930	TDS	728	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
79	5420021	11/28/1973	WELL #2	1095	Zinc	0.057	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
80	5420021	11/28/1973	WELL #2	1050	Silver	0.001	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
81	5420021	11/28/1973	WELL #2	1042	Potassium	5	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
82	5420021	11/28/1973	WELL #2	1030	LEAD	0.01	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
83	5420021	11/28/1973	WELL #2	1022	COPPER	0.001	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)
84	5420021	11/28/1973	WELL #2	1055	SULFATE	191	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
85	5420021	11/28/1973	WELL #2		Turbidity	2	ntu				Water Quality	Inorganic Chemical (IOC)
86	5420021	11/28/1973	WELL #2	1040	NITRATE N	14	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
87	5420021	7/15/1975	WELL #2	1025	Fluoride	3.65	mg/L	4		300	Primary	Inorganic Chemical (IOC)
88	5420021	7/15/1975	WELL #2	1017	CHLORIDE	12	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
89	5420021	7/15/1975	WELL #2	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
90	5420021	7/15/1975	WELL #2	2905	Surfactants	0.08	mg/L			5540C	Secondary	Inorganic Chemical (IOC)
91	5420021	7/15/1975	WELL #2	1930	TDS	263	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
92	5420021	7/15/1975	WELL #2	1915	HARDNESS	20	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
93	5420021	7/15/1975	WELL #2	1925	pH	7.6	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
94	5420021	7/15/1975	WELL #2	1055	SULFATE	13.7	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
95	5420021	7/15/1975	WELL #2		Turbidity	0.8	ntu				Water Quality	Inorganic Chemical (IOC)
96	5420021	7/15/1975	WELL #2	1040	NITRATE N	2.6	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
97	5420021	4/23/1981	WELL #2	1010	BARIUM	0.1	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
98	5420021	4/23/1981	WELL #2	1015	Cadmium	0.001	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
99	5420021	4/23/1981	WELL #2	1020	Chromium	0.01	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
100	5420021	4/23/1981	WELL #2	1035	Mercury	0.0005	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
101	5420021	4/23/1981	WELL #2	1045	Selenium	0.005	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
102	5420021	4/23/1981	WELL #2	1052	Sodium	79	mg/L			200.7	Primary	Inorganic Chemical (IOC)
103	5420021	4/23/1981	WELL #2	1025	Fluoride	1.07	mg/L	4		300	Primary	Inorganic Chemical (IOC)
104	5420021	4/23/1981	WELL #2	1017	CHLORIDE	62.4	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
105	5420021	4/23/1981	WELL #2	1028	Iron	0.02	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
106	5420021	4/23/1981	WELL #2	1032	Manganese	0.01	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
107	5420021	4/23/1981	WELL #2	2905	Surfactants	0.08	mg/L			5540C	Secondary	Inorganic Chemical (IOC)
108	5420021	4/23/1981	WELL #2	1930	TDS	679	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
109	5420021	4/23/1981	WELL #2	1095	Zinc	0.059	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
110	5420021	4/23/1981	WELL #2	1050	Silver	0.001	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
111	5420021	4/23/1981	WELL #2	1927	Alkalinity	233	mg/L as $CaCO_3$			310.1	Secondary	Inorganic Chemical (IOC)
112	5420021	4/23/1981	WELL #2	1003	Ammonia-N	0.017	mg/L			350.2	Secondary	Inorganic Chemical (IOC)
113	5420021	4/23/1981	WELL #2	1016	Calcium	84.8	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
114	5420021	4/23/1981	WELL #2	1915	HARDNESS	336	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
115	5420021	4/23/1981	WELL #2	1031	Magnesium	30.8	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
116	5420021	4/23/1981	WELL #2	1925	pH	8.35	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
117	5420021	4/23/1981	WELL #2	1042	Potassium	7	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
118	5420021	4/23/1981	WELL #2	1049	Silica	50.7	mg/L as SiO_2			200.8	Secondary	Inorganic Chemical (IOC)
119	5420021	4/23/1981	WELL #2	1030	LEAD	0.01	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
120	5420021	4/23/1981	WELL #2	1022	COPPER	0.09	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)
121	5420021	4/23/1981	WELL #2	1055	SULFATE	185	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
122	5420021	4/23/1981	WELL #2		Spec Cond	869					Water Quality	Inorganic Chemical (IOC)
123	5420021	4/23/1981	WELL #2	1040	NITRATE N	3.11	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
124	5420021	10/17/1995	WELL #2	1915	HARDNESS	380	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
125	5420021	8/28/2000	WELL #2	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
126	5420021	8/28/2000	WELL #2	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
127	5420021	8/28/2000	WELL #2	1036	Nickel	0.01	mg/L			200.8	Primary	Inorganic Chemical (IOC)
128	5420021	8/28/2000	WELL #2	1045	Selenium	0.002	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
129	5420021	8/28/2000	WELL #2	1052	Sodium	41	mg/L			200.7	Primary	Inorganic Chemical (IOC)
130	5420021	8/28/2000	WELL #2	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
131	5420021	9/16/2002	WELL #2	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
132	5420021	9/16/2002	WELL #2	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
133	5420021	9/16/2002	WELL #2	1036	Nickel	0.01	mg/L			200.8	Primary	Inorganic Chemical (IOC)
134	5420021	9/16/2002	WELL #2	1052	Sodium	59.4	mg/L			200.7	Primary	Inorganic Chemical (IOC)
135	5420021	9/16/2002	WELL #2	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
136	5420021	11/28/1973	WELL #3	1010	BARIUM	0.1	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
137	5420021	11/28/1973	WELL #3	1015	Cadmium	0.001	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
138	5420021	11/28/1973	WELL #3	1020	Chromium	0.01	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
139	5420021	11/28/1973	WELL #3	1035	Mercury	0.001	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
140	5420021	11/28/1973	WELL #3	1052	Sodium	72	mg/L			200.7	Primary	Inorganic Chemical (IOC)
141	5420021	11/28/1973	WELL #3	1025	Fluoride	1.11	mg/L	4		300	Primary	Inorganic Chemical (IOC)
142	5420021	11/28/1973	WELL #3	1017	CHLORIDE	9	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
143	5420021	11/28/1973	WELL #3	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
144	5420021	11/28/1973	WELL #3	1028	Iron	0.12	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
145	5420021	11/28/1973	WELL #3	1032	Manganese	0.01	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
146	5420021	11/28/1973	WELL #3	1930	TDS	804	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
147	5420021	11/28/1973	WELL #3	1095	Zinc	0.045	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
148	5420021	11/28/1973	WELL #3	1050	Silver	0.001	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
149	5420021	11/28/1973	WELL #3	1042	Potassium	5.3	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
150	5420021	11/28/1973	WELL #3	1030	LEAD	0.01	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
151	5420021	11/28/1973	WELL #3	1022	COPPER	0.001	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)
152	5420021	11/28/1973	WELL #3	1055	SULFATE	191	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
153	5420021	11/28/1973	WELL #3		Turbidity	1	ntu				Water Quality	Inorganic Chemical (IOC)
154	5420021	11/28/1973	WELL #3	1040	NITRATE N	6.9	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
155	5420021	7/15/1975	WELL #3	1025	Fluoride	0.97	mg/L	4		300	Primary	Inorganic Chemical (IOC)

156	5420021	7/15/1975	WELL #3	1017	CHLORIDE	3.4	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
157	5420021	7/15/1975	WELL #3	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
158	5420021	7/15/1975	WELL #3	2905	Surfactants	0.08	mg/L			5540C	Secondary	Inorganic Chemical (IOC)
159	5420021	7/15/1975	WELL #3	1930	TDS	756	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
160	5420021	7/15/1975	WELL #3	1915	HARDNESS	396	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
161	5420021	7/15/1975	WELL #3	1925	pH	7.1	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
162	5420021	7/15/1975	WELL #3	1055	SULFATE	193	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
163	5420021	7/15/1975	WELL #3		Turbidity	1.2	ntu				Water Quality	Inorganic Chemical (IOC)
164	5420021	7/15/1975	WELL #3	1040	NITRATE N	15.7	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
165	5420021	3/9/1978	WELL #3	1010	BARIUM	0.1	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
166	5420021	3/9/1978	WELL #3	1015	Cadmium	0.001	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
167	5420021	3/9/1978	WELL #3	1020	Chromium	0.01	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
168	5420021	3/9/1978	WELL #3	1035	Mercury	0.0005	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
169	5420021	3/9/1978	WELL #3	1045	Selenium	0.01	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
170	5420021	3/9/1978	WELL #3	1052	Sodium	73.4	mg/L			200.7	Primary	Inorganic Chemical (IOC)
171	5420021	3/9/1978	WELL #3	1025	Fluoride	1.47	mg/L	4		300	Primary	Inorganic Chemical (IOC)
172	5420021	3/9/1978	WELL #3	1017	CHLORIDE	39	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
173	5420021	3/9/1978	WELL #3	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
174	5420021	3/9/1978	WELL #3	1028	Iron	0.01	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
175	5420021	3/9/1978	WELL #3	1032	Manganese	0.01	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
176	5420021	3/9/1978	WELL #3	1930	TDS	639	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
177	5420021	3/9/1978	WELL #3	1095	Zinc	0.001	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
178	5420021	3/9/1978	WELL #3	1050	Silver	0.01	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
179	5420021	3/9/1978	WELL #3	1927	Alkalinity	190	mg/L as $CaCO_3$			310.1	Secondary	Inorganic Chemical (IOC)
180	5420021	3/9/1978	WELL #3	1003	Ammonia-N	0.127	mg/L			350.2	Secondary	Inorganic Chemical (IOC)
181	5420021	3/9/1978	WELL #3	1016	Calcium	73	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
182	5420021	3/9/1978	WELL #3	1915	HARDNESS	284	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
183	5420021	3/9/1978	WELL #3	1031	Magnesium	21.9	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
184	5420021	3/9/1978	WELL #3	1042	Potassium	11.9	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
185	5420021	3/9/1978	WELL #3	1049	Silica	65.3	mg/L as SiO_2			200.8	Secondary	Inorganic Chemical (IOC)
186	5420021	3/9/1978	WELL #3	1030	LEAD	0.01	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
187	5420021	3/9/1978	WELL #3	1022	COPPER	0.01	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)
188	5420021	3/9/1978	WELL #3	1055	SULFATE	145	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
189	5420021	3/9/1978	WELL #3		Turbidity	0.7	ntu				Water Quality	Inorganic Chemical (IOC)
190	5420021	3/9/1978	WELL #3	1040	NITRATE N	2.87	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
191	5420021	10/17/1995	WELL #3	1915	HARDNESS	273	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
192	5420021	10/20/1999	WELL #3	1010	BARIUM	0.03	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
193	5420021	10/20/1999	WELL #3	1015	Cadmium	0.0005	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
194	5420021	10/20/1999	WELL #3	1020	Chromium	0.005	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
195	5420021	10/20/1999	WELL #3	1035	Mercury	0.001	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
196	5420021	10/20/1999	WELL #3	1045	Selenium	0.005	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
197	5420021	10/20/1999	WELL #3	1052	Sodium	62	mg/L			200.7	Primary	Inorganic Chemical (IOC)
198	5420021	10/20/1999	WELL #3	1025	Fluoride	0.9	mg/L	4		300	Primary	Inorganic Chemical (IOC)
199	5420021	8/28/2000	WELL #3	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
200	5420021	8/28/2000	WELL #3	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
201	5420021	8/28/2000	WELL #3	1036	Nickel	0.001	mg/L			200.8	Primary	Inorganic Chemical (IOC)
202	5420021	8/28/2000	WELL #3	1052	Sodium	45	mg/L			200.7	Primary	Inorganic Chemical (IOC)
203	5420021	8/28/2000	WELL #3	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
204	5420021	9/16/2002	WELL #3	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
205	5420021	9/16/2002	WELL #3	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
206	5420021	9/16/2002	WELL #3	1036	Nickel	0.01	mg/L			200.8	Primary	Inorganic Chemical (IOC)
207	5420021	9/16/2002	WELL #3	1052	Sodium	71.2	mg/L			200.7	Primary	Inorganic Chemical (IOC)
208	5420021	9/16/2002	WELL #3	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
209	5420021	3/23/1976	WELL #5	1010	BARIUM	0.1	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
210	5420021	3/23/1976	WELL #5	1015	Cadmium	0.002	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
211	5420021	3/23/1976	WELL #5	1020	Chromium	0.01	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
212	5420021	3/23/1976	WELL #5	1035	Mercury	0.005	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
213	5420021	3/23/1976	WELL #5	1045	Selenium	0.01	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
214	5420021	3/23/1976	WELL #5	1052	Sodium	57.2	mg/L			200.7	Primary	Inorganic Chemical (IOC)
215	5420021	3/23/1976	WELL #5	1025	Fluoride	0.93	mg/L	4		300	Primary	Inorganic Chemical (IOC)
216	5420021	3/23/1976	WELL #5	1017	CHLORIDE	2	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
217	5420021	3/23/1976	WELL #5	1028	Iron	0.9	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
218	5420021	3/23/1976	WELL #5	1032	Manganese	0.03	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
219	5420021	3/23/1976	WELL #5	1930	TDS	662	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
220	5420021	3/23/1976	WELL #5	1095	Zinc	0.026	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
221	5420021	3/23/1976	WELL #5	1050	Silver	0.003	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
222	5420021	3/23/1976	WELL #5	1927	Alkalinity	156	mg/L as $CaCO_3$			310.1	Secondary	Inorganic Chemical (IOC)
223	5420021	3/23/1976	WELL #5	1003	Ammonia-N	0.01	mg/L			350.2	Secondary	Inorganic Chemical (IOC)
224	5420021	3/23/1976	WELL #5	1016	Calcium	102	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
225	5420021	3/23/1976	WELL #5	1915	HARDNESS	448	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
226	5420021	3/23/1976	WELL #5	1031	Magnesium	36.9	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
227	5420021	3/23/1976	WELL #5	1925	pH	7.3	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
228	5420021	3/23/1976	WELL #5	1042	Potassium	3.4	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
229	5420021	3/23/1976	WELL #5	1049	Silica	38.2	mg/L as SiO_2			200.8	Secondary	Inorganic Chemical (IOC)
230	5420021	3/23/1976	WELL #5	1030	LEAD	0.01	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
231	5420021	3/23/1976	WELL #5	1022	COPPER	0.008	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)
232	5420021	3/23/1976	WELL #5	1055	SULFATE	202	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
233	5420021	3/23/1976	WELL #5		Turbidity	23	ntu				Water Quality	Inorganic Chemical (IOC)
234	5420021	3/23/1976	WELL #5	1040	NITRATE N	11.4	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
235	5420021	7/15/1975	WELL #5	1930	TDS	498	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)

236	5420021	7/15/1975	WELL #5	1927	Alkalinity	229	mg/L as $CaCO_3$			310.1	Secondary	Inorganic Chemical (IOC)
237	5420021	7/15/1975	WELL #5	1915	HARDNESS	227	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
238	5420021	7/15/1975	WELL #5	1925	pH	8.15	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
239	5420021	7/15/1975	WELL #5		Temp	18.1	C				Water Quality	Inorganic Chemical (IOC)
240	5420021	7/15/1975	WELL #5		Corrosivity Inde	0.84					Water Quality	Inorganic Chemical (IOC)
241	5420021	10/17/1995	WELL #5	1915	HARDNESS	353	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
242	5420021	8/28/2000	WELL #5	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
243	5420021	8/28/2000	WELL #5	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
244	5420021	8/28/2000	WELL #5	1036	Nickel	0.001	mg/L			200.8	Primary	Inorganic Chemical (IOC)
245	5420021	8/28/2000	WELL #5	1052	Sodium	43	mg/L			200.7	Primary	Inorganic Chemical (IOC)
246	5420021	8/28/2000	WELL #5	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
247	5420021	9/16/2002	WELL #5	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
248	5420021	9/16/2002	WELL #5	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
249	5420021	9/16/2002	WELL #5	1036	Nickel	0.01	mg/L			200.8	Primary	Inorganic Chemical (IOC)
250	5420021	9/16/2002	WELL #5	1052	Sodium	45.3	mg/L			200.7	Primary	Inorganic Chemical (IOC)
251	5420021	9/16/2002	WELL #5	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
252	5420021	7/29/2009	WELL #5	1074	Antimony	0.005	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
253	5420021	7/29/2009	WELL #5	1075	Beryllium	0.0005	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
254	5420021	7/29/2009	WELL #5	1085	Thallium	0.002	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
255	5420021	3/28/2002	WELL #7	1074	Antimony	0.001	mg/L	0.006		200.8	Primary	Inorganic Chemical (IOC)
256	5420021	3/28/2002	WELL #7	1010	BARIUM	0.03	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
257	5420021	3/28/2002	WELL #7	1075	Beryllium	0.001	mg/L	0.004		200.8	Primary	Inorganic Chemical (IOC)
258	5420021	3/28/2002	WELL #7	1015	Cadmium	0.001	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
259	5420021	3/28/2002	WELL #7	1020	Chromium	0.014	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
260	5420021	3/28/2002	WELL #7	1035	Mercury	0.001	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
261	5420021	3/28/2002	WELL #7	1036	Nickel	0.001	mg/L			200.8	Primary	Inorganic Chemical (IOC)
262	5420021	3/28/2002	WELL #7	1045	Selenium	0.002	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
263	5420021	3/28/2002	WELL #7	1052	Sodium	66	mg/L			200.7	Primary	Inorganic Chemical (IOC)
264	5420021	3/28/2002	WELL #7	1085	Thallium	0.001	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
265	5420021	3/28/2002	WELL #7	1025	Fluoride	0.9	mg/L	4		300	Primary	Inorganic Chemical (IOC)
266	5420021	3/28/2002	WELL #7	1017	CHLORIDE	57	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
267	5420021	3/28/2002	WELL #7	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
268	5420021	3/28/2002	WELL #7	1027	Iydrogen Sulfid	ND	mg/L			8131	Secondary	Inorganic Chemical (IOC)
269	5420021	3/28/2002	WELL #7	1028	Iron	0.3	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
270	5420021	3/28/2002	WELL #7	1032	Manganese	0.001	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
271	5420021	3/28/2002	WELL #7	1920	Odor	1		3		140.1	Secondary	Inorganic Chemical (IOC)
272	5420021	3/28/2002	WELL #7	2905	Surfactants	0.05	mg/L			5540C	Secondary	Inorganic Chemical (IOC)
273	5420021	3/28/2002	WELL #7	1930	TDS	570	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
274	5420021	3/28/2002	WELL #7	1095	Zinc	0.003	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
275	5420021	3/28/2002	WELL #7	1050	Silver	0.01	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
276	5420021	3/28/2002	WELL #7	1002	Aluminum	0.001	mg/L	0.05-0.2		200.7	Secondary	Inorganic Chemical (IOC)
277	5420021	3/28/2002	WELL #7	1927	Alkalinity	179	mg/L as $CaCO_3$			310.1	Secondary	Inorganic Chemical (IOC)
278	5420021	3/28/2002	WELL #7	1003	Ammonia-N	0.2	mg/L			350.2	Secondary	Inorganic Chemical (IOC)
279	5420021	3/28/2002	WELL #7	1016	Calcium	68	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
280	5420021	3/28/2002	WELL #7	1915	HARDNESS	283	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
281	5420021	3/28/2002	WELL #7	1031	Magnesium	26	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
282	5420021	3/28/2002	WELL #7	1925	pH	7.83	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
283	5420021	3/28/2002	WELL #7	1042	Potassium	8	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
284	5420021	3/28/2002	WELL #7	1049	Silica	26	mg/L as SiO_2			200.8	Secondary	Inorganic Chemical (IOC)
285	5420021	3/28/2002	WELL #7	1030	LEAD	0.001	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
286	5420021	3/28/2002	WELL #7	1022	COPPER	0.007	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)
287	5420021	3/28/2002	WELL #7	1026	Conductivity	835	uS/cm			120.1	Secondary	Inorganic Chemical (IOC)
288	5420021	3/28/2002	WELL #7	1997	Langlier Index	0.32					Secondary	Inorganic Chemical (IOC)
289	5420021	3/28/2002	WELL #7	1055	SULFATE	166	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
290	5420021	3/28/2002	WELL #7	1040	NITRATE N	3.26	mg/L	10	0.3	EPA300.0	Water Quality	Inorganic Chemical (IOC)
291	5420021	3/28/2002	WELL #7	1041	NITRITE N	0.003	mg/L	1	0.2	EPA300.0	Water Quality	Inorganic Chemical (IOC)
292	5420021	4/11/1978	Ralph Smith Well	1010	BARIUM	0.1	mg/L	2		200.8	Primary	Inorganic Chemical (IOC)
293	5420021	4/11/1978	Ralph Smith Well	1015	Cadmium	0.001	mg/L	0.005		200.8	Primary	Inorganic Chemical (IOC)
294	5420021	4/11/1978	Ralph Smith Well	1020	Chromium	0.01	mg/L	0.1		200.8	Primary	Inorganic Chemical (IOC)
295	5420021	4/11/1978	Ralph Smith Well	1035	Mercury	0.0005	mg/L	0.002		200.8	Primary	Inorganic Chemical (IOC)
296	5420021	4/11/1978	Ralph Smith Well	1045	Selenium	0.01	mg/L	0.05		200.8	Primary	Inorganic Chemical (IOC)
297	5420021	4/11/1978	Ralph Smith Well	1052	Sodium	78.2	mg/L			200.7	Primary	Inorganic Chemical (IOC)
298	5420021	4/11/1978	Ralph Smith Well	1025	Fluoride	1.04	mg/L	4		300	Primary	Inorganic Chemical (IOC)
299	5420021	4/11/1978	Ralph Smith Well	1017	CHLORIDE	40	mg/L	250		300	Secondary	Inorganic Chemical (IOC)
300	5420021	4/11/1978	Ralph Smith Well	1905	Color	5		15		110.2	Secondary	Inorganic Chemical (IOC)
301	5420021	4/11/1978	Ralph Smith Well	1028	Iron	0.02	mg/L	0.3		3111B	Secondary	Inorganic Chemical (IOC)
302	5420021	4/11/1978	Ralph Smith Well	1032	Manganese	0.01	mg/L	0.05		3111B	Secondary	Inorganic Chemical (IOC)
303	5420021	4/11/1978	Ralph Smith Well	1930	TDS	770	mg/L	500		160.1	Secondary	Inorganic Chemical (IOC)
304	5420021	4/11/1978	Ralph Smith Well	1095	Zinc	0.072	mg/L	5		3111B	Secondary	Inorganic Chemical (IOC)
305	5420021	4/11/1978	Ralph Smith Well	1050	Silver	0.001	mg/L	0.1		3111B	Secondary	Inorganic Chemical (IOC)
306	5420021	4/11/1978	Ralph Smith Well	1927	Alkalinity	283	mg/L as $CaCO_3$			310.1	Secondary	Inorganic Chemical (IOC)
307	5420021	4/11/1978	Ralph Smith Well	1003	Ammonia-N	0.027	mg/L			350.2	Secondary	Inorganic Chemical (IOC)
308	5420021	4/11/1978	Ralph Smith Well	1016	Calcium	95	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
309	5420021	4/11/1978	Ralph Smith Well	1915	HARDNESS	408	mg/L as $CaCO_3$			2340B	Secondary	Inorganic Chemical (IOC)
310	5420021	4/11/1978	Ralph Smith Well	1031	Magnesium	35.6	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
311	5420021	4/11/1978	Ralph Smith Well	1925	pH	8.1	s.u.	6.5-8.5		150.1	Secondary	Inorganic Chemical (IOC)
312	5420021	4/11/1978	Ralph Smith Well	1042	Potassium	5.6	mg/L			3111B	Secondary	Inorganic Chemical (IOC)
313	5420021	4/11/1978	Ralph Smith Well	1049	Silica	56	mg/L as SiO_2			200.8	Secondary	Inorganic Chemical (IOC)
314	5420021	4/11/1978	Ralph Smith Well	1030	LEAD	0.01	mg/L	0.015		3113B	Secondary	Inorganic Chemical (IOC)
315	5420021	4/11/1978	Ralph Smith Well	1022	COPPER	0.02	mg/L	1		3111B	Secondary	Inorganic Chemical (IOC)

316			5420021	4/11/1978			Ralph Smith Well		1055	SULFATE	240	mg/L	250		300		Secondary	Inorganic Chemical (IOC)
317			5420021	4/11/1978			Ralph Smith Well			Turbidity	0.7	ntu					Water Quality	Inorganic Chemical (IOC)
318			5420021	4/11/1978			Ralph Smith Well		1040	NITRATE N	1.58	mg/L	10	0.3	EPA300.0		Water Quality	Inorganic Chemical (IOC)
319			5420021	8/23/2000			Golden Spur New Well		1074	Antimony	0.003	mg/L	0.006		200.8		Primary	Inorganic Chemical (IOC)
320			5420021	8/23/2000			Golden Spur New Well		1010	BARIUM	0.07	mg/L	2		200.8		Primary	Inorganic Chemical (IOC)
321			5420021	8/23/2000			Golden Spur New Well		1075	Beryllium	0.006	mg/L	0.004		200.8		Primary	Inorganic Chemical (IOC)
322			5420021	8/23/2000			Golden Spur New Well		1015	Cadmium	<0.001	mg/L	0.005		200.8		Primary	Inorganic Chemical (IOC)
323			5420021	8/23/2000			Golden Spur New Well		1020	Chromium	<0.005	mg/L	0.1		200.8		Primary	Inorganic Chemical (IOC)
324			5420021	8/23/2000			Golden Spur New Well		1035	Mercury	<0.001	mg/L	0.002		200.8		Primary	Inorganic Chemical (IOC)
325			5420021	8/23/2000			Golden Spur New Well		1036	Nickel	<0.001	mg/L			200.8		Primary	Inorganic Chemical (IOC)
326			5420021	8/23/2000			Golden Spur New Well		1045	Selenium	<0.005	mg/L	0.05		200.8		Primary	Inorganic Chemical (IOC)
327			5420021	8/23/2000			Golden Spur New Well		1052	Sodium	42	mg/L			200.7		Primary	Inorganic Chemical (IOC)
328			5420021	8/23/2000			Golden Spur New Well		1085	Thallium	<0.001	mg/L	0.002		200.8		Primary	Inorganic Chemical (IOC)
329			5420021	8/23/2000			Golden Spur New Well		1025	Fluoride	2.5	mg/L	4		300		Primary	Inorganic Chemical (IOC)
330			5420021	8/23/2000			Golden Spur New Well		1017	CHLORIDE	20	mg/L	250		300		Secondary	Inorganic Chemical (IOC)
331			5420021	8/23/2000			Golden Spur New Well		1905	Color	<1		15		110.2		Secondary	Inorganic Chemical (IOC)
332			5420021	8/23/2000			Golden Spur New Well		1027	lydrogen Sulfid	ND	mg/L			8131		Secondary	Inorganic Chemical (IOC)
333			5420021	8/23/2000			Golden Spur New Well		1028	Iron	9.88	mg/L	0.3		3111B		Secondary	Inorganic Chemical (IOC)
334			5420021	8/23/2000			Golden Spur New Well		1032	Manganese	0.542	mg/L	0.05		3111B		Secondary	Inorganic Chemical (IOC)
335			5420021	8/23/2000			Golden Spur New Well		1920	Odor	<1		3		140.1		Secondary	Inorganic Chemical (IOC)
336			5420021	8/23/2000			Golden Spur New Well		2905	Surfactants	<0.05	mg/L			5540C		Secondary	Inorganic Chemical (IOC)
337			5420021	8/23/2000			Golden Spur New Well		1930	TDS	294	mg/L	500		160.1		Secondary	Inorganic Chemical (IOC)
338			5420021	8/23/2000			Golden Spur New Well		1095	Zinc	0.043	mg/L	5		3111B		Secondary	Inorganic Chemical (IOC)
339			5420021	8/23/2000			Golden Spur New Well		1050	Silver	<0.01	mg/L	0.1		3111B		Secondary	Inorganic Chemical (IOC)
340			5420021	8/23/2000			Golden Spur New Well		1002	Aluminum	23.5	mg/L	0.05-0.2		200.7		Secondary	Inorganic Chemical (IOC)
341			5420021	8/23/2000			Golden Spur New Well		1927	Alkalinity	134	mg/L as $CaCO_3$			310.1		Secondary	Inorganic Chemical (IOC)
342			5420021	8/23/2000			Golden Spur New Well		1003	Ammonia-N	<0.1	mg/L			350.2		Secondary	Inorganic Chemical (IOC)
343			5420021	8/23/2000			Golden Spur New Well		1016	Calcium	50	mg/L			3111B		Secondary	Inorganic Chemical (IOC)
344			5420021	8/23/2000			Golden Spur New Well		1915	HARDNESS	244	mg/L as $CaCO_3$			2340B		Secondary	Inorganic Chemical (IOC)
345			5420021	8/23/2000			Golden Spur New Well		1031	Magnesium	27	mg/L			3111B		Secondary	Inorganic Chemical (IOC)
346			5420021	8/23/2000			Golden Spur New Well		1925	pH	7.88	s.u.	6.5-8.5		150.1		Secondary	Inorganic Chemical (IOC)
347			5420021	8/23/2000			Golden Spur New Well		1042	Potassium	5	mg/L			3111B		Secondary	Inorganic Chemical (IOC)
348			5420021	8/23/2000			Golden Spur New Well		1049	Silica	78	mg/L as SiO_2			200.8		Secondary	Inorganic Chemical (IOC)
349			5420021	8/23/2000			Golden Spur New Well		1030	LEAD	0.025	mg/L	0.015		3113B		Secondary	Inorganic Chemical (IOC)
350			5420021	8/23/2000			Golden Spur New Well		1022	COPPER	0.06	mg/L	1		3111B		Secondary	Inorganic Chemical (IOC)
351			5420021	8/23/2000			Golden Spur New Well		1026	Conductivity	451	uS/cm			120.1		Secondary	Inorganic Chemical (IOC)
352			5420021	8/23/2000			Golden Spur New Well		1997	Langlier Index	0.3						Secondary	Inorganic Chemical (IOC)
353			5420021	8/23/2000			Golden Spur New Well		1055	SULFATE	60	mg/L	250		300		Secondary	Inorganic Chemical (IOC)
354	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1010	BARIUM	0.0243	mg/L	2		200.8		Primary	Inorganic Chemical (IOC)
355	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1015	Cadmium	<0.001	mg/L	0.005		200.8		Primary	Inorganic Chemical (IOC)
356	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1020	Chromium	0.0018	mg/L	0.1		200.8		Primary	Inorganic Chemical (IOC)
357	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1035	Mercury	<0.0001	mg/L	0.002		200.8		Primary	Inorganic Chemical (IOC)
358	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1045	Selenium	0.0018	mg/L	0.05		200.8		Primary	Inorganic Chemical (IOC)
359	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1036	Nickel	<0.001	mg/L			200.8		Primary	Inorganic Chemical (IOC)
360	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1074	Antimony	<0.001	mg/L	0.006		200.8		Primary	Inorganic Chemical (IOC)
361	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1075	Beryllium	<0.001	mg/L	0.004		200.8		Primary	Inorganic Chemical (IOC)
362	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1085	Thallium	<0.001	mg/L	0.002		200.8		Primary	Inorganic Chemical (IOC)
363	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1005	Arsenic	9.78	ug/L	10	1	EPA200.8		Primary	Inorganic Chemical (IOC)
364	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1025	Fluoride	1.05	mg/L	4		200.8		Primary	Inorganic Chemical (IOC)
365	ID 00911	YES	5420021	7/28/2011	8:50 AM	7/28/2011	STORAGE 311	1135841	1052	Sodium	56.5	mg/L			200.8		Primary	Inorganic Chemical (IOC)
366	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1005	Arsenic	<5	ug/L	10	1	EPA200.8	RB	Primary	Inorganic Chemical (IOC)
367	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1010	BARIUM	<0.5	mg/L	2		3111D	RB	Primary	Inorganic Chemical (IOC)
368	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1015	Cadmium	<0.0005	mg/L	0.005		3113B	RB	Primary	Inorganic Chemical (IOC)
369	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1020	Chromium	<0.005	mg/L	0.1		3113B	RB	Primary	Inorganic Chemical (IOC)
370	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1035	Mercury	<0.001	mg/L	0.002		245.1	RB	Primary	Inorganic Chemical (IOC)
371	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1045	Selenium	<0.005	mg/L	0.05		200.9	RB	Primary	Inorganic Chemical (IOC)
372	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1052	Sodium	76	mg/L	20		311B	RB	Primary	Inorganic Chemical (IOC)
373	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	55347	1025	Fluoride	1.07	mg/L	4		300	GF	Primary	Inorganic Chemical (IOC)
374	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1005	Arsenic	<5	ug/L	10	1	EPA200.8	RB	Primary	Inorganic Chemical (IOC)
375	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1010	BARIUM	<0.5	mg/L	2		3111D	RB	Primary	Inorganic Chemical (IOC)
376	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1015	Cadmium	<0.0005	mg/L	0.005		3113B	RB	Primary	Inorganic Chemical (IOC)
377	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1020	Chromium	<0.005	mg/L	0.1		3113B	RB	Primary	Inorganic Chemical (IOC)
378	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1035	Mercury	<0.001	mg/L	0.002		245.1	RB	Primary	Inorganic Chemical (IOC)
379	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1045	Selenium	<0.005	mg/L	0.05		200.9	RB	Primary	Inorganic Chemical (IOC)
380	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1052	Sodium	29.7	mg/L	20		311B	RB	Primary	Inorganic Chemical (IOC)
381	ID 00911		5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	55344	1025	Fluoride	0.91	mg/L	4		300	GF	Primary	Inorganic Chemical (IOC)
382	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1005	Arsenic	<5	ug/L	10	1	EPA200.8	RB	Primary	Inorganic Chemical (IOC)
383	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1010	BARIUM	<0.5	mg/L	2		3111D	RB	Primary	Inorganic Chemical (IOC)
384	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1015	Cadmium	<0.0005	mg/L	0.005		3113B	RB	Primary	Inorganic Chemical (IOC)
385	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1020	Chromium	<0.005	mg/L	0.1		3113B	RB	Primary	Inorganic Chemical (IOC)
386	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1035	Mercury	<0.001	mg/L	0.002		245.1	RB	Primary	Inorganic Chemical (IOC)
387	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1045	Selenium	<0.005	mg/L	0.05		200.9	RB	Primary	Inorganic Chemical (IOC)
388	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1052	Sodium	43	mg/L	20		311B	RB	Primary	Inorganic Chemical (IOC)
389	ID 00911		5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	55341	1025	Fluoride	1.49	mg/L	4		300	GF	Primary	Inorganic Chemical (IOC)
390	ID 00911		5420021	8/31/2004	12:20 PM	8/31/2004	BOOSTER STA	45008	1025	Fluoride	0.98	mg/L	4		4500fc	GF	Primary	Inorganic Chemical (IOC)
391	ID 00911		5420021	9/27/2005	12:12:00 PM	9/27/2005	WELL #7	55350	1074	Antimony	<0.005	mg/L	0.006		200.9	RB	Primary	Inorganic Chemical (IOC)
392	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1005	Arsenic	<5	ug/L	10	1	EPA200.8	RB		Inorganic Chemical (IOC)
393	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1010	BARIUM	<0.5	mg/L	2		3111D			Inorganic Chemical (IOC)
394	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1075	Beryllium	<0.0005	mg/L	0.004		200.9			Inorganic Chemical (IOC)
395	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1015	Cadmium	<0.0005	mg/L	0.005		3113B	RB		Inorganic Chemical (IOC)
396	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1020	Chromium	<0.005	mg/L	0.1		3113B	RB		Inorganic Chemical (IOC)
397	ID 00911		5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1035	Mercury	<0.001	mg/L	0.002		245.1	RB		Inorganic Chemical (IOC)

398	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1036	Nickel	<0.01	mg/L	0.1		3113B		RB		Inorganic Chemical (IOC)
399	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1045	Selenium	<0.005	mg/L	0.05		200.9		RB		Inorganic Chemical (IOC)
400	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1052	Sodium	66.2	mg/L	20		3111B		RB		Inorganic Chemical (IOC)
401	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1085	Thallium	<0.002	mg/L	0.002		200.9		RB		Inorganic Chemical (IOC)
402	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	55350	1025	Fluoride	1.17	mg/L	4		300		GF		Inorganic Chemical (IOC)
403	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1005	Arsenic	10.2	ug/L	10	1	EPA200.8		ATL		Inorganic Chemical (IOC)
404	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1010	BARIUM	<0.05	mg/L	2	0.001			ATL		Inorganic Chemical (IOC)
405	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1015	Cadmium	<0.001	mg/L	0.005	0.001			ATL		Inorganic Chemical (IOC)
406	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1020	Chromium	0.003	mg/L	0.1	0.001			ATL		Inorganic Chemical (IOC)
407	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1035	Mercury	<0.0001	mg/L	0.002	0.0001			ATL		Inorganic Chemical (IOC)
408	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1036	Nickel	0.11	mg/L		0.001			ATL		Inorganic Chemical (IOC)
409	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1045	Selenium	0.0024	mg/L	0.05	0.001			ATL		Inorganic Chemical (IOC)
410	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1052	Sodium	80.5	mg/L		0.1			ATL		Inorganic Chemical (IOC)
411	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	105156	1025	Fluoride	0.97	mg/L	4	0.1			ATL		Inorganic Chemical (IOC)
412	ID 00911	5420021	7/29/2009	4:00 PM	7/30/2009	WELL #1	942341	1005	Arsenic	20	ug/L	10	1	EPA200.8	8/7/2009	JB		Inorganic Chemical (IOC)
413	ID 00911	5420021	7/29/2009	4:00 PM	7/30/2009	WELL #1	942341	1052	Sodium	33.3	mg/L			200.7	8/6/2009	JB		Inorganic Chemical (IOC)
414	ID 00911	5420021	7/29/2009	3:45 PM	7/30/2009	WELL #2	942441	1005	Arsenic	11	ug/L	10	1	EPA200.8	8/7/2009	JB		Inorganic Chemical (IOC)
415	ID 00911	5420021	7/29/2009	3:45 PM	7/30/2009	WELL #2	942441	1052	Sodium	60.5	mg/L			200.7	8/6/2009	JB		Inorganic Chemical (IOC)
416	ID 00911	5420021	7/29/2009	3:53: PM	7/30/2009	WELL #3	942481	1005	Arsenic	11	ug/L	10	1	EPA200.8	8/7/2009	JB		Inorganic Chemical (IOC)
417	ID 00911	5420021	7/29/2009	3:53: PM	7/30/2009	WELL #3	942481	1052	Sodium	72.3	mg/L			200.7	8/6/2009	JB		Inorganic Chemical (IOC)
418	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1005	Arsenic	13	ug/L	10	1	EPA200.8		JB		Inorganic Chemical (IOC)
419	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1010	BARIUM	<0.05	mg/L	2	0.001			JB		Inorganic Chemical (IOC)
420	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1015	Cadmium	<0.0005	mg/L	0.005	0.001			JB		Inorganic Chemical (IOC)
421	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1020	Chromium	<0.005	mg/L	0.1	0.001			JB		Inorganic Chemical (IOC)
422	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1035	Mercury	<0.0001	mg/L	0.002	0.0001			JB		Inorganic Chemical (IOC)
423	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1036	Nickel	<0.01	mg/L		0.001			JB		Inorganic Chemical (IOC)
424	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1045	Selenium	<0.005	mg/L	0.05	0.001			JB		Inorganic Chemical (IOC)
425	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1052	Sodium	63.3	mg/L		0.1			JB		Inorganic Chemical (IOC)
426	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	94240	1025	Fluoride	0.77	mg/L	4	0.1			JB		Inorganic Chemical (IOC)
427	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1010	BARIUM	<0.05	mg/L	2	0.001		8/6/2009	JB		Inorganic Chemical (IOC)
428	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1015	Cadmium	<0.0005	mg/L	0.005	0.001		8/25/2009	JB		Inorganic Chemical (IOC)
429	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1020	Chromium	<0.005	mg/L	0.1	0.001		9/3/2009	JB		Inorganic Chemical (IOC)
430	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1035	Mercury	<0.0001	mg/L	0.002	0.0001		8/10/2009	JB		Inorganic Chemical (IOC)
431	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1036	Nickel	<0.01	mg/L		0.001		8/28/2009	JB		Inorganic Chemical (IOC)
432	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1045	Selenium	<0.005	mg/L	0.05	0.001		8/11/2009	JB		Inorganic Chemical (IOC)
433	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1052	Sodium	71.7	mg/L		0.1		8/6/2009	JB		Inorganic Chemical (IOC)
434	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1025	Fluoride	0.81	mg/L	4	0.1		8/2/2009	JB		Inorganic Chemical (IOC)
435	ID 00911	5420021	7/29/2009	3:49:00 PM	7/30/2009	WELL #7	94237	1074	Antimony	<0.005	mg/L	0.006		200.9	8/25/2009	JB	Primary	Inorganic Chemical (IOC)
436	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1075	Beryllium	<0.0005	mg/L	0.004		200.9	8/11/2009	JB		Inorganic Chemical (IOC)
437	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	94237	1085	Thallium	<0.002	mg/L	0.002		200.9	8/12/2009	JB		Inorganic Chemical (IOC)
438	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1010	BARIUM	<0.5	mg/L	2	0.001	3111D	8/10/2007	RB		Inorganic Chemical (IOC)
439	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1015	Cadmium	<0.0005	mg/L	0.005	0.001	3113B	8/17/2007	RB		Inorganic Chemical (IOC)
440	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1020	Chromium	<0.005	mg/L	0.1	0.001	3113B	8/14/2007	RB		Inorganic Chemical (IOC)
441	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1035	Mercury	<0.001	mg/L	0.002	0.0001	245.1	8/23/2007	RB		Inorganic Chemical (IOC)
442	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1045	Selenium	<0.005	mg/L	0.05	0.001	200.9	8/15/2007	RB		Inorganic Chemical (IOC)
443	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1052	Sodium	45	mg/L		0.1	3111B	8/23/2007	RB		Inorganic Chemical (IOC)
444	ID 00911	5420021	8/9/2007	3:05 PM	8/9/2009	WELL #5	75124	1025	Fluoride	0.95	mg/L	4	0.1	300	8/11/2007	JH		Inorganic Chemical (IOC)
445	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918521		TDS	860	mg/L			SM2540C	5/4/2009	JD		Inorganic Chemical (IOC)
446	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918522		NITRATE N		mg/L	10	0.3	EPA300.0	5/4/2009	JB		Inorganic Chemical (IOC)
447	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918523		TOTAL P	<0.05	mg/L			365.1	5/7/2009	SK		Inorganic Chemical (IOC)
448	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918524		CHLORIDE	235	mg/L			300	5/6/2009	JB		Inorganic Chemical (IOC)
449	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918525		SULFATE	98.4	mg/L			300	5/4/2009	JB		Inorganic Chemical (IOC)
450	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918526		TOTAL IRON	0.2	mg/L				5/6/2009	JB		Inorganic Chemical (IOC)
451	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918527		TOTAL MANGANI	<0.05	mg/L			3111B	5/6/2009	JB		Inorganic Chemical (IOC)
452	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918528		DISS IRON	<0.1	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)
453	ID 00911	5420021	4/30/2009	11:15 AM	4/30/2009	WELL #1	918529		DISS MANGANE	<0.05	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)
454	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918531		TDS	737	mg/L			SM2540C	5/4/2009	JD		Inorganic Chemical (IOC)
455	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918532		NITRATE N	3.76	mg/L	10	0.3	EPA300.0	5/4/2009	JB		Inorganic Chemical (IOC)
456	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918533		TOTAL P	<0.05	mg/L			365.1	5/7/2009	SK		Inorganic Chemical (IOC)
457	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918534		CHLORIDE	170	mg/L			300	5/4/2009	JB		Inorganic Chemical (IOC)
458	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918535		SULFATE	125	mg/L			300	5/4/2009	JB		Inorganic Chemical (IOC)
459	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918536		TOTAL IRON	0.14	mg/L				5/6/2009	JB		Inorganic Chemical (IOC)
460	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918537		TOTAL MANGANI	<0.05	mg/L			3111B	5/6/2009	JB		Inorganic Chemical (IOC)
461	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918538		DISS IRON	<0.1	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)
462	ID 00911	5420021	4/30/2009	11:55 AM	4/30/2009	WELL #2	918539		DISS MANGANE	<0.05	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)
463	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918541		TDS	793	mg/L			SM2540C	5/4/2009	JD		Inorganic Chemical (IOC)
464	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918542		NITRATE N	3.84	mg/L	10	0.3	EPA300.0	5/4/2009	JB		Inorganic Chemical (IOC)
465	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918543		TOTAL P	<0.05	mg/L			365.1	5/7/2009	SK		Inorganic Chemical (IOC)
466	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918544		CHLORIDE	207	mg/L			300	5/4/2009	JB		Inorganic Chemical (IOC)
467	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918545		SULFATE	133	mg/L			300	5/4/2009	JB		Inorganic Chemical (IOC)
468	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918546		TOTAL IRON	0.3	mg/L				5/6/2009	JB		Inorganic Chemical (IOC)
469	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918547		TOTAL MANGANI	<0.05	mg/L			3111B	5/6/2009	JB		Inorganic Chemical (IOC)
470	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918548		DISS IRON	<0.1	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)
471	ID 00911	5420021	4/30/2009	9:20 AM	4/30/2009	WELL #3	918549		DISS MANGANE	<0.05	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)
472	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918551		TDS	1030	mg/L			SM2540C	5/4/2009	JD		Inorganic Chemical (IOC)
473	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918552		NITRATE N	1.94	mg/L	10	0.3	EPA300.0	5/4/2009	JB		Inorganic Chemical (IOC)
474	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918553		TOTAL P	<0.05	mg/L			365.1	5/7/2009	SK		Inorganic Chemical (IOC)
475	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918554		CHLORIDE	341	mg/L			300	5/4/2009	JB		Inorganic Chemical (IOC)
476	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918555		SULFATE	120	mg/L			300	5/6/2009	JB		Inorganic Chemical (IOC)
477	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918556		TOTAL IRON	0.13	mg/L				5/6/2009	JB		Inorganic Chemical (IOC)
478	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918557		TOTAL MANGANI	<0.05	mg/L			3111B	5/6/2009	JB		Inorganic Chemical (IOC)
479	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918558		DISS IRON	<0.1	mg/L			200.7	5/6/2009	JB		Inorganic Chemical (IOC)

480	ID 00911	5420021	4/30/2009	1:10 PM	4/30/2009	WELL #4	918559		DISS MANGANE	<0.05	mg/L			200.7	5/6/2009	JB	Inorganic Chemical (IOC)
481	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918561		TDS	761	mg/L			SM2540C	5/4/2009	JD	Inorganic Chemical (IOC)
482	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918562		NITRATE N	3.89	mg/L	10	0.3	EPA300.0	5/4/2009	JB	Inorganic Chemical (IOC)
483	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918563		TOTAL P	<0.05	mg/L			365.1	5/7/2009	SK	Inorganic Chemical (IOC)
484	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918564		CHLORIDE	186	mg/L			300	5/4/2009	JB	Inorganic Chemical (IOC)
485	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918565		SULFATE	128	mg/L			300	5/4/2009	JB	Inorganic Chemical (IOC)
486	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918566		TOTAL IRON	<0.1	mg/L				5/6/2009	JB	Inorganic Chemical (IOC)
487	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918567		TOTAL MANGANI	<0.05	mg/L			3111B	5/6/2009	JB	Inorganic Chemical (IOC)
488	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918568		DISS IRON	<0.1	mg/L			200.7	5/6/2009	JB	Inorganic Chemical (IOC)
489	ID 00911	5420021	4/30/2009	12:35 PM	4/30/2009	WELL #5	918569		DISS MANGANE	<0.05	mg/L			200.7	5/6/2009	JB	Inorganic Chemical (IOC)
490	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918571		TDS	711	mg/L			SM2540C	5/4/2009	JD	Inorganic Chemical (IOC)
491	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918572		NITRATE N	3.87	mg/L	10	0.3	EPA300.0	5/4/2009	JB	Inorganic Chemical (IOC)
492	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918573		TOTAL P	<0.05	mg/L			365.1	5/7/2009	SK	Inorganic Chemical (IOC)
493	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918574		CHLORIDE	162	mg/L			300	5/4/2009	JB	Inorganic Chemical (IOC)
494	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918575		SULFATE	123	mg/L			300	5/4/2009	JB	Inorganic Chemical (IOC)
495	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918576		TOTAL IRON	<0.1	mg/L				5/6/2009	JB	Inorganic Chemical (IOC)
496	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918577		TOTAL MANGANI	<0.05	mg/L			3111B	5/6/2009	JB	Inorganic Chemical (IOC)
497	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918578		DISS IRON	<0.1	mg/L			200.7	5/6/2009	JB	Inorganic Chemical (IOC)
498	ID 00911	5420021	4/30/2009	8:10 AM	4/30/2009	WELL #6	918579		DISS MANGANE	<0.05	mg/L			200.7	5/6/2009	JB	Inorganic Chemical (IOC)
499	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454791		COD	<20	mg/L			SM5520D	9/21/2004	GF	Inorganic Chemical (IOC)
500	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454792		CHLORIDE	23.3	mg/L			EPA325.2	9/17/2004	GF	Inorganic Chemical (IOC)
501	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454793		NITRATE N	0.15	mg/L	10	0.3	EPA300.0	9/20/2004	GF	Inorganic Chemical (IOC)
502	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454794		TOTAL P	<0.05	mg/L			EPA365.1	9/27/2004	SK	Inorganic Chemical (IOC)
503	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454795		TDS	310	mg/L			SM2540C	9/21/2004	EB	Inorganic Chemical (IOC)
504	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454796		BARIUM	<0.5	mg/L	2			9/28/2004	RB	Inorganic Chemical (IOC)
505	ID 00911	5420021	9/20/2004	10:15 AM	9/20/2004	WELL #1	454797		LEAD	<0.005	mg/L			SM3113B	9/22/2004	RB	Inorganic Chemical (IOC)
506	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454801		COD	56	mg/L			SM5520D	9/21/2004	GF	Inorganic Chemical (IOC)
507	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454802		CHLORIDE	49.1	mg/L			EPA325.2	9/17/2004	GF	Inorganic Chemical (IOC)
508	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454803		NITRATE N	0.2	mg/L	10	0.3	EPA300.0	9/20/2004	GF	Inorganic Chemical (IOC)
509	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454804		TOTAL P	0.08	mg/L			EPA365.1	9/27/2004	SK	Inorganic Chemical (IOC)
510	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454805		TDS	460	mg/L			SM2540C	9/21/2004	EB	Inorganic Chemical (IOC)
511	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454806		BARIUM	<0.5	mg/L	2			9/28/2004	RB	Inorganic Chemical (IOC)
512	ID 00911	5420021	9/20/2004	9:00	9/20/2004	WELL #2	454807		LEAD	<0.005	mg/L			SM3113B	9/22/2004	RB	Inorganic Chemical (IOC)
513	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454811		COD	<20	mg/L			SM5520D	9/21/2004	GF	Inorganic Chemical (IOC)
514	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454812		CHLORIDE	36.4	mg/L			EPA325.2	9/17/2004	GF	Inorganic Chemical (IOC)
515	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454813		NITRATE N	1.8	mg/L	10	0.3	EPA300.0	9/20/2004	GF	Inorganic Chemical (IOC)
516	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454814		TOTAL P	0.06	mg/L			EPA365.1	9/27/2004	SK	Inorganic Chemical (IOC)
517	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454815		TDS	470	mg/L			SM2540C	9/21/2004	EB	Inorganic Chemical (IOC)
518	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454816		BARIUM	<0.5	mg/L	2			9/28/2004	RB	Inorganic Chemical (IOC)
519	ID 00911	5420021	9/20/2004	10:50 AM	9/20/2004	WELL #3	454817		LEAD	<0.005	mg/L			SM3113B	9/22/2004	RB	Inorganic Chemical (IOC)
520	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454821		COD	<20	mg/L			SM5520D	9/21/2004	GF	Inorganic Chemical (IOC)
521	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454822		CHLORIDE	54.5	mg/L			EPA325.2	9/17/2004	GF	Inorganic Chemical (IOC)
522	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454823		NITRATE N	0.71	mg/L	10	0.3	EPA300.0	9/20/2004	GF	Inorganic Chemical (IOC)
523	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454824		TOTAL P	0.1	mg/L			EPA365.1	9/27/2004	SK	Inorganic Chemical (IOC)
524	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454825		TDS	420	mg/L			SM2540C	9/21/2004	EB	Inorganic Chemical (IOC)
525	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454826		BARIUM	<0.5	mg/L	2			9/28/2004	RB	Inorganic Chemical (IOC)
526	ID 00911	5420021	9/20/2004	9:20 AM	9/20/2004	WELL #4	454827		LEAD	<0.005	mg/L			SM3113B	9/22/2004	RB	Inorganic Chemical (IOC)
527	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454831		COD	<20	mg/L			SM5520D	9/21/2004	GF	Inorganic Chemical (IOC)
528	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454832		CHLORIDE	20.5	mg/L			EPA325.2	9/17/2004	GF	Inorganic Chemical (IOC)
529	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454833		NITRATE N	0.25	mg/L	10	0.3	EPA300.0	9/20/2004	GF	Inorganic Chemical (IOC)
530	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454834		TOTAL P	<0.05	mg/L			EPA365.1	9/27/2004	SK	Inorganic Chemical (IOC)
531	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454835		TDS	290	mg/L			SM2540C	9/21/2004	EB	Inorganic Chemical (IOC)
532	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454836		BARIUM	<0.5	mg/L	2			9/28/2004	RB	Inorganic Chemical (IOC)
533	ID 00911	5420021	9/20/2004	11:50 AM	9/20/2004	WELL #5	454837		LEAD	<0.005	mg/L			SM3113B	9/22/2004	RB	Inorganic Chemical (IOC)
534	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454841		COD	<20	mg/L			SM5520D	9/21/2004	GF	Inorganic Chemical (IOC)
535	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454842		CHLORIDE	23.9	mg/L			EPA325.2	9/17/2004	GF	Inorganic Chemical (IOC)
536	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454843		NITRATE N	0.08	mg/L	10	0.3	EPA300.0	9/20/2004	GF	Inorganic Chemical (IOC)
537	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454844		TOTAL P	<0.05	mg/L			EPA365.1	9/27/2004	SK	Inorganic Chemical (IOC)
538	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454845		TDS	280	mg/L			SM2540C	9/21/2004	EB	Inorganic Chemical (IOC)
539	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454846		BARIUM	<0.5	mg/L	2			9/28/2004	RB	Inorganic Chemical (IOC)
540	ID 00911	5420021	9/20/2004	11:25 AM	9/20/2004	WELL #6	454847		LEAD	<0.005	mg/L			SM3113B	9/22/2004	RB	Inorganic Chemical (IOC)
541	ID 00911	5420021	9/20/2004	12:10 PM	9/20/2004	V STORAGE TA	454701		TDS	610	mg/L			SM2540C	9/20/2004	EB	Inorganic Chemical (IOC)
542	ID 00911	5420021	9/20/2004	12:10 PM	9/20/2004	V STORAGE TA	454702		HARDNESS	274	mg/L as $CaCO_3$				9/20/2004	KC	Inorganic Chemical (IOC)
543	ID 00911	5420021	6/23/2010	6:45 AM	6/28/2010	MULLEN	102904	1030	LEAD	<0.001	mg/L	0.015	0.001		7/2/2010	JB	Inorganic Chemical (IOC)
544	ID 00911	5420021	6/23/2010	6:45 AM	6/28/2010	MULLEN	102904	1022	COPPER	<0.001	mg/L	1.3	0.05		7/2/2010	JB	Inorganic Chemical (IOC)
545	ID 00911	5420021	6/22/2010	9:30 AM	6/22/2010	711 5TH ST	1027941	1030	LEAD	0.0016	mg/L	0.015	0.001		7/2/2010	JB	Inorganic Chemical (IOC)
546	ID 00911	5420021	6/22/2010	9:30 AM	6/22/2010	711 5TH ST	1027941	1022	COPPER	0.14	mg/L	1.3	0.05		7/2/2010	JB	Inorganic Chemical (IOC)
547	ID 00911	5420021	6/22/2010	5:50 AM	6/20/2010	710 ID. AVE	1027921	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
548	ID 00911	5420021	6/22/2010	5:50 AM	6/20/2010	710 ID. AVE	1027921	1022	COPPER	0.05	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
549	ID 00911	5420021	6/22/2010	6:45 AM	6/20/2010	502 6TH ST	1027922	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
550	ID 00911	5420021	6/22/2010	6:45 AM	6/20/2010	502 6TH ST	1027922	1022	COPPER	0.06	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
551	ID 00911	5420021	6/22/2010	1:00 PM	6/20/2010	621 5TH AVE	1027923	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
552	ID 00911	5420021	6/22/2010	1:00 PM	6/20/2010	621 5TH AVE	1027923	1022	COPPER	0.06	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
553	ID 00911	5420021	6/22/2010	11:45 AM	6/20/2010	629 5TH ST	1027924	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
554	ID 00911	5420021	6/22/2010	11:45 AM	6/20/2010	629 5TH ST	1027924	1022	COPPER	0.08	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
555	ID 00911	5420021	6/22/2010	9:15 AM	6/20/2010	711 IDAHO	1027925	1030	LEAD	0.0017	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
556	ID 00911	5420021	6/22/2010	9:15 AM	6/20/2010	711 IDAHO	1027925	1022	COPPER	0.16	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
557	ID 00911	5420021	6/22/2010	8:00 AM	6/20/2010	726 IDAHO	1027926	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
558	ID 00911	5420021	6/22/2010	8:00 AM	6/20/2010	726 IDAHO	1027926	1022	COPPER	<0.05	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
559	ID 00911	5420021	6/22/2010	6:05 AM	6/20/2010	812 W 6TH ST	1027927	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)
560	ID 00911	5420021	6/22/2010	6:05 AM	6/20/2010	812 W 6TH ST	1027927	1022	COPPER	0.08	mg/L	1.3	0.05		7/1/2010	JB	Inorganic Chemical (IOC)
561	ID 00911	5420021	6/22/2010	6:20 AM	6/20/2010	405 5TH ST	1027928	1030	LEAD	0.0045	mg/L	0.015	0.001		7/1/2010	JB	Inorganic Chemical (IOC)

562	ID 00911	5420021	6/22/2010	6:20 AM	6/20/2010	405 5TH ST	1027928	1022	COPPER	0.65	mg/L	1.3	0.05		7/1/2010	JB		Inorganic Chemical (IOC)
563	ID 00911	5420021	6/22/2010	7:37 AM	6/20/2010	105 RAMSEY	1027929	1030	LEAD	<0.0010	mg/L	0.015	0.001		7/1/2010	JB		Inorganic Chemical (IOC)
564	ID 00911	5420021	6/22/2010	7:37 AM	6/20/2010	105 RAMSEY	1027929	1022	COPPER	0.08	mg/L	1.3	0.05		7/1/2010	JB		Inorganic Chemical (IOC)
565	ID 00911	5420021	6/22/2010	9:00 AM	6/20/2010	212 5TH ST	1027910	1030	LEAD	0.0011	mg/L	0.015	0.001		7/1/2010	JB		Inorganic Chemical (IOC)
566	ID 00911	5420021	6/22/2010	9:00 AM	6/20/2010	212 5TH ST	1027910	1022	COPPER	0.09	mg/L	1.3	0.05		7/1/2010	JB		Inorganic Chemical (IOC)
567	ID 00911	5420021	1/25/2012	8:05 AM	1/25/2012	ADELL	1181681	1040	NITRATE N	3.28	mg/L	10	0.3	EPA300.0	1/25/2012	JJ		Inorganic Chemical (IOC)
568	ID 00911	5420021	1/25/2012	8:05 AM	1/25/2012	ADELL	1181681	1041	NITRITE N	<0.20	mg/L	1	0.2	EPA300.0	1/25/2012	JJ		Inorganic Chemical (IOC)
569	ID 00911	5420021	1/25/2012	8:05 AM	1/25/2012	YAKIMA	1181691	1040	NITRATE N	3.25	mg/L	10	0.3	EPA300.0	1/25/2012	JJ		Inorganic Chemical (IOC)
570	ID 00911	5420021	7/28/2011	9:00 AM	7/28/2011	ADELL	1135851	1040	NITRATE N	3.64	mg/L	10	0.3	EPA300.0	7/28/2011	JB		Inorganic Chemical (IOC)
571	ID 00911	5420021	7/28/2011	8:50 AM	7/28/2011	YAKIMA	1135921	1040	NITRATE N	3.63	mg/L	10	0.3	EPA300.0	1/25/2012	JJ		Inorganic Chemical (IOC)
572	ID 00911	5420021	7/28/2011	8:50 AM	7/28/2011	YAKIMA	1135921	1041	NITRITE N	<0.20	mg/L	1	0.2	EPA300.0	1/25/2012	JJ		Inorganic Chemical (IOC)
573	ID 00911	5420021	8/30/2010	9:10 AM	8/30/2010	WELL #1	1051491	1040	NITRATE N	1.23	mg/L	10	0.3	EPA300.0	8/30/2010	JF		Inorganic Chemical (IOC)
574	ID 00911	5420021	8/30/2010	7:30 AM	8/30/2010	WELL #2	1051511	1040	NITRATE N	3.21	mg/L	10	0.3	EPA300.0	8/30/2010	JF		Inorganic Chemical (IOC)
575	ID 00911	5420021	8/30/2010	11:55 AM	8/30/2010	WELL #3	1051531	1040	NITRATE N	3.6	mg/L	10	0.3	EPA300.0	8/30/2010	JF		Inorganic Chemical (IOC)
576	ID 00911	5420021	8/30/2010	7:00 AM	8/30/2010	WELL #5	1051551	1040	NITRATE N	3.48	mg/L	10	0.3	EPA300.0	8/30/2010	JF		Inorganic Chemical (IOC)
577	ID 00911	5420021	8/30/2010	10:45 AM	8/30/2010	WELL #7	1051581	1040	NITRATE N	3.49	mg/L	10	0.3	EPA300.0	8/30/2010	JF		Inorganic Chemical (IOC)
578	ID 00911	5420021	7/29/2009	4:00 PM	7/30/2009	WELL #1	942351	1040	NITRATE N	1.29	mg/L	10	0.3	EPA300.0	8/2/2009	JB		Inorganic Chemical (IOC)
579	ID 00911	5420021	7/29/2009	3:45 PM	7/30/2009	WELL #2	942451	1040	NITRATE N	2.74	mg/L	10	0.3	EPA300.0	8/2/2009	JB		Inorganic Chemical (IOC)
580	ID 00911	5420021	7/29/2009	3:53 PM	7/30/2009	WELL #3	942491	1040	NITRATE N	3.41	mg/L	10	0.3	EPA300.0	8/2/2009	JB		Inorganic Chemical (IOC)
581	ID 00911	5420021	7/29/2009	3:30 PM	7/30/2009	WELL #5	942411	1040	NITRATE N	2.94	mg/L	10	0.3	EPA300.0	8/2/2009	JB		Inorganic Chemical (IOC)
582	ID 00911	5420021	7/29/2009	3:49 PM	7/30/2009	WELL #7	942411	1040	NITRATE N	3.45	mg/L	10	0.3	EPA300.0	8/2/2009	JB		Inorganic Chemical (IOC)
583	ID 00911	5420021	12/18/2008	1:53 PM	12/18/2008	WELL #1	88706	1040	NITRATE N	<0.30	mg/L	10	0.3	EPA300.0	12/18/2008	SK		Inorganic Chemical (IOC)
584	ID 00911	5420021	12/18/2008	2:02 PM	12/18/2008	WELL #2	88707	1040	NITRATE N	3.06	mg/L	10	0.3	EPA300.0	12/18/2008	SK		Inorganic Chemical (IOC)
585	ID 00911	5420021	12/18/2008	1:31 PM	12/18/2008	WELL #3	88708	1040	NITRATE N	3.08	mg/L	10	0.3	EPA300.0	12/18/2008	SK		Inorganic Chemical (IOC)
586	ID 00911	5420021	12/18/2008	1:44 PM	12/18/2008	WELL #5	88709	1040	NITRATE N	2.32	mg/L	10	0.3	EPA300.0	12/18/2008	SK		Inorganic Chemical (IOC)
587	ID 00911	5420021	12/18/2008	1:14 PM	12/18/2008	WELL #7	88709	1040	NITRATE N	3.04	mg/L	10	0.3	EPA300.0	12/18/2008	SK		Inorganic Chemical (IOC)
588	ID 00911	5420021	8/9/2007	3:53 PM	12/18/2008	WELL #1	75118	1040	NITRATE N	2.63	mg/L	10	0.3	EPA300.0	9/6/2007	JB		Inorganic Chemical (IOC)
589	ID 00911	5420021	8/9/2007	3:45 PM	12/18/2008	WELL #2	75119	1040	NITRATE N	4.91	mg/L	10	0.3	EPA300.0	9/6/2007	JB		Inorganic Chemical (IOC)
590	ID 00911	5420021	8/9/2007	3:25 PM	12/18/2008	WELL #3	75120	1040	NITRATE N	4.18	mg/L	10	0.3	EPA300.0	9/6/2007	JB		Inorganic Chemical (IOC)
591	ID 00911	5420021	8/9/2007	3:05 PM	12/18/2008	WELL #5	75122	1040	NITRATE N	3.76	mg/L	10	0.3	EPA300.0	9/6/2007	JB		Inorganic Chemical (IOC)
592	ID 00911	5420021	8/9/2007	3:35 PM	12/18/2008	WELL #7	75121	1040	NITRATE N	4.71	mg/L	10	0.3	EPA300.0	9/6/2007	JB		Inorganic Chemical (IOC)
593	ID 00911	5420021	9/27/2006	1:40 PM	9/28/2006	WELL #1	657381	1040	NITRATE N	2.82	mg/L	10	0.3	EPA300.0	10/3/2006	JB		Inorganic Chemical (IOC)
594	ID 00911	5420021	9/27/2006	2:06 PM	9/28/2006	WELL #2	657421	1040	NITRATE N	3.19	mg/L	10	0.3	EPA300.0	10/3/2006	JB		Inorganic Chemical (IOC)
595	ID 00911	5420021	9/27/2006	11:25 AM	9/28/2006	WELL #3	657391	1040	NITRATE N	3.52	mg/L	10	0.3	EPA300.0	10/3/2006	JB		Inorganic Chemical (IOC)
596	ID 00911	5420021	9/27/2006	2:48 PM	9/28/2006	WELL #5	657401	1040	NITRATE N	0.06	mg/L	10	0.3	EPA300.0	10/3/2006	JB		Inorganic Chemical (IOC)
597	ID 00911	5420021	9/27/2006	11:40 AM	9/28/2006	WELL #7	657411	1040	NITRATE N	3.52	mg/L	10	0.3	EPA300.0	10/3/2006	JB		Inorganic Chemical (IOC)
598	ID 00911	5420021	9/27/2005	12:00 PM	9/27/2005	WELL #1	553351	1040	NITRATE N	1.66	mg/L	10	0.3	EPA300.0	9/28/2005	TF		Inorganic Chemical (IOC)
599	ID 00911	5420021	9/27/2005	12:10 PM	9/27/2005	WELL #2	553361	1040	NITRATE N	2.7	mg/L	10	0.3	EPA300.0	9/28/2005	TF		Inorganic Chemical (IOC)
600	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #3	553371	1040	NITRATE N	2.56	mg/L	10	0.3	EPA300.0	9/28/2005	TF		Inorganic Chemical (IOC)
601	ID 00911	5420021	9/27/2005	12:12 PM	9/27/2005	WELL #7	553381	1040	NITRATE N	2.92	mg/L	10	0.3	EPA300.0	9/28/2005	TF		Inorganic Chemical (IOC)
602	ID 00911	5420021	12/27/2005	1:40 PM	12/27/2005	WELL #5	578811	1040	NITRATE N	<0.03	mg/L	10	0.3	EPA300.0	12/28/2005	TF		Inorganic Chemical (IOC)
603	ID 00911	5420021	10/12/2004	8:15 AM	10/12/2004	WELL #2	461681	1040	NITRATE N	3.41	mg/L	10	0.3	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
604	ID 00911	5420021	10/12/2004	8:15 AM	10/12/2004	WELL #2	461681	1040	NITRITE N	<0.02	mg/L	1	0.1	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
605	ID 00911	5420021	10/12/2004	8:30 AM	10/12/2004	WELL #3	461691	1040	NITRATE N	3.32	mg/L	10	0.3	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
606	ID 00911	5420021	10/12/2004	8:30 AM	10/12/2004	WELL #3	461691	1040	NITRITE N	<0.02	mg/L	1	0.1	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
607	ID 00911	5420021	10/12/2004	8:45 AM	10/12/2004	WELL #5	461701	1040	NITRATE N	<0.03	mg/L	10	0.3	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
608	ID 00911	5420021	10/12/2004	8:45 AM	10/12/2004	WELL #5	461701	1040	NITRITE N	<0.02	mg/L	1	0.1	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
609	ID 00911	5420021	10/12/2004	9:00 AM	10/12/2004	WELL #7	461711	1040	NITRATE N	3.32	mg/L	10	0.3	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
610	ID 00911	5420021	10/12/2004	9:00 AM	10/12/2004	WELL #7	461711	1040	NITRITE N	<0.02	mg/L	1	0.1	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
611	ID 00911	5420021	10/12/2004	8:00 AM	10/12/2004	WELL #1	461671	1040	NITRATE N	2.2	mg/L	10	0.3	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
612	ID 00911	5420021	10/12/2004	8:00 AM	10/12/2004	WELL #1	461671	1040	NITRITE N	<0.02	mg/L	1	0.1	EPA300.0	10/12/2004	GF		Inorganic Chemical (IOC)
633	ID 00911	5420021	2/16/2012	10:20	2/16/2012	05 RAMSEY DF	1188341	1094	ASBESTOS	<0.20	MFL	7		EPA 600/4-83-043	3/1/2012	EMS		Inorganic Chemical (IOC)
634	ID 00911	5420021	11/26/2007	8:15	11/26/2007	316 MAIN	782641	1094	ASBESTOS	<0.20	MFL	7		EPA 600/4-83-043	12/4/2007	ANALYTICAL, INC		Inorganic Chemical (IOC)
635	ID 00911	5420021	11/26/2007	8:15	11/26/2007	316 MAIN	0	1094	ASBESTOS	<0.20	MFL	7		EPA 600/4-83-043	12/4/2007	ANALYTICAL, INC		Inorganic Chemical (IOC)
636	ID 00911	5420021	8/20/2007	9:20	8/20/2007	AN BAKER 131'	308705861		TOTAL COLIFO	PRESENT				SM9223BC	8/20/2007	JD	CONSTRUCTION / SPEC	Inorganic Chemical (IOC)
637	ID 00911	5420021	8/8/2006	15:15	8/9/2006	DER DRAW PAI	308623811		TOTAL COLIFO	PRESENT				SM9223BC	8/9/2006	JD	CONSTRUCTION / SPEC	Inorganic Chemical (IOC)
638	ID 00911	5420021	9/30/2008	9:20	9/30/2008	EST 6TH CONS	309794221		TOTAL COLIFO	PRESENT				SM9223BC	9/30/2008	JD	CONSTRUCTION / SPEC	Inorganic Chemical (IOC)
639	ID 00911	5420021	11/28/1973			Well #1		1005	Arsenic	10	ug/L	10	1	EPA200.8				
640	ID 00911	5420021	3/9/1978			Well #1		1005	Arsenic	15	ug/L	10	1	EPA200.8				
641	ID 00911	5420021	7/23/1990			Well #1		1005	Arsenic	28.5	ug/L	10	1	EPA200.8				
642	ID 00911	5420021	12/16/1997			Well #1		1005	Arsenic	27	ug/L	10	1	EPA200.8				
643	ID 00911	5420021	8/28/2000			Well #1		1005	Arsenic	18	ug/L	10	1	EPA200.8				
644	ID 00911	5420021	2/26/2002			Well #1		1005	Arsenic	19	ug/L	10	1	EPA200.8				
645	ID 00911	5420021	5/31/2002			Well #1		1005	Arsenic	20	ug/L	10	1	EPA200.8				
646	ID 00911	5420021	7/1/2002			Well #1		1005	Arsenic	21	ug/L	10	1	EPA200.8				
647	ID 00911	5420021	7/30/2002			Well #1		1005	Arsenic	20.1	ug/L	10	1	EPA200.8				
648	ID 00911	5420021	9/16/2002			Well #1		1005	Arsenic	16	ug/L	10	1	EPA200.8				
649	ID 00911	5420021	10/30/2002			Well #1		1005	Arsenic	16	ug/L	10	1	EPA200.8				
650	ID 00911	5420021	2/18/2003			Well #1		1005	Arsenic	18	ug/L	10	1	EPA200.8				
651	ID 00911	5420021	9/24/2003			Well #1		1005	Arsenic	18	ug/L	10	1	EPA200.8				
652	ID 00911	5420021	10/29/2003			Well #1		1005	Arsenic	18	ug/L	10	1	EPA200.8				
653	ID 00911	5420021	7/7/2004			Well #1		1005	Arsenic	21	ug/L	10	1	EPA200.8				
654	ID 00911	5420021	8/16/2004			Well #1		1005	Arsenic	24.9	ug/L	10	1	EPA200.8				
655	ID 00911	5420021	9/27/2005			Well #1		1005	Arsenic	5	ug/L	10	1	EPA200.8				
656	ID 00911	5420021	12/30/2008			Well #1		1005	Arsenic	9	ug/L	10	1	EPA200.8				
657	ID 00911	5420021	7/29/2009			Well #1		1005	Arsenic	20	ug/L	10	1	EPA200.8				
658	ID 00911	5420021	1/7/2010			Well #1		1005	Arsenic	16.8	ug/L	10	1	EPA200.8				
659	ID 00911	5420021	3/30/2010			Well #1		1005	Arsenic	14.3	ug/L	10	1	EPA200.8				
660	ID 00911	5420021	6/28/2010			Well #1		1005	Arsenic	10	ug/L	10	1	EPA200.8				
661	ID 00911	5420021	8/30/2010			Well #1		1005	Arsenic	19.0	ug/L	10	1	EPA200.8				
662	ID 00911	5420021	12/13/2010			Well #1		1005	Arsenic	17.1	ug/L	10	1	EPA200.8				
663	ID 00911	5420021	1/20/2011			Well #1		1005	Arsenic	14.4	ug/L	10	1	EPA200.8				

664	ID 00911	5420021	11/28/1973	Well #2	1005	Arsenic	10	ug/L	10	1	EPA200.8
665	ID 00911	5420021	4/23/1981	Well #2	1005	Arsenic	12	ug/L	10	1	EPA200.8
666	ID 00911	5420021	12/16/1997	Well #2	1005	Arsenic	24	ug/L	10	1	EPA200.8
667	ID 00911	5420021	8/28/2000	Well #2	1005	Arsenic	21	ug/L	10	1	EPA200.8
668	ID 00911	5420021	2/26/2002	Well #2	1005	Arsenic	16	ug/L	10	1	EPA200.8
669	ID 00911	5420021	5/31/2002	Well #2	1005	Arsenic	15	ug/L	10	1	EPA200.8
670	ID 00911	5420021	7/1/2002	Well #2	1005	Arsenic	13	ug/L	10	1	EPA200.8
671	ID 00911	5420021	7/30/2002	Well #2	1005	Arsenic	10.2	ug/L	10	1	EPA200.8
672	ID 00911	5420021	9/16/2002	Well #2	1005	Arsenic	12	ug/L	10	1	EPA200.8
673	ID 00911	5420021	10/30/2002	Well #2	1005	Arsenic	17	ug/L	10	1	EPA200.8
674	ID 00911	5420021	2/18/2003	Well #2	1005	Arsenic	16	ug/L	10	1	EPA200.8
675	ID 00911	5420021	9/24/2003	Well #2	1005	Arsenic	16	ug/L	10	1	EPA200.8
676	ID 00911	5420021	10/29/2003	Well #2	1005	Arsenic	16	ug/L	10	1	EPA200.8
677	ID 00911	5420021	7/7/2004	Well #2	1005	Arsenic	17	ug/L	10	1	EPA200.8
678	ID 00911	5420021	8/16/2004	Well #2	1005	Arsenic	22.2	ug/L	10	1	EPA200.8
679	ID 00911	5420021	9/27/2005	Well #2	1005	Arsenic	5	ug/L	10	1	EPA200.8
680	ID 00911	5420021	12/30/2008	Well #2	1005	Arsenic	13	ug/L	10	1	EPA200.8
681	ID 00911	5420021	7/29/2009	Well #2	1005	Arsenic	11	ug/L	10	1	EPA200.8
682	ID 00911	5420021	1/7/2010	Well #2	1005	Arsenic	9.98	ug/L	10	1	EPA200.8
683	ID 00911	5420021	3/30/2010	Well #2	1005	Arsenic	7.95	ug/L	10	1	EPA200.8
684	ID 00911	5420021	6/28/2010	Well #2	1005	Arsenic	9	ug/L	10	1	EPA200.8
685	ID 00911	5420021	8/30/2010	Well #2	1005	Arsenic	18.5	ug/L	10	1	EPA200.8
686	ID 00911	5420021	12/13/2010	Well #2	1005	Arsenic	22.0	ug/L	10	1	EPA200.8
687	ID 00911	5420021	1/20/2011	Well #2	1005	Arsenic	17.5	ug/L	10	1	EPA200.8
688	ID 00911	5420021	11/28/1973	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
689	ID 00911	5420021	3/9/1978	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
690	ID 00911	5420021	12/16/1997	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
691	ID 00911	5420021	8/28/2000	Well #3	1005	Arsenic	12	ug/L	10	1	EPA200.8
692	ID 00911	5420021	5/31/2002	Well #3	1005	Arsenic	9	ug/L	10	1	EPA200.8
693	ID 00911	5420021	7/1/2002	Well #3	1005	Arsenic	9	ug/L	10	1	EPA200.8
694	ID 00911	5420021	7/30/2002	Well #3	1005	Arsenic	9.6	ug/L	10	1	EPA200.8
695	ID 00911	5420021	9/16/2002	Well #3	1005	Arsenic	6	ug/L	10	1	EPA200.8
696	ID 00911	5420021	10/30/2002	Well #3	1005	Arsenic	6	ug/L	10	1	EPA200.8
697	ID 00911	5420021	2/18/2003	Well #3	1005	Arsenic	19	ug/L	10	1	EPA200.8
698	ID 00911	5420021	9/24/2003	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
699	ID 00911	5420021	10/29/2003	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
700	ID 00911	5420021	7/7/2004	Well #3	1005	Arsenic	9	ug/L	10	1	EPA200.8
701	ID 00911	5420021	8/16/2004	Well #3	1005	Arsenic	6.6	ug/L	10	1	EPA200.8
702	ID 00911	5420021	7/8/2005	Well #3	1005	Arsenic	8	ug/L	10	1	EPA200.8
703	ID 00911	5420021	8/22/2005	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
704	ID 00911	5420021	9/7/2005	Well #3	1005	Arsenic	13	ug/L	10	1	EPA200.8
705	ID 00911	5420021	9/27/2005	Well #3	1005	Arsenic	5	ug/L	10	1	EPA200.8
706	ID 00911	5420021	9/21/2005	Well #3	1005	Arsenic	10	ug/L	10	1	EPA200.8
707	ID 00911	5420021	11/17/2005	Well #3	1005	Arsenic	8	ug/L	10	1	EPA200.8
708	ID 00911	5420021	7/29/2009	Well #3	1005	Arsenic	11	ug/L	10	1	EPA200.8
709	ID 00911	5420021	1/7/2010	Well #3	1005	Arsenic	5.97	ug/L	10	1	EPA200.8
710	ID 00911	5420021	3/30/2010	Well #3	1005	Arsenic	7.07	ug/L	10	1	EPA200.8
711	ID 00911	5420021	6/28/2010	Well #3	1005	Arsenic	9	ug/L	10	1	EPA200.8
712	ID 00911	5420021	8/30/2010	Well #3	1005	Arsenic	12.4	ug/L	10	1	EPA200.8
713	ID 00911	5420021	12/13/2010	Well #3	1005	Arsenic	18.0	ug/L	10	1	EPA200.8
714	ID 00911	5420021	1/20/2011	Well #3	1005	Arsenic	9.74	ug/L	10	1	EPA200.8
715	ID 00911	5420021	2/8/2011	Well #3	1005	Arsenic	6.32	ug/L	10	1	EPA200.8
716	ID 00911	5420021	3/31/2011	Well #3	1005	Arsenic	6.08	ug/L	10	1	EPA200.8
717	ID 00911	5420021	4/6/2011	Well #3	1005	Arsenic	6.27	ug/L	10	1	EPA200.8
718	ID 00911	5420021	5/31/2011	Well #3	1005	Arsenic	7.34	ug/L	10	1	EPA200.8
719	ID 00911	5420021	6/30/2011	Well #3	1005	Arsenic	9.08	ug/L	10	1	EPA200.8
720	ID 00911	5420021	8/8/2011	Well #3	1005	Arsenic	11.1	ug/L	10	1	EPA200.8
721	ID 00911	5420021	9/1/2011	Well #3	1005	Arsenic	11.2	ug/L	10	1	EPA200.8
722	ID 00911	5420021	10/17/2011	Well #3	1005	Arsenic	10.4	ug/L	10	1	EPA200.8
723	ID 00911	5420021	11/15/2011	Well #3	1005	Arsenic	9.54	ug/L	10	1	EPA200.8
724	ID 00911	5420021	1/25/2012	Well #3	1005	Arsenic	10.3	ug/L	10	1	EPA200.8
725	ID 00911	5420021	3/22/2012	Well #3	1005	Arsenic	9.96	ug/L	10	1	EPA200.8
726	ID 00911	5420021	4/27/2012	Well #3	1005	Arsenic	7.64	ug/L	10	1	EPA200.8
727	ID 00911	5420021	5/21/2012	Well #3	1005	Arsenic	10.1	ug/L	10	1	EPA200.8
728	ID 00911	5420021	6/20/2012	Well #3	1005	Arsenic	8.76	ug/L	10	1	EPA200.8
729	ID 00911	5420021	7/2/2012	Well #3	1005	Arsenic	10.8	ug/L	10	1	EPA200.8
730	ID 00911	5420021	7/23/2012	Well #3	1005	Arsenic	10.9	ug/L	10	1	EPA200.8
731	ID 00911	5420021	3/23/1976	Well #5	1005	Arsenic	20	ug/L	10	1	EPA200.8
732	ID 00911	5420021	12/16/1997	Well #5	1005	Arsenic	22	ug/L	10	1	EPA200.8
733	ID 00911	5420021	8/28/2000	Well #5	1005	Arsenic	13	ug/L	10	1	EPA200.8
734	ID 00911	5420021	2/26/2002	Well #5	1005	Arsenic	17	ug/L	10	1	EPA200.8
735	ID 00911	5420021	5/31/2002	Well #5	1005	Arsenic	17	ug/L	10	1	EPA200.8
736	ID 00911	5420021	7/1/2002	Well #5	1005	Arsenic	17	ug/L	10	1	EPA200.8
737	ID 00911	5420021	7/30/2002	Well #5	1005	Arsenic	16.2	ug/L	10	1	EPA200.8
738	ID 00911	5420021	9/16/2002	Well #5	1005	Arsenic	14	ug/L	10	1	EPA200.8
739	ID 00911	5420021	10/30/2002	Well #5	1005	Arsenic	15	ug/L	10	1	EPA200.8
740	ID 00911	5420021	2/18/2003	Well #5	1005	Arsenic	15	ug/L	10	1	EPA200.8
741	ID 00911	5420021	9/24/2003	Well #5	1005	Arsenic	21	ug/L	10	1	EPA200.8
742	ID 00911	5420021	10/29/2003	Well #5	1005	Arsenic	16	ug/L	10	1	EPA200.8
743	ID 00911	5420021	7/7/2004	Well #5	1005	Arsenic	10	ug/L	10	1	EPA200.8
744	ID 00911	5420021	8/16/2004	Well #5	1005	Arsenic	23.0	ug/L	10	1	EPA200.8
745	ID 00911	5420021	12/27/2005	Well #5	1005	Arsenic	5	ug/L	10	1	EPA200.8

746	ID 00911	5420021	7/29/2009			Well #5		1005	Arsenic	13	ug/L	10	1	EPA200.8	
747	ID 00911	5420021	1/7/2010			Well #5		1005	Arsenic	14.1	ug/L	10	1	EPA200.8	
748	ID 00911	5420021	3/30/2010			Well #5		1005	Arsenic	9.18	ug/L	10	1	EPA200.8	
749	ID 00911	5420021	6/28/2010			Well #5		1005	Arsenic	9	ug/L	10	1	EPA200.8	
750	ID 00911	5420021	8/30/2010			Well #5		1005	Arsenic	11.3	ug/L	10	1	EPA200.8	
751	ID 00911	5420021	12/13/2010			Well #5		1005	Arsenic	20.2	ug/L	10	1	EPA200.8	
752	ID 00911	5420021	1/20/2011			Well #5		1005	Arsenic	10.9	ug/L	10	1	EPA200.8	
753	ID 00911	5420021	3/31/2011			Well #5		1005	Arsenic	8.67	ug/L	10	1	EPA200.8	
754	ID 00911	5420021	4/28/2004			FRONT ST (TANK #2)		1005	Arsenic	11	ug/L	10	1	EPA200.8	
755	ID 00911	5420021	7/7/2004			FRONT ST (TANK #2)		1005	Arsenic	10	ug/L	10	1	EPA200.8	
756	ID 00911	5420021	8/16/2004			FRONT ST (TANK #2)		1005	Arsenic	13.9	ug/L	10	1	EPA200.8	
757	ID 00911	5420021	7/8/2005			FRONT ST (TANK #2)		1005	Arsenic	10	ug/L	10	1	EPA200.8	
758	ID 00911	5420021	8/11/2005			FRONT ST (TANK #2)		1005	Arsenic	11	ug/L	10	1	EPA200.8	
759	ID 00911	5420021	8/22/2005			FRONT ST (TANK #2)		1005	Arsenic	11	ug/L	10	1	EPA200.8	
760	ID 00911	5420021	9/21/2005			FRONT ST (TANK #2)		1005	Arsenic	9	ug/L	10	1	EPA200.8	
761	ID 00911	5420021	11/17/2005			FRONT ST (TANK #2)		1005	Arsenic	11	ug/L	10	1	EPA200.8	
762	ID 00911	5420021	12/18/2008			FRONT ST (TANK #2)		1005	Arsenic	11	ug/L	10	1	EPA200.8	
763	ID 00911	5420021	12/13/2010			FRONT ST (TANK #2)		1005	Arsenic	21.0	ug/L	10	1	EPA200.8	
764	ID 00911	5420021	1/20/2011			FRONT ST (TANK #2)		1005	Arsenic	8.44	ug/L	10	1	EPA200.8	
765	ID 00911	5420021	2/8/2011			FRONT ST (TANK #2)		1005	Arsenic	9.67	ug/L	10	1	EPA200.8	
766	ID 00911	5420021	3/31/2011			FRONT ST (TANK #2)		1005	Arsenic	7.07	ug/L	10	1	EPA200.8	
767	ID 00911	5420021	4/6/2011			FRONT ST (TANK #2)		1005	Arsenic	8.90	ug/L	10	1	EPA200.8	
768	ID 00911	5420021	5/31/2011			FRONT ST (TANK #2)		1005	Arsenic	7.95	ug/L	10	1	EPA200.8	
769	ID 00911	5420021	7/28/2011			FRONT ST (TANK #2)		1005	Arsenic	9.78	ug/L	10	1	EPA200.8	
770	ID 00911	5420021	8/8/2011			FRONT ST (TANK #2)		1005	Arsenic	10.4	ug/L	10	1	EPA200.8	
771	ID 00911	5420021	9/1/2011			FRONT ST (TANK #2)		1005	Arsenic	11.0	ug/L	10	1	EPA200.8	
772	ID 00911	5420021	10/17/2011			FRONT ST (TANK #2)		1005	Arsenic	11.7	ug/L	10	1	EPA200.8	
773	ID 00911	5420021	11/15/2011			FRONT ST (TANK #2)		1005	Arsenic	10.5	ug/L	10	1	EPA200.8	
774	ID 00911	5420021	1/25/2012			FRONT ST (TANK #2)		1005	Arsenic	10.1	ug/L	10	1	EPA200.8	
775	ID 00911	5420021	3/22/2012			FRONT ST (TANK #2)		1005	Arsenic	8.73	ug/L	10	1	EPA200.8	
776	ID 00911	5420021	4/27/2012			FRONT ST (TANK #2)		1005	Arsenic	9.79	ug/L	10	1	EPA200.8	
777	ID 00911	5420021	5/21/2012			FRONT ST (TANK #2)		1005	Arsenic	10.6	ug/L	10	1	EPA200.8	
778	ID 00911	5420021	6/20/2012			FRONT ST (TANK #2)		1005	Arsenic	10.6	ug/L	10	1	EPA200.8	
779	ID 00911	5420021	7/2/2012			FRONT ST (TANK #2)		1005	Arsenic	10.9	ug/L	10	1	EPA200.8	
780	ID 00911	5420021	7/23/2012			FRONT ST (TANK #2)		1005	Arsenic	11.3	ug/L	10	1	EPA200.8	
781	ID 00911	5420021	3/28/2002			Well #7		1005	Arsenic	10	ug/L	10	1	EPA200.8	
782	ID 00911	5420021	2/18/2003			Well #7		1005	Arsenic	5	ug/L	10	1	EPA200.8	
783	ID 00911	5420021	9/24/2003			Well #7		1005	Arsenic	10	ug/L	10	1	EPA200.8	
784	ID 00911	5420021	10/29/2003			Well #7		1005	Arsenic	8	ug/L	10	1	EPA200.8	
785	ID 00911	5420021	7/7/2004			Well #7		1005	Arsenic	5	ug/L	10	1	EPA200.8	
786	ID 00911	5420021	8/16/2004			Well #7		1005	Arsenic	6.7	ug/L	10	1	EPA200.8	
787	ID 00911	5420021	8/11/2005			Well #7		1005	Arsenic	11	ug/L	10	1	EPA200.8	
788	ID 00911	5420021	9/7/2005			Well #7		1005	Arsenic	12	ug/L	10	1	EPA200.8	
789	ID 00911	5420021	9/27/2005			Well #7		1005	Arsenic	5	ug/L	10	1	EPA200.8	
790	ID 00911	5420021	11/17/2005			Well #7		1005	Arsenic	9	ug/L	10	1	EPA200.8	
791	ID 00911	5420021	12/18/2008			Well #7		1005	Arsenic	7	ug/L	10	1	EPA200.8	
792	ID 00911	5420021	1/7/2010			Well #7		1005	Arsenic	5.55	ug/L	10	1	EPA200.8	
793	ID 00911	5420021	3/30/2010			Well #7		1005	Arsenic	13.3	ug/L	10	1	EPA200.8	
794	ID 00911	5420021	6/28/2010			Well #7		1005	Arsenic	9	ug/L	10	1	EPA200.8	
795	ID 00911	5420021	8/30/2010			Well #7		1005	Arsenic	10.2	ug/L	10	1	EPA200.8	
796	ID 00911	5420021	12/13/2010			Well #7		1005	Arsenic	19.9	ug/L	10	1	EPA200.8	
797	ID 00911	5420021	1/20/2011			Well #7		1005	Arsenic	10.0	ug/L	10	1	EPA200.8	
798	ID 00911	5420021	2/8/2011			Well #7		1005	Arsenic	8.14	ug/L	10	1	EPA200.8	
799	ID 00911	5420021	3/31/2011			Well #7		1005	Arsenic	6.82	ug/L	10	1	EPA200.8	
800	ID 00911	5420021	4/6/2011			Well #7		1005	Arsenic	5.82	ug/L	10	1	EPA200.8	
801	ID 00911	5420021	5/31/2011			Well #7		1005	Arsenic	11.4	ug/L	10	1	EPA200.8	
802	ID 00911	5420021	6/30/2011			Well #7		1005	Arsenic	9.35	ug/L	10	1	EPA200.8	
803	ID 00911	5420021	8/8/2011			Well #7		1005	Arsenic	11.2	ug/L	10	1	EPA200.8	
804	ID 00911	5420021	9/1/2011			Well #7		1005	Arsenic	11.6	ug/L	10	1	EPA200.8	
805	ID 00911	5420021	10/17/2011			Well #7		1005	Arsenic	10.8	ug/L	10	1	EPA200.8	
806	ID 00911	5420021	11/15/2011			Well #7		1005	Arsenic	11.3	ug/L	10	1	EPA200.8	
807	ID 00911	5420021	1/25/2012			Well #7		1005	Arsenic	10.4	ug/L	10	1	EPA200.8	
808	ID 00911	5420021	3/22/2012			Well #7		1005	Arsenic	9.43	ug/L	10	1	EPA200.8	
809	ID 00911	5420021	4/27/2012			Well #7		1005	Arsenic	9.91	ug/L	10	1	EPA200.8	
810	ID 00911	5420021	5/21/2012			Well #7		1005	Arsenic	10.1	ug/L	10	1	EPA200.8	
811	ID 00911	5420021	6/20/2012			Well #7		1005	Arsenic	11.3	ug/L	10	1	EPA200.8	
812	ID 00911	5420021	7/2/2012			Well #7		1005	Arsenic	10.6	ug/L	10	1	EPA200.8	
813	ID 00911	5420021	7/23/2012			Well #7		1005	Arsenic	10.7	ug/L	10	1	EPA200.8	
814	ID 00911	5420021	8/23/2000			GOLDEN SPUR		1005	Arsenic	12	ug/L	10	1	EPA200.8	
815	ID 00911	5420021	2/23/1976			SMITH		1005	Arsenic	20	ug/L	10	1	EPA200.8	
816	ID 00911	5420021	4/11/1978			SMITH		1005	Arsenic	10	ug/L	10	1	EPA200.8	
817	ID 00911	5420021	6/30/2011			710 IDAHO (BUD'S HOUSE)		1005	Arsenic	9.26	ug/L	10	1	EPA200.8	
818	ID 00911	5420021	2/26/2002			ADELL TANK #1 (OLD)		1005	Arsenic	18	ug/L	10	1	EPA200.8	
819	ID 00911	5420021	1/20/2011			ADELL TANK #1 (OLD)		1005	Arsenic	9.87	ug/L	10	1	EPA200.8	
820	ID 00911	5420021	4/24/2013			FRONT ST (TANK	129374	1005	Arsenic	7.49	ug/L	10	1	EPA200.8	
821	ID 00911	5420021	10/4/2013			FRONT ST (TANK	133580	1005	Arsenic	8	ug/L	10	1	EPA200.8	
822	ID 00911	5420021	12/18/2013			FRONT ST (TANK	135817	1005	Arsenic	9	ug/L	10	1	EPA200.8	
823	ID 00911	5420021	2/14/2014			FRONT ST (TANK	137418	1005	Arsenic	10.1	ug/L	10	1	EPA200.8	
824	ID 00911	5420021	8/14/2013	8:30 AM	8/14/2013	ONT ST (TANK	1329221	1040	NITRATE N	3.84	mg/L	10	0.3	M4500-No3-	8/15/2013
825	ID 00911	5420021	8/14/2013	8:24 AM	8/14/2013	WELL #1	1329231	1040	NITRATE N	1.09	mg/L	10	0.3	M4500-No3-	8/15/2013
826	ID 00911	5420021	8/14/2013	6:10 AM		710 IDAHO (BUD'S H(	1329241	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
827	ID 00911	5420021	8/14/2013	6:10 AM		710 IDAHO (BUD'S H(	1329241	1022	COPPER	0.03	mg/L	1.3	0.01	EPA200.8	8/29/2013

828	ID 00911	5420021	8/14/2013	5:15 AM	502 6TH ST	1329242	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
829	ID 00911	5420021	8/14/2013	5:15 AM	502 6TH ST	1329242	1022	COPPER	0.018	mg/L	1.3	0.01	EPA200.8	8/29/2013
830	ID 00911	5420021	8/14/2013	5:50 AM	621 5TH AVE	1329243	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
831	ID 00911	5420021	8/14/2013	5:50 AM	621 5TH AVE	1329243	1022	COPPER	0.067	mg/L	1.3	0.01	EPA200.8	8/29/2013
832	ID 00911	5420021	8/14/2013	6:27 AM	629 5TH ST	1329244	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
833	ID 00911	5420021	8/14/2013	6:27 AM	629 5TH ST	1329244	1022	COPPER	0.098	mg/L	1.3	0.01	EPA200.8	8/29/2013
834	ID 00911	5420021	8/14/2013	5:20 AM	610 GOLDEN SPU	1329245	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
835	ID 00911	5420021	8/14/2013	5:20 AM	610 GOLDEN SPU	1329245	1022	COPPER	0.044	mg/L	1.3	0.01	EPA200.8	8/29/2013
836	ID 00911	5420021	8/14/2013	6:35 AM	735 IDAHO	1329246	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
837	ID 00911	5420021	8/14/2013	6:35 AM	735 IDAHO	1329246	1022	COPPER	0.17	mg/L	1.3	0.01	EPA200.8	8/29/2013
838	ID 00911	5420021	8/14/2013	6:50 AM	1018 S ADELL	1329247	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
839	ID 00911	5420021	8/14/2013	6:50 AM	1018 S ADELL	1329247	1022	COPPER	0.013	mg/L	1.3	0.01	EPA200.8	8/29/2013
840	ID 00911	5420021	8/14/2013	6:00 AM	825 ADELL	1329248	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
841	ID 00911	5420021	8/14/2013	6:00 AM	825 ADELL	1329248	1022	COPPER	0.076	mg/L	1.3	0.01	EPA200.8	8/29/2013
842	ID 00911	5420021	8/14/2013	7:10 AM	105 RAMSEY	1329249	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
843	ID 00911	5420021	8/14/2013	7:10 AM	105 RAMSEY	1329249	1022	COPPER	0.012	mg/L	1.3	0.01	EPA200.8	8/29/2013
844	ID 00911	5420021	8/14/2013	7:30 AM	320 5TH ST	13292410	1030	LEAD	<0.005	mg/L	0.015	0.005	EPA200.8	8/29/2013
845	ID 00911	5420021	8/14/2013	7:30 AM	320 5TH ST	13292410	1022	COPPER	<0.01	mg/L	1.3	0.01	EPA200.8	8/29/2013

Appendix P

Opinions of Probable Costs

CITY OF FILER
ARSENIC STUDY
Distribution Projects - South Pressure Zone

Item	Quantity	Units	Unit Price	Total Costs
New VFD on Tank 1 Pump	1	LS	$45,000.00	$45,000
10" Direct feed line to Tank 1	1,120	LF	$60.00	$67,000
New PRV South of HWY 30	1	LS	$60,000.00	$60,000
Install 10" flow control valve	1	LS	$20,000.00	$20,000
			Sub-Total Construction Costs	**$192,000**
			Contractor Mob/Demob (5%)	$10,000
			Buy American Provisions (5%)	$10,000
			Davis-Bacon Wages (5%)	$10,000
			Contingencies (20%)	$38,000
			Total Construction Costs	**$260,000**
			Engineering & Const. Mngt. (17.5%)	$46,000
			Funding, Legal, Admin, Bonding (10%)	$26,000
			Total Project Capital Costs	**$332,000**

CITY OF FILER
ARSENIC STUDY
Distribution Projects - Fire Flow

Item	Quantity	Units	Unit Price	Total Costs
Install 8" Pipe in front of Elementary School	450	LF	$40.00	$18,000
Install 10" Pipe along 2200 East	845	LF	$55.00	$46,000
Install 1,600 gpm 100 Hp pump at BPS#2	1	LS	$40,000	$40,000
			Sub-Total Construction Costs	**$104,000**
			Contractor Mob/Demob (5%)	$5,000
			Buy American Provisions (5%)	$5,000
			Davis-Bacon Wages (5%)	$5,000
			Contingencies (20%)	$21,000
			Total Construction Costs	**$140,000**
			Engineering & Const. Mngt. (17.5%)	$25,000
			Funding, Legal, Admin, Bonding (10%)	$14,000
			Total Project Capital Costs	**$179,000**

CITY OF FILER
2014 WATER MASTER PLAN
ARSENIC TREATMENT PLANT COST SUMMARY

i =	2.0%	3.0%
n =	30	40
ERU's	935	925

	Total Capital Costs ($)	420 gpm Annual O&M Costs ($)	20-years of O&M costs ($)	Treatment 20-year Life Cycle ($)	Distribution & Generator	Total	No grant Annual Capital Costs ($)	50% grant Annual Capital Costs ($)	Month $/ERU No grant	Month $/ERU 50% grant
GFH Treatment Plant	$6,604,000	$202,000	$4,908,000	$11,512,000	$432,000	$7,036,000	$314,157	$152,197	46	32
Microfiltration Treatment Plant	$7,208,000	$166,000	$4,070,000	$11,278,000	$432,000	$7,640,000	$341,125	$165,262	45	30
Greensand Treatment Plant	$5,633,000	$137,000	$3,380,000	$9,013,000	$432,000	$6,065,000	$270,802	$131,193	36	24
Sand Pressure Filtration	$5,296,000	$110,000	$2,657,000	$7,953,000	$432,000	$5,728,000	$255,755	$123,903	33	21
Secondary Water and Treatment	$10,156,000	$110,000	$2,836,000	$12,992,000	$432,000	$10,588,000	$472,753	$229,031	52	30

GFH O&M Cost per 1000 gal Equation $365,755 $233,903

$7.06517x^{-0.29244}$ x = 420 gpm (2016 average day flow)

CAMF O&M Cost per 1000 gal Equation

$4.25128x^{-0.23757}$ x = 420 gpm (2016 average day flow)

Greensand O&M Cost per 1000 gal Equation

$2.58410x^{-0.23508}$ x = 420 gpm (2016 average day flow)

Sand Pressure Filtration O&M Cost per 1000 gal Equation

$2.77781x^{-0.28530}$ x = 420 gpm (2016 average day flow)

Year	Population	Avg Day Demand (gpd)	Av Day Demand (gpm)	Annual Volume (1,000 gal)	Granular Ferric and Membranes Only: Avg % of Volume Treated* (%)	Avg Day Flow Treated (gpm)	Annual Volume Treated (1000 gal)	GFH O&M Cost per 1,000 gal ($/1000 gal)	GFH O&M Annual Cost ($)	CAMF O&M Cost per 1,000 gal ($/1000 gal)	CAMF O&M Annual Cost ($)	Greensand O&M Cost per 1,000 gal ($/1000 gal)	Greensand O&M Annual Cost ($)	Sand O&M Cost per 1,000 gal ($/1000 gal)	Sand O&M Annual Cost ($)	Secondary Water ($)
2014	2,715	581,000	403	212,065	66.7%	269	141,447	$1.38	$195,197	$1.13	$159,835	$0.63	$133,601	$0.50	$106,033	
2015	2,769	592,600	412	216,299	67.8%	279	146,651	$1.36	$199,445	$1.12	$164,249	$0.63	$136,268	$0.50	$108,150	
2016	2,824	604,500	420	220,643	67.8%	285	149,596	$1.35	$201,955	$1.11	$166,052	$0.62	$136,799	$0.50	$110,322	$110,000
2017	2,881	616,600	428	225,059	67.8%	290	152,590	$1.35	$205,997	$1.11	$169,375	$0.62	$139,537	$0.49	$110,279	$112,200
2018	2,939	628,900	437	229,549	67.8%	296	155,634	$1.34	$208,550	$1.10	$171,197	$0.62	$142,320	$0.49	$112,479	$114,444
2019	2,997	641,500	445	234,148	67.8%	302	158,752	$1.33	$211,140	$1.09	$173,040	$0.62	$145,172	$0.49	$114,733	$116,733
2020	3,057	654,300	454	238,820	67.8%	308	161,920	$1.32	$213,734	$1.09	$176,493	$0.61	$145,680	$0.48	$114,634	$119,068
2021	3,118	667,400	463	243,601	67.8%	314	165,161	$1.31	$216,361	$1.08	$178,374	$0.61	$148,597	$0.48	$116,928	$121,449
2022	3,181	680,700	473	248,456	67.8%	320	168,453	$1.31	$220,673	$1.08	$181,929	$0.61	$151,558	$0.48	$119,259	$123,878
2023	3,244	694,300	482	253,420	67.8%	327	171,819	$1.30	$223,365	$1.07	$183,846	$0.60	$152,052	$0.48	$121,642	$126,355
2024	3,309	708,200	492	258,493	67.8%	333	175,258	$1.29	$226,083	$1.07	$187,526	$0.60	$155,096	$0.47	$121,492	$128,883
2025	3,375	722,400	502	263,676	67.8%	340	178,772	$1.28	$228,828	$1.06	$189,498	$0.60	$158,206	$0.47	$123,928	$131,460
2026	3,443	736,800	512	268,932	67.8%	347	182,336	$1.28	$233,390	$1.06	$193,276	$0.60	$161,359	$0.47	$126,398	$134,089
2027	3,512	751,600	522	274,334	67.8%	354	185,998	$1.27	$236,217	$1.05	$195,298	$0.59	$161,857	$0.47	$128,937	$136,771
2028	3,582	766,600	532	279,809	67.8%	361	189,711	$1.26	$239,036	$1.05	$199,197	$0.59	$165,087	$0.46	$128,712	$139,507
2029	3,654	781,900	543	285,394	67.8%	368	193,497	$1.26	$243,806	$1.04	$201,237	$0.59	$168,382	$0.46	$131,281	$142,297
2030	3,727	797,600	554	291,124	67.8%	376	197,382	$1.25	$246,728	$1.04	$205,277	$0.59	$171,763	$0.46	$133,917	$145,143
2031	3,801	813,500	565	296,928	67.8%	383	201,317	$1.24	$249,633	$1.03	$207,357	$0.58	$172,218	$0.46	$136,587	$148,046
2032	3,877	829,800	576	302,877	67.8%	391	205,351	$1.23	$252,582	$1.03	$211,512	$0.58	$175,669	$0.45	$136,295	$151,006
2033	3,955	846,400	588	308,936	67.8%	398	209,459	$1.23	$257,635	$1.03	$215,743	$0.58	$179,183	$0.45	$139,021	$154,027
2034	4,034	863,300	599	315,105	67.8%	406	213,641	$1.22	$260,642	$1.02	$217,914	$0.57	$179,610	$0.45	$141,797	$157,107
2035	4,112	880,000	611	321,200	67.8%	414	217,774	$1.21	$263,507	$1.02	$222,129	$0.57	$183,084	$0.45	$144,540	$160,249
2036	4,190	896,800	623	327,332	67.8%	422	221,931	$1.21	$268,537	$1.01	$224,150	$0.57	$186,579	$0.44	$144,026	$163,454

* From average of blending ratios

*assume 2% growth/year

CITY OF FILER
ARSENIC STUDY
IRON-BASED SORBENT TREATMENT PLANT COSTS
1000 gpm with 500 gpm blend

Item	Quantity	Units	Unit Price	Total Costs		
Site Work	1	LS	$70,000.00	$70,000	Assume 1.5% of Construction Costs	$76,635.00
Well #7 VFD	1	LS	$20,000.00	$20,000		
Pre-Oxidation Rapid Mix System	2	EA	$35,000.00	$70,000	Assume basin required / not static mixer	
Booster Pumps	2	EA	$15,000.00	$30,000	Required due to pressure break at pre-oxidation basins	
Pre-Filtration Bag Filters	2	EA	$125,000.00	$250,000	bag filters required to protect adsorption sites	
GFH Adsorption Columns	1	LS	$1,000,000.00	$1,000,000	assume same as pressure filter (more expensive media but less flow)	
Chemical Storage and Containment	3	EA	$10,000.00	$30,000		
Chem Feed Skids	3	EA	$20,000.00	$60,000	NaOCl, Ferric, and pH adjustment	
Chemical Distribution Piping	1	LS	$20,000.00	$20,000		
Backwash Pumps	2	EA	$15,000.00	$30,000	assume backwash water cannot be supplied from other vessels	
In-Line Static Mixers	3	EA	$15,000.00	$45,000	assume static mixers required for blending and post treatment conditioning	
Air Compressors	2	EA	$15,000.00	$30,000		
Equalization Basin for Backwash	1	LS	$60,000.00	$60,000	assume 1500 gpm for 15 minutes, 1 chamber	
Building Structural (82' x 96')	7,872	SF	$150.00	$1,180,000	larger footprint required due to pre-oxidation basins, booster pumps, bag filters, and individual GFH filters	
Yard Piping	1	LS	$140,000.00	$140,000	Assume 3% of construction cost	$153,270.00
Bulding Mechanical and Piping	1	LS	$280,000.00	$280,000	Assume 6% of construction cost	$306,540.00
Site Electrical	1	LS	$470,000.00	$470,000	Assume 10% of construction cost	$510,900.00
			Sub-Total Construction Costs	**$3,785,000**		
			Contractor Mob/Demob (5%)	$189,000		
			Buy American Provisions (5%)	$189,000		
			Davis-Bacon Wages (5%)	$189,000		
			Contingencies (20%)	$757,000		
			Total Construction Costs	**$5,109,000**		
			Engineering & Const. Mngt. (17.5%)	$894,000		
			Funding, Legal, Admin, Bonding (10%)	$511,000		
			Start-Up Services	$15,000		
			Pilot Study	$75,000		
			Total Project Capital Costs	**$6,604,000**		

CITY OF FILER
ARSENIC STUDY
IRON-BASED SORBENT TREATMENT PLANT O&M COSTS

Summary

	295 GPM			440 GPM			1000 GPM			1450 GPM		
	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
Labor	$105	$38,325	$0.25	$140	$51,100	$0.22	$175	$63,875	$0.12	$210	$76,650	$0.10
Chemicals	$38	$13,940	$0.10	$58	$20,840	$0.10	$58	$47,310	$0.10	$188	$68,670	$0.10
Power	$50	$18,320	$0.13	$59	$21,540	$0.10	$94	$34,330	$0.08	$127	$46,660	$0.07
Pre-Filter Bag Replacement	$57	$20,820	$0.13	$85	$31,020	$0.13	$194	$70,800	$0.13	$281	$102,570	$0.13
GFH Replacement/Disposal	$307	$112,210	$0.72	$385	$140,560	$0.61	$616	$224,910	$0.43	$924	$337,260	$0.44
Miscellaneous Equipment/Repair	$13	$4,654	$0.03	$19	$6,942	$0.03	$43	$15,768	$0.03	$63	$22,864	$0.03
Total	$570	$208,269	$1.35	$746	$272,002	$1.19	$1,180	$456,993	$0.89	$1,793	$654,674	$0.87

Labor

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Manhours per Day (hr/d)	Manhours per Year (hr/yr)	Cost per Hour ($/hr)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	3	1,095	$35	$105	$38,325	$0.25
440	0.634	4	1,460	$35	$140	$51,100	$0.22
1,000	1.440	5	1,825	$35	$175	$63,875	$0.12
1,450	2.088	6	2,190	$35	$210	$76,650	$0.10

Chemicals

Assumptions: 12% Liquid Sodium Hypochlorite Purchased in Bulk

Hypochlorite Concentration	12.0	%
Chlorine Mass/Volume	1.00	lbs/gal

Sodium Hypochlorite (Oxidation)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5	17.7	17.7	6,461	$1.80	$32	$11,630	$0.08
440	0.634	5	26.4	26.4	9,636	$1.80	$48	$17,350	$0.08
1,000	1.440	5	60.0	60.0	21,900	$1.80	$108	$39,420	$0.08
1,450	2.088	5.	87.1	87.1	31,792	$1.80	$157	$57,230	$0.08

Sodium Hypochlorite (Disinfection)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	1	3.5	3.5	1,278	$1.80	$6	$2,310	$0.02
440	0.634	1	5.3	5.3	1,935	$1.80	$10	$3,490	$0.02
1,000	1.440	1	12	12	4,380	$1.80	$22	$7,890	$0.02
1,450	2.088	1	17.4	17.4	6,351	$1.80	$31	$11,440	$0.02

Power

GFH Columns

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Kilowatts Required* (KW/d)	KWH per Day (KWH/d)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	15	360	131,400	$0.06	$22	$7,890	$0.06
440	0.634	20	480	175,200	$0.06	$29	$10,520	$0.05
1,000	1.440	40	960	350,400	$0.06	$58	$21,030	$0.05
1,450	2.088	60	1,440	525,600	$0.06	$86	$31,540	$0.05

Booster Pump

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Pump Power (HP)	Pump Power (KW)	Hours Operated per Day (hr/d)	KWH per Day (KWH/d)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	15	11.2	4.9	55	20,075	$0.06	$3	$1,210	$0.01
440	0.634	15	11.2	7.3	82	29,930	$0.06	$5	$1,800	$0.01
1,000	1.440	15	11.2	16.6	186	67,890	$0.06	$11	$4,080	$0.01
1,450	2.088	15	11.2	24	269	98,185	$0.06	$16	$5,900	$0.01

Building

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Building Square Footage (ft^2)	KWH per Sqft per Year ($KWH/ft^2/yr$)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	7,872	19.5	153,504	$0.06	$25	$9,220	$0.06
440	0.634	7,872	19.5	153,504	$0.06	$25	$9,220	$0.04

CITY OF FILER
ARSENIC STUDY
IRON-BASED SORBENT TREATMENT PLANT O&M COSTS

1,000	1.440	7,872	19.5	153,504	$0.06	$25	$9,220	$0.02
1,450	2.088	7,872	19.5	153,504	$0.06	$25	$9,220	$0.01

Media Replacement

GFH

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Density of Media (lbs/ft^3)	Mass of Media to be Replaced (lbs)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	486	1	486	72	34,992	$3.20	$307	$111,970	$0.72
440	0.634	486	1.25	608	72	43,776	$3.20	$384	$140,080	$0.61
1,000	1.440	486	2	972	72	69,984	$3.20	$614	$223,950	$0.43
1,450	2.088	486	3	1,458	72	104,976	$3.20	$920	$335,920	$0.44

Bag Filters

Bruneau - 31 gpm, replace 6 bags every 30 days, $30 per bag

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Nuber of Bags to Replace (bags)	Period Between Replacemen (days)	Total Bags Replaced Annually (bags/yr)	Cost per Bag ($/bag)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	57	30	694	$30	$57	$20,820	$0.13
440	0.634	85	30	1,034	$30	$85	$31,020	$0.13
1,000	1.440	194	30	2,360	$30	$194	$70,800	$0.13
1,450	2.088	281	30	3,419	$30	$281	$102,570	$0.13

Media Disposal

Landfill Tipping Fee

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Density of Media (lbs/ft^3)	Mass of Media to be Disposed (lbs)	Mass of Media to be Disposed (tons)	Cost per Ton ($/ton)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	486	0.5	243	72	17,496	8.7	$15	$0	$130	$0.001
440	0.634	486	1	486	72	34,992	17.5	$15	$1	$260	$0.001
1,000	1.440	486	2	972	72	69,984	35.0	$15	$1	$530	$0.001
1,450	2.088	486	3	1,458	72	104,976	52.5	$15	$2	$790	$0.001

Hauling Costs - Mileage

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Total Volume of Media (cy)	Volume per Trip (cy/trip)	Trips per Year (trips)	Miles per Trip (mi/trip)	Total Miles (mi)	Cost per Mile ($/mi)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	486	0.5	243	9	12	1	60	60	$1.00	$0	$60	$0.000
440	0.634	486	1	486	18	12	2	60	120	$1.00	$0	$120	$0.001
1,000	1.440	486	2	972	36	12	3	60	180	$1.00	$0	$180	$0.000
1,450	2.088	486	3	1,458	54	12	5	60	300	$1.00	$1	$300	$0.000

Sampling

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Number of Samples per Year	Cost per Sample ($/sample)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	1	$50	$0	$50	$0.000
440	0.634	2	$50	$0	$100	$0.000
1,000	1.440	5	$50	$1	$250	$0.000
1,450	2.088	5	$50	$1	$250	$0.000

Miscellaneous Equipment/Repair

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	$13	$4,654	$0.03
440	0.634	$19	$6,942	$0.03
1,000	1.440	$43	$15,768	$0.03
1,450	2.088	$63	$22,864	$0.03

CITY OF FILER
ARSENIC STUDY
COAGULATION ASSISTED MICROFILTRATION TREATMENT PLANT COSTS
1000 gpm with 500 gpm blend

Item	Quantity	Units	Unit Price	Total Costs	Notes	
Site Work	1	LS	$80,000.00	$80,000	Assume 1.5% of Construction Costs	$83,745.00
Well #7 VFD	1	LS	$20,000.00	$20,000		
Booster Pumps	2	EA	$15,000.00	$30,000	Required due to pressure break at coag/floc basins	
Pre-Oxidation/Coagulant Rapid Mix System	2	EA	$35,000.00	$70,000		
Flocculation System	2	EA	$80,000.00	$160,000		
Microfiltration Membrane System	1	LS	$1,500,000.00	$1,500,000	(see right) Assume GE Zeeweed system to match MBR Facility	
Chemical Storage and Containment	6	EA	$10,000.00	$60,000	cost increased because from GE's proposal they noted hypochlorite, citric acid, HCl, NaOH, and sodium bisulfite will be provided	
Chem Feed Skids (included in quote)	1	EA	$20,000.00	$20,000	chem skids included in quote from GE with the exception of the ferric chloride	
Chemical Distribution Piping	1	LS	$50,000.00	$50,000	cost increased because from GE's proposal they noted hypochlorite, citric acid, HCl, NaOH, and sodium bisulfite will be provided	
Backwash Pumps	2	EA	$15,000.00	$30,000		
Finished Water Pumps (725 gpm, 10 hp)	2	EA	$10,000.00	$20,000	assume pressure not sufficient to get to storage tank	
In-Line Static Mixers	3	EA	$15,000.00	$45,000	assume static mixers required for blending and post treatment conditioning	
Air Compressors	0	EA	$0.00	$0	provided by GE in their quote	
Equalization Basin for Backwash	1	LS	$20,000.00	$20,000	assume 500 gpm for 10 minutes	
Building Structural (66' x 106')	6,996	SF	$150.00	$1,050,000	Larger footprint due to coag/floc basins, backwash pumps, additional chemical, etc.	
Yard Piping	1	LS	$150,000.00	$150,000	Assume 3% of construction cost	$167,490.00
Bulding Mechanical and Piping	1	LS	$310,000.00	$310,000	Assume 6% of construction cost	$334,980.00
Site Electrical	1	LS	$520,000.00	$520,000	Assume 10% of construction cost	$558,300.00
			Sub-Total Construction Costs	**$4,135,000**		
			Contractor Mob/Demob (5%)	$207,000		
			Buy American Provisions (5%)	$207,000		
			Davis-Bacon Wages (5%)	$207,000		
			Contingencies (20%)	$827,000		
			Total Construction Costs	**$5,583,000**		
			Engineering & Const. Mngt. (17.5%)	$977,000		
			Funding, Legal, Admin, Bonding (10%)	$558,000		
			Start-Up Services	$15,000		
			Pilot Study	$75,000		
			Total Project Capital Costs	**$7,208,000**		

	WesTech 1000 gpm	FilterTech 1000 gpm	GE 1000 gpm
Membrane	$764,144	$795,000	$1,009,000
Taxes (5%)	$38,207	$39,750	$50,450
Labor (25%)	$191,036	$198,750	$252,250
Mark-Up (15%)	$114,622	$119,250	$151,350
Total	$1,108,009	$1,152,750	$1,463,050

CITY OF FILER
ARSENIC STUDY
COAGULATION ASSISTED MICROFILTRATION TREATMENT PLANT O&M COSTS

Summary

	295 GPM			440 GPM			1000 GPM			1450 GPM		
	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
Labor	$140	$51,100	$0.33	$175	$63,875	$0.28	$245	$89,425	$0.17	$280	$102,200	$0.13
Chemicals	$151	$55,096	$0.36	$226	$82,271	$0.36	$512	$186,650	$0.36	$741	$270,816	$0.36
Power	$58	$21,410	$0.14	$76	$27,890	$0.13	$144	$52,970	$0.11	$199	$72,920	$0.10
Microfiltration Membrane Replacement	$96	$35,000	$0.23	$137	$50,000	$0.22	$219	$80,000	$0.15	$274	$100,000	$0.13
Miscellaneous Equipment/Repair	$13	$4,654	$0.03	$19	$6,942	$0.03	$43	$15,768	$0.03	$63	$22,864	$0.03
Total	$458	$167,260	$1.09	$633	$230,978	$1.02	$1,163	$424,813	$0.82	$1,557	$568,800	$0.75

Labor

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Manhours per Day (hr/d)	Manhours per Year (hr/yr)	Cost per Hour ($/hr)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	4	1,460	$35	$140	$51,100	$0.33
440	0.634	5	1,825	$35	$175	$63,875	$0.28
1,000	1.440	7	2,555	$35	$245	$89,425	$0.17
1,450	2.088	8	2,920	$35	$280	$102,200	$0.13

Chemicals

Assumptions:	Liquid Sodium Hypochlorite Purchased in Bulk		
	Hypochlorite Concentration	12.0	%
	Chlorine Mass/Volume	1.00	lbs/gal
	Sodium Hydroxide Purchased in Bulk		
	Hyddroxide Concentration	50.0	%
	Chlorine Mass/Volume	4.17	lbs/gal

Sodium Hypochlorite (Oxidant)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5	17.7	17.7	6,461	$1.80	$32	$11,630	$0.08
440	0.634	5	26.4	26.4	9,636	$1.80	$48	$17,350	$0.08
1,000	1.440	5	60	60	21,900	$1.80	$108	$39,420	$0.08
1,450	2.088	5	87.1	87.1	31,792	$1.80	$157	$57,230	$0.08

Sodium Hypochlorite (Disinfection)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	1	3.5	3.5	1,278	$1.80	$6	$2,310	$0.02
440	0.634	1	5.3	5.3	1,935	$1.80	$10	$3,490	$0.02
1,000	1.440	1	12	12	4,380	$1.80	$22	$7,890	$0.02
1,450	2.088	1	17.4	17.4	6,351	$1.80	$31	$11,440	$0.02

Sodium Hydroxide (pH Adjustment)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	10	35.4	8.5	12,921	$0.33	$12	$4,270	$0.03
440	0.634	10	52.9	12.7	19,309	$0.33	$17	$6,380	$0.03
1,000	1.440	10	120.1	28.8	43,837	$0.33	$40	$14,470	$0.03
1,450	2.088	10	174.1	41.8	63,547	$0.33	$57	$20,960	$0.03

Ferric Chloride (Coagulant)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	25	88.6	32,339	$0.50	$44	$16,170	$0.10
440	0.634	25	132.2	48,253	$0.50	$66	$24,130	$0.10
1,000	1.440	25	300.2	109,573	$0.50	$150	$54,790	$0.10
1,450	2.088	25	435.3	158,885	$0.50	$218	$79,450	$0.10

Polymer (Coagulant)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	4	14.2	5,183	$2.50	$36	$12,960	$0.08
440	0.634	4	21.2	7,738	$2.50	$53	$19,350	$0.08

CITY OF FILER
ARSENIC STUDY
COAGULATION ASSISTED MICROFILTRATION TREATMENT PLANT O&M COSTS

1,000	1.440	4	48	17,520	$2.50	$120	$43,800	$0.08
1,450	2.088	4	69.7	25,441	$2.50	$174	$63,610	$0.08

CIP Chemicals

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	$21	$7,756	$0.05
440	0.634	$32	$11,571	$0.05
1,000	1.440	$72	$26,280	$0.05
1,450	2.088	$104	$38,106	$0.05

Power

Microfiltration Membranes

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Pump Power (HP)	Pump Power (KW)	Hours Operated per Day (hr/d)	KWH per Day (KWH/d)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	150	111.9	4.9	548	200,020	$0.06	$33	$12,010	$0.08
440	0.634	150	111.9	7.3	817	298,205	$0.06	$49	$17,900	$0.08
1,000	1.440	150	111.9	16.6	1,858	678,170	$0.06	$111	$40,700	$0.08
1,450	2.088	150	111.9	24	2,686	980,390	$0.06	$161	$58,830	$0.08

Booster Pump

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Pump Power (HP)	Pump Power (KW)	Hours Operated per Day (hr/d)	KWH per Day (KWH/d)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	15	11.2	4.9	55	20,075	$0.06	$3	$1,210	$0.01
440	0.634	15	11.2	7.3	82	29,930	$0.06	$5	$1,800	$0.01
1,000	1.440	15	11.2	16.6	186	67,890	$0.06	$11	$4,080	$0.01
1,450	2.088	15	11.2	24	269	98,185	$0.06	$16	$5,900	$0.01

Building

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Building Square Footage (ft^2)	KWH per Sqft per Year (KWH/ft^2/yr)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	6,996	19.5	136,422	$0.06	$22	$8,190	$0.05
440	0.634	6,996	19.5	136,422	$0.06	$22	$8,190	$0.04
1,000	1.440	6,996	19.5	136,422	$0.06	$22	$8,190	$0.02
1,450	2.088	6,996	19.5	136,422	$0.06	$22	$8,190	$0.01

Media Replacement

Microfiltration Membranes

Assume $800K replacement cost and 10 year life = $80,000 /yr at 1,000 gpm

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	$96	$35,000	$0.23
440	0.634	$137	$50,000	$0.22
1,000	1.440	$219	$80,000	$0.15
1,450	2.088	$274	$100,000	$0.13

Miscellaneous Equipment/Repair

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	$13	$4,654	$0.03
440	0.634	$19	$6,942	$0.03
1,000	1.440	$43	$15,768	$0.03
1,450	2.088	$63	$22,864	$0.03

CITY OF FILER
ARSENIC STUDY
ENHANCED COAGULATION WITH GREENSAND FILTRATION TREATMENT PLANT COSTS
1500 gpm

Item	Quantity	Units	Unit Price	Total Costs		
Site Work	1	LS	$60,000.00	$60,000	Assume 1.5% of Construction Costs	$65,205.00
Well #7 VFD	1	LS	$20,000.00	$20,000		
Pressure Filtration Vessels	1	LS	$1,200,000.00	$1,200,000	(see right) Assume 2 vessels, add $100K for greensand	
Chemical Storage and Containment	4	EA	$10,000.00	$40,000		
Chem Feed Skids	4	EA	$20,000.00	$80,000	NaOCl, Permanganate, Ferric, and pH adjustment	
Chemical Distribution Piping	1	LS	$30,000.00	$30,000		
In-Line Static Mixers	4	EA	$15,000.00	$60,000		
Air Compressors	2	EA	$15,000.00	$30,000		
Equalization Basin for Backwash	1	LS	$100,000.00	$100,000	1500 gpm for 15 minutes / 2 chambers	
Building Structural (70' x 80')	5,600	SF	$150.00	$840,000	Same size as Buhl	
Yard Piping	1	LS	$120,000.00	$120,000	Assume 3% of construction cost	$130,410.00
Bulding Mechanical and Piping	1	LS	$240,000.00	$240,000	Assume 6% of construction cost	$260,820.00
Site Electrical	1	LS	$400,000.00	$400,000	Assume 10% of construction cost	$434,700.00
			Sub-Total Construction Costs	**$3,220,000**		
			Contractor Mob/Demob (5%)	$161,000		
			Buy American Provisions (5%)	$161,000		
			Davis-Bacon Wages (5%)	$161,000		
			Contingencies (20%)	$644,000		
			Total Construction Costs	**$4,347,000**		
			Engineering & Const. Mngt. (17.5%)	$761,000		
			Funding, Legal, Admin, Bonding (10%)	$435,000		
			Start-Up Services	$15,000		
			Pilot Study	$75,000		
			Total Project Capital Costs	**$5,633,000**		

	WesTech	WesTech	WesTech	Filter-Tech	Tonka
	1 horizontal	1 horizontal	2 horizontal	4 vertical	1 horizontal
	10x28 ft	10x42 ft	2 x 10x22	4x8 ft diam	10x32 ft
	1000 gpm	1500 gpm	1500 gpm	1000 gpm	1500 gpm
Filters	$250,000	$565,000	$760,000	$425,000	$459,300
Taxes (5%)	$12,500	$28,250	$38,000	$21,250	$22,965
Labor (25%)	$62,500	$141,250	$190,000	$106,250	$114,825
Mark-Up (15%)	$37,500	$84,750	$114,000	$63,750	$68,895
Total	$362,500	$819,250	$1,102,000	$616,250	$665,985

CITY OF FILER
ARSENIC STUDY
IRON/MANGANESE GREENSAND TREATMENT PLANT O&M COSTS

Summary

	295 GPM			440 GPM			1000 GPM			1450 GPM		
	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
Labor	$105	$38,325	$0.25	$140	$51,100	$0.22	$175	$63,875	$0.12	$210	$76,650	$0.10
Chemicals	$103	$37,570	$0.24	$154	$56,140	$0.25	$349	$126,970	$0.25	$505	$184,400	$0.25
Power	$40	$14,450	$0.10	$47	$17,080	$0.08	$76	$27,590	$0.07	$104	$38,100	$0.06
Greensand Replacement/Disposal	$22	$7,990	$0.05	$32	$11,980	$0.05	$43	$15,970	$0.03	$65	$23,940	$0.03
Miscellaneous Equipment/Repair	$13	$4,654	$0.03	$19	$6,942	$0.03	$43	$15,768	$0.03	$63	$22,864	$0.03
Total	$283	$102,989	$0.67	$392	$143,242	$0.63	$686	$250,173	$0.50	$947	$345,954	$0.47

Labor

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Manhours per Day (hr/d)	Manhours per Year (hr/yr)	Cost per Hour ($/hr)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	3	1,095	$35	$105	$38,325	$0.25
440	0.634	4	1,460	$35	$140	$51,100	$0.22
1,000	1.440	5	1,825	$35	$175	$63,875	$0.12
1,450	2.088	6	2,190	$35	$210	$76,650	$0.10

Chemicals

Assumptions:			
	Sodium Permanganate Purchased in Bulk		
	Permanganate Concentration	20.0	%
	Chlorine Mass/Volume	1.67	lbs/gal
	Liquid Sodium Hypochlorite Purchased in Bulk		
	Hypochlorite Concentration	12.0	%
	Chlorine Mass/Volume	1.00	lbs/gal
	Sodium Hydroxide Purchased in Bulk		
	Hyddroxide Concentration	50.0	%
	Chlorine Mass/Volume	4.17	lbs/gal

Sodium Permanganate (Oxidation/Regeneration)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	4	14.2	8.5	3,103	$8.94	$76	$27,750	$0.18
440	0.634	4	21.2	12.7	4,636	$8.94	$114	$41,450	$0.18
1,000	1.440	4	48	28.7	10,476	$8.94	$257	$93,660	$0.18
1,450	2.088	4	69.7	41.7	15,221	$8.94	$373	$136,080	$0.18

Sodium Hypochlorite (Disinfection)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	1	3.5	3.5	1,278	$1.80	$6	$2,310	$0.02
440	0.634	1	5.3	5.3	1,935	$1.80	$10	$3,490	$0.02
1,000	1.440	1	12	12	4,380	$1.80	$22	$7,890	$0.02
1,450	2.088	1	17.4	17.4	6,351	$1.80	$31	$11,440	$0.02

Sodium Hydroxide (pH Adjustment)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	10	35.4	8.5	12,921	$0.33	$12	$4,270	$0.03
440	0.634	10	52.9	12.7	19,309	$0.33	$17	$6,380	$0.03
1,000	1.440	10	120.1	28.8	43,837	$0.33	$40	$14,470	$0.03
1,450	2.088	10	174.1	41.8	63,547	$0.33	$57	$20,980	$0.03

Ferric Chloride (Iron Addition)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5	17.7	6,461	$0.50	$9	$3,240	$0.02
440	0.634	5	26.4	9,636	$0.50	$13	$4,820	$0.02
1,000	1.440	5	60	21,900	$0.50	$30	$10,950	$0.02
1,450	2.088	5	87.1	31,792	$0.50	$44	$15,900	$0.02

Power

Greensand Columns

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Kilowatts Required* (KW/d)	KWH per Day (KWH/d)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	15	360	131,400	$0.06	$22	$7,890	$0.05
440	0.634	20	480	175,200	$0.06	$29	$10,520	$0.05

1,000	1.440	40	960	350,400	$0.06	$58	$21,030	$0.05
1,450	2.088	60	1,440	525,600	$0.06	$86	$31,540	$0.05

Building

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Building Square Footage (ft^2)	KWH per Sqft per Year (KWH/ft^2/yr)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5,600	19.5	109,200	$0.06	$18	$6,560	$0.05
440	0.634	5,600	19.5	109,200	$0.06	$18	$6,560	$0.03
1,000	1.440	5,600	19.5	109,200	$0.06	$18	$6,560	$0.02
1,450	2.088	5,600	19.5	109,200	$0.06	$18	$6,560	$0.01

Media Replacement

Greensand

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Density of Media (lbs/ft^3)	Mass of Media to be Replaced (lbs)	Cost per Cubic Foot ($/cf)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	197.5	2	395	85	33,575	$100.00	5	$22	$7,900	$0.05
440	0.634	197.5	3	593	85	50,405	$100.00	5	$32	$11,860	$0.05
1,000	1.440	197.5	4	790	85	67,150	$100.00	5	$43	$15,800	$0.03
1,450	2.088	197.5	6	1,185	85	100,725	$100.00	5	$65	$23,700	$0.03

Media Disposal

Landfill Tipping Fee

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Density of Media (lbs/ft^3)	Mass of Media to be Disposed (lbs)	Mass of Media to be Disposed (tons)	Cost per Ton ($/ton)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	197.5	2	395	85	33,575	16.8	$15	5	$0	$50	$0.000
440	0.634	197.5	3	593	85	50,405	25.2	$15	5	$0	$80	$0.000
1,000	1.440	197.5	4	790	85	67,150	33.6	$15	5	$0	$100	$0.000
1,450	2.088	197.5	6	1,185	85	100,725	50.4	$15	5	$0	$150	$0.000

Hauling Costs - Mileage

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Total Volume of Media (cy)	Volume per Trip (cy/trip)	Trips per Year (trips)	Miles per Trip (mi/trip)	Total Miles (mi)	Cost per Mile ($/mi)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	197.5	2	395	15	12	2	60	120	$1.00	5	$0	$20	$0.000
440	0.634	197.5	3	593	22	12	2	60	120	$1.00	5	$0	$20	$0.000
1,000	1.440	197.5	4	790	29	12	3	60	180	$1.00	5	$0	$40	$0.000
1,450	2.088	197.5	6	1,185	44	12	4	60	240	$1.00	5	$0	$50	$0.000

Sampling

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Number of Samples per Year	Cost per Sample ($/sample)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	2	$50	5	$0	$20	$0.000
440	0.634	2	$50	5	$0	$20	$0.000
1,000	1.440	3	$50	5	$0	$30	$0.000
1,450	2.088	4	$50	5	$0	$40	$0.000

Miscellaneous Equipment/Repair

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	$13	$4,654	$0.03
440	0.634	$19	$6,942	$0.03
1,000	1.440	$43	$15,768	$0.03
1,450	2.088	$63	$22,864	$0.03

CITY OF FILER
ARSENIC STUDY
ENHANCED COAGULATION WITH SAND/ANTHRACITE PRESSURE FILTRATION TREATMENT PLANT COSTS
1500 gpm

Item	Quantity	Units	Unit Price	Total Costs		
Site Work	1	LS	$60,000.00	$60,000	Assume 1.5% of Construction Costs	$61,245.00
Well #7 VFD	1	LS	$20,000.00	$20,000		
Pressure Filtration Vessels	1	LS	$1,100,000.00	$1,100,000	(see right) Assume 2 vessels	
Chemical Storage and Containment	3	EA	$10,000.00	$30,000		
Chem Feed Skids	3	EA	$20,000.00	$60,000	NaOCl, Ferric, and pH adjustment	
Chemical Distribution Piping	1	LS	$20,000.00	$20,000		
In-Line Static Mixers	3	EA	$15,000.00	$45,000		
Air Compressors	2	EA	$15,000.00	$30,000		
Equalization Basin for Backwash	1	LS	$100,000.00	$100,000	**1500 gpm for 15 minutes / 2 chambers**	
Building Structural (70' x 80')	5,600	SF	$150.00	$840,000	Same size as Buhl	
Yard Piping	1	LS	$110,000.00	$110,000	Assume 3% of construction cost	$122,490.00
Bulding Mechanical and Piping	1	LS	$230,000.00	$230,000	Assume 6% of construction cost	$244,980.00
Site Electrical	1	LS	$380,000.00	$380,000	Assume 10% of construction cost	$408,300.00
			Sub-Total Construction Costs	**$3,025,000**		
			Contractor Mob/Demob (5%)	$151,000		
			Buy American Provisions (5%)	$151,000		
			Davis-Bacon Wages (5%)	$151,000		
			Contingencies (20%)	$605,000		
			Total Construction Costs	**$4,083,000**		
			Engineering & Const. Mngt. (17.5%)	$715,000		
			Funding, Legal, Admin, Bonding (10%)	$408,000		
			Start-Up Services	$15,000		
			Pilot Study	$75,000		
			Total Project Capital Costs	**$5,296,000**		

	WesTech	WesTech	WesTech	Filter-Tech	Tonka
	1 horizontal	1 horizontal	2 horizontal	4 vertical	1 horizontal
	10x28 ft	10x42 ft	2 x 10x22	4x8 ft diam	10x32 ft
	1000 gpm	1500 gpm	1500 gpm	1000 gpm	1500 gpm
Filters	$250,000	$565,000	$760,000	$425,000	$459,300
Taxes (5%)	$12,500	$28,250	$38,000	$21,250	$22,965
Labor (25%)	$62,500	$141,250	$190,000	$106,250	$114,825
Mark-Up (15%)	$37,500	$84,750	$114,000	$63,750	$68,895
Total	$362,500	$819,250	$1,102,000	$616,250	$665,985

CITY OF FILER
ARSENIC STUDY
ENHANCED COAGULATION WITH PRESSURE FILTRATION USING SAND/ANTHRACITE - TREATMENT PLANT O&M COSTS

Summary

	295 GPM			440 GPM			1000 GPM			1450 GPM		
	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
Labor	$105	$38,325	$0.25	$140	$51,100	$0.22	$175	$63,875	$0.12	$210	$76,650	$0.10
Chemicals	$59	$21,450	$0.14	$88	$32,040	$0.15	$200	$72,730	$0.15	$289	$105,550	$0.15
Power	$40	$14,450	$0.10	$47	$17,080	$0.08	$76	$27,590	$0.07	$104	$38,100	$0.06
Sand Replacement/Disposal	$6	$2,420	$0.02	$10	$3,620	$0.02	$13	$4,830	$0.01	$19	$7,230	$0.01
Miscellaneous Equipment/Repair	$13	$4,654	$0.03	$19	$6,942	$0.03	$43	$15,768	$0.03	$63	$22,864	$0.03
Total	$223	$81,299	$0.54	$304	$110,782	$0.50	$507	$184,793	$0.38	$685	$250,394	$0.35

Labor

Secondary Reduction
29841
Secondary Adder
$25,550.0

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Manhours per Day (hr/d)	Manhours per Year (hr/yr)	Cost per Hour ($/hr)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	3	1,095	$35	$105	$38,325	$0.25
440	0.634	4	1,460	$35	$140	$51,100	$0.22
1,000	1.440	5	1,825	$35	$175	$63,875	$0.12
1,450	2.088	6	2,190	$35	$210	$76,650	$0.10

Chemicals

Assumptions:

Liquid Sodium Hypochlorite Purchased in Bulk

Hypochlorite Concentration	12.0	%
Chlorine Mass/Volume	1.00	lbs/gal

Sodium Hydroxide Purchased in Bulk

Hyddroxide Concentration	50.0	%
Chlorine Mass/Volume	4.17	lbs/gal

Sodium Hypochlorite (Oxidation)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5	17.7	17.7	6,461	$1.80	$32	$11,630	$0.08
440	0.634	5	26.4	26.4	9,636	$1.80	$48	$17,350	$0.08
1,000	1.440	5	60.0	60	21,900	$1.80	$108	$39,420	$0.08
1,450	2.088	5	87.1	87.1	31,792	$1.80	$157	$57,230	$0.08

Sodium Hypochlorite (Disinfection)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Volume (gal/yr)	Cost per Gallon ($/gal)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	1	3.5	3.5	1,278	$1.80	$6	$2,310	$0.02
440	0.634	1	5.3	5.3	1,935	$1.80	$10	$3,490	$0.02
1,000	1.440	1	12	12	4,380	$1.80	$22	$7,890	$0.02
1,450	2.088	1	17.4	17.4	6,351	$1.80	$31	$11,440	$0.02

Sodium Hydroxide (pH Adjustment)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Daily Volume (gal/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	10	35.4	8.5	12,921	$0.33	$12	$4,270	$0.03
440	0.634	10	52.9	12.7	19,309	$0.33	$17	$6,380	$0.03
1,000	1.440	10	120.1	28.8	43,837	$0.33	$40	$14,470	$0.03
1,450	2.088	10	174.1	41.8	63,547	$0.33	$57	$20,980	$0.03

Ferric Chloride (Iron Addition)

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Dose (mg/L)	Daily Mass (lbs/d)	Annual Mass (lbs/yr)	Cost per Pound ($/lb)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5	17.7	6,461	$0.50	$9	$3,240	$0.02
440	0.634	5	26.4	9,636	$0.50	$13	$4,820	$0.02
1,000	1.440	5	60	21,900	$0.50	$30	$10,950	$0.02
1,450	2.088	5	87.1	31,792	$0.50	$44	$15,900	$0.02

Power

Sand Columns - Pressure Filtration

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Kilowatts Required* (KW/d)	KWH per Day (KWH/d)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	15	360	131,400	$0.06	$22	$7,890	$0.05
440	0.634	20	480	175,200	$0.06	$29	$10,520	$0.05
1,000	1.440	40	960	350,400	$0.06	$58	$21,030	$0.05
1,450	2.088	60	1,440	525,600	$0.06	$86	$31,540	$0.05

CITY OF FILER
ARSENIC STUDY
ENHANCED COAGULATION WITH PRESSURE FILTRATION USING SAND/ANTHRACITE - TREATMENT PLANT O&M COSTS

Building

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Building Square Footage (ft^2)	KWH per Sqft per Year (KWH/ft^2/yr)	KWH per Year (KWH/Yr)	Cost per KWH ($/KWH)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	5,600	19.5	109,200	$0.06	$18	$6,560	$0.05
440	0.634	5,600	19.5	109,200	$0.06	$18	$6,560	$0.03
1,000	1.440	5,600	19.5	109,200	$0.06	$18	$6,560	$0.02
1,450	2.088	5,600	19.5	109,200	$0.06	$18	$6,560	$0.01

Media Replacement

Sand

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Density of Media (lbs/ft^3)	Mass of Media to be Replaced (lbs)	Cost per Cubic Foot ($/cf)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	197.5	2	395	85	33,575	$60.00	10	$6	$2,370	$0.02
440	0.634	197.5	3	593	85	50,405	$60.00	10	$10	$3,560	$0.02
1,000	1.440	197.5	4	790	85	67,150	$60.00	10	$13	$4,740	$0.01
1,450	2.088	197.5	6	1,185	85	100,725	$60.00	10	$19	$7,110	$0.01

Media Disposal

Landfill Tipping Fee

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Density of Media (lbs/ft^3)	Mass of Media to be Disposed (lbs)	Mass of Media to be Disposed (tons)	Cost per Ton ($/ton)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	197.5	2	395	85	33,575	16.8	$15	10	$0	$30	$0.000
440	0.634	197.5	3	593	85	50,405	25.2	$15	10	$0	$40	$0.000
1,000	1.440	197.5	4	790	85	67,150	33.6	$15	10	$0	$50	$0.000
1,450	2.088	197.5	6	1,185	85	100,725	50.4	$15	10	$0	$80	$0.000

Hauling Costs - Mileage

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Volume of Media per Column (ft^3)	Number of Columns to be Replaced	Total Volume of Media (ft^3)	Total Volume of Media (cy)	Volume per Trip (cy/trip)	Trips per Year (trips)	Miles per Trip (mi/trip)	Total Miles (mi)	Cost per Mile ($/mi)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	197.5	2	395	15	12	2	60	120	$1.00	10	$0	$10	$0.000
440	0.634	197.5	3	593	22	12	2	60	120	$1.00	10	$0	$10	$0.000
1,000	1.440	197.5	4	790	29	12	3	60	180	$1.00	10	$0	$20	$0.000
1,450	2.088	197.5	6	1,185	44	12	4	60	240	$1.00	10	$0	$20	$0.000

Sampling

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Number of Samples per Year	Cost per Sample ($/sample)	Duration Between Replacement (yrs)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	2	$50	10	$0	$10	$0.000
440	0.634	2	$50	10	$0	$10	$0.000
1,000	1.440	3	$50	10	$0	$20	$0.000
1,450	2.088	4	$50	10	$0	$20	$0.000

Miscellaneous Equipment/Repair

Treament Plant Capacity (gpm)	Treament Plant Capacity (MGD)	Daily Cost ($/d)	Annual Cost ($/yr)	Cost per 1000 gal Treated ($/1000 gal)
295	0.425	$13	$4,654	$0.03
440	0.634	$19	$6,942	$0.03
1,000	1.440	$43	$15,768	$0.03
1,450	2.088	$63	$22,864	$0.03

CITY OF FILER
ARSENIC STUDY
SECONDARY WATER DISTRIBUTION SYSTEM WITH 750 GPM ARSENIC TREATMENT PLANT
1500 gpm

Item	Quantity	Units	Unit Price	Total Costs
Distribution System Piping	50,000	LF	$60	$3,000,000
Irrigation Storage / Equalization (10 AF)	1	LS	$500,000	$500,000
Irrigation Pump Station	1	LS	$400,000	$400,000
750 gpm Arsenic Treatment Plant	1	LS	$2,000,000	$2,000,000
			Sub-Total Construction Costs	**$5,900,000**
			Contractor Mob/Demob (5%)	$295,000
			Buy American Provisions (5%)	$295,000
			Davis-Bacon Wages (5%)	$295,000
			Contingencies (20%)	$1,180,000
			Total Construction Costs	**$7,965,000**
			Engineering & Const. Mngt. (17.5%)	$1,394,000
			Funding, Legal, Admin, Bonding (10%)	$797,000
			Total Project Capital Costs	**$10,156,000**

CITY OF FILER
ARSENIC STUDY
ENHANCED COAGULATION WITH PRESSURE FILTRATION TREATMENT PLANT COSTS
750 gpm

Item	Quantity	Units	Unit Price	Total Costs		
Site Work	1	LS	$40,000.00	$40,000	Assume 1.5% of Construction Costs	$40,590.00
Well #7 VFD	1	LS	$20,000.00	$20,000		
Pressure Filtration Vessels	1	LS	$600,000.00	$600,000	(see right) Assume 2 vessels	
Chemical Storage and Containment	3	EA	$10,000.00	$30,000		
Chem Feed Skids	3	EA	$20,000.00	$60,000	NaOCl, Ferric, and pH adjustment	
Chemical Distribution Piping	1	LS	$20,000.00	$20,000		
In-Line Static Mixers	3	EA	$15,000.00	$45,000		
Air Compressors	2	EA	$10,000.00	$20,000		
Equalization Basin for Backwash	1	LS	$60,000.00	$60,000	750 gpm for 15 minutes / 2 chambers	
Building Structural (60' x 70')	4,200	SF	$150.00	$630,000	Same size as Buhl	
Building Mechanical	1	LS	$80,000.00	$80,000	Assume 3% of construction cost	$81,180.00
Site Piping	1	LS	$120,000.00	$150,000	Assume 6% of construction cost	$162,360.00
Site Electrical	1	LS	$240,000.00	$250,000	Assume 10% of construction cost	$270,600.00
			Sub-Total Construction Costs	**$2,005,000**		
			Contractor Mob/Demob (5%)	$100,000		
			Buy American Provisions (5%)	$100,000		
			Davis-Bacon Wages (5%)	$100,000		
			Contingencies (20%)	$401,000		
			Total Construction Costs	**$2,706,000**		
			Engineering & Const. Mngt. (17.5%)	$474,000		
			Funding, Legal, Admin, Bonding (10%)	$271,000		
			Start-Up Services	$15,000		
			Pilot Study	$75,000		
			Total Project Capital Costs	**$3,541,000**		

Appendix Q

Public Participation

REGULAR CITY COUNCIL MEETING
FEBRUARY 17, 2015

A PUBLIC MEETING TO PRESENT THE FILER WATER AND FACLILITY PLAN WAS HELD PRIOR TO THE REGULAR CITY COUNCIL MEETING ON TUESDAY, FEBRUARY 17, 2015 IN THE COUNCIL CHAMBERS.

At 7:35 p.m., Filer City Engineer Rob Hegstrom of JUB Engineers gave a presentation regarding the City's Water and Facility Plan with the following persons present:

Mayor	Rick Dunn
Council Member	Ruby Hite
Council Member	Joe Lineberry
Council Member	Bud Sheridan
City Attorney	Tim Stover
City Clerk-Treasurer	Shari Hart

Also present were the following: DPW Joe Baratti, Rob Hegstrom-JUB Engineers, Jeff Hurley, John Swayze, Joe Maloney, Sharilyn Underwood, Shelly Tyree, Lori Bergsma-Balanced Rock Insurance, JoAnne Gough, Eldon Gough, Katie (Hite) and Merl Schmoe.

Hegstrom gave a summary of the last thirteen (13) years to date. In 2001 the Arsenic Rule went from 50ug/1 to 10ug/1. The City contracted with JUB Engineers in 2002 to prepare a Water Master Plan. In the following years, a new Well #7 was drilled, new storage tank installed between Front Street and Midway Avenue, Booster Pump Station #2, 2006 looked at arsenic treatment options, etc. In November 2014 the City's Water System Facility Plan was completed. Hegstrom stated this document was available for review at the City Office during regular working hours or could be downloaded free on line. Future growth projections graphs were shown. Hegstrom went through the "Summary of Current Findings" which included pump capacity of the City's current wells and different source options for dealing with arsenic levels (1. New well. 2. Regionalization. 3. Treatment.) The treatment options are basically all the same, said Hegstrom, when he gave a brief overview of what was available. The Plan lays out different components regarding arsenic treatment. Total costs for all components was $5.728 Million. The Arsenic Treatment Plant estimated cost was $5.296, Pressure Zone $322,000 and a Backup Generator $100,000. Funding options and partners were discussed. The estimated increase to the residents sewer bill would be $33 to $60 for Scenario #1 or $21 4o $48 for Scenario #2. Hegstrom emphasized, these are recommended options only. The City is not required to take any action at this time, as they are in compliance and not over the arsenic limits. The tests do show, the levels are close to being over. Questions asked were as follows: Eldon Gough- pump capacity and the depth of the wells? Merl Schmoe asked how long will the wells produce? Those questions were answered by DPW Joe Baratti and Hegstrom. Joe Maloney stated from what he understood, arsenic treatment will be inevitable in a few years, so could the City do the improvements in phases over time? Council Member Bud Sheridan stated if phased, costs would go up. Frank Glauner asked about the sequence for the recommended improvements and are the wells pumping at capacity currently. The Public Meeting was completed at 8:06 p.m.

Annual WWTP Farm Lease-Jeff Hurley (This lease is a 'share crop' lease between the farmer, Jeff Hurley and the City, meaning the expenses and revenues are shared 50/50 and Hurley providing the labor.)

A motion was made by Joe Lineberry and seconded by Ruby Hite to renew the Annual WWTP Farm Lease with Jeff Hurley. Motion carried.

Review letter received from Alexandria Kincaid re: "Preemption Project".

Mayor Dunn gave a brief explanation what the letter was in regards to. It relates to lawfully discharging a firearm in self-defense within the City Limits. Discussion was held. Mayor Dunn recommended the City make no changes or take action at this time.

Personnel Policy Update Lori Bergsma reviewed the language in the City's Personnel Policy regarding what was provided as a benefit for health insurance. She recommended (as did the City Attorney and Jim McNall at ICRMP) to eliminate the extensive wording regarding what the City offered its employees with a simpler statement. Due to so many changes being made with health insurance on the national level, the Council would review the benefits at the annual contract renewal time. Bergsma provided the Council with a sample policy manual from ICRMP (the City's Liability Insurance Provider). No other action was taken.

The meeting was adjourned at 8:35 p.m..

Richard D. Dunn, Mayor

ATTEST:

Shari Hart, City Clerk-Treasurer

SIGN IN SHEET

PUBLIC MEETING: To present the Filer Water and Facility Plan. Meeting held February 17, 2015 in the Filer City Council Chambers at 7:30 p.m..

	Name	Address	Phone #
1.	Frank Glauner	2140E 3950N Filer	208-326-4204
2.	John Swayze	2279E 4000N Filer	326-7212
3.	Merl Schmoe	128 Midway Filer	~~[illegible]~~ 316 5432
4.	Joe Maloney	1012 Chisum Cir Filer	326-4502
5.	Jeff Hurley		308 8937
6.	Lori Bergman	Balanced Rock Ins	cell 736-8111 420-3859
7.	Shari Underwood	1210 Main St	326-6258
8.	Jomma Gough	800 Kelli Ln	326-3827
9.	Shelly J Tyree	502 6th ST	326-4814
10.	Eldon Gough	800 Kelli LN	326-3827
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			

NOTICE OF PUBLIC MEETING
TO PRESENT THE FILER WATER AND FACILITY PLAN

NOTICE IS HERE BY GIVEN That the City of Filer will hold a public meeting on February 17, 2015 at City Hall, 300 Main Street, at 7:30 p.m. The purpose of the public meeting is to present the Filer Water Facility Plan. During the meeting we will explain the treatment and upgrade alternatives addressed in the facility plan including potential environmental impacts of each alternative. We will explain the funding options available to the city and the potential financial impact on the public, and solicit verbal and written comments regarding the alternatives under consideration. Copies of the plan are available at City Hall beginning January 29, 2015 for review. They can also be viewed and downloaded at the following web address: www.jub.com/filer/. Any and all persons shall be heard at the said public meeting. The public is welcome and invited to submit testimony. Oral testimony may be limited to three minutes per person. Written materials may be submitted seven days prior to the above public meeting date so that all interested parties may examine them prior to the meeting. Written comments will be accepted for a period of 30 days following this date. All materials presented at the public meeting shall become property of the City of Filer. After considering and addressing comments, the City Council will select an alternative(s) for the facility plan and document the selection. A detailed environmental evaluation will be performed on the selected alternatives. Anyone desiring accommodation for disabilities related to documents and/or hearing needs to contact the City Clerk's Office at 208-326-5000 at least 72 hours prior to the public hearing.
Published the 28th of January and 4th of February 2015.
Shari Hart,
Clerk/Treasurer

REGULAR CITY COUNCIL MEETING
MARCH 17, 2015

THE FILER CITY COUNCIL HELD A REGULAR CITY COUNCIL MEETING ON TUESDAY, MARCH 17, 2015 IN THE COUNCIL CHAMBERS.

The meeting was called to order and a quorum present at 7:30 p.m. by Mayor Dunn with the following persons present:

Mayor	Rick Dunn
Council Member	Don Barkley
Council Member	Ruby Hite
Council Member	Joe Lineberry
Council Member	Bud Sheridan
City Attorney	Tim Stover
City Clerk-Treasurer	Shari Hart

Also present were: Deputy City Clerk Debbie McMahan, Rob Hegstrom-JUB Engineers, Kattie Russell, Chief Tim Reeves, Jeremy Callen, Sharilyn Underwood and Frank Glauner.

Amend the Agenda
Mayor Dunn asked that the Council amend the Agenda to add RESOLUTION 603 amending the City of Filer Personnel Manual.

A motion was made by Joe Lineberry and seconded by Ruby Hite to amend the Agenda by adding RESOLUTION 603. Motion carried.

Selection of preferred alternatives from the Water Facilities Plan to be included in the Environmental Informational Document (EID)—Rob Hegstrom, JUB Engineers.

Hegstrom stated the open comment period expires in two days and then reviewed the information and alternatives again with the Council. Hegstrom explained by putting the 'alternatives' in the EID, does not require the City to do them, but if they don't include them at this time-they would have to go through the whole process to add them at a later time. If the Council is planning on doing any of the recommendations in the future, they should be included now. The recommended system improvement alternatives, as discussed, are as follows: 1.) Arsenic Water Treatment Plant with enhanced coagulation with sand pressure filtration (lowest cost alternatives) $5.296 million; New pressure zone on South end of town, $0.332 million; and Backup generator at Well #3/#7, $0.100 million. Total cost of improvements: $5.728 million.

Mayor Dunn recommended that the Council approve all the alternatives, contingent upon any comments from the public received over the next two days.

A motion was made by Bud Sheridan to include all the recommended alternatives in the Environmental Document for the Water Facilities Plan, contingent upon public comment the next two days. Seconded by Joe Lineberry. Roll call vote: Don Barkley, aye; Joe Lineberry, aye; Ruby Hite, aye; and Bud Sheridan, aye. Motion carried.

Citizen's Input

Jeremy Callen, 820 Fair Avenue, asked the Council for direction on his question at the last Council Meeting. Callen recently purchased the small acreage (2.06 acres) at 820 Fair Avenue and would like to raise some livestock. The property is zoned R-1 (Residential District) and does not allow livestock, except horses can be pastured in areas where horses have been pastured every year, since June 4, 1991. Discussion was held and Mayor and Council instructed the City Attorney to draft something that would be 'site specific' for the Callen (and Lammers –property directly south of Callen) property. No further action was taken.

Date for Public Hearing Annual Appropriation Ordinance

A motion was made by Joe Lineberry and seconded by Don Barkley to set the Public Hearing for Annual Appropriation Ordinance as September 1, 2015. Motion carried.

Personnel Policy Manual Updates –the Council reviewed the Policy Manual draft that included the amendments that were approved at the last Council Meeting.

RESOLUTION 603- a Resolution amending the City of Filer Personnel Policy Manual by amending the section regarding employee classification, compensation, and benefits with regard to travel expense reimbursement, holidays, and insurance coverage available to employees.

A motion was made by Joe Lineberry and seconded by Bud Sheridan to adopt RESOLUTION 603 amending the Policy Manual. Roll call vote: Don Barkley, aye; Joe Lineberry, aye; Ruby Hite, no; and Bud Sheridan, aye. Motion carried.

Informational presentation by Chief Tim Reeves, "Crime Stoppers". Reeves gave a short presentation on "Crime Stoppers"-why it was created, who signed the original agreement and what has been happening the past several years. Apparently the program hasn't been active and the local agencies would like to make it more active and is asking for representation from each city to serve on the board. Discussion was held. No further action was taken.

The Council received information about some training being offered by ICRMP on April 1, in Kimberly, Idaho. The Council was encouraged to attend. It was noted that Deputy City Clerk Debbie McMahan was planning on attending the training.

Deputy Clerk McMahan asked that the Council recognize this would be the last 'official' meeting for City Clerk Shari Hart, as Hart will be retiring soon. She invited everyone to stay after the meeting for refreshments and conversation.

The meeting was adjourned at 8:00 p.m..

____

Richard D. Dunn, Mayor

ATTEST:

____

Shari Hart, City Clerk-Treasurer