TOWN OF BROADVIEW

Preliminary Engineering Report

Water System Improvements

June 2015

Prepared by:

Great West engineering ®

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Table of Contents

List of Figures

List of Tables

List of Appendices

1.0 EXECUTIVE SUMMARY

1.1 Introduction and Background

Broadview is a small farming and ranching community located approximately 25 miles northwest of Billings, Montana. The Town of Broadview has a long history of problems with its drinking water supply. Problems have included water shortages and poor water quality. The age of the original system is unknown, but in the 1930's the water supply failed resulting in a large population decline. In 1939, the Town actually sold its water tank to Lewistown because the prospects for an adequate water supply to fill the tank were so bleak. In 1954, the Town drilled a deep well (Well #1) in Town into the Eagle formation. Additional deep wells were drilled in 1974 and 1994. These wells provide very limited production of poor quality water. The water is so corrosive that it caused Well #1 to fail from casing failure in the early 2000's. The two remaining wells were grossly inadequate to meet the community's needs and in 2013, the Town drilled two new water supply wells (#4 and #5) south of Town. The Broadview Pond provides the Town with a separate system for the delivery of irrigation water. Unfortunately, the Broadview Pond runs dry most years.

In 1994, the Town replaced the majority of its water main piping with 6-inch, 8-inch and 12-inch PVC piping. The 1994 project also included construction of a 21,000 gallon glass-lined water tank. In 2003, an additional two blocks of old water main were replaced with 6-inch PVC water main. The Town's distribution system is in good condition. Water meters were installed on each service connection in 2014. The Town's storage tank is grossly undersized to meet the fire protection needs of the community. There are approximately 93 customer accounts including both residential and commercial services. According to census information, there were 192 residents in Broadview in 2010.

The Town has retained Great West Engineering to complete the Preliminary Engineering Report of its water system. The PER follows the interagency Uniform Preliminary Engineering Report Outline and meets all associated requirements.

1.2 Problem Definition

This PER provides a thorough description of Broadview's and a detailed analysis of the performance and condition of the water system infrastructure. The system deficiencies identified in this report include the following:

- The existing water storage facility is an on-grade facility of limited height located in Town. Therefore, water pressures below 20 psi are frequently encountered in the distribution system in the southwest corner of Town as a result of the hydraulic zone established by the tank. These low pressures are in violation of DEQ standards, expose the water system to potential contamination from back siphoning events, and pose a serious public health hazard. Further, the hydraulic zone established by the tank is so low that it compounds the inadequacy of the tank to provide adequate fire flows;
- Capacity of the existing storage tank is not adequate for future average day demands;
- System does not have any effective storage for fire protection;

1.3 Alternatives Considered

The alternative screening process considered numerous alternatives to address the storage deficiencies in Broadview. After an initial evaluation, it was determined that some of the alternatives were not viable and were eliminated from further review. Alternatives that were determined viable and therefore discussed in greater detail include the following:

- ST-1: New 150,000 gallon buried pre-stressed concrete storage tank
- ST-2: New 150,000 gallon on-grade glass lined bolted steel storage tank

The following is a brief description of the alternatives considered:

New 150,000 Gallon Buried Pre-Stressed Concrete Water Storage Tank

This alternative includes construction of a new buried concrete storage tank approximately 4,700 feet west of Town limits. Other locations for a buried storage tank were considered but the proposed site is the closest location to town that provides adequate elevation for a buried tank. It is too costly to provide a pipeline from the tank to the existing distribution system for any other locations. The alternative would require purchase of approximately 1 acre of land. Easements would also have to be obtained for the 10-inch pipeline from the tank to town.

New 150,000 Gallon On-Grade Glass Lined Bolted Steel Water Storage Tank

This alternative includes construction of a new on-grade glass lined bolted steel storage tank approximately 3,200 feet west of Town limits. Other locations for a ground storage tank were considered but the proposed site is the closest location to town that provides adequate elevation for a ground tank. It is too costly to provide a pipeline from the tank to the existing distribution system for any other locations.

A ground storage tank is less costly than an elevated tank to construct and provides much greater accessibility, decreasing the maintenance costs. The proposed tank meets all minimum system pressures. The alternative would require purchase of approximately 1 acre of land. Easements would also have to be obtained for the 10-inch pipeline from the tank to town.

Glass lined steel tanks do not require periodic recoating of the surface, and as a result, these tanks require very little operation and maintenance.

1.4 Preferred Alternative

Both of the alternatives listed above are analyzed in detail in this report. A decision matrix was developed to compare storage alternatives and select a preferred alternative. The decision matrix includes a comparison of technical feasibility, public health and safety, 20 year life cycle costs, environmental impacts, operation and maintenance requirements, and public opinion. Based upon the results of the matrix, public comment, and feedback from the Town of Broadview, the selected alternative is Alternative ST-1 – Buried concrete water storage tank. This alternative includes construction of a new 150,000 gallon buried concrete tank approximately one mile west of Town limits. A new 10-inch diameter PVC transmission main would be constructed from the new tank, and connect to the distribution system near the existing tank location.

1.5 Project Costs and Budget

The total estimated cost for the selected alternative is $1,166,000. This cost is detailed in Table 5-1. Various funding sources for the improvements are considered in Chapter 8 and include a variety of grant and low interest loan sources available to the Town of Broadview. The recommended funding strategy includes using the following grant and loan programs:

- TSEP Grant: $500,000
- DNRC Grant: $125,000
- SRF Loan: $270,500
- SRF Loan Forgiveness: $270,500

Table 8-2 presents the various funding scenarios considered, including the proposed funding strategy, Table 8-3 is a Detailed Project Budget based upon the proposed funding strategy.

The Town understands the significant infrastructure improvements needed in their water system. With this understanding, the Town has taken a steady and moderate approach to increasing water rates to help put the community in a position to complete all of the necessary improvements and to provide long-term stability for the water system.

Assuming the overall funding strategy is successful, the project will increase user rates by about $22.61/month/Equivalent Dwelling Unit (EDU). The current average monthly water user rate is $52.00. The user cost per month including the proposed project is $74.61. The current average monthly sewer user rate for the Town is $5.00, making a combined user rate, with the proposed project of $79.61. This amount compared to the Town’s target rate as established by the income survey and the Montana Department of Commerce ($76.70) shows that the Town will be at 104% of the target rate. The Town is capable of providing the necessary funds for the Town to repay the new debt service and meeting coverage requirements while adequately operating and maintaining the system.

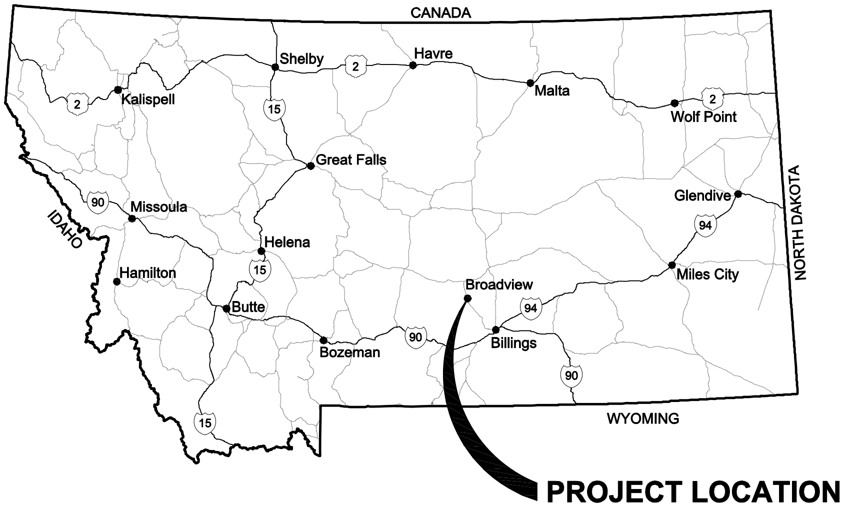
2.0 PROJECT PLANNING

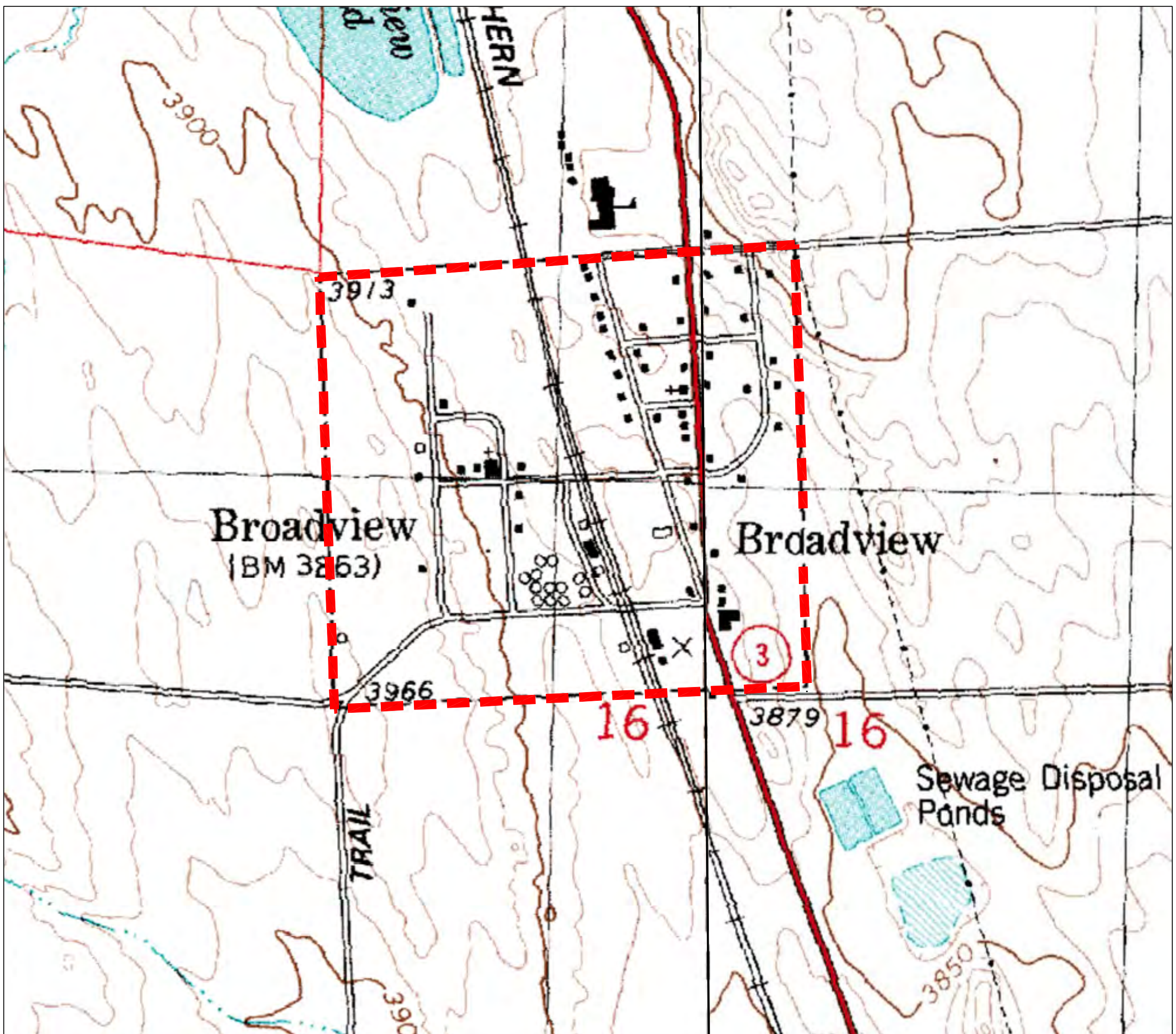
The planning and service area for this PER is shown in Figure 2-1. It generally consists of the incorporated boundary of the Town of Broadview.

2.1 Location

Broadview is a small farming and ranching community located approximately 25 miles northwest of Billings, Montana. Highway 3 and the Burlington Northern Railway split the Town of Broadview into an east and west half. More specifically, the Town is located at:

Section, Township/Range:	Section 16 Township 4 North, Range 23 East,
Latitude/Longitude:	46°05’56” North Latitude, 108°52’36” West Longitude
Elevation:	3,900 ft





NORTH

0 500 1000
SCALE IN FEET

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Figure # 2-1
TOPOGRAPHIC MAP AND PLANNING AREA

TOWN OF BROADVIEW
PRELIMINARY ENGINEERING REPORT

F:\1-06175-Broadview Water\CADD 1-06175-2013 Water Improvements\Exhibits\1-06175-Broadview-PER-Figure2-1.dwg

2.2 Environmental Resources Present

As with any major construction project, the potential effect of the project on the surrounding environment must be considered and provisions made to mitigate any negative effects. The Uniform Environmental Checklist as required by the Uniform Application summarizes the environmental review process. A completed Environmental Checklist may be found in Appendix K along with the Treasure State Endowment Program Environmental Assessment (EA). In summarizing the environmental information the EA states that,

- All impacts of the proposed actions have been accurately identified,
- All impacts will be mitigated below the level of significance, and
- No significant impact is likely to occur.

Quantification and characterization of potential impacts to environmental, human, and historic resources, includes sending letters to pertinent local, state, and federal agencies for their review and comment on any potential environmental effects as a result of the proposed improvements. The letters and responses are included in Appendix C.

2.2.1 Land Resources

Broadview is approximately 25 miles northwest of Billings along Montana Highway 3. Elevations vary from 3,900 mean sea level (msl) in Town to 4,000 msl at the proposed tank site. Broadview is located on the north end of Comanche Flat which is internally drained and does not connect to any surface water courses outside the area. The topography within the Town limits varies but not significantly enough to require multiple water system pressure zones. Proceeding west from town, the topography is rolling with the general trend being an increase in elevation heading west. Area topography is shown on the Figure 2-1.

A search of the United States Department of Agriculture (USDA) Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx) indicates soils in the town area consist primarily of loams and clay loams. A copy of the NRCS Soil Survey is included in Appendix B.

Soils in the area are suitable for buried water lines and structures. Topography is appropriate for pipeline installation and concrete structures and will not result in environmental damage. Some of the slopes are seven to fifteen percent which would be too steep for the storage tank construction; however the planned area of the storage tank is located in areas with zero to two percent slopes. Some of the transmission main will cross the areas with seven to fifteen percent slopes. The soils in the area are described as somewhat unstable for excavations. Proper trench excavation and safety will be necessary.

Broadview is located in near the drainage divide between Painted Robe Creek and Comanche Basin. Comanche Basin is an internally drained region that formed as the result of faulting along the west–northwest-trending Lake Basin Fault Zone. Painted Robe Creek is a tributary to the Musselshell River. Faulting and subsequent differential erosion has resulted in a pronounced topographic basin consisting of sandstone-rimmed uplands draining towards the interior of the depression, which is developed on shale. The age of rocks at the land surface progresses from older Cretaceous rocks in the western part of the study area to Tertiary rocks in the east. Remnants of several high-level terraces and pediment surfaces are located in the northwestern part of the study area. The Comanche Basin contains Quaternary lake sediments, alluvium and colluvium.

2.2.2 Biological Resources

Biological resources in the area include terrestrial and aquatic systems. The aquatic systems include Gooseneck Creek, Sand Creek, and their associated riparian areas. These areas likely provide habitat for birds, aquatic insects, amphibians, small fishes, and rodents. The terrestrial areas consist primarily of pasture and agricultural lands. These areas likely provide habitat for birds, rabbits, foxes, and other small mammals. The Montana Natural Heritage Program completed a database review for the area. A copy of the review is included in Appendix C.

Vegetation types in immediate proximity to Broadview generally include agricultural and grazing zones. There are also streamside riparian zones located along the Gooseneck Creek and Sand Creek drainages. The Natural Resource Information System (NRIS) lists no plant species of concern in the area.

2.2.3 Water Resources

The area around Town has deep groundwater resources as noted in the Broadview Source Water Protection Plan (SWPP) included in Appendix A.

A detailed discussion of the area groundwater aquifers and groundwater quality is presented in the Source Water Protection Plan (Montana Bureau of Mines and Geology, 2002).

Two small streams are located in the proposed project vicinity (Gooseneck Creek and Sand Creek). The area generally drains to the Musselshell River. The improvements proposed in this PER do not lie within a designated floodplain.

2.2.4 Floodplains

The proposed water improvements project will not affect the 100-year floodplain. Based on a review of the FEMA FIRM maps, it was determined that the project area is located in *Zone D*. Flood hazards are undetermined and floodplains have not been mapped for areas in *Zone D*. There are no known areas in or around the vicinity of Town or the project area that are believed to pose a significant flooding hazard.

2.2.5 Wetlands

Wetlands are limited to riparian areas of existing streams. In areas of stream/wetland crossings, the water main will be installed under the existing road; thereby eliminating any impact to a stream or wetland that would otherwise be caused by a stream/wetland crossing. No impacts to wetlands will occur as a result of proposed water system improvements.

2.2.6 Cultural Resources

The National Register of Historic Places web site includes a feature that allows queries to be completed regarding historic places in a given area. The areas of historical significance are noted in the listings and include architectural/engineering, person, event, and commercial. There were no areas of historical or cultural significance found in or around the proposed project areas. A copy of the National Register of Historic Listings for Broadview is included in Appendix C.

2.2.7 Socio-economic and Environmental Justice Issues

Broadview is a small community located on Highway 3 northwest of Billings. Improved water service alone will not likely encourage growth. Economic opportunity will be necessary for new residents to locate in the Town. There are currently many undeveloped parcels in Town. There is no known disproportionate increase in environmental or public health impacts to minority and low-income persons due to possible water improvements projects. All persons would benefit from the enhanced water system, security, and fire protection from both a public health and safety basis and an economic basis. Water system improvements are important for fire protection of residential areas and the core business areas of the Town.

2.3 Population Trends

Population analyses provide the basis for all planning efforts and play a large role in planning decisions. Projections of future population are used in planning and engineering design to property size facilities. Historic and projected populations for Yellowstone County and the Town of Broadview are shown in Table 2-1. Historically, Yellowstone County experienced an increase in population from the 1970 census to the 2010 census. The Town itself saw an increase in population since the 1990s to current. From 2000 to 2010, the population grew from 150 to 192, a 28.0% growth over ten years.

A Community Profile of Broadview completed by the Yellowstone County Planning Division in the mid 2000's projected a yearly growth rate in Broadview of 1.25% per year. This would have placed the 2010 population at 170. Therefore it appears that Broadview is growing faster than previously estimated. A population increase of 2.5% annually will be assumed for the 20 year planning period (year 2034) to allow for additional growth in the community. This correlates to a design year population of 258, or an additional 66 residents over the 2010 census population of 192. This growth is anticipated to occur throughout the Town, as no areas of concentrated growth are identified.

Table 2-1 - Population Data

Population Data				
	Yellowstone County		Town of Broadview	
Year	Population	Total Period Growth	Population	Total Period Growth
1960	79,016	-	160	-
1970	87,367	10.6%	123	-23.1%
1980	108,035	23.7%	120	-2.4%
1990	113,419	5.0%	133	10.8%
2000	129,352	14.1%	150	12.8%
2010	147,972	14.3%	192	28.0%
2034*	---	---	258	34.4%

*20-year Design Population for Broadview Water System

2.4 Community Engagement

The water system deficiencies and recommended improvements have been discussed at several regularly scheduled Town Council meetings. Detailed presentations on the PER findings were made by Great West Engineering at the February 11, 2014 and March 27, 2014 council meetings. Copies of these handouts can be found in Appendix L.

3.0 EXISTING FACILITIES

This chapter discusses the condition of the existing water system and analyzes the system for deficiencies.

3.1 Location Map

Figure 3-1 shows a schematic layout of Broadview's existing water system. Figure 3-2 presents a layout of the existing distribution system. The water system consists of the following:

Distribution System:

- Approximately 530 lineal feet of 12" PVC
- Approximately 7,045 lineal feet of 8" PVC
- Approximately 1,000 lineal feet of 6" PVC
- Approximately 340 lineal feet of 6" Ductile
- Approximately 90 lineal feet of 3" PVC
- Approximately 5,120 lineal feet of 2" Cast Iron

Transmission Main:

- Approximately 8,140 lineal feet of 4" HDPE

Supply:

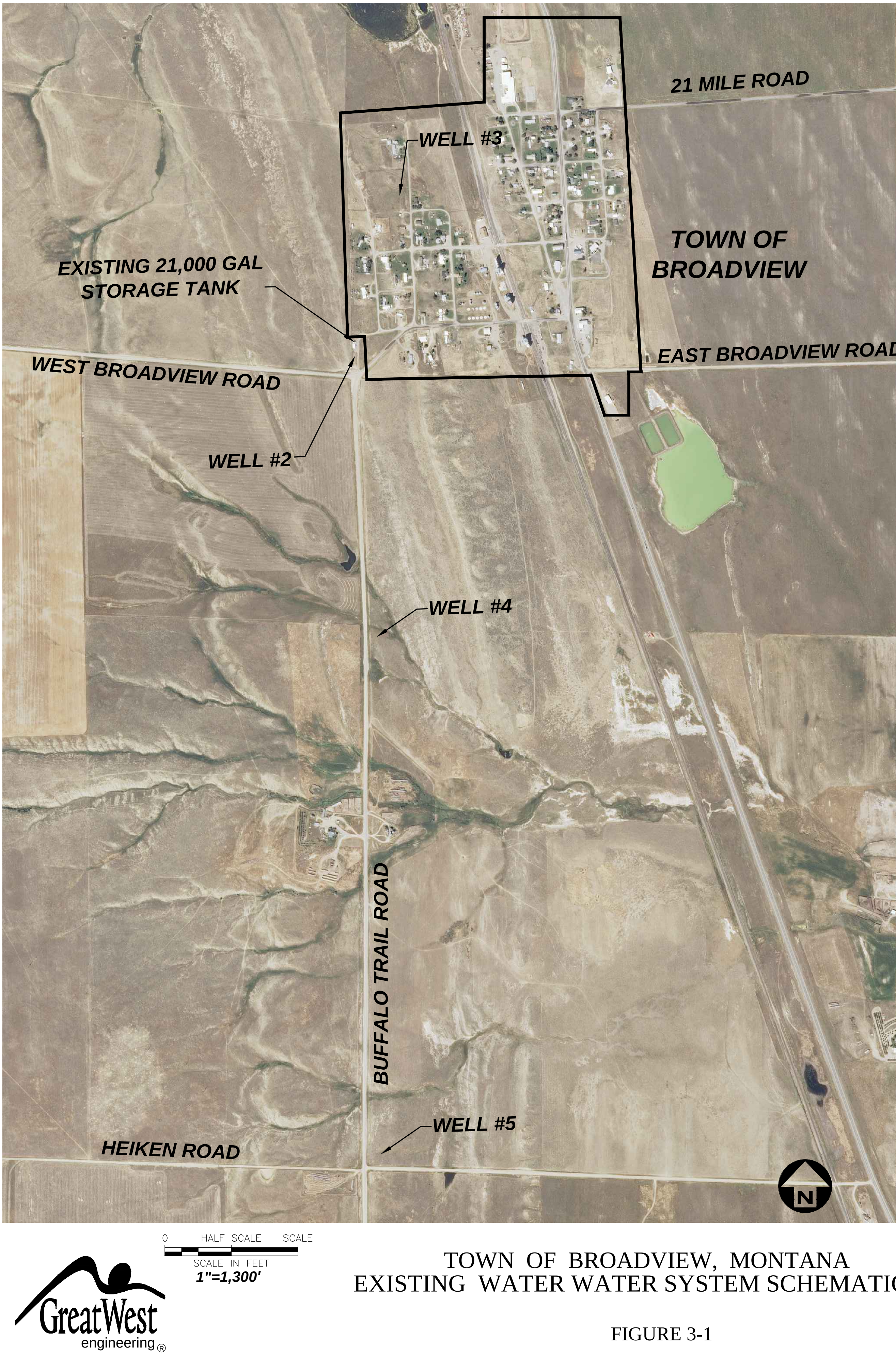
- Well #2
- Well #3
- Well #4 (new in 2014)
- Well #5 (new in 2014)

Treatment:

- Liquid chlorination

Storage:

- 21,000 gallon on-grade glass-lined steel tank



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TOWN OF BROADVIEW, MONTANA
EXISTING WATER WATER SYSTEM SCHEMATIC

FIGURE 3-1

150 0 150 300

Scale in Feet

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TOWN OF BROADVIEW, MONTANA
PRELIMINARY ENGINEERING REPORT
EXISTING WATER DISTRIBUTION SYSTEM

FIGURE 3-2

3.2 History

The Town of Broadview has a long history of problems with its drinking water supply. Problems have included water shortages and poor water quality. The age of the original system is unknown but in the 1930's the water supply failed resulting in a large population decline. In 1939, the Town actually sold its water tank to Lewistown because the prospects for an adequate water supply to fill the tank were so bleak. In 1954, the Town drilled a deep well (Well #1) in Town into the Eagle formation. Additional deep wells were drilled in 1974 and 1994. These wells provide very limited production of poor quality water. The water is so corrosive that it caused Well #1 to fail from casing failure in the early 2000's. The two remaining wells were grossly inadequate to meet the community's needs and in 2013, the Town drilled two new water supply wells (#4 and #5) south of Town. The Broadview Pond provides, the Town with a separate system for the delivery of irrigation water. Unfortunately, the Broadview Pond runs dry most years.

In 1994, the Town replaced the majority of its water main piping with 6-inch, 8-inch and 12-inch PVC piping. The 1994 project also included construction of a 21,000 gallon glass-lined water tank. In 2003, an additional two blocks of old water main were replaced with 6-inch PVC water main. The Town's distribution system is in good condition. Water meters were installed on each service connection in 2014. The Town's storage tank is grossly undersized to meet the fire protection needs of the community.

3.3 Condition of Existing Facilities

3.3.1 Supply

Water Demand:

In Broadview, water is metered at each well house, or entry point, prior to entering the distribution system. A Town employee records the reading from the wells on regular intervals and a summary of this information between 2011 and 2013 is included in Appendix H. This information is for Wells #2 and #3 only. Wells #4 and #5 did not go on-line until the spring of 2014.

Individual and commercial water usage is not available, as water meters were just recently installed in 2014.

Due to an insufficient water supply, the Town imposes strict irrigation restrictions on its customers during the summer months. Residences are allowed to irrigate these three days on an odd/even schedule with no irrigation allowed on Sundays. Most of the Town relies on a piped irrigation system that is separate from the municipal potable water system. This irrigation system obtains irrigation water from the nearby Broadview pond. In recent years, the capacity of the Broadview pond has been diminished as a result of droughts. Thus, the residents have not been able to depend on this pond as a source of irrigation water in recent years.

Broadview's water demand was calculated using the source water metering records for water produced by the wells and averaged over the 2011-2013 time period. The following sections will discuss the methodology and assumptions used in determining the current average annual per capita flow for the community.

An analysis of the existing pumping records was performed in order to assess the current water use trends for Broadview. The pumping records for the two pump houses are summarized in Tables 3-1 and 3-2. Table 3-3 provides a system-wide summary of the current average monthly flows and per capita consumption. Pump house 74 serves well 2 and is located near the western terminus of 6th Street. Pump house 94 serves well 3 and is located near the corner of 3rd Street and Minnesota Avenue.

Table 3-1 - Well #2-Average Monthly Water Flows

Pump House Number 74 (Well #2) Average Monthly Water Flows(Gal/Month)				
	2011	2012	2013	Average
January	406,068	255,032	242,494	301,198
February	346,265	252,078	198,064	265,469
March	322,862	252,626	218,460	264,649
April	310,145	222,144	229,447	253,912
May	299,490	254,853	237,849	264,064
June	279,094	237,816	226,610	247,840
July	317,466	243,731	239,751	266,983
August	343,247	233,089	257,980	278,105
September	222,970	230,411	227,385	226,922
October	253,098	245,984	241,220	246,767
November	239,275	231,221	229,120	233,205
December	259,368	217,868	295,480	257,572
Monthly Average	299,946	239,738	236,988	258,891
Yearly Usage	3,599,348	2,876,853	2,843,860	3,106,687

Table 3-2 – Well #3-Average Monthly Water Flows

Pump House Number 94 (Well #3) Average Monthly Water Flows (Gal/Month)				
	2011	2012	2013	Average
January	335,069	214,713	217,640	255,807
February	256,350	214,089	185,089	218,509
March	268,130	216,939	191,243	225,437
April	262,948	192,610	204,944	220,167
May	255,705	221,192	214,592	230,496
June	228,762	205,504	199,391	211,219
July	272,813	208,392	204,868	228,691
August	270,144	202,991	221,321	231,485
September	205,111	201,491	262,795	223,132
October	214,305	214,114	227,915	218,778
November	200,715	204,363	201,520	202,199
December	218,909	194,497	260,195	224,534
Monthly Average	249,913	207,575	215,959	224,205
Yearly Usage	2,988,961	2,490,895	2,591,513	2,690,456

Table 3-3 – System Wide Average Water Flows

System-Wide Average Water Flows (Gal/Month)					
	2011	2012	2013	Average Per Day	Per Capita Use/Day[1]
January	741,137	469,745	460,134	17,968	94
February	602,615	466,167	383,153	17,285	90
March	590,992	469,565	409,703	15,809	82
April	573,093	414,754	434,391	15,803	82
May	555,195	476,045	452,441	15,954	83
June	507,856	443,320	426,001	15,302	77
July	590,279	452,123	444,619	15,989	83
August	613,391	436,080	479,301	16,438	86
September	428,081	431,902	490,180	15,002	78
October	467,403	460,098	469,135	15,018	78
November	439,990	435,584	430,640	14,513	76
December	478,277	412,365	555,675	15,552	81
Average	549,025	447,312	452,948	483,095	
Yearly Usage	6,588,309	5,367,748	5,435,373	5,797,143	83

(1) Based on 192 residents (2010 estimated population).

Water Use Comparison

Table 3-4 provides an overview of water consumption trends for various small Montana communities. From Table 3-4, it is clear that the water consumption in gallons per capita per day (gpcd) is much higher for towns without meters than towns that utilize meters. When compared with other similar non-metered Montana communities, it is clear that water usage in Broadview is remarkably low. In fact, Broadview's average per-capita water consumption is even lower than that of any metered community listed in Table 3-4. This may be attributed to, in part, the community's reliance on an external irrigation source and the unsuitability of the water supply for irrigation purposes due to the high salinity of the water. Another major contributing factor in Broadview's case is undoubtedly extreme water conservation on the part of the residents, due to the very limited water supply in the past.

Table 3-4 – Water Usage Comparison

Water Usage Comparison Average Water Use (GPCD)				
City	Nov-Dec	June-Aug	Yearly Total	Ratio of Summer to Winter
With Meters				
Ennis	146	325	199	2.23
Shelby	130	250	190	1.92
Wilsall	198	342	240	1.73
Dutton	72	221	126	2.94
Harlem	110	190	140	1.73
Power	89	250	151	2.80
Cascade	101	242	193	2.40
Average	121	253	173	2.25
Without Meters				
Virginia City	373	668	452	1.79
Townsend	282	769	470	2.73
Cascade	201	550	334	2.74
Carter	530	691	523	1.30
Clyde Park	370	505	410	1.36
Boulder w/Leakage	332	631	470	1.90
Boulder w/o Leakage	144	443	282	3.08
Whitehall	171	638	325	3.73
Loma	329	697	478	2.08
Average	304	621	416	2.30
National Average	120	240	160	2.00
Broadview	79	82	83	1.04

* Data obtained from Water Resources Engineering, Fourth Edition, 1992.

Water Demand Projections

This section summarizes the projected water demand for the Town of Broadview through the 20- year planning period. The previous years water usage data provides basis for the calculated Average Day Use and Maximum Day Use. These numbers will in essence become the building blocks for Broadview's projected water demand. The demands, as summarized in Table 3-5, will esablish the design criteria necessary to develop future improvements to the Town's water system.

Table 3-5 – Water Demands

Current and Projected Future Water Demands					
		2014[1]		2034[2]	
DEMAND	(gpcd)	DEMAND (gpd)	DEMAND (gpm)	DEMAND (gpd)	DEMAND (gpm)
Average Day	83	15,900	11	21,400	15
Maximum Day	125	24,000	17	32,300	22
Peak Hourly[3]	N/A	N/A	34	N/A	44

[1] Based on Equivalent Population of 192
[2] Based on Equivalent Population of 258
[3] Based on a Peaking Factor of 2

Source of Supply

Broadview operates four wells in the public water system, designated #2, #3, #4 and #5. Figure 3-1 illustrates the location of the wells in the Broadview community. Wells #4 and #5 were constructed in 2013, and recently went on-line. Appendix I provides detailed well inventory forms of the well constructions and completions, and other data. A summary of important well data is provided in Table 3-6.

Table 3-6 – Water Supply Well Information

Broadview Water Supply Well Information		
PARAMETER	WELL NO. 2	WELL NO. 3
Date Constructed	1974	1995
Aquifer	Eagle Formation (sandstone)	Eagle Formation (sandstone)
Total Depth	1,100 ft	1,250 ft
Static Water Level	534 ft	320 ft
Producing Interval	1,010 – 1,075 ft	1,080 – 1,240 ft
Pump Setting	880 ft	1,035 ft
Capacity	24 gpm	8 gpm

Broadview Water Supply Well Information (Table 3-6 Cont.)		
PARAMETER	WELL NO. 4	WELL NO. 5
Date Constructed	2013	2013
Aquifer	Eagle Formation (sandstone)	Eagle Formation (sandstone)
Total Depth	1,060 ft	1,020 ft
Static Water Level	190 ft	320 ft
Producing Interval	810 – 1,060 ft	770 – 1,020 ft
Pump Setting	780 ft	740 ft
Capacity	15 gpm	20 gpm

Both Well's #2 and #3 utilize control buildings located adjacent to the wells. Well's #4 and #5 utilize a control building located next to Well #4. On/off control of the wells is based on the water level in the Town's 21,000 gallon storage tank, located adjacent to Well #2. All sources of supply are metered for flow. Discharge from Well No. 2 goes directly to the storage tank. The other wells discharge directly into the distribution system.

Volume and Capacity for Growth:

As shown in Table 3-7 Summary of Existing Well Capacity, all four wells pumping at their stated capacity will produce 67 gpm. DEQ Circular 1 section 3.2.1.1.a. states that the total developed groundwater source capacity must be sufficient to meet design maximum day demand with the largest producing source out of service. With the largest producing well out of service (Well #3) the total source capacity is reduced to 43 gpm.

Current average day and maximum day demands are met by the current source capacity as shown in Table 3-3. The design year (2034) average day demand and design maximum day demand will also be met by the source capacity. This estimate assumes that growth will occur at 2.5%/year. Other assumptions include that all current sources continue to operate at their current capacity. In short, the Broadview water supply volume is not growth-limiting.

Table 3-7 - Summary of Existing Well Capacity

Summary of Existing Well Capacity and Capacity for Growth					
Well	Capacity (gpm)	Current Avg Day Demand	Current Max Day Demand	2034 Avg Day Demand	2034 Max Day Demand
Well #2	24				
Well #3	8				
Well #4	15				
Well #5	20				
Total	67				
Total well capacity with highest producing well out of service	43 gpm	11 gpm	17 gpm	15 gpm	22 gpm

Water Quality:

Water quality produced from the wells is compliant with Primary Drinking Water Standards. The water is of very poor aesthetic quality, as exhibited by extremely high total dissolved solids (TDS). Table 3-8 provides water quality data for selected general parameters. The main contributors to high TDS levels are bicarbonate, sulfate, and sodium. Sodium is often identified as a potential risk to individuals with high blood pressure, but has not yet been regulated as a primary contaminant. Sulfate has been linked to cases of diarrhea in infant and transient populations, and may be considered for designation as a primary contaminant in the future.

The most critical impact of Broadview's water quality is the associated high corrosion rate of metals. High TDS water provides an excellent electrolyte medium for corrosion reactions of steel and iron. Despite a high pH, the conditions overall have been shown to favor severe corrosion, as evidenced by the pump column pulled from the Town's #2 well in 2006. This column pipe lasted for five years in the well. The failure of the original #1 well was most likely due to corrosion of well casing. Based on conditions of the pump column pulled from Well #2, it is likely the casing in this well, and also in the #3 well, are presently undergoing severe corrosion. Ultimately, it is expected that both of the Town's two older wells will eventually fail due to severe corrosion.

Table 3-8 - Well Water Quality

Water Quality Data				
PARAMETER	WELL NO. 2	WELL NO. 3	WELL NO. 4	WELL NO. 5
Sampled by	MBMG	Morrison-Maierle, Inc.	Western Groundwater	Western Groundwater
Sample Date	10/18/1997	7/12/95	10/27/12	1/15/13
pH (std. units)	9.15 (8.85)[A]	8.9 (9.06)	9.1	8.9
Conductivity (µS/cm, 25ºC)	2,640 (3,030)	2,770 (2,880)	3,080	3,450
Total Dissolved Solids (mg/L)	1,902	1,800	2,160	2,270
Sodium (mg/L)	632	584	825	895
Sulfate (mg/L)	923	730	1,010	1,180
Bicarbonate (mg/L)	450	542	398	399
Carbonate (mg/L)	65	50	55	40
[A] Values in parentheses were measured 11/9/07 using a calibrated field instrument.				

Source Water Protection Plan:

A Source Water Delineation and Assessment Report (SWDAR) was completed for the Town of Broadview's water system in 2006 and is included in Appendix A. Based on this work, the deep confined aquifer is considered to have low source water sensitivity to contamination. Potential contaminant sources in the area that were identified were classified as low susceptibility for contamination of the Town's wells.

Water Rights:

Montana DNRC recognizes that the Town holds a single water right for 50 gpm and 13.26 acre-feet, and priority date 12/31/1954 (Water Right No. 43Q 5924-00, see Appendix F). This water right was submitted for Well #1, which was taken out of service in 2003. The rate of 50 gpm exceeds the projected maximum day demands for the Town.

The water right was amended in 2013, to remove Well #1, which is no longer utilized, and added Wells #2, 3, 4 and 5 as points of diversion.

Susceptibility to Drought:

Relative to shallow alluvial wells, or to other water table-type wells that more closely interact with surface water, the current groundwater sources are less susceptible to drought and seasonal water level fluctuations. The wells are completed in confined bedrock aquifers of the Eagle Formation and are all under pressure. Recharge areas for the formations are probably in the surface outcrop of the Eagle Formation west of Broadview. A more detailed explanation of the hydrogeology may be found in the Town's Source Water Delineation and Assessment Report in Appendix A.

3.3.2 Treatment

The only water treatment provided in Broadview's water system is liquid chlorination, which meets the requirements of Circular DEQ 1. Chlorine disinfection is applied voluntarily to the wells using liquid sodium hypochlorite solution at 12.5%. A single chemical metering pump is used in the two older pump houses to properly dose the well discharge. The new pump house that was recently constructed to serve Wells #4 and #5 contains two chemical metering pumps. There is sufficient supply of disinfectant on-site. Chlorination chemicals are applied and stored within the same room as the control building piping and electrical controls.

3.3.3 Storage

Water storage is a key component in any municipal water system. The Town of Broadview currently maintains a 21,000 gallon on-grade bolted steel water tank for water storage. This tank is located at the west end of Town near Sixth Street. The existing tank is in good condition based on an inspection conducted on the tank interior in 2005. The existing tank will continue to service the community until a larger tank can be constructed. In general, water storage can be thought of as satisfying three different needs. These are: 1) operational storage; 2) emergency storage; and 3) fire suppression storage. Circular DEQ 1, Section 7.0.1 requires that *"storage facilities must be sufficient, as determined from engineering studies, to supplement source capacity to satisfy all system demands occurring on the maximum day, plus fire flow demands where fire protection is provided"*. The following will discuss these needs in relation to the Town of Broadview's water system.

Operational Storage

Operational storage serves to provide supplemental flows to the water supply during peak periods. Whenever peak hourly demands exceed available flows from the supply, the difference must be provided with flows from storage. If storage is not adequate to supplement the supply, water pressures in the distribution system may drop to dangerously low levels. Elevated storage serves to equalize pressures. As previously shown, the Town's water supply capabilities are sufficient to meet maximum demands.

Emergency Storage

Elevated storage is important to a community due to the fact that should a power loss or pump shutdown occur, a water supply is still available. In the case of Broadview, there is limited elevated storage capacity. The Town does not have an emergency portable power generator to run a well in the event of a power outage. Given the limited storage and pumping capacities, it is likely that the Town's residents would be without a dependable source of potable water if the Town loses power for any significant period of time. This certainly presents a clear public health and welfare concern.

No formula exists for determining the amount of emergency storage required. The decision is usually made on a judgment about the perceived vulnerability of the community's water supply. The amount of emergency storage is dependent on the following:

- How many wells are out of service
- How long the well(s) are out of service
- The time of year and day the well(s) are out of service
- How much the users control their water use during the emergency period
- How much water the reservoir contains when the emergency period begins
- If the water source has a backup power supply or if it is supplied by gravity
- The reliability of the distribution system to transport water to the users

The Town of Broadview currently does not have adequate emergency storage. The system is very vulnerable to the loss of the water supply during any length power failure or any type of equipment failure.

Fire Suppression Storage

Fire protection is strongly advised. As the AWWA suggests,

"Fire protection through the water system reduces fire insurance rates, though more importantly; it protects the tax base from destruction from fire, preserves jobs, and most importantly preserves human life and reduces human suffering."

Needed fire flow is typically based on construction material, use of the building, size of the building, and distance between buildings. The State of Montana has adopted the NFPA Uniform Fire Code. This Code states "The minimum fire flow and flow duration requirements for one- and two-family dwellings having a fire area that does not exceed 3,600 square feet shall be 1,000 gpm". Fire flow and flow duration for dwellings having a fire area in excess of 3,600 square feet is specified in a table according to type of construction and size of building. The code also states that "Fire flow requirements may be modified downward by the authority having jurisdiction for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire flow requirements is impractical". The code also gives the following exception for a reduction in required fire flows: "A reduction in required fire flow of 50 percent, as approved, shall be permitted when the building is provided with an approved automatic sprinkler system". Broadview is comprised of mostly residential dwelling with some small businesses and a school. Uniform Fire Code recommended flows are not the only factor considered in determining adequate fire flows for a community. The Community's current and future fire equipment capabilities must be considered. It was determined that a fire flow of 1,000 gpm would be most appropriate for this community. As recommended by the Uniform Fire Code, this flow should be provided for a minimum duration of two hours. Thus, a total of 120,000 gallons of fire suppression storage should be provided. When added to the projected average day flow, the minimum tank size required for the Town of Broadview is approximately 150,000 gallons. The existing system does not have any effective storage for fire protection.

In summary, the Town's supply capacity is adequate to meet the community's needs for the 20-year design period. However, without adequate storage, in an emergency fire situation, the Town will not be able to meet fire storage capabilities. This reinforces the importance of increased storage to the system.

3.3.4 Pumping Stations

There are no pump stations or other water system infrastructure in need of discussion.

3.3.5 Distribution System

Broadview's water distribution system consists primarily of newer PVC pipe. A general layout of the community's existing water system is shown in Figure 3-2. A summary of the existing distribution system is shown in Table 3-9.

Table 3-9 - Distribution System Summary

Distribution System Summary	
Size & Type of Main	Length
2" Cast Iron	5,120 LF
3" PVC	90 LF
4" HDPE Transmission Main	8,140 LF
6" Ductile	340 LF
6" PVC	1,000 LF
8" PVC	7,045 LF
10" PVC	6,200 LF
12" PVC	530 LF
Total Length	28,465 LF

Circular DEQ 1 requires "*the minimum size of water main for providing fire protection and serving fire hydrants must be six inch diameter*". All thirteen fire hydrants in the system are located on 6-inch and 8-inch diameter mains. MDEQ also states that "*larger size mains will be required if necessary to allow the withdrawal of the required fire flow while maintaining the minimum residual pressure*", which is 20 psi under all conditions of flow.

Gate Valves

An inspection of all gate valves on the system was not within the scope of this analysis.

DEQ 1 recommends, that "valves should be located at not more than 500 foot intervals in commercial districts and at not more than one block or 800 feet intervals in other districts." In general, the valving for the distribution system is well laid out. The spacing of the gate valves exceeds DEQ 1 in some instances. However, due to the sparse population in some of these areas, it is not felt that the cost of added valves is justified. Generally, the gate valve layout for the system is good.

Fire Hydrants

An inspection of all hydrants on the system was not within the scope of this analysis.

The system is outfitted to provide fire flows and there are fire hydrants on the distribution system; however, the system does not have adequate storage or pressures to maintain any respectable level of fire flow for an acceptable duration. Given the limited amount of storage available, the Town must exercise precaution when using the existing hydrants for flushing to prevent system pressures from dropping below 20 psi due to draining the tank and creating a potential public health hazard. For this reason, fire hydrant flow tests were not performed.

DEQ 1 states that “hydrants should be provided at each street intersection and at intermediate points between intersections as recommended by the State Fire Marshal and Insurance Services Office” and “generally, hydrant spacing may range from 350 to 600 feet depending on the area being served”. A memo from the Montana State Fire Marshal Bureau dated April 13, 1979 further states that residential hydrant spacing be a maximum of 500 feet to any structure and commercial and industrial spacing be a maximum of 350 feet to any structure. The Town’s hydrants meet these spacing requirements.

In general, the existing hydrants are in fair condition and should be maintained. Replacement or rehabilitation of existing hydrants may be warranted in specific locations. The decision to replace or rehabilitate existing hydrants, if any, will be made during the design phase of the project. No hydrants are proposed for replacement at this time.

Distribution System Modeling

In order to evaluate the hydraulic response of the Town’s water system, a hydraulic model was constructed using the WaterCAD computer modeling package by Bentley Systems (formally Haestad). The computer model is used to identify specific problem areas and to determine the most effective modifications to improve the system. The WaterCAD program uses an iterative procedure, similar to the Hardy Cross method, to solve standard loop equations to arrive at solutions for flow through the pipe network and determine resulting pressures at the system nodes (pipe junctions) using the relationship between flow and headloss defined by the Hazen-Williams equation.

Several scenarios were developed to define the hydraulic response of the system under multiple conditions of consumptive use. Among the scenarios modeled were: the average daily flow and the peak daily flow. In addition, the fire flow available throughout the water system was evaluated by performing a steady state fire flow analysis. The analysis determines the maximum flow that can be obtained from a given location while maintaining a minimum residual pressure of 20 psi throughout the distribution system. The results of these specific events will be discussed further in the following section. Copies of the computer runs are included in Appendix G.

The computer model was used to evaluate the effects of adding a new water storage facility and transmission main west of town and eliminating the existing water storage facility. DEQ 1 requires that “the system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow” and “the normal working pressure in the distribution system should be approximately 60 psi and not less than 35 psi”. Based on the computer output data in Appendix G, it is clear that the existing distribution system is capable of providing an acceptable level of fire flow if the static pressure is increased by adding a new tank at a higher elevation.

Based on the results of the hydraulic model, it is clear that if the proposed improvements are made, sufficient fire flows can be provided to the community while maintaining a minimum pressure of 20 psi throughout the system.

3.4 Operational and Management Practices and Capabilities

The water and sanitary sewer systems in the Town are currently maintained by a part-time Public Works Department. The Town Clerk bills part of her time to the water and sewer funds. The Mayor of Broadview oversees the day to day operations of the town, while the Town Council deals with policies, procedures, budgeting and assessments.

The operator, Leo Bogden, knows the system extremely well and is a major factor in the success of the system thus far. It is apparent that the Town has the administrative, managerial, and field operational skills to successfully maintain the water system serving the Broadview community. The issues currently facing the water system are not a result of O&M practices, but rather a function of the system design and lack of adequate storage.

3.5 Financial Status of Existing Facilities

Detailed income and expense reports for the Town are included in Appendix J. A summary of the operating expenses and revenue for the water system for FY2012 is included in Table 3-10.

Table 3-10 - Summary of Expenses and Income

Fiscal Year 2012	
Water Revenues	Amount
Metered Water Sales	$53,250.00
Investment Earnings	$725.00
Total Revenues	$53,975.00
Water Expenses	Amount
Personal Services	$3,329.00
Supplies	$4,503.00
Purchases Services	$5,699.00
Repairs & Maintenance	$1,017.00
Depreciation	$15,146.00
Debt Services	
Principal	$10,000.00
Interest	$4,100.00
Total Expenses	$43,794.00

3.6 Water/Energy/Waste Audits

There have been no water system, energy, or waste audits conducted in the recent past for the Town of Broadview.

4.0 NEED FOR PROJECT

4.1 Health, Sanitation and Security

Health and safety of the public is by far the largest concern for any community water system. The Town of Broadview currently has limited water storage, and this deficiency could potentially impact the health and safety of the public. Inadequate fire flows, low system pressures during peak demands, and lack of sufficient storage capacity are the largest community concerns.

The following system deficiencies exist from a fire protection perspective:

- Given the inadequate fire flows in Town, it is unlikely that the current volunteer fire department would be able to control a fire at the school sufficiently to save the lives of the children and teachers.
- The inability to control fires puts the firefighters at great risk.
- Fires could spread to fuel tanks and other hazardous material storage facilities (anhydrous ammonia, etc.) and deaths could result from explosions or toxic material release.
- The lack of adequate fire flows could result in the inability to respond to an explosive or toxic material spill after a train derailment in Town, which could lead to loss of life within the community or unnecessary risks to the lives of the firefighters.

Providing sufficient fire flows will allow buildings to be saved and may allow insurance rates to decrease; however, the more important aspect to providing sufficient fire flows is that firefighters are better able to control the fire, and therefore have an increased ability to save the lives of individuals who may be trapped within the building. The lack of adequate fire flows puts many lives at risk to a variety of potential threats.

Regulatory Requirements

The Safe Drinking Water Act (SDWA) was enacted by Congress in 1974 to provide a standard by which all persons in the United States could be provided safe drinking water through public water supplies. The Act was later amended in 1986 and 1996.

The State of Montana's regulatory role in drinking water systems is twofold; regulate the SDWA by meeting primacy requirements established by the EPA, and ensure satisfaction of state established design criteria for the construction of public water systems. The State has defined public water systems as systems serving ten or more homes, or 25 or more persons. The State has satisfied the primacy requirements of the federal government by passing a state law that is equally as stringent as the SDWA. Accordingly, the EPA has granted the State, via the DEQ, the right to enforce the SDWA. Some of the SDWA rules that apply to the Town of Broadview are discussed below.

National Primary Drinking Water Regulations

The National Primary Drinking Water Regulations are enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water. The MDEQ has been given primacy for enforcing the primary maximum contaminant levels (MCLs). Because of the numerous contaminants with MCLs, the list is not included as part of this PER, but is available on the EPA's website (http://www.epa.gov).

The Town of Broadview's existing water supply meets all primary drinking water standards.

National Secondary Drinking Water Regulations

The National Secondary Drinking Water Regulations are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply, though; states may choose to adopt them as enforceable standards. At this time, the secondary contaminants are limited to: aluminum, chloride, color, copper, corrosivity, fluoride, foaming agents, iron, manganese, odor, pH, silver, sulfate, total dissolved solids, and zinc. Please note, some constituents listed on the Secondary MCLs also have MCLs if the concentrations reach an elevated level. Because of the numerous contaminants with secondary MCLs, the list is not included as part of this PER but is available on the EPAs website (http://www.epa.gov).

The Town of Broadview's existing water supply does not meet all secondary drinking water standards. In particular, sulfate and total dissolved solid levels exceed recommended levels.

Montana Department of Environmental Quality Circular DEQ 1

The state also established a detailed set of design and construction standards for public water systems that must be satisfied in the design and construction of new water facilities. These standards are described in Circular DEQ 1. State review and approval of the design is necessary prior to the construction of any public water system. The alternative and recommended improvements evaluated in this preliminary engineering report will ensure compliance with all of the state design standards specified in DEQ 1.

Disinfectants and Disinfection By-Products Rule

Stage 1 Disinfectants and Disinfection By-Products Rule (Stage 1 DBPR):

The Stage 1 Disinfectants and Disinfection By-Products Rule (Stage 1 DBPR) became effective in 1998 for the primary purpose of improving public health protection by reducing exposure to disinfection byproducts. The Stage 1 DBPR is the first of a staged set of rules that will reduce the allowable levels of DBPs in drinking water. This is extremely important as some disinfectants and disinfection byproducts (DBPs) have been shown to cause cancer and reproductive effects in lab animals and suggested bladder cancer and reproduction effects in humans. Through implementation of the rule, the EPA estimated that as many as 140 million people will receive increased protection form DBPs, there will be a 24 percent reduction nationally in trihalomethane levels, and that there will be reduction in exposure to the major DBPs from use of ozone and chlorine dioxide.

The new rule established seven new standards and a treatment technique of enhanced coagulation or enhance softening to further reduce DBP exposure. Table 4-1 provides a summary of the newly regulated contaminants. It should be noted that for systems with populations of less than 10,000 persons, such as the Town of Broadview, the regulations went into effect on January 1, 2004.

Table 4-1 - Stage 1 DBPR-Regulated Contaminants/Disinfectants

Stage 1 DBPR - Regulated Contaminants/Disinfectants		
REGULATED CONTAMINANTS	MCL (MG/L)	MCLG (MG/L)
Total Trihalomethanes (TTHM)	0.080	
Chloroform		-
Bromodichloromethane		0
Dibromochloromethane		0.06
Bromoform		0
Five Haloacetic Acids	0.060	
Monochloroacetic acid		-
Dichloroacetic acid		0
Trichloroacetic acid		0.3
Bromoacetic acid		-
Dibromoacetic acid		-
Bromate	0.010	0
Chlorite	1.0	0.8
REGULATED DISINFECTANTS	MRDL (MG/L)	MRDLG (MG/L)
Chlorine	4.0 as Cl_2	4
Chloramines	4.0 as Cl_2	4
Chlorine dioxide	0.8	0.8

The Town of Broadview's existing water supply meets the Stage 1 DBPR.

Stage 2 Disinfectants and Disinfection By-Products Rule (Stage 2 DBPR)

The Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) went into effect in 2006 for the primary purpose of increasing public health protection by reducing the potential risk of adverse health effects associated with disinfection byproducts throughout the distribution system. The Stage 2 DBPR builds on the Stage 1 DBPR by focusing on monitoring for and reducing concentrations of two classes of DBPs (TTHM and HAA5) in drinking water. The rule covers all community water systems that either add a primary or residual disinfectant other than ultraviolet light, or deliver water than has been treated with a primary or residual disinfectant other than ultraviolet light.

Under the Stage 2 DBPR, the Town qualifies as a Schedule 4 System or a system serving a population of less than 10,000 people. For the Town, the Stage 2 DBPR will require monitoring at two locations once per year beginning on October 1, 2013. Compliance will be based upon a locational running annual average (LRAA), which will be calculated at each monitoring location, for the contaminant levels listed in Table 4-2 below.

Table 4-2 - Stage 2 DBPR-Regulated Contaminants

Stage 2 DBPR – Regulated Contaminants		
REGULATED CONTAMINANTS	MCL (MG/L)	MCLG (MG/L)
Total Trihalomethanes (TTHM)	0.080 LRAA	
Chloroform		0.07
Bromodichloromethane		0
Dibromochloromethane		0.06
Bromoform		0
Five Haloacetic Acids	0.060 LRAA	
Monochloroacetic acid		0.07
Dichloroacetic acid		0
Trichloroacetic acid		0.02
Bromoacetic acid		-
Dibromoacetic acid		-

The Town of Broadview's existing water supply meets the Stage 2 DBPR.

Arsenic Rule

The Arsenic Rule became effective in 2001 for the primary purpose of improving public health by reducing exposure to arsenic in drinking water. Studies have shown that arsenic can be linked to causing skin damage, problems with the circulatory system, and increased risks of cancer. As a result, the new rule changed the arsenic MCL from 50 µg/l to 10 µg/l and the MCLG to 0. In addition, the rule also requires monitoring for arsenic for new systems and new drinking water sources as well as clarifies the procedures for determining compliance with the MCLs for IOCs, SOCs, and VOCs.

The EPA estimates that implementation of the rule may avoid 16 to 26 non-fatal bladder and lung cancers per year; avoid 21 to 30 fatal bladder and lung cancers per year; and reduce the frequency of non-carcinogenic diseases. The actual implementation of the MCL became effective on January 23, 2006.

The Town of Broadview's existing water supply meets the arsenic standard.

Lead and Copper Rule

The Lead and Copper Rule became effective in 1991 for the primary purpose of protecting public health by minimizing lead (Pb) and copper (Cu) levels in drinking water, primarily by reducing water corrosivity. Lead and copper enter drinking water mainly from corrosion of plumbing materials containing lead and copper (i.e. pipes and/or joints).

The rule established action levels (AL) of 0.015 mg/l for lead and 1.3 mg/l for copper based on 90^{th} percentile level of tap water samples. An action level exceedence is not a violation of the rule but can trigger other requirements that include water quality parameter monitoring, corrosion control treatment, source water monitoring/treatment, public education, and lead service line replacement.

To date, the Town has never exceeded the action level for lead and copper. Thus, outside of monitoring for lead and copper, no further action has been required.

Radionuclides Rule

The Radionuclides Rule went into effect in 2000 for the primary purpose of reducing the exposure to radionuclides in drinking water to reduce the risk of cancer. The rule is also intended to improve public health protection by reducing exposure to all radionuclide. The EPA estimates that implementation of the rule will reduce uranium exposure for 620,000 persons and provide protection from toxic kidney effects of uranium as well as a reduced risk of cancer.

The rule retains the existing MCLs for combined radium-226 and radium-228 (5 pCi/l), gross alpha particle radioactivity (15 pCi/l), and beta particle and photon activity (4 mrem/yr), but regulates uranium for the first time. The new MCL for uranium under this rule was set as 30 µg/l. Systems were required to begin initial monitoring in December 2003.

The Town of Broadview's existing water supply meets the Radionuclides Rule.

Total Coliform Rule (TCR)

The Total Coliform Rule (TCR) went into effect in 1989 for the primary purpose of improving public health protection by reducing fecal pathogens to minimal levels through control of total coliform bacteria, including fecal coliforms and Escherichia coli (E-coli). The rule establishes a maximum contaminant level based on the presence or absence of total coliforms; modifies monitoring requirements including testing for fecal coliforms or E-coli; requires use of a sample siting plan; and also requires sanitary surveys for systems collecting fewer than five samples per month. Implementation of the rule has resulted in reduction in the risk of illness from disease causing organisms associated with sewage or animal wastes, of which disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue.

Actual number of samples required per month under the TCR is dependent upon population size. Because the Town of Broadview's population is less than 1,000, one sample are required per month. If a routine sample tests positive for the presence of total coliforms it must be tested for the presence of fecal coliforms or E. coli and four repeat samples per positive routine sample (for population served between 25 and 1,000) must be collected and analyzed within 24 hours for total coliform. One of the repeat samples must be collected from the original sample site, one within five service connections upstream, one within five service connections downstream. If any repeat sample is total coliform positive, then the systems must analyze the positive sample for fecal coliforms or E-coli. The system must also collect another set of repeat samples, as before, unless the MCL has been violated and the system has notified the State. A positive routine or repeat total coliform result requires a minimum of five routine samples be collected the following month unless otherwise waived by the State.

The results of routine and repeat samples are used to compute compliance with the TCR. For the Town of Broadview, a monthly MCL violation is triggered if one routine/repeat sample is total coliform positive. An acute MCL violation is triggered if the system has any fecal coliform or E-coli positive repeat sample or has a fecal coliform or E-coli positive routine sample followed by a total coliform positive repeat sample.

4.2 Aging Infrastructure

The two new water supply wells that went on-line in 2014 will help meet the system demands through the 20-year planning period. A majority of the distribution system was replaced 20 years ago and is in good condition. The existing storage tank is also 20 years old and appears to be in good shape. However, it is grossly undersized for fire protection, resulting in a significant safety issue for the residents of Broadview.

4.3 Reasonable Growth

Growth areas and projected population estimates are discussed in detail in Section 2.5. A population increase of 2.5% annually will be assumed for the 20-year planning period (year 2034) to allow for additional growth in the community. This correlates to a design year population of 258, or an additional 66 residents over the 2010 census population of 192. This growth is anticipated to occur throughout the Town, as no areas of concentrated growth are identified.

5.0 ALTERNATIVES CONSIDERED

5.1 Alternative Screening

Alternatives that are not considered feasible for addressing system needs and will not be analyzed any further, are discussed here.

No Action (Storage Tank)

Before a new water storage facility is considered, the “no-action” alternative must be analyzed. As described previously, the existing system currently has limited storage and, as a consequence, static system pressures near the tank are close to, if not below, 20 psi during high demand periods. This drop in pressures creates a serious public health hazard due to potential backflow and contamination of the public water supply from an outside contaminant. Accordingly, the “no-action” alternative is not feasible. Additionally, with regard to the installation of a new reservoir versus the “no action” alternative, the economic answer is clear. When considering loss of property, loss of business, injury and loss of life, a major fire in a residential or commercial area could cost much more than a half million dollars, possibly several million dollars. In summary, the “no-action” alternative is not viable from an economic, public health, or regulatory perspective and will not be analyzed.

5.2 Supply Alternatives

No supply alternatives are brought forward for evaluation. The current supply facilities are found to be adequate for current and future needs. There are no current DEQ Public Water Supply compliance issues, violations, or significant deficiencies associated with the water supply system.

5.3 Treatment Alternatives

No treatment alternatives are brought forward for evaluation. The current treatment facilities are found to be adequate for current and future needs. There are no current DEQ Public Water Supply compliance issues, violations, or significant deficiencies associated with the water treatment system.

5.4 Storage Alternatives

5.4.1 Alt. ST-1: New Buried Concrete Tank

This alternative includes construction of a new buried concrete storage tank approximately 4,700 feet west of Town limits. Other locations for a buried storage tank were considered but the proposed site is the closest location to town that provides adequate elevation for a buried tank. It is too costly to provide a pipeline from the tank to the existing distribution system for any other locations. The alternative would require purchase of approximately 1 acre of land. Easements would have to be obtained for the transmission main from the tank to town.

Hydraulic modeling determined that a 10-inch pipeline diameter was necessary to reach the Town and provide sufficient pressures during all conditions including fire flow events. Construction of the water storage tank will require updating the newly installed telemetry control system which monitors tank level and automatically turn the well supply pumps on and off.

Buried concrete tanks offer many advantages over steel tanks, including protection from freezing, no need for painting, low visibility, and very little, if any, exposure for vandalism. The only anticipated operation and maintenance would include an inspection every few years by a dive team to examine the tank for cracks, and periodic removal of sediment buildup.

The design of buried concrete storage tanks is based on the hoop stresses realized around the circumference of the tank. Generally, the actual strength of the tank is determined by the steel within the walls, as concrete works well under compression while steel works well under tension. Concrete tanks typically use pre-tensioned (or pre-stressed) steel wires to wrap the tank and provide this strength. These tanks are generally built by specialists such as DN Tanks.

Design Criteria

All water system improvements will comply with those requirements set forth in Circular DEQ 1. All design criteria presented in Circular DEQ 1 is applicable to each alternative considered, but specifically the storage tank alternatives will meet the requirements in Chapter 7 – Finished Water Storage, and Chapter 8 – Transmission Mains, Distribution Systems, Piping & Appurtenances. All proposed improvements will receive MDEQ approval prior to commencement of any construction activity.

Map

Figure 5-1 presents the location of the new storage tank and transmission main.

Environmental impacts

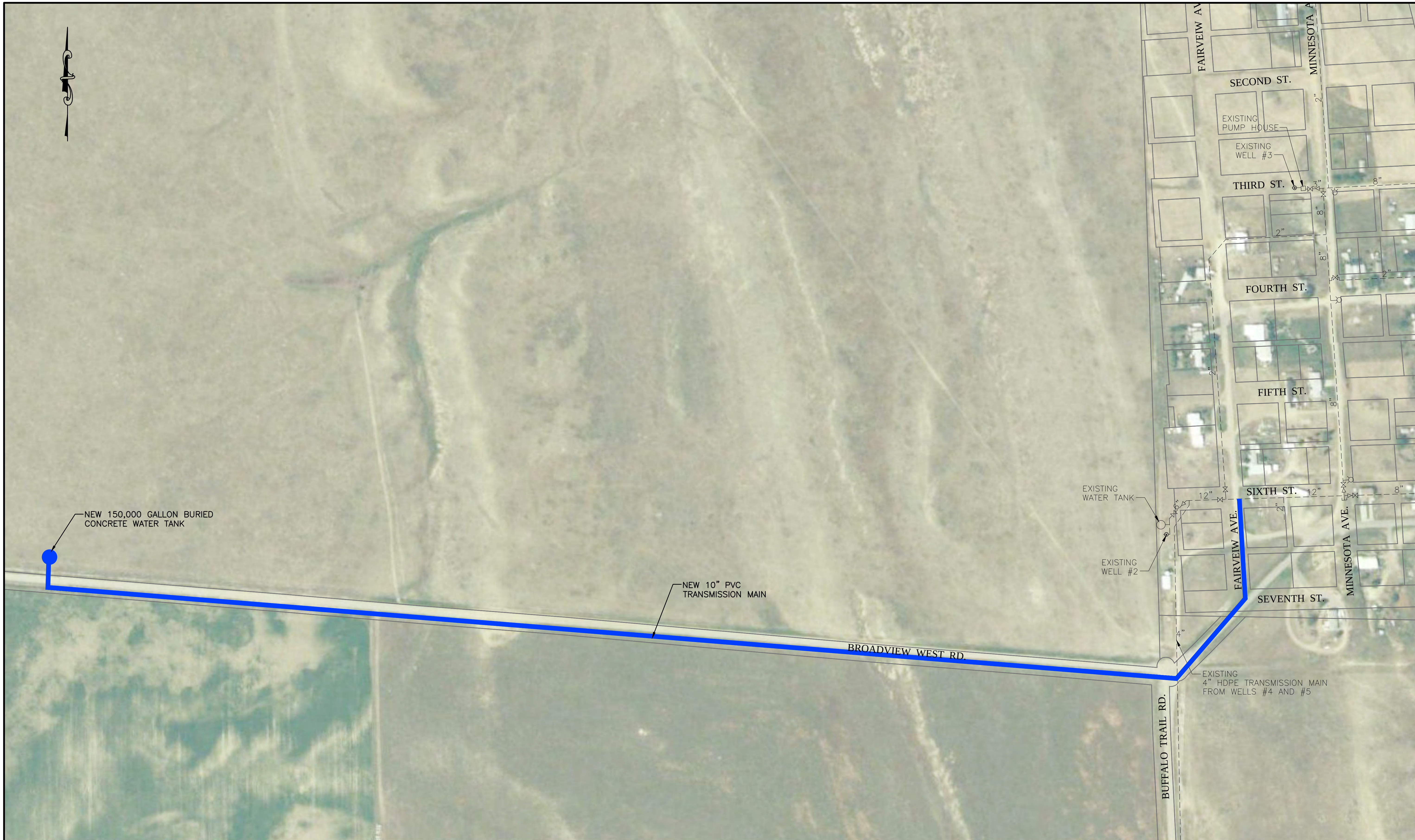
General environmental conditions were discussed in Chapter 2. There are no environmental problems associated with this alternative. All impacted land is in an area that has been previously disturbed by farming. There would be no changes in land use and no prime farmlands and/or wetlands would be impacted as a result of this alternative.

Land Requirements

This alternative requires that the Town purchase approximately 1 acre of land for the actual tank site. The Town also needs an easement for the pipeline from the tank to the distribution system as well as access to the tank.

Potential Construction Problems

There are no known construction problems or other conditions which may affect cost of construction for this alternative.



150 0 150 300
Scale in Feet

TOWN OF BROADVIEW, MONTANA
PRELIMINARY ENGINEERING REPORT
ALTERNATIVE ST-1 NEW BURIED CONCRETE TANK

FIGURE 5-1

Sustainability Considerations

Water and Energy Efficiency

Water from the proposed tank will flow by gravity throughout the distribution system. There will be minimal electrical needs for the tank. Since water from the tank will flow by gravity to the town, only the existing well pumps are needed. This alternative is very energy efficient.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control measures including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transport of sediment offsite as a result of construction activities.

Cost Estimates

Table 5-1 presents an estimated opinion of probable cost for Alternative ST-1, and Table 5-2 addresses costs related to operation and maintenance of the improvements. The annual operation and maintenance costs are presented for comparison purposes only of the alternatives. The Town already spends similar dollars for operation of the existing tank.

Table 5-1 - Opinion of Probable Cost-Alternative ST-1: New Buried Concrete Tank

Opinion of Probable Cost Broadview Water System Improvements Alternative ST-1: New Buried Concrete Tank					
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
1	150,000 Gal. Buried Concrete Storage Tank	1	LS	$ 375,000.00	$ 375,000
2	Site Work & Excavation	1	LS	$ 50,000.00	$ 50,000
3	Site Piping	1	LS	$ 10,000.00	$ 10,000
4	Level Transmitting Manhole	1	LS	$ 10,000.00	$ 10,000
5	Telemetry System Upgrades	1	LS	$ 15,000.00	$ 15,000
6	10" PVC Transmission Main	4,700	LF	$ 40.00	$ 188,000
7	Fittings	6	EA	$ 1,000.00	$ 6,000
8	Valves	2	EA	$ 2,500.00	$ 5,000
9	Connect to Existing Water Main	1	EA	$ 2,000.00	$ 2,000
10	Fire Hydrants	2	EA	$ 4,000.00	$ 8,000
11	Blow-off Hydrants	4	LF	$ 1,200.00	$ 4,800
12	Access Road	1	LS	$ 5,000.00	$ 5,000
13	Fencing	400	LF	$ 25.00	$ 10,000
14	Tank Site Electrical	1	LS	$ 10,000.00	$ 10,000
	Direct Construction Subtotal				$ 699,000
	Mobilization	10.0%			$ 70,000
	Traffic Control	0.5%			$ 3,000
	Contingency	10%			$ 70,000
	Construction Subtotal				$ 842,000
	2016 Construction Cost [2]	3.00%			$ 943,000
	Right-of-Way & Permits				$ 2,500
	Geotechnical Investigation				$ 10,000
	Engineering				$ 168,000
	Legal & Administrative	5%			$ 42,000
	TOTAL				$ 1,165,500

[1] Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.

[2] The ENR 20 year average Construction Cost Index is +2.88% (1994-2013); a rounded value of 3.0% is used, so capital costs are projected to an anticipated construction date in 2016 using a 3.00% inflation rate.

Table 5-2 - Opinion of Probable Annual Operation & Maintenance Costs-Alternative ST-1

Opinion of Probable Annual Operation & Maintenance Costs Broadview Water System Improvements Alternative ST-1					
#	ITEM	QTY	UNITS	UNIT PRICE	TOTAL
1	Labor	65	HR	$ 25.00	$ 1,625.00
2	Spare Parts/Repair/Maintenance	1	LS	$ 500.00	$ 500.00
3	Administration/Office Supplies	1	LS	$ 250.00	$ 250.00
4	Training	1	LS	$ 250.00	$ 250.00
5	Vehicle Operation and Maintenance	1	LS	$ 250.00	$ 250.00
6	Tank Cleaning	1	LS	$ 1,000.00	$ 1,000.00
7	Patching and Renovating Concrete	1	LS	$ 150.00	$ 150.00
8	Reserve	1	LS	$ 2,000.00	$ 2,000.00
	TOTAL				$ 6,000.00

5.4.2 Alt. ST-2: New On-Grade Glass Lined Steel Tank

This alternative includes construction of a new on-grade, glass-lined steel storage tank approximately 3,200 feet west of Town limits. Other locations for an on-grade storage tank were considered but the proposed site is the closest location to town that provides adequate elevation for an on-grade tank. It is too costly to provide a pipeline from the tank to the existing distribution system for any other locations. The alternative would require purchase of approximately 1 acre of land. Easements would have to be obtained for the transmission main from the tank to town.

Hydraulic modeling determined that a 10-inch pipeline diameter was necessary to reach the Town and provide sufficient pressures during all conditions including fire flow events. Construction of the water storage tank will require installation of a telemetry control system to monitor tank level and automatically turn the well supply pumps on and off. Construction of the water storage tank will require updating the newly installed telemetry control system which monitors tank level and automatically turn the well supply pumps on and off.

The least costly method of tank construction in the 100,000 to 500,000 gallon range is usually a ground level steel tank. Relatively recent improvements to the coatings on these tanks, including glass-lined interior and/or exterior coatings reduce the cost of maintenance.

Generally, the cost of steel tanks is also a function of the dimensions of the tank. They keep construction practical and economical. It is assumed that a 150,000 gallon ground level would be in the ranges of approximately 25 to 35-feet in diameter and 24 to 40-feet high.

Operation and maintenance costs for steel tanks can be considerable with welded and epoxy coated bolted steel tanks, which require periodic recoating to extend the service life. Use of the glass-fused lining for the Broadview tank would eliminate this type of maintenance requirement.

Freezing can be a problem for steel tanks, although this can be controlled through design and operations. A ground level steel tank is less costly than an elevated tank to construct and provides greater accessibility.

Design Criteria

All water system improvements will comply with those requirements set forth in Circular DEQ 1. All design criteria presented in Circular DEQ 1 is applicable to each alternative considered, but specifically the storage tank alternatives will meet the requirements in Chapter 7 – Finished Water Storage, and Chapter 8 – Transmission Mains, Distribution Systems, Piping & Appurtenances. All proposed improvements will receive MDEQ approval prior to commencement of any construction activity.

Map

Figure 5-2 presents the location of the new storage tank and transmission main.

Environmental impacts

General environmental conditions were discussed in Chapter 2. There are no environmental problems associated with this alternative. All impacted land is in an area that has been previously disturbed by farming. There would be no changes in land use and no prime farmlands and/or wetlands would be impacted as a result of this alternative.

TOWN OF BROADVIEW, MONTANA
PRELIMINARY ENGINEERING REPORT
ALTERNATIVE ST-2 NEW ON-GRADE STEEL TANK

FIGURE 5-2

Land Requirements

This alternative requires that the Town purchase approximately 1 acre of land for the actual tank site. The Town also needs an easement for the pipeline from the tank to the distribution system as well as access to the tank.

Potential Construction Problems

There are no known construction problems or other conditions which may affect cost of construction for this alternative.

Sustainability Considerations

Water and Energy Efficiency

Water from the proposed tank will flow by gravity throughout the distribution system. There will be minimal electrical needs for the tank. Since water from the tank will flow by gravity to the town, only the existing well pumps are needed. This alternative is very energy efficient.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control measures including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transport of sediment offsite as a result of construction activities.

Cost Estimates

Table 5-3 presents an estimated opinion of probable cost for Alternative ST-2, and Table 5-4 addresses costs related to operation and maintenance of the improvements. The annual operation and maintenance costs are presented for comparison purposes only of the alternatives. The Town already spends similar dollars for operation of the existing tank.

Table 5-3 - Opinion of Probable Cost-Alternative ST-2: New On-Grade Glass Lined Steel Tank

Opinion of Probable Cost Broadview Water System Improvements Alternative ST-2: New On-Grade Glass Lined Steel Tank					
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
1	150,000 Gal. Glass Lined Steel Storage Tank and Foundation	1	LS	$ 270,000.00	$ 270,000
2	Tank Mixer	1	LS	$ 10,000.00	$ 10,000
3	Site Work & Excavation	1	LS	$ 40,000.00	$ 40,000
4	Site Piping	1	LS	$ 10,000.00	$ 10,000
5	Level Transmitting Manhole	1	LS	$ 10,000.00	$ 10,000
6	Telemetry System Upgrades	1	LS	$ 15,000.00	$ 15,000
7	10" PVC Transmission Main	3,200	LF	$ 40.00	$ 128,000
8	Fittings	6	EA	$ 1,000.00	$ 6,000
9	Valves	2	EA	$ 2,500.00	$ 5,000
10	Connect to Existing Water Main	1	EA	$ 2,000.00	$ 2,000
11	Fire Hydrants	2	EA	$ 4,000.00	$ 16,000
12	Blow-off Hydrants	4	EA	$ 1,200.00	$ 4,800
13	Fencing	400	LF	$ 25.00	$ 10,000
14	Access Road	1	LS	$ 5,000.00	$ 5,000
15	Tank Site Electrical	1	LS	$ 10,000.00	$ 10,000
	Direct Construction Subtotal				$ 534,000
	Mobilization		10.0%		$ 53,000
	Traffic Control		0.5%		$ 3,000
	Contingency		10%		$ 53,000
	Construction Subtotal				$ 643,000
	2016 Construction Cost [2]		3.0%		$ 707,000
	Right-of-Way & Permits				$ 2,500
	Geotechnical Investigation				$ 5,000
	Engineering				$ 126,000
	Legal & Administrative		5%		$ 32,000
	TOTAL				$ 872,500

1 Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.
2 The ENR 20 year average Construction Cost Index is +2.88% (1994-2014), so capital costs are projected to an anticipated construction date in 2016 using a 3.0% inflation rate.

Table 5-4 - Opinion of Probable Annual Operation & Maintenance Costs-Alternative ST-2: New On-Grade Glass Lined Steel Tank

Opinion of Probable Annual Operation & Maintenance Costs Broadview Water System Improvements Alternative ST-2: New On-Grade Glass Lined Steel Tank					
#	ITEM	QTY	UNITS	UNIT PRICE	TOTAL
1	Labor	65	HR	$ 25.00	$ 1,625.00
2	Spare Parts/Repair/Maintenance	1	LS	$ 500.00	$ 500.00
3	Administration/Office Supplies	1	LS	$ 250.00	$ 250.00
4	Training	1	LS	$ 250.00	$ 250.00
5	Vehicle Operation and Maintenance	1	LS	$ 250.00	$ 250.00
6	Tank Cleaning	1	LS	$ 1,000.00	$ 1,000.00
7	Replace Cathodic Protection	1	LS	$ 300.00	$ 300.00
8	Reserve	1	LS	$ 2,000.00	$ 2,000.00
	TOTAL				$ 6,200.00

5.5 Pumping Station Alternatives

No pumping station alternatives are brought forward for evaluation, as there are no pump stations in the water system.

5.6 Distribution System Alternatives

No distribution alternatives are brought forward for evaluation. The current distribution system is found to be adequate for current and future needs. There are no current DEQ Public Water Supply compliance issues, violations, or significant deficiencies associated with the water distribution system.

6.0 SELECTION OF AN ALTERNATIVE

Each of the technically feasible alternatives considered meet the design criteria and applicable regulations identified in the alternative description. This section will examine advantages and disadvantages of each in terms of life cycle costs, operational and maintenance considerations, permitting concerns, social impacts, environmental impacts, and other non monetary considerations.

6.1 Life Cycle Cost Analysis

The cost of extensive capital improvements to meet minimum health and safety requirements, applicable regulations, and environmental impacts is a great concern to small communities with limited budgets and resources. At the same time, some alternatives may have a low capital cost but high O&M costs that will put a continual burden on the community. A life cycle cost analysis provides a method to compare the costs of each alternative to one another.

To complete the life cycle cost analysis, the anticipated annual increase to O&M costs, and estimated salvage value of any improvements based upon a straight-line depreciation are converted to present day dollars using the “real” discount rate from Appendix C of OMB A-94. The net present value is then calculated for each alternative by adding the estimated capital cost and present worth of the increased O&M and then subtracting the present worth of the calculated salvage value.

Table 6-1 summarizes the life cycle cost analysis for the tank alternatives.

Table 6-1 - Present Worth Life Cycle Analysis

Tank Alternatives Life Cycle Cost Present Worth Analysis		
Item	Alternative ST-1	Alternative ST-2
Capital Costs	$1,165,500	$872,500
Annual O&M Costs	$6,000	$6,200
20-Year Salvage Value	$447,000	$265,000
Present Worth of Salvage Value	$236,600	$140,300
Present Worth of Annual O&M Cost	$87,300	$90,200
Present Worth Cost	**$1,016,200**	**$822,400**

6.2 Ranking Criteria

A matrix to compare each alternative objectively against the other will be developed to select the preferred alternative. Each alternative will be given a score ranging from 0 to 10 for a number of criteria, with 0 representing a negative impact and 10 representing the maximum benefit to the community. The alternatives will begin with a score of 5 for each criterion, and then the score will be adjusted up or down relative to the benefit of the particular alternative in relation to the other alternatives.

In addition to scoring each alternative, the criteria themselves with be weighted in relation to one another. Weighting factors ranging from 1 to 10 will be used to give greater importance to items such as cost. This is appropriate, as often times higher investments are made to overcome many other problems such as reliability or to mitigate problems with technical feasibility or environmental concerns.

6.2.1 Life Cycle Costs

The cost of extensive capital improvements to meet minimum health and safety requirements, applicable regulations, and environmental impacts is a great concern to small communities with limited budgets and resources. Life cycle costs also include anticipated increases to ongoing O&M costs.

Accordingly, this criterion will be provided with the maximum weighting factor of 10. This represents over 30% of the total weighting, and Public Opinion is closely tied to cost also, giving the cost for each alternative even more weight.

In addition to providing the maximum emphasis on costs, a method must be utilized to provide an objective comparison of costs for each alternative relative to one another and not just an overall comparison. Given a range of costs for various alternatives, the relative cost of any alternative can be determined using the lowest cost and the highest cost from the range of costs and the following equation.

5 x [(Lowest Cost) / (Cost) + (Highest Cost – Cost) / (Highest Cost)]

For example, if a number of alternatives were compared having costs of $500,000, $1,000,000 and $2,000,000, the above equation would provide scores of 8.8, 5.0, and 1.3, respectively.

The utilization of a formula to score the 20 year life cycle costs in the matrix eliminates any subjectivity and provides a consistent, relative comparison of costs.

6.2.2 Operational and Maintenance Considerations

Operation and maintenance is an important issue when considering any large capital improvements within a small community. The costs for O&M associated with the alternatives is included in the 20 year life cycle costs compared under the financial feasibility, but there are other considerations that must be weighed for the O&M associated with each alternative.

The Town has limited resources and manpower, and some alternatives may have O&M requirements that drastically tax those limited resources creating deficiencies in other areas. Town personnel also have a much more intrinsic knowledge of the system than the average resident or even Council members. Priorities identified by the operators to facilitate the efficient operation of the system must be given some weight.

This criterion will be provided with a weighting factor of 7.

6.2.3 Permitting/ Environmental Issues

Some alternatives may encounter permitting issues that would significantly delay the project and/or result in additional expenses for the community. Consideration for these concerns will be given under this criterion.

This criterion will be provided with a weighting factor of 3.

6.2.4 Social Impacts

Social impacts will be considered in the final alternative selection as a project poorly supported by the community will have a limited chance of success. Efforts such as public hearings are ways to identify public opinion and perceptions. Costs are always a concern with consumers, but the health and safety of their families is just as important.

This criterion will be provided with a weighting factor of 5.

6.2.5 Environmental Impacts

Environmental impacts for each alternative, whether detrimental or beneficial, need to be considered in the final selection of a preferred alternative.

This criterion will be provided with a weighting factor of 5.

6.2.6 Public Health and Safety

The alternatives retained for the Alternative Analysis are designed to meet public health and safety laws, so the scoring for each alternative under this criterion would be expected to be fairly high. However, addressing public health and safety concerns is the main purpose of the entire report, so this category will be give the maximum weighting.

This criterion will be provided with a weighting factor of 10.

6.2.7 Land Acquisition

Issues with land acquisition often supersede the black-and-white world of engineering. This ranking category will include the feasibility of acquiring sufficient land in terms of lease, right-of-way, and/or land purchases. Although these are not strict engineering issues, problems with land acquisition can greatly impact a project's overall feasibility and require that land issues be given a very serious consideration.

This criterion will be provided with a weighting factor of 3.

6.3 Scoring of Storage Alternatives

6.3.1 Life Cycle Costs

Table 6-2 provides a summary of scoring based on life cycle costs for each alternative.

Table 6-2 - Summary Scores Life Cycle Costs

Alternative	20-yr Life Cycle Cost	Calculated Score
ST-1	$1,016,200	5.1
ST-2	$822,400	6.1

6.3.2 Operational and Maintenance Considerations

Neither concrete tanks nor glass-lined tanks require recoating and they each typically require inspection and cleaning every few years. The glass-lined tanks do require cathodic protection that generally has to be replaced every 10 years. The alternatives are scored as follows:

- Alternative ST-1 10
- Alternative ST-2 8

6.3.3 Permitting Issues/Environmental Impacts

There may be permits required for the proposed storage improvements. However, the permitting requirements for each alternative are essentially the same and thus they are each scored a median score of 5.

6.3.4 Social Impacts

Public opinion for system improvements are often based on the maximum benefit received by the community that would increase monthly rates the least. In Broadview, the consensus seems to be that vandalism might be a problem with an above ground tank. The visual impact of an above ground tank is also greater. Accordingly, the alternatives were scored as follows:

- Alternative ST-1 8
- Alternative ST-2 5

6.3.5 Environmental Impacts

The environmental impacts for each of the alternatives are very comparable.

- Alternative ST-1 6
- Alternative ST-2 6

6.3.6 Public Health and Safety

Each storage alternative will improve public health and safety by improving fire protection. The alternatives are scored as follows:

- Alternative ST-1 10
- Alternative ST-2 10

6.3.7 Land Acquisition

Because the land acquisition requirements will be the same for both alternatives, they are each given a median score of 5.

6.4 Decision Matrix and Selection of Preferred Alternative

Using the criteria, scoring, and weighting factors described above, Table 6-3 illustrates the Decision Matrix used to compare the alternatives. Based on the ranking criteria, the preferred alternative is the buried concrete tank.

Table 6-3 - Decision Matrix

Town of Broadview Water System Improvements Decision Matrix															
Alternative	Life Cycle Costs		Operation and Maintenance		Permitting		Social Impacts		Environmental Impacts		Public Health and Safety		Land Acquisition		Total
	Weight: 10		Weight: 7		Weight: 3		Weight: 5		Weight: 5		Weight: 10		Weight: 3		
	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	Score	Wtd.	
Storage Alternatives															
ST-1	5.1	51	10	70	5	15	8	40	6	30	10	100	5	15	321
ST-2	6.1	61	8	56	5	15	5	25	6	30	10	100	5	15	302

It is important to note that the above scoring and weighting are subjective. Alternatives that score overall within 10 pts of each other may essentially hold the same degree of preference.

7.0 PROPOSED PROJECT

7.1 Preliminary Project Design

The preferred alternative is construction of a new buried pre-stressed concrete storage tank with a 10-inch transmission main into town.

7.1.1 Water Supply

The proposed project will not include work on the Town's water supply facilities.

7.1.2 Treatment

The proposed project will not include work on the Town's treatment facilities.

7.1.3 Storage

The proposed project includes construction of a new 150,000 gallon buried concrete storage tank at a location west of town as seen on Figure 5-4. The project will include construction of a 10-inch diameter transmission main from the new tank to the existing distribution system. The distribution system hydraulic model shows that a 10-inch diameter transmission main will allow for fire flows in excess of 1,000 gpm throughout the Town. Copies of the hydraulic model results can be found in Appendix G.

7.1.4 Pumping Stations

The proposed project will not include any pumping station.

7.1.5 Distribution System

The proposed project will not include work on the Town's distribution system.

7.2 Project Schedule

TSEP and DNRC grant applications will be submitted in May of 2016. If the Town of Broadview is successful in securing funding for the proposed project, it is anticipated that land acquisition, followed by design would begin in July, 2017. Submittals to MDEQ would be made in October and approvals would be obtained by December 2017. The project would then advertise for bids in January and February 2018 and an award could be expected by March 2018, followed by initiation of construction in April 2018. It is anticipated that substantial completion would be achieved by August 2018 with final completion and initiation of operation in September 2018. Chapter 8 includes a detailed implementation schedule.

7.3 Permit Requirements

The design phase of the project will include applying for and obtaining any identified permits. Construction permits will likely include a Stormwater Pollution Prevention Plan (SWPPP), which will be the responsibility of the selected contractor.

7.4 Sustainability Considerations

Upgrading water system infrastructure is a sustainable utility management practice that aids in creating a resilient utility and provides social, economic, and environmental benefits. A larger tank and transmission main will provide better fire protection for the residents in Broadview.

Water and Energy Efficiency

Water from the proposed tank will flow by gravity throughout the distribution system. There will be minimal electrical needs for the tank. Since water from the tank will flow by gravity to the town, only the well pumps will be needed.

Green Infrastructure

Stormwater management during the project will include temporary erosion and sediment control measures including the installation and maintenance of temporary structural control measures to reduce or eliminate the erosion of soils and transport of sediment offsite as a result of construction activities.

7.5 Cost Estimates

Table 7-1 below presents an itemized estimate of the project cost based on construction occurring in 2018. Bid tabulations for similar projects completed in recent years and communication with manufacturers and suppliers were used to develop unit costs and are the basis for the estimated costs.

Table 7-1 - Cost Estimate Preferred Alternative ST-1

#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
	Opinion of Probable Cost Broadview Water System Improvements Alternative ST-1: New Buried Concrete Tank				
1	150,000 Gal. Buried Concrete Storage Tank	1	LS	$ 375,000.00	$ 375,000
2	Site Work & Excavation	1	LS	$ 50,000.00	$ 50,000
3	Site Piping	1	LS	$ 10,000.00	$ 10,000
4	Level Transmitting Manhole	1	LS	$ 10,000.00	$ 10,000
5	Telemetry System Upgrades	1	LS	$ 15,000.00	$ 15,000
6	10" PVC Transmission Main	4,700	LF	$ 40.00	$ 188,000
7	Fittings	6	EA	$ 1,000.00	$ 6,000
8	Valves	2	EA	$ 2,500.00	$ 5,000
9	Connect to Existing Water Main	1	EA	$ 2,000.00	$ 2,000
10	Fire Hydrants	2	EA	$ 4,000.00	$ 8,000
11	Blow-off Hydrants	4	LF	$ 1,200.00	$ 4,800
12	Access Road	1	LS	$ 5,000.00	$ 5,000
13	Fencing	400	LF	$ 25.00	$ 10,000
14	Tank Site Electrical	1	LS	$ 10,000.00	$ 10,000
	Direct Construction Subtotal				$ 699,000
	Mobilization		10.0%		$ 70,000
	Traffic Control		0.5%		$ 3,000
	Contingency		10%		$ 70,000
	Construction Subtotal				$ 842,000
	2016 Construction Cost [2]		3.00%		$ 943,000
	Right-of-Way & Permits				$ 2,500
	Geotechnical Investigation				$ 10,000
	Engineering				$ 168,000
	Legal & Administrative		5%		$ 42,000
	TOTAL				$ 1,165,500

7.6 Annual Operating Budget

Itemized annual operating budget information is presented in Table 7-2. The table was developed using the City’s income and expense report for FY 7/11 – 6/12.

Table 7-2 - Cost Estimate Annual Operating Budget.

Opinion of Probable Annual Operation & Maintenance Costs					
#	Item	Qty	Units	Unit Price	Total
1	Personal Services	1	LS	$ 3,329.00	$ 3,329.00
2	Supplies	1	LS	$ 4,503.00	$ 4,503.00
3	Purchases Services	1	LS	$ 5,699.00	$ 5,699.00
4	Repairs & Maintenance	1	LS	$ 1,017.00	$ 1,017.00
5	Depreciation	1	LS	$ 15,146.00	$ 15,146.00
6	Debt Services	1	LS	$ 14,100.00	$ 14,100.00
	Total				$ 43,794.00

7.6.1 Income

The current monthly water rate is $52.00 /month/Equivalent Dwelling Unit (EDU). There are currently 93 EDUs calculated for the residential and nonresidential hookups in town. Water service charges and investment earnings resulted in total water revenue of $53,975 for the 2012 fiscal year. Projected income as a result of user rate increase as a result of the proposed project is $22.61 per month per EDU, or about $25,000 annually.

Detailed income and expense reports may be found in Appendix J.

7.6.2 Annual O&M Costs

O&M expenses were presented in Chapter 3.5. Annual expenses for the water system totaled $43,794 for the 2012 fiscal year. See Table 3-3 in Chapter 3 for a breakdown of these expenses and Appendix J for additional detailed financial information containing personnel costs, administrative costs, interest, utilities, energy costs, insurance, annual repairs and maintenance, monitoring and testing, supplies, chemicals, office supplies, printing, professional services, and miscellaneous. The costs to operate the new tank should be similar to the operational costs of the existing tank. The Town should plan to set aside an additional $150 per year for future patching and renovation of the concrete tank.

7.6.3 Debt Repayments

The Town currently has one outstanding loan for the Water Enterprise Fund. The loan is an SRF loan with current a balance of $96,000. Current annual debt service is $14,100.

Financing for the proposed project (See Table 8-2) would result in an additional annual debt service of $19,400. Annual debt repayments from all sources would be approximately $33,500.

7.6.4 Reserves

Debt Service Reserve

SRF requires a bond reserve in the amount of 1 year's payment.

For the proposed project the SRF Bond reserve is estimated to be $18,200. SRF debt reserve for the Town's other existing SRF loan is $18,400. Table 8-2. Funding Scenarios provides addition information on SRF loans and expected financial obligations.

Short-Lived Asset Reserve

Short-lived assets were included as part of the O&M costs. Therefore there are no additional reserve requirements to be included as part of the project costs.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The previous chapters of this report have focused on the need for the project, physical and socioeconomic characteristics of the community, project costs and the technical viability. This chapter discusses financial strategy and project implementation schedule. This chapter will discuss available funding sources and develop various funding scenarios. A preferred funding scenario will be selected and analyzed along with an implementation plan.

8.1 Funding

Target Rates

The target rate is used to determine whether or not a local government is paying for its fair share of a project's costs, In order to apply for grant funding from the MDOC the user rates after completion of the project must meet or exceed the established target rates. The published median household income (MHI) from the 2006-2010 American Community Survey is $52,500. The Broadview Town Council felt that the published MHI was not indicative of the financial situation in the community. Therefore they elected to conduct an income survey to better define the MHI in Broadview. Utilizing the services of Midwest Assistance Program, an income survey was completed in the spring of 2014. The income survey revealed an MHI of $40,015. Using the income survey MHI of $40,015, the calculated target rate for Broadview is $76.70/month. The multiplier of 2.3% is used because Broadview has a combined system; the Town operates both water and sewer systems.

The target rate analysis for Broadview is shown in Table 8-1.

Table 8-1 - Target Rate Analysis

Target Rate Analysis City of Broadview	
Median Household Income (MHI) Income Survey	$40,015
Water Systems	1.4% of MHI
Wastewater Systems	0.9% of MHI
Combined System	2.3% of MHI
Town of Broadview Combined Target Rate	=40,015 x 2.3% = $920.35/year
Target Rate = $76.70 / month	

The current average rates for the water and sewer system are:

Water = $52.00/mo

Sewer = $5.00/mo

The Current Combined Rate, the sum of both water and sewer rates = $57.00/month; 74% of target rate. The proposed average water rate will increase to $74.61/month, bringing the projected combined rate to $79.61/month or 104% of target rate.

8.1.1 Funding Sources

The following sections provide a brief description of the potential funding sources and whether or not the Town of Broadview would be eligible for those funds.

Treasure State Endowment Program (TSEP)

TSEP is a state funded grant program, which is administered by the Montana Department of Commerce (MDOC). TSEP provides financial assistance to local governments for infrastructure improvements. Grants can be obtained from TSEP for up to $500,000 if the projected user rates are less than 125% of the target rate, for up to $625,000 if projected user rates are between 125% and 150% of the target rate, and for up to $750,000 if the projected user rates are over 150% of the target rate. TSEP grant recipients are required to match the grant dollar for dollar, but the match may come from a variety of sources including other grants, loans, or cash contributions.

The proposed project would take the combined user rates for the Town of Broadview to 104% of target, an amount that makes the Town eligible to apply for a $500,000 TSEP grant.

Renewable Resource Grant and Loan Program (RRGL)

RRGL is a state program that is funded through interest accrues on the Resource Indemnity Trust Fund and the sale or Coal Severance Tax Bonds and is administered by the Montana Department of Natural Resources and Conservation (DNRC). The primary purpose of the RRGL is to enhance Montana's renewable resources. For public facilities projects that conserve, manage, develop, or protect renewable resources, grants of up $125,000 are available.

The Town's project is eligible for RRGL funding and will apply for these funds for the proposed project.

Community Development Block Grant (CDBG)

CDBG is a federally funded program that is also administered by the Montana Department of Commerce (MDOC). The primary purpose of CDBG funds is to benefit low to moderate income (LMI) families. Hence, a municipality must have an LMI of 51% or greater. This is usually determined by the current Census. However, under certain circumstances, the MDOC may allow an income survey to be completed (such as there have been major economic changes since the Census or if a community is only slightly under the required LMI percentage).

The CDBG grant funds can be applied for in an amount of up to $450,000 with a limit of $15,000 per LMI household, so a community needs 30 LMI households to apply for the maximum grant funds. The use of CDBG funds requires a 25% local match that can be provided through cash funds, loans, or a combination thereof.

The Town of Broadview has an LMI of 55.4%, and therefore qualifies for CDBG grant funding. Based on the estimated cost of the project and the required target rate, the Town will need to borrow a fixed amount of loan funds to meet the minimum target rate. The remainder of the project funds could come from either a TSEP grant or a CDBG grant. The Town will likely apply for a TSEP grant to help fund the proposed project.

State Revolving Fund (SRF)

SRF provides low-interest loan funds for both water and wastewater projects through the Drinking Water State Revolving Fund (DWSRF) and the Water Pollution Control State Revolving Fund (WPCSRF), respectively. The SRF program is administered by the Montana Department of Environmental Quality. Current loan terms include an interest rate of 3.00% for a 20 year period.

The Town will look to apply for a loan through the Drinking Water SRF program for the remainder of the project funds after TSEP and RRGL have been fully leveraged. Previous discussions with Anna Miller with the SRF program indicate that a 50% rate of loan forgiveness is acceptable for planning purposes.

USDA Rural Development (RD)

RD provides grant and loan funding to municipalities for water and wastewater projects that improve the quality of life and promote economic development in Rural America. Municipalities with a population of less than 10,000 are eligible to apply, though; priority is given to those with a population of less than 5,500.

Grant eligibility and loan interest rates are based on the community's median household income (MHI) and user rates. If the area to be served has a MHI of $38,205 or lower and the project is necessary to alleviate a health and/or sanitation concern, up to 75% of the project costs are grant eligible. Up to 45% of the project costs are grant eligible if the planning area has an MHI between $38,205 and $47,757.

The Town's MHI of $40,015, the Town's low population of 192, and the health and safety concerns associated with this project would make the Town eligible to apply for RD grant funds. However, the Town has elected not to pursue RD funding.

Montana Coal Board

The Coal Board provides grant funding to municipalities to adequately provide for the expansion of public services or facilities needed as a direct consequence of coal development activities. There is no maximum limit to the amount the Coal Board can fund, but available funding is very limited so it can be difficult to receive any funds from the Coal Board, especially large sums.

At this time the Town will not pursue Montana Coal Board funds because of the limited funding available and the low likelihood of success.

Economic Development Administration (EDA)

EDA provides grant funding for projects that are demonstrated to be needed for the placement of a new business. The amount of grant is dependent on the number of jobs created.

Because the proposed project would not create a large number of jobs, the Town has opted not to apply for an EDA grant.

INTERCAP

INTERCAP provides loan funds at a low cost, variable interest rate to local governments. INTERCAP is administered by the Montana Board of Investments and is very flexible in the variety of funding which would include both water and wastewater projects. There is no funding cycle (funds are always available), however, the maximum loan term is 10 years.

Due to the relatively large amount of loan financing required, an INTERCAP loan with the shorter loan term would cause an unacceptable increase in user rates for the residents and is not recommended for long-term funding.

8.1.2 Funding Strategy

Numerous options have been identified as potential funding sources for the Town. Because of the nature of the project and anticipated user rates, the Town would have a good chance of obtaining funds through TSEP, RRGL, CDBG, RD, and SRF, as well as a loan through a local bank. The Town's preferred funding package and the recommended funding package includes:

- $500,000 TSEP Grant
- $125,000 DNRC-RRGL Grant
- $270,500 SRF Loan Forgiveness
- $270,500 SRF Loan

Various combinations of this funding strategy are presented in Table 8-2. The Town's preferred option is Funding Scenario #4. Using Scenario #4 as a basis, a detailed project budget is presented in Table 8-3, which provides a breakdown of each of the line item costs by funding source.

Table 8-2 - Funding Scenarios for Broadview

Funding Options for Water System Improvements				
	SCENARIO #1	SCENARIO #2	SCENARIO #3	SCENARIO #4
ITEM	DNRC w/SRF Loan (3.0% / 20 yrs) and Loan Forgiveness	SRF Loan (3.0% / 20 yrs) and Loan Forgiveness	TSEP w/SRF Loan (3.0% / 20 yrs) and Loan Forgiveness	DNRC and TSEP w/SRF Loan (3.0% / 20 yrs) and Loan Forgiveness
New Storage Tank (Buried Concrete)	$1,165,500	$1,165,500	$1,165,500	$1,165,500
Rounded Total	$1,166,000	$1,166,000	$1,166,000	$1,166,000
DNRC Grant	$125,000			$125,000
SRF Loan Forgiveness	$520,500	$583,000	$333,000	$270,500
TSEP Grant			$500,000	$500,000
SRF Loan (20 Years)	$520,500	$583,000	$333,000	$270,500
Total Project Funds	$1,166,000	$1,166,000	$1,166,000	$1,166,000
SRF Bond Reserve (1 year payment)	$34,978	$39,178	$22,378	$18,178
Total Loan Amount	$555,478	$622,178	$355,378	$288,678
Annual Loan Payment	$37,330	$41,820	$23,890	$19,400
Total Loan Payments Over Life of Loan	$746,600	$836,400	$477,800	$388,000
Total Interest Paid Over Life of Loan	$191,122	$214,222	$122,422	$99,322
Annual Loan Coverage	$9,333	$10,455	$5,973	$4,850
TOTAL ANNUAL CAPITAL DEBT SERVICE COST	$46,663	$52,275	$29,863	$24,250
User Capital Cost/Month	*$41.81*	*$46.84*	*$26.76*	*$21.73*
Current Annual O&M [1]	$44,750	$44,750	$44,750	$44,750
Current Annual Debt Service	$14,120	$14,120	$14,120	$14,120
Additional O&M Due To Project	$150	$150	$150	$150
TOTAL ANNUAL O&M COSTS	$59,020	$59,020	$59,020	$59,020
User O&M Cost/Month	*$52.89*	*$52.89*	*$52.89*	*$52.89*
USER COST/MONTH FOR PROJECT [2]	$94.70	$99.73	$79.64	$74.61
Existing Average User Cost/Month/EDU	$52.00	$52.00	$52.00	$52.00
COST/MONTH INCREASE/EDU	$42.70	$47.73	$27.64	$22.61

[1] Based on 2011 actual annual expenses for water system.

[2] Table is based on an estimated 93 EDU's

Table 8-3 - Detailed Project Budget

Administrative/Finance Costs	TSEP	DNRC	SRF Loan	SRF Loan Forgiveness	Total:
Personnel Costs	$0	$0	$0	$1,000	$1,000
Office Costs	$0	$0	$0	$500	$500
Professional Services	$0	$0	$0	$20,000	$20,000
Legal Costs	$0	$0	$0	$4,000	$4,000
Audit Fees	$0	$0	$5,000	$0	$5,000
Travel & Training	$0	$0	$0	$0	$0
Loan Reserves	$0	$0	$18,200	$0	$18,200
Bond Counsel & Related costs	$0	$0	$0	$10,000	$10,000
Total Admin/Finance Costs:	$0	$0	$23,200	$35,500	$58,700
Activity Costs					
Land Acquisition & R.O.W. Permits	$0	$0	$0	$2,500	$2,500
Soil & Geotechnical	$0	$0	$0	$10,000	$10,000
Engineering/Arch. Design	$92,500	$0	$0	$0	$92,500
Construction Engr. Services	$75,500	$0	$0	$0	$75,500
Construction	$296,000	$125,000	$229,500	$222,500	$873,000
Contingency	$36,000	$0	$36,000	$0	$72,000
Total Activity Costs	$500,000	$125,000	$265,500	$235,000	$1,125,500
Total Project Costs	$500,000	$125,000	$288,700	$270,500	$1,184,200

8.2 Implementation

Prior to implementation of the project, all funding must be in place. As noted earlier, the proposed funding package for the Town of Broadview uses TSEP, DNRC grant funds along with an SRF loan package. Grant applications for TSEP and DNRC are due in May 2016. The results of those applications are expected around April 2017. SRF funds are available on an open cycle and do not have a strict deadline.

Upon securing all funding, the project start-up for the grant programs is expected to be about a two-month process. It is anticipated that final design would be completed and bidding could take place in February 2018. Commencement of construction activities is anticipated to start in May 2018. Table 8-4 provides a summary of the Project Implementation Schedule.

Table 8-4 - Project Implementation Schedule

Project Implementation Schedule	
Action	Date
Public Hearing on Draft PER & EA	September, 2014
Draft PER Complete	September, 2014
Town Resolutions, PER adoption, CIP, applications	September, 2014
Prepare Final PER	September, 2014
Apply for TSEP & DNRC Grants	May, 2016
Finalize Grant Financing	May/June, 2017
Begin Design	July, 2017
Design Basis Report/Cost Estimates to the Town of Broadview & MDEQ	September, 2017
Submit Design Plans and Specifications to MDEQ	November, 2017
MDEQ Review & Approval	January, 2018
Advertise for Bids	February, 2018
Finalize SRF Loan Financing	March, 2018
Start Construction	May, 2018
Complete Construction	October, 2018

Following the presentation made at the March 27, 2014 Town Council meeting and after further discussions, the Town Council has decided to not move forward with a project at this time due to the significant capital costs and the resulting monthly user rate.

9.0 References

The following references were utilized in the compilation of the PER.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app

Montana Bureau of Mines and Geology, Montana Tech of The University of Montana, Groundwater Information Center 2010, http://mbmggwic.mtech.edu/

United States Department of Agriculture, http://www.usda.gov/wps/portal/usdahome

mt.gov, Natural Resources Information System, Montana Geographic Information Clearinghouse, http://nris.state.mt.us/gis/

U.S. Fish and Wildlife Service, National Wetlands Inventory, http://www.fws.gov/wetlands/

Montana Department of Commerce, Census and Economic Information Center, http://ceic.mt.gov/

U.S. Census Bureau, American Fact Finder, http://factfinder.census.gov

Montana Department of Environmental Quality, Circular DEQ 1: Standards for Water Works 2006 Edition

National Oceanic and Atmospheric Administration (NOAA) Western Regional Climate Center, Historical Climate Information, http://www.wrcc.dri.edu/NEWWEB.html

APPENDIX A

Source Water Protection Plan

SOURCE WATER DELINEATION AND ASSESSMENT REPORT

Town of Broadview Public Water Supply

PWSID # MT0000167

Date of Report: January 30, 2006

Revised: February 23, 2006

Operator/Manager:

Leo Bogden

PO Box 64

Broadview, MT 59015

(406) 406-248-2463

EXECUTIVE SUMMARY

This Source Water Delineation and Assessment Report (SWDAR) was prepared as required by the Federal Safe Drinking Water Act and in accordance with Montana's Source Water Assessment Plan. The Department of Environmental Quality (DEQ) is completing assessment and delineation reports for all public water systems in Montana. Source water assessment is the first step towards source water protection. These reports are intended to provide information and help public water system staff/operator, consumers, and community citizens to develop strategies to protect drinking water sources. The information provided includes the delineation of the area most critical to maintaining safe drinking water (the inventory region), an inventory of significant potential sources of contamination within this area, and an assessment of the relative threat that these sources pose to the water system.

This PWS's uses ground water as its source of drinking water and uses three deep wells to provide water to its residents. According to the Source Water Protection Program (DEQ, 1999) the aquifer used by this public water supply is considered to have **low sensitivity** to potential contamination, since the aquifer is comprised of deep confined consolidated sandstone that is part of the Eagle and Telegraph Creek formations.

As part of this assessment, three types of source water protection areas are mapped or delineated. They are: the control zone, the inventory region, and the recharge region. The control zone (sometimes called the exclusion zone) is a 100-foot radius circle around the wellhead. The goal of management in the control zone is to avoid introducing contaminants directly into the well or immediate surrounding areas. The inventory region is the area that is expected to contribute ground water to the wells over a period of months or years (DEQ, 1999); in this case because the aquifer used by Broadview is deep and confined, the inventory region is delineated as a 1,000 foot circle around each well. The recharge region represents the area that is expected to contribute water to the well over long periods of time. Potential sources of contamination were inventoried within the control zone and inventory region and the results are as follows:

The control zones for the wells include town streets and developed lots. Potential contaminant sources may include: fertilizer and herbicide application in parks and lawns near the wells, infiltration of septic effluent, and leaks from town sewer mains.

The inventory regions for the wells include portions of the town and include potential contaminant sources such as sewer mains and service lines, several inactive underground storage tank sites with leak histories, as small segment of railroad tracks, and local streets. With the exception of the sewer lines and some local streets, all of these potential contaminant sources are located down-gradient from the town's wells and are not considered to pose a threat to the source water. Only potential contaminant sources identified within the inventory region of each well are included in the susceptibility analysis in this report (Table 10).

Within the recharge region only potential sources of pathogens and nitrate are evaluated although other types of potential sources are included in the general inventory. These efforts focus primarily on land use patterns. The recharge region is essentially the watershed upgradient or up-stream of the PWS. This region is dominated by agricultural land use. Agricultural land is considered be a significant potential contaminant source. The concern here is that over application of fertilizers and/or pesticides can result in the ag-chemicals infiltrating into ground water and running off in to surface water bodies that may be hydraulically connected to aquifers. A highway, railroad tracks, oil and gas wells, and other potential contaminant sources are located in the recharge region. Significant potential contaminant sources within the recharge region, like irrigated ag-land or abandoned oil and gas wells, may still pose a threat over time, they are not included in the susceptibility analysis in this report (Table 10). Possible management options however are included at the end of this report.

The susceptibility analysis is intended to provide the operator with information on what the greatest risk or threats to the source water are. Maps included in this report show where the potential contaminant sources that pose a threat to the source water are located relative to the public water supply wells. The assessment is focused on potential contaminant sources that the Source Water Protection Section has determined to be significant. These are detailed in Chapter 4.

Mitigating and managing some of the potential sources of contamination identified within the inventory region are often beyond the scope of what a PWS operator can accomplish or has the authority to change. The Source Water Protection Program acknowledges this and recommends that whenever possible, public water supplies work together and work with local, county, and state officials to find ways to protect source water. To this end, the Source Water Protection Program offers assistance to individual public water supplies and communities in developing source water protection plans. These plans use delineation and assessment reports like this one as a starting point to develop and implement strategies to protect source water, identify alternate sources of water, and develop emergency procedures. The plans can be developed as stand-alone documents or they can be developed as components of larger community level planning efforts.

The costs associated with contaminated drinking water are high, and prevention is vastly preferable to treatment. Public awareness is a powerful tool for protecting drinking water. The information in this report is intended to help increase public awareness about the relationship between land use activities and drinking water quality.

INTRODUCTION

This Delineation and Assessment Report was prepared by Jenny L. Erickson, a research assistant with the Montana Bureau of Mines and Geology, under the supervision of Jon Reiten, a Hydrogeologist with the Montana Bureau of Mines and Geology – Billings office. Jim Stimson, a Hydrogeologist with the Montana Department of Environmental Quality (DEQ) Source Water Protection Program reviewed and edited this report. The Broadview public water supply (PWS) is located in Yellowstone County, Montana, about 27 miles northwest of Billings, MT (Figure 1). The DEQ PWS identification number, operator name, and operator number for the Broadview PWS appear on the title page of this report.

Purpose

This report is intended to meet the technical requirements for the completion of the source water delineation and assessment report for the Broadview PWS as required by the Montana Source Water Protection Program (DEQ, 1999) and the federal Safe Drinking Water Act (SDWA) Amendments of 1996 (P.L. 104-182). The Montana Source Water Protection Program is intended to be a practical and cost-effective approach to the protection of public drinking water supplies from contamination. The primary purpose of this source water delineation and assessment report is to provide information to assist the Broadview PWS operator in the identification of potential contaminant sources near and upstream from the town's wells, and to encourage the development of a source water protection plan to help protect the town's drinking water for the long term.

Delineation and assessment constitute major components of the Montana Source Water Protection Program. Delineation entails mapping the boundaries of source water protection areas, which encompass ground water and/or surface waters contributing to public water supply sources. Assessment involves identifying locations or regions within source water protection areas where contaminants may be generated, stored, transported, or disposed, and determining the relative susceptibility of drinking water to contamination from these sources.

Limitations

This report was prepared to assess threats to the Broadview public water supply and is based on published data including the most recent sanitary survey, and information obtained from local residents familiar with the community. The terms "drinking water supply" and "drinking water source" refer specifically to the sources of Broadview's public water supply, and not any other public or private water supply. Also, not all of the potential or existing sources of ground-water or surface-water contamination in the area of Broadview are identified. Only potential sources of contamination in areas that contribute water to the identified drinking water sources are considered.

The term "contaminant" is used in this report to refer to constituents for which maximum concentration levels (MCLs) have been specified under the national primary drinking water standards, and to certain carcinogenic or toxic constituents that do not have MCLs but are considered to be significant health threats.

CHAPTER 1 - BACKGROUND

The Community

Broadview is in Yellowstone County and is located approximately 32 miles northwest of Billings, MT. Broadview is about 8 miles southeast of the Musselshell River (Figure 1, Figure 3A, and Figure 3B). State Highway 3 and the Northern Pacific/Burlington Northern Railroad run through the town of Broadview. The U.S. Census Bureau estimates the 2003 population of Yellowstone County at 10,716 people and the town of Broadview at 150 people.

Within the town limits, residents obtain their drinking water from the municipal public water supply. The municipal sewer district services all residents within town limits and some areas outside the town limits. A wastewater treatment plant also serves the town with multi-celled lagoons located about 1/4 mile southeast of town. Residents in areas outlying town limits where sewer services are not available utilize on-site septic systems for waste disposal. The Town of Broadview is the only public water supply in the area (Figure 3A, and Figure 3B). Broadview uses ground water as their source of water (Table 1).

Table 1. Public Water Supplies in the Broadview area.

System Name	PWSID	Site #	Resident Users	Non-Res Users
Broadview, Town of	MT0000167	WL003	150	200
Broadview, Town of	MT0000167	WL004	150	200

Climate

Based on Western Regional Climatic Center data for the period of record, annual precipitation averages 13.60 inches. Monthly average precipitation ranges from 0.52 inches in January to 2.74 inches in May. Summer thunderstorms and winter snows provide a majority of the precipitation in the area. The annual mean snowfall in Broadview is 36.3 inches. A summary of the available climatic data for the Broadview area is presented in Table 2 below.

Table 2. Climate Summary (9/15/1951 to 3/31/1991)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	34.0	40.2	46.9	57.0	67.2	77.0	86.0	84.5	72.2	62.1	45.5	37.5	59.2
Average Min. Temperature (F)	11.1	15.8	21.2	30.4	39.8	47.7	53.1	51.2	41.4	33.1	21.6	13.9	31.7
Average Total Precipitation (in.)	0.52	0.45	0.76	1.38	2.74	2.20	1.13	1.26	1.22	0.95	0.59	0.41	13.60
Average Total SnowFall (in.)	7.2	6.0	5.6	6.3	0.1	0.0	0.0	0.0	0.4	1.5	5.1	4.1	36.3
Average Snow Depth (in.)	2	1	1	0	0	0	0	0	0	0	1	1	1

Western Regional Climate Center, mailto:wrcc@dri.edu

Geographic Setting

The town of Broadview is located in the non-glaciated portion of the Great Plains physiographic province of North America (Rocky Mountain Association of Geologists, 1972). Topographic relief in the area is typified by gently rolling flats separated by rough broken ridges; which is largely a result of the differential erosion of the sandstones and shales. The elevation at Broadview is approximately 3,681 feet above mean sea level and is approximately 8 miles south east of the Musselshell River (Figure 3A, and Figure 3B). Broadview's PWS is located in the Upper Yellowstone River-Pompey's Pillar Hydrologic Unit. The town is on the northern edge of the "Comanche Flat", an internally drained basin; all runoff and drainage from the Broadview area flows into this basin.

According to the most recent sanitary survey, the water supply for the community of Broadview is obtained from two deep wells, one of which is located southwest of town near the water storage reservoir. The South Well #2 is drilled to about 1,100 feet below ground surface. The North Well #1 located near Well#2, is inactive because of a casing failure. The third well, New Well #3, was drilled to 1,250 feet and is approximately ¼ mile north from Wells 1 and 2 .

The well logs describe several layers of sandstone and shale. The high static water level and large draw down indicate that the wells are under confined conditions. Water in bedrock aquifers occurs under water-table and artesian conditions. Artesian conditions prevail where the aquifers occur at depth. Recharge to this aquifer is primarily from subsurface flow from outside the area (Olson and Reiten, 2002).

Geology

This section provides an overview of the geology and hydrology of the vicinity of Broadview. The geology of the area can be used to determine the locations, boundaries, and hydraulic properties of local aquifers. An understanding of hydrogeologic conditions also provides an explanation for the sensitivity of local aquifers to potential contamination sources. The public water supply wells for the town of Broadview are completed in the Upper Cretaceous rocks of the Eagle Sandstone.

Saturated sandstone layers within the Eagle Formation (also known as the Eagle Sandstone) and within the upper part of the underlying Telegraph Creek Formation are the source of water for Broadview. Both of these formations are part of an approximately 4,000-foot thick package of Cretaceous marine sedimentary rocks (Figure 4A, and Figure 4B). The Eagle Sandstone consists of light-gray to tan, fine-to-medium-grained sandstone that often forms cliffs. The Telegraph Creek Formation forms the lower part of the Eagle aquifer and consists of 150 feet of thinly interbedded layers of brownish gray to medium dark gray sandstone and sandy-shale (Olson & Reiten, 2002).

Two primary structural features influence the occurrence and depth of the Eagle aquifer: the Bull Mountain Basin and the Lake Basin Fault Zone. The Bull Mountain Basin is a broad regional feature centered just north of Yellowstone County. All bedrock formations generally dip gently (at 2 to 4 degrees) towards the basin center. As a result, the Eagle aquifer is encountered at depths of greater than 1,000 feet in the northern portion of Yellowstone County. A minor dome structure (the Broadview Dome) causes the Eagle to be exposed in a small area along its crest south east of the town of Broadview, Montana (Wilde & Porter, 2000). Faulting within the Lake Basin Fault Zone complicates ground-water flow within the Eagle aquifer within the basin. The fault zone consists of a roughly six-mile-wide band of northeast-southwest trending, high-angle faults. Individual faults are generally oriented perpendicular to the regional folding. Displacements as much as 250 feet have been reported. The faulting is a significant feature in this area because the faults offset the sandstone beds and disrupt the flow within the Eagle aquifer. The faults restrict ground-water flow through the fault plane. In areas where the sandstone beds are highly fractured near the faults, ground water flows generally parallel to the faults (Olsen & Reiten, 2002).

The Public Water Supply

The Broadview PWS is classified as a community system under the Federal Safe Drinking Water Act, because the system serves at least 25 year-round residents through at least 15 service connections. The PWS services about 150 residents via approximately 85 active service connections

The town of Broadview PWS receives its source water from two deep wells. The most recent sanitary survey was conducted on June 9, 2000 by Mr. Ryan Welsh with the DEQ. A copy of this survey is included in Appendix D of this report. North Well #1 (GWIC ID#15969) is located by the water storage reservoir but is now inactive due to a casing failure in 2003 . This well was drilled October 1954 by Hanlon Drilling Company. It was drilled to a depth of 992 feet and has a static water level of 125 feet. The 6-5/8 inch steel casing runs the entire depth of the well and ends 6-12 inches above ground surface. A well cap with down-facing vent and watertight electrical connection is provided. The depth of grouting and methods of drilling are unknown. At the time of the sanitary survey a cracked concrete pad surrounded the wellhead to protect it from ponding water. This concrete pad has been removed and landscaping has been done to provide drainage away from the wellhead (Leo

Bogden, 02-14-2006, personal communication). A single 5-hp, 12-gpm submersible pump is used to bring water into the system. Sodium hypochlorite is used to disinfect the water.

The South Well #2 (GWIC ID#15974) is also located near the water storage reservoir. This well was drilled to a depth of 1,100 feet by Joe Johnson Drilling (Driller license #WWC154) in March 1974. Its casing is an 8-inch steel casing that runs 1,003 feet below ground surface (bgs). From that point, it has a 6-inch steel casing with 1/8 inch slots from 1,035 feet to 1,075 feet bgs. The static water level is 534 feet. The water is delivered to the system with a single 20-hp, 24-gpm submersible pump. It was grouted with cement to a depth of 1,004 feet. A sanitary seal is provided with a down-turned vent on the wellhead, which ends 12-18 inches above ground surface. Recent modifications have been a new pitless adapter and the hypochlorination system that was described in well #1. The sodium hypochlorite system is setup in a pump house just off the storage reservoir and the plan review was submitted for final review on January 25, 2004.

Well #3 is located approximately ¼ mile north east of the water storage reservoir. This well was drilled by DeBuff Drilling (Driller license #WWD033) in July 1995. It was drilled to a depth of 1,250 feet bgs and has a static water level of 320 feet. The Johnson stainless steel screen has a 5-inch diameter and extends from 1,130 to 1,250 feet. It was grouted with cement to a depth of 1,075 feet. The wellhead has a sanitary seal with a down-turned vent that ends 18-inches above ground surface. Water is drawn from it by a single 15-hp, 12-gpm submersible pump. Disinfection is provided by gas chlorination before entering into the system. The well pumps have been routinely replaced every 10-years.

The distribution system for the town is in relatively good condition with the exception of low-pressure areas on the hillside near the storage reservoir. Other than this area, the piping around town is fairly new or is in the process of being replaced. This system appears to be well-operated and maintained.

According to the most recent sanitary survey of February 8, 2006 (Usuriello, 2006) , Broadview uses a water storage reservoir with a capacity of 21,000 gallons, about one day supply. The reservoir is inspected on a regular basis of five years. The last tank inspection was conducted on August 24, 2005.

The following recommendations were made for the town of Broadview PWS:

1. **Item 1 was corrected June 2003**

   Well #1: The cracked concrete pad and sanitary seal around this well should be removed and replaced respectively. The concrete pad is a likely spot for rodents and other animals to make their home. In doing so, they can cause a contamination problem for the well. It is recommended that the concrete pad be removed and build up the soil around the casing to drain away ponding water. The sanitary seal is old and should be replaced with a similar model to those on wells #2 and #3.

2. **Item 2 was corrected in January 2004**

Hypochlorination system: The sodium hypochlorite unit that disinfects the water from Wells #1 and #2 did not go through the plan approval process. Until such time as this is approved by the department, please refrain from using the sodium hypochlorite to disinfect this PWS. This should not be a problem considering the excellent bacteriological history that this system has.

3. **Above Ground Storage Tank:** It is recommended that weather stripping be placed around the lid to the access hatch on top of the reservoir. This will ensure a watertight seal and prevent bad bacteriological samples. A means of preventing vandals from climbing the water tank is also recommended.

4. **Item 4 was corrected in 2003 with the certification of John Hagardy.**

   Alternate Operator: It is recommended that provisions be made to certify another operator for your system. It may prove to be a wise course of action if an emergency happens with the system and the current operator is unavailable.

5. **Item 5 correction is not needed due to the chlorination system does not have gas containers.**

   Leak Detection Kit: A chlorine leak detection kit is recommended in order to aid in the gas leak detection and operator safety.

6. **System Pressure:** A minimum pressure of 35 psi must be maintained during normal flow conditions. Under all conditions of flow a minimum of 20 psi must be maintained. A means of supplying the appropriate amount of pressure to those houses on the hillside in the vicinity of the storage reservoir must be attained.

7. **System Records:** Appropriate records should be maintained as to system maintenance, production and sampling history.

Due to the fact that Broadview obtains its drinking water from a confined consolidated sandstone bedrock aquifer, the source water is classified as low source water sensitivity to contamination, in accordance with Montana Source Water Protection Program criteria (1999), see Table 3.

Table 3. Source water sensitivity criteria (DEQ, 1999).
High Source Water Sensitivity
Surface water and GWUDISW
Unconsolidated Alluvium (unconfined)
Fluvial-Glacial Gravel
Terrace and Pediment Gravel
Shallow Fractured or Carbonate Bedrock
Moderate Source Water Sensitivity
Semi-consolidated Valley Fill sediments
Unconsolidated Alluvium (semi-confined)
Low Source Water Sensitivity
Consolidated Sandstone Bedrock
Deep Fractured or Carbonate Bedrock
Semi-consolidated Valley Fill Sediments (confined)

Public water systems must conduct routine monitoring for contaminants in accordance with Federal Safe Drinking Water Act requirements. A community public water supply, like Broadview, must sample in accordance with schedules specified in the Administrative Rules of Montana (ARM). Monitoring includes coliform bacteria, lead, copper, nitrate, nitrite, volatile organic chemicals (including hydrocarbons and chlorinated solvents), inorganic chemicals (including metals), synthetic organic chemicals (including pesticides), and radiological contaminants. Transient, non-community PWSs are required to conduct routine monitoring only for pathogens (including coliform bacteria), nitrate, and nitrite. All contaminant concentrations detected in required samples must comply with numeric maximum contaminant levels (MCLs) specified in the Federal Safe Drinking Water Act.

Broadview PWS Water Quality

Within the last five years, water quality tests for bacteria have been negative with the exception of a series of samples taken in August 2002. Sampling since that time have been negative, indicating that the water is not contaminated with bacteria. No maximum contaminant level (MCL) exceedances were noted for any other constituents monitored over the past five years, this includes nitrate. Nitrate concentrations are below detection limits for all samples. The MCL for nitrate is 10 mg/l. It should be noted several disinfection byproducts such as Bromodichloromethane appear to be above the EPA recommendations. DEQ is working with public water supplies to adjust their disinfection procedures to lower the disinfection byproduct concentrations to acceptable levels. Water quality results for Broadview are included in Appendix B.

CHAPTER 2 – DELINEATION

The source water protection areas for the Broadview public water system are delineated in this chapter. The purpose of delineation is to map the land areas that contribute water to the aquifer used by Broadview public water supply and to define areas that help prioritize source water protection efforts. The management areas identified within the larger source water protection area included the control zone, inventory region and recharge region. The control zone is a fixed radius of 100-feet around the well. The management goal of the control zone, also known as the exclusion zone, is to protect against the direct introduction of contaminants into the wells or in the immediate area surrounding each well. The inventory regions for the town's wells consist of a fixed radius of 1,000 feet, as specified by the Montana Source Water Protection Program guidelines for wells tapping a confined aquifer. The management goal of the inventory region is to focus on pollution prevention activities at potential contaminant sources where it is likely that contaminated water would flow into the wells within a relatively short time-frame. The recharge region represents the entire portion of the aquifer that contributes water to the Broadview water system. Management in the recharge region should focus on maintaining and improving the quality of ground water that could reach each well over longer timeframes or with increased water usage.

General Hydrogeologic Setting

The Eagle aquifer is comprised of water-saturated sandstone layers in the Eagle Sandstone and the underlying Telegraph Creek Formation . Both of these formations are part of an approximately 4,000-foot thick package of Cretaceous marine sedimentary rocks. The Eagle Sandstone consists of light-gray to tan, fine-to-medium-grained sandstone that often forms cliffs. The Telegraph Creek Formation forms the lower part of the Eagle aquifer and consists of 150 feet of thinly interbedded layers of brownish gray to medium dark gray sandstone and sandy-shale (Olson & Reiten, 2002).

Local Hydrogeologic Setting and Conceptual Model

Broadview's public water supply consists of two active wells. All of the wells are located on the west side of town (Figure 1 and Figure 3A, and Figure 3B). According to the Montana Bureau of Mines and Geology map (Vuke, 2000), the wells are completed in sandstone bedrock. Ground-water flow is generally from the west to the east. Figure 4B shows a ground-water flow map for regional and local ground-water systems (Slagle, 1986). Recharge to the aquifer is primarily from areas west of Broadview, from interaquifer leakage and from subsurface flow from outside the Broadview area.

Source Well

Three wells are used to supply water for the Broadview public water supply. Table 4 summarizes well data for the town's wells.

Table 4. Information from drillers logs for the wells in Broadview.

MBMG # DNRC WR#	15969 W005924-00 Inactive Well #1	15974 Unknown Well #2	161632 Unknown Well #3
Location	04N 23E 16 BCCC	04N 23E 16 BCCC	04N 23E 16 DBB
Date Completed	October 22, 1954	March 1, 1974	July 14, 1995
Depth (ft bgs*)	992	1,100	1,250
Screened Interval (ft**)	Open Bottom	1,035-1,075	1,130-1,250
SWL Depth (ft bgs*)	Unknown	534	320
PWL Depth (ft bgs*)	Unknown	714	1,000
Drawdown (ft**)	Unknown	566	930
Test Pumping Rate (gpm***)	50	24	15
Specific Capacity (gpm/ft****)	Unknown	.042	.016

*ft bgs = feet below ground surface, **ft = feet, ***gpm = gallons per minute, ****gpm/ft = gallons per minute per foot of drawdown.

Delineation Results

Control Zones

The control zones for each of the town wells consists of a 100 foot fixed radius circle, in accordance with the criteria specified in the Source Water Protection Program Document (1999). All potential sources of contamination are inventoried within the control zone.

Inventory Region

A source water protection area for the Broadview wells consist of a 1,000 foot fixed radius circle.

Recharge Region

The Watershed Region for the Broadview PWS encompasses the land area within the Upper Yellowstone River-Pompey's Pillar Hydrologic Unit. The town of Broadview is on the northern edge of the "Comanche Flat", an internally drained basin; all runoff and drainage from the Broadview area flows into this basin. Because the Comanche Flat is a closed drainage basin, the surface water flows are not connected to the hydrologic unit listed for the Broadview PWS. Therefore, the recharge region for the Broadview PWS has been modified to include the land area involved with recharge to the Comanche Flat (Figure 7). General land uses and large potential contaminant sources are inventoried in this region.

Limiting Factors

The reader needs to recognize that the conceptual model presented in this report is a simplification of the real ground water flow system near Broadview and is based on information that is publicly available. However, it is considered to be sufficiently accurate to assess the susceptibility of the public water supply to potential sources of contamination in the area.

CHAPTER 3 - INVENTORY

An inventory of potential sources of contamination was conducted to assess the susceptibility of the Broadview PWS to contamination, and to identify priorities for source water protection planning. Inventories were conducted within the control zones, combined inventory, and recharge regions. The inventory focuses on facilities that generate, use, store, transport, or dispose of potential contaminants, and on land types on which potential contaminants are generated, used, stored, transported, or disposed. Additionally, the inventory identifies potential sources of all primary drinking water contaminants and Cryptosporidium. Only significant potential contaminant sources were selected for detailed inventory. Potential contaminant sources in the Broadview area include: town sewer and storm sewer mains, wastewater discharge points, underground- and above-ground fuel storage tanks, oil and gas test holes and wells, State Highway 3 and the Burlington Northern Railroad. The majority of these potential contaminant sources are located east and down-gradient from the town's wells (Figure 3A, and Figure 3B). Contaminant sources in this area are not considered to pose a threat to the source water. As a result, the inventory focuses on land areas within the inventory region and the recharge region west of Broadview (Figure 3A, and Figure 3B).

Inventory Method

Available databases were initially searched to identify businesses and land uses that are potential sources of regulated contaminants in the inventory region. The following steps were followed:

Step 1: Land cover is identified from the National Land Cover Dataset compiled by the U.S. Geological Survey and U.S. Environmental Protection Agency (U.S.G.S., 2000). Land cover types in this dataset were mapped from satellite imagery at 30-meter resolution using a variety of supporting information.

Step 2: EPA's Envirofacts System was queried to identify EPA regulated facilities. This system accesses the following databases: Resource Conservation and Recovery Information System (RCRIS), Biennial Reporting System (BRS), Toxic Release Inventory (TRI), Permit Compliance System (PCS), and Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). The available reports were browsed for facility information including the Handler/Facility Classification to be used in assessing whether a facility is a significant potential contaminant source.

Step 3: DEQ databases were queried to identify Underground Storage Tanks (UST), hazardous waste contaminated sites, landfills, and abandoned mines.

Step 4: A business phone directory was consulted to identify businesses that generate, use, or store chemicals in the inventory region. Equipment manufacturing and/or repair facilities, printing or photographic shops, dry cleaners, farm chemical suppliers, and wholesale fuel suppliers were targeted by Standard Industrial Codes.

Step 5: Major road and rail transportation routes were identified.

Step 6. All significant potential contaminant sources were identified in the inventory region and land uses and facilities that generate, store, transport, or dispose large quantities of hazardous materials were identified within the recharge region.

Potential contaminant sources are designated as significant if they fall into one of the following categories:

1) Large quantity hazardous waste generators
2) Landfills
3) Hazardous waste contaminated sites
4) Underground storage tanks
5) Major roads or rail transportation routes
6) Cultivated cropland
7) Animal feeding operations
8) Wastewater lagoons or spray irrigation
9) Septic systems
10) Sewered residential areas
11) Storm sewer outflows
12) Floor drains, sumps, or dry wells
13) Abandoned or active mines

Inventory Results/Control Zones

Broadview's wells are located on the western edge of town (Figure 3A, and Figure 3B). Control zones for the wells include portions of the parks, streets, residential lots, and parking areas. Potential contaminant sources may include: fertilizer and herbicide application in parks and lawns near the wells, infiltration of septic effluent, and leaks from town sewer mains.

Inventory Results/Inventory Region

The land cover information for the Broadview PWS wells shows the septic density within the inventory region consisting of town sewer area (Figure 5). Town sewer and the commercial / transportation land uses also are considered a potential threat to the source water due to the fact that most of these land types are served by sewer and storm water sewer mains. The main pipelines can leak and expose ground water to a variety of contaminants including fuels and solvents (VOCs), pesticides (SOCs), wastes saturated with nitrate, metals, and household chemicals.

Land cover information for the Broadview inventory region (Figure 5 and Figure 7) was summarized from the National Landcover Dataset, Montana (USGS, 2000). Land cover within the 1,000 foot fixed radius for the Broadview inventory region includes 69% cropped agricultural, 20% grassland/herbaceous, 4% commercial, 6% low intensity residential and 1% urban green space. Agricultural land is considered be a significant potential contaminant source. Over application of fertilizers and/or pesticides can result in those ag-chemicals infiltrating into ground water and running off in to surface water bodies that may have hydraulic connection with aquifers that supply water. The percentage of ag-land in the inventory region is assigned a moderate hazard rating in accordance with the Source Water Protection Program guidelines.

The most significant potential sources of contamination in the inventory region are summarized in Table 6. In addition to these potential sources of contamination, there is one facility designated as a hazardous waste handler by the EPA; the Broadview Kv Substation. The location of this facility relative to the PWS is unclear. Information concerning hazardous waste generator size status was unavailable. However, it is assumed that the generator is located outside the inventory region.

A known source of ground-water contamination in the Broadview area is a petroleum release compensation site in a vacant lot within the inventory region of well #3 (Figure 3A, and Figure 3B). There are two service stations in the Broadview area that have known releases. These include the EZ Stop and The Broadview KV Substation. Although these sites are listed as active, the status of remediation efforts is unknown.

A survey of the inventory region and a review of the permitted tanks listed with the DEQ indicate the presence of numerous storage tanks within the inventory region. The locations of these tanks are unknown. The Burlington Northern Railroad is located within the inventory region. An animal feedlot appears in data available from the Natural Resource Information System (NRIS) but according to the public water supply operator, the feed lot is not located as listed with NRIS. The feed lot appears to be located outside of the inventory region.

Many of the significant and non-significant potential contaminant point sources in the Broadview are located in town and east of the inventory region (Figure 3A, and Figure 3B). These potential contaminant sources are considered to be down-gradient from the cities wells do not pose a threat to the source water.

Town sewer represents approximately 100% of the inventory region and under could pose a threat to the source water. The Broadview Wastewater Treatment Plant appears to be located over a mile east and down-gradient from the public water supply wells, and does not pose a threat to the public water supply.

Table 6. Significant potential contaminant sources in the Inventory Region for Broadview PWS.

Potential Source	ID Number On Maps	Potential Contaminants	Hazard
Municipal Sewer (About 100% of the inventory region is underlain by sewer mains)	Not Numbered	Nitrate and pathogens	Leaks resulting in Infiltration into ground water
Cultivated Cropland (69 % of the inventory region).	Not Numbered	Fertilizers, pesticides, pathogens, nitrate	Spills, over application, surface runoff
Broadview Vacant Lot-Petroleum Release	2	VOCs, fuels, petroleum products	Spills and leaks resulting in infiltration into ground water
Under ground fuel storage tanks (USTs)	1, 3	VOCs, fuels, petroleum	Spills and leaks resulting in infiltration into ground water

Table 6. **Significant potential contaminant sources in the Inventory Region for Broadview PWS.**

Potential Source	ID Number On Maps	Potential Contaminants	Hazard
		products	
Burlington Northern RR	6	Inorganics, VOC's, SOC's, etc.	Contaminants leaching into ground water
Highway 3	5	VOCs, and SOCs, , pathogens, nitrate, and other hazardous materials	Accidents and spills involving large trucks
Assorted businesses in town	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Releases or spills, mishandling of chemicals, improper disposal of chemicals anywhere near the river
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges ground water.	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system

From the above list of potential contaminant sources, some are considered significant based upon the following factors: the volume of potential releases, the volume of hazardous materials typically handled, the potential of the released materials to impact nearby surface water or ground water, and the proximity of the sources to the PWS surface water intakes. Significant potential contaminant sources from the above list are discussed individually in the following section on susceptibility assessment and they are listed in Table 8.

Inventory Results/Recharge Region

Table 7 summarizes the significant potential contaminant sources that are located within the recharge region (Figure 6 and Figure 7). Potential contaminant sources include: State Highway 3, agricultural land, storm water and wastewater discharge sites, oil and gas wells and test holes, underground fuel storage tanks, multiple businesses in town, confined animal feeding operation, and possibly Class V injection wells.

Predominant land covers in the Recharge Region include ag-land (69%), grassland (27%), shrubland (3%) and 1% commercial/industrial/transportation (Figure 7). Activities on agricultural land are considered be a significant potential contaminant source within the recharge region. The concern here is that mismanagement or over application of fertilizers and/or pesticides can result in those ag-chemicals infiltrating into ground water and running off in to surface water bodies that may be in hydraulic connection with aquifers used for water supplies. Due to the large portion of the recharge region over which fertilizers and/or pesticides may be applied, the ag-chemicals are considered a potential threat to the Town of Broadview PWS.

Most of the significant potential contaminant point sources in the watershed are located in town and east of the town's wells and the inventory region . These potential contaminant sources are considered to be either down-gradient from the cities wells or are far enough away from Broadview so as not to pose a threat to the source water . Low septic densities occur over the largest portion of the recharge region.

Table 7. Significant potential contaminant sources in the Recharge Region for Broadview PWS.

Potential Source	ID Number on Maps	Potential Contaminants	Hazard
State Highway3	5	Pesticides, fertilizers, VOCs, other	Spills, storm water runoff, infiltration into ground water.
Cultivated Cropland	Not Numbered	Fertilizers, pesticides, pathogens, nitrate	Spills, over application, surface runoff
Burlington Northern RR	6	Inorganics, VOC's, SOC's, etc.	Contaminants leaching into ground water
Storm Water / Wastewater Discharges	4	VOCs, SOCs, pathogens, nitrate, TDS	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow discharge of contaminants with wastewater to surface water
Gas and Oil Wells	Not Numbered	Total Dissolved Solids, Petroleum Hydrocarbons	Migration of brine wastewater into shallow ground water discharging to surface water, surface runoff to surface water
Broadview Vacant Lot-Petroleum Release	2	VOCs, fuels, petroleum products	Spills and leaks resulting in infiltration into ground water
USTs/LUSTs	1	VOCs, petroleum hydrocarbons	Spills, leaks impacting ground water and or reaching surface water
Assorted businesses in town	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Releases or spills, mishandling of chemicals, improper disposal of chemicals anywhere near the river
Confined Animal Feeding Operation (CAFO)	3	Nitrate, pathogens	Storm water runoff, infiltration into shallow ground water.
Mining Operations (gravel pits)	Not Numbered	- variety of hazardous materials including VOC's and SOCs	Accidental spills or illegal dumping
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges ground water.	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system

From the above list of potential contaminant sources, some are considered significant based upon the following factors: volume of potential releases, the volume of hazardous materials typically handled, the potential of the released materials to impact nearby surface water or ground water, and the proximity of the sources to the town's wells.

Inventory Update

To make this SWDAR a useful document in the years to come, the owners, manager, or the certified water system operator(s) for the public water supply should update the inventory for their records every year. Changes in land uses or potential contaminant sources should be noted and additions made as needed. The complete inventory should be submitted to DEQ at least every 5 years to ensure that this report/plan stays current in the public record.

Inventory Limitations

The extent of the potential contaminant source inventory is limited in several respects. The inventory is based on data readily available through state documents, published reports, and other public sources. Documentation may not be readily available on some potential sources. As a result, all potential contaminant sources may not have been identified. In some instances, inadequate location information precluded the inclusion of potential sources in the inventory.

CHAPTER 4 - SUSCEPTIBILITY ASSESSMENT

Susceptibility is the potential for a public water supply to draw water contaminated by inventoried sources. Susceptibility is assessed in order to prioritize potential pollutant sources for management actions by local entities, in this case the Town of Broadview and Yellowstone County.

The goal of source water management is to protect the source water by 1) controlling activities in the control zone, 2) managing significant potential contaminant sources in the inventory region, and 3) ensuring that land use activities in the recharge region pose minimal threats to the source water. Management priorities in the inventory region are determined by ranking the significant potential contaminant sources identified in the previous chapter according to susceptibility. Alternative management approaches that could be pursued by the Broadview PWS operators, town, and county officials to reduce susceptibility are recommended.

Susceptibility for wells tapping a confined aquifer is determined by considering the hazard rating for each potential contaminant source and the existence of barriers that decrease the likelihood that contaminated water will flow to the PWS well(s) (Tables 8 and 9). For point sources, hazard is rated by the proximity of a potential contaminant source to the well(s). A high hazard rating is assigned to point sources if the PWS well is not sealed through the confining layer. A moderate hazard rating is assigned to point sources if wells in the inventory region other than the PWS well are not sealed through the confining layer. A low hazard rating is assigned to point sources if all wells in the inventory region are sealed through the confining layer. Hazard ratings for nonpoint sources are assigned based on the following criteria in Table 8.

Table 8. Hazard of potential contaminant sources for the Broadview public water system wells.

	PWS well is not sealed through the confining layer	Well(s) in the inventory region other than the PWS well are not sealed through the confining layer	All wells in the inventory region are sealed through the confining layer
Point Sources of All Contaminants	High	Moderate	Low
Septic Systems	High: > 300 Moderate: 50 – 300 Low: < 50	Moderate: > 30 Low: < 30	Low
Municipal Sanitary Sewer (% land use)	High: > 50 Moderate: 20 – 50 Low: < 20	Moderate: > 5 Low: < 5	Low
Cropped Agricultural Land (% land use)	High: > 50 Moderate: 20 – 50 Low: < 20	Moderate: > 5 Low: < 5	Low

Barriers to contamination can be anything that decreases the likelihood that contaminants will reach a spring or well. Barriers can be engineered structures, management actions, or natural conditions. Examples of engineered barriers are spill catchment structures for industrial facilities and leak detection for underground storage tanks. Emergency planning and best management practices are considered management barriers. Thick clay-rich soils, a deep water table or a thick saturated zone above the well intake can be natural barriers. Table 9 shows how barriers are used to adjust the final susceptibility ratings.

Table 9. Susceptibility of Source Water based on Hazard rating and the presence of Barriers

	High Hazard Rating	Moderate Hazard Rating	Low Hazard Rating
No Barriers	Very High Susceptibility	High Susceptibility	Moderate Susceptibility
One Barrier	High Susceptibility	Moderate Susceptibility	Low Susceptibility
Multiple Barriers	Moderate Susceptibility	Low Susceptibility	Very Low Susceptibility

Susceptibility ratings are presented individually for each significant potential contaminant source and each associated contaminant on the following page (Table 10).

Table 9. Susceptibility Assessment Of Significant Potential Contaminant Sources in the Inventory and Recharge Regions Of Broadview PWS.

Inventory Region							
Source	**ID Number on Maps**	**Contaminant**	**Hazard**	**Hazard Rating**	**Barriers**	**Susceptibility**	**Management Recommendations**
Cultivated Cropland (69% in the inventory region) (69% in the recharge region)	Not Numbered	Fertilizers, pesticides, pathogens, nitrate	Spills, over-application, surface runoff	Low Low	-Depth to Screened Interval (>100 feet)	Low Low	Support efforts to provide educational information, materials and resources to land owners on the proper application and storage of pesticide and fertilizers; implement agricultural BMPs
Sewer Lines	Not Numbered	Nitrates and pathogens	Nitrates and pathogens	Low	-Depth to Screened Interval (>100 feet)	Low	Maintain Pipes Assess Leakage
Wastewater treatment facilities (lagoons), sludge handling sites, or land application areas	4	VOCs, SOCs, metals, pathogens, nitrates, others	Ongoing or catastrophic leakage of sewage into ground water	Low	-Down-gradient from wells -Depth to Screened Interval (>100 feet)	Low	Review permit status (contact DEQ Permitting and Compliance Water Protection Bureau – 406-444-3080 for more information) and ensure proper operation and maintenance, emergency planning, training of local emergency response personnel, ground water monitoring, spill prevention and BMPs
State Highway 3	5	Pesticides, fertilizers, VOCs, other	Spills, storm water runoff, infiltration into ground water.	Low	-Local & state emergency response -Depth to Screened Interval (>100 feet)	Low	Maintain vigilant for accidents involving large vehicles Maintain emergency response plan and support training and preparation of local response personnel

Table 9. Susceptibility Assessment Of Significant Potential Contaminant Sources in the Inventory and Recharge Regions Of Broadview PWS.

Inventory Region							
Source	**ID Number on Maps**	**Contaminant**	**Hazard**	**Hazard Rating**	**Barriers**	**Susceptibility**	**Management Recommendations**
Railway	6	Inorganics, VOC's, SOC's	Contaminants leaching into ground water	**Low**	-Depth to Screened Interval (>100 feet)	**Low**	
Storm Water / Wastewater Discharges	4	VOCs, SOCs, pathogens, nitrate, TDS	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow discharge of contaminants with wastewater to surface water	**Low**	-Depth to Screened Interval (>100 feet) -Site is down-gradient from well	**Low**	Encourage proper maintenance and operation of system; monitor leaks in system; develop an alternative treatment plan in the event of system failure
USTs/LUSTs	1, 2	VOCs, petroleum hydrocarbons	Spills, leaks impacting ground water and or reaching surface water	**Low**	-Depth to Screened Interval (> 100 feet)	**Low**	Carry out periodic inspections Spill response planning, tank and ground water monitoring
Assorted businesses in town	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Releases or spills, mishandling of chemicals, improper disposal of chemicals anywhere near the river	**Low**	-Depth to Screened Interval (>100 feet)	**Low**	Support efforts to provide educational workshops to the general public by the town, county, or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Scheduled days for the collection of hazardous wastes from the public.
Mining Operations (gravel pits)	Not Numbered	- variety of hazardous materials including	Accidental spills or illegal dumping	**Low**	-Few in number and small size	**Low**	Restrict access to abandoned gravel pits, maintain vigilance for illegal dumping.

Table 9. Susceptibility Assessment Of Significant Potential Contaminant Sources in the Inventory and Recharge Regions Of Broadview PWS.

Inventory Region							
Source	**ID Number on Maps**	**Contaminant**	**Hazard**	**Hazard Rating**	**Barriers**	**Susceptibility**	**Management Recommendations**
		VOC's and SOCs					
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges ground water.	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system	**Unknown**	**Unknown**	**Unknown**	Inventory; Provide educational information, materials and resources to business owners and the public on proper waste disposal and recycling

Management Recommendations

It should be noted that even small releases of some chemicals in close proximity to a well can have significant negative impact on water quality, and is therefore a significant threat to the public water supply. Steps can be taken to reduce the likelihood of releases in the source water for the PWS or in the vicinity of the sources. Some of these steps (considered management recommendations) are listed below.

Some management recommendations are also included in the susceptibility table for the Broadview PWS (Table 10). If these, and other, management actions are implemented, they may be considered additional barriers that will reduce the susceptibility of the intake to specific sources and contaminants.

Management recommendations fall into the following categories:

- Sewer maintenance and leak detection
- Municipal sewer extension
- Agricultural best management practices
- Stormwater management
- Proper disposal and monitoring of oil and gas production wastewater
- Education
- Emergency Response Planning

Sewer Maintenance and leak detection – Early warning of leaks and scheduled replacement of aging sewer lines may reduce the susceptibility of the Town's PWS to contamination from municipal septic wastes, and could also benefit other public water supplies in the Broadview area.

Sewer Extension – Installation of advanced septic treatment systems such as sand filters can limit contamination from new rural residential development, however, annexation and extension of sewers is the only way to reduce contamination from existing unsewered developments.

Agricultural and silvicultural best management practices (BMPs) – BMPs that address application and mixing of fertilizer and pesticides are a viable alternative to prohibition of their use. BMPs may also be utilized to minimize surface runoff and soil erosion on cultivated fields. Erosion control, selective logging, and other silvicultural practices (essentially BMPs) should be considered on a county-wide basis. BMPs are generally voluntary but their implementation can be encouraged through education and technical assistance. County planning can help promote the implementation of BMP on lands that are outside town limits but indirectly affect the PWS.

Education - Educational workshops provided to the general public by the town, county, or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Ongoing training provided to designated emergency personnel will promote the efficiency and effectiveness of emergency responses to hazardous material spills. Likewise, educational workshops provided to rural homeowners will promote the proper maintenance and replacement of residential septic systems. The EPA and the State of Montana can provide educational materials on these topics.

Hazardous Materials Collection Days – Several counties in the state that have vulnerable water supplies have implemented scheduled days for the collection of hazardous wastes from the public. These vary in the inclusiveness of what materials are collected, how the materials are handled, and how they are disposed of, but they all act to reduce the amount of unauthorized or improper disposal of these wastes. Used motor oil collection station could be established and available to the public on a regular basis.

Emergency Response Plan – Several counties have compiled Emergency Response Plans that were then adopted by the local communities. The usefulness and effectiveness of a response plan are maximized if it contains a clear listing of all emergency contacts, emergency numbers, and resources available within the county to respond to an emergency situation, such as a hazardous material spill. Emergency plans are not difficult to develop or distribute, but have a significant benefit to the citizens and municipalities within the county.

CHAPTER 5 - MONITORING WAIVERS

Waiver Recommendation
It appears that Broadview does not currently have any water quality waivers except for the statewide waivers that are credited to all PWSs. Diquat, endothall, glyphosate, dioxins, ethylene dibromide (EDB), dibromochloropropane (DBCP), polychlorinated biphenyls (PCBs), cyanide and asbestos (at the source) are excluded from monitoring requirements by statewide waivers. The PWS may be eligible for additional monitoring waivers. The water quality appears appropriate for waivers for Phase II inorganics (barium, cadmium, chromium, fluoride, mercury and selenium) and possibly Phase V inorganics (antimony, thallium, beryllium and nickel). Under this waiver, the monitoring schedule for these parameters could be reduced to every nine years, rather than every one or three years.

To be sure that eligibility for all available waivers is considered, the PWS Operators are encouraged to carefully review the following section on Monitoring Waiver Requirements. The PWS should demonstrate sufficient barriers such that the susceptibility would not change over the term of a compliance cycle, even with continued development in the area. The PWS must be in compliance with monitoring requirements to be considered. Written waiver requests must be sent to DEQ at the address below:

Greg Butts
Montana DEQ, PWS Section
109 Cooperative Way
Suite 105
KALISPELL, MT 59901

Upon receipt of a waiver request, DEQ will review the system's compliance history, historical monitoring results and source water setting. If waivers are considered appropriate, DEQ will provide the operator with application forms, guidance and technical assistance. If requested by DEQ, the PWS may also need to provide additional information regarding chemical use in the area within the Inventory Region. A site visit may be required to further investigate VOC and SOC use within the inventory region.

Monitoring Waiver Requirements

Use Waivers
A Use Waiver may be granted if it is determined that target organic chemicals were/are not used, manufactured, or stored in the area of a water source. If certain organic chemicals have been used, or if the use is unknown, the system would be determined to be vulnerable to organic chemical contamination and ineligible for a Use Waiver for those particular contaminants.

Susceptibility Waivers
If a Use Waiver is not granted, a system may still be eligible for a Susceptibility Waiver, if through a vulnerability assessment it is demonstrated that the water source would not be susceptible to contamination. The purpose of the vulnerability assessment procedures outlined in this section is to determine which of the organic chemical contaminants are in the

area of investigation. The vulnerability assessment of a surface water source must consider the watershed area above the source, or a minimum fixed radius of 1.5 miles upgradient of the surface water intake. PWSs developed in unconfined aquifers should use a minimum fixed radius of one mile as an area of investigation for the use of organic chemicals. Vulnerability assessment of spring water sources should use a minimum fixed radius of one mile as an area of investigation for the use of organic chemicals. Surface water and shallow ground-water sources under the direct influence of surface water (GWUDISW) should assess the watershed area above the source, or a minimum fixed radius of one and one-half miles up-gradient.

Given the wide range of landforms, land uses, and the diversity of ground water and surface water sources across the state, additional information is often required during the review of a waiver application. Additional information may include well logs, pump test data, water quality monitoring data from surrounding public water systems, delineation of zones of influence and contribution to a well; time-of-travel or attenuation studies; vulnerability mapping; and the use of computerized ground-water flow and transport models. DEQ's PWS Section and Source Water Protection Program will conduct review of an organic chemical monitoring waiver application. Other state agencies may be asked for assistance.

Susceptibility Waiver for Unconfined Aquifers

Unconfined aquifers are the most common source of usable ground water. Unconfined aquifers are not contained within impervious geologic strata. As a result, the upper ground-water surface, or water table, in an unconfined aquifer is not under the pressure that produces hydrostatic head common to confined aquifers.

Unconfined aquifers are usually locally recharged from surface water or precipitation. In general, ground-water flow gradients in unconfined aquifers reflect surface topography, and the residence time of water in the aquifer is generally shorter than for water in confined aquifers. Similar water chemistry often exists between unconfined ground-water and area surface water, and physical parameters and dissolved constituents can be an indicator of the hydraulic connection between ground water and surface water. Consequently, unconfined aquifers can be susceptible to contamination by organic chemicals migrating from the ground surface to ground water.

Properly assessing a susceptibility waiver application for an unconfined source aquifer requires: site-specific information pertaining to the location and construction of the source development, monitoring history of the source, geologic characteristics of the unsaturated soil and vadose zones, and chemical characteristics of the organic chemicals pertaining to their mobility and persistence in the environment. The zone of contribution of the unconfined ground-water source must be defined and plotted. This should describe the ground-water flow directions, gradients, and a 3-year time-of-travel. All surface water bodies within 1,000 feet of the PWS well(s) must be plotted. Analytical monitoring history of the PWS well and those nearby should be provided as well.

REFERENCES

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GLOSSARY*

Acute Health Effect. An adverse health effect in which symptoms develop rapidly.

Alkalinity. The capacity of water to neutralize acids.

Best Management Practices (BMPs). Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.

Coliform Bacteria. Bacteria found in the intestinal tracts of animals. Their presence in water is an indicator of pollution and possible contamination by pathogens.

Confined Aquifer. A fully saturated aquifer overlain by a confining unit such as a clay layer. The static water level in a well in a confined aquifer is at an elevation that is equal to or higher than the base of the overlying confining unit.

Confining Unit. A geologic formation that inhibits the flow of water.

Delineation. A process of mapping source water management areas.

Effective Porosity. The percent of soil, sediment, or rock through which fluids, such as air or water, can pass. Effective porosity is always less than total porosity because fluids can not pass through all openings.

Hardness. Characteristic of water caused by presence of various salts. Hard water may interfere with some industrial processes and prevent soap from lathering.

Hazard. A measure of the potential of a contaminant leaked from a facility to reach a public water supply source. Proximity or density of significant potential contaminant sources determines hazard.

Hydraulic Conductivity. A coefficient of proportionality describing the rate at which water can move through an aquifer.

Inventory Region. A source water management area that encompasses an area expected to contribute water to a public water supply well within a fixed distance or a specified ground water time-of-travel distance.

Maximum Contaminant Level (MCL). Maximum concentration of a substance in water that is permitted to be delivered to the users of a public water supply. Set by EPA under authority of the Safe Drinking Water Act.

Nitrate. An important plant nutrient and type of inorganic fertilizer. In water the major sources of nitrates are septic tanks, feed lots and fertilizers.

Nonpoint-Source Pollution. Pollution sources that are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet.

Pathogens. A bacterial organism or virus typically found in the intestinal tracts of mammals, capable of producing disease.

Point-Source. A stationary location or fixed facility from which pollutants are discharged.

Porosity. The percent of soil, sediment, or rock filled by air, water, or other fluid.

Public Water Supply (PWS). A system that provides piped water for human consumption to at least 15 service connections or regularly serves 25 individuals.

SIC Code. The U.S. Standard Industrial Classification (SIC) Codes classify categories of businesses. SIC Codes cover the entire range of business categories that exist within the economy.

Source Water Protection Area. For surface water sources, the land and surface drainage network that contributes water to a stream or reservoir used by a public water supply.

Susceptibility (of a PWS). The potential for a PWS to draw water contaminated at concentrations that would pose concern. Susceptibility is evaluated at the point immediately preceding treatment or, if no treatment is provided, at the entry point to the distribution system.

Synthetic Organic Compounds (SOC). Man made organic chemical compounds (e.g. pesticides).

Total Dissolved Solids (TDS). The dissolved solids collected after a sample of a known volume of water is passed through a very fine mesh filter.

Total Maximum Daily Load (TMDL). The total pollutant load to a surface water body from point, non-point, and natural sources. The TMDL program was established by section 303(d) of the Clean Water Act to help states implement water quality standards.

Turbidity. The cloudy appearance of water caused by the presence of suspended matter.

Transmissivity. The ability of an aquifer to transmit water.

Unconfined Aquifer. An aquifer containing water that is not under pressure. The water table is the top surface of an unconfined aquifer.

Volatile Organic Compounds (VOC). Any organic compound which evaporates readily to the atmosphere (e.g. fuels and solvents).

Recharge Region / Watershed. The land area that drains into a stream; the watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common delivery point.

* Definitions taken from EPA's Glossary of Selected Terms and Abbreviations and other sources.

APPENDICIES

APPENDIX A – Well Logs

Montana Bureau of Mines and Geology
Ground-Water Information Center Site Report
TOWN OF BROADVIEW

Plot this site on a topographic map

Location Information

GWIC Id:	161632	Source of Data:	LOG
Location (TRS):	04N 23E 16 DBB	Latitude (dd):	46.0946
County (MT):	YELLOWSTONE	Longitude (dd):	-108.8713
DNRC Water Right:		Geomethod:	TRS-SEC
PWS Id:		Datum:	NAD27
Block:		Altitude (feet):	3745.00
Lot:		Certificate of Survey:	
Addition:		Type of Site:	WELL

Well Construction and Performance Data

Total Depth (ft):	1250.00	How Drilled:	ROTARY
Static Water Level (ft):	320.00	Driller's Name:	DEBUFF
Pumping Water Level (ft):	1000.00	Driller License:	WWD033
Yield (gpm):	15.00	Completion Date (m/d/y):	7/14/1995
Test Type:	PUMP	Special Conditions:	
Test Duration:	24.00	Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	Not Reported
Recovery Time (hrs):		Well/Water Use:	PUBLIC WATER SUPPLY
Well Notes:			

Hole Diameter Information

No Hole Diameter Records currently in GWIC.

Casing Information[1]

From	To	Dia	Wall Thickness	Pressure Rating	Joint	Type
0.0	1075.0	8.0				STEEL
1050.0	1130.0	5.0				STEEL

Annular Seal Information

From	To	Description
0.0	1075.0	CEMENT

Completion Information[1]

From	To	Dia	# of Openings	Size of Openings	Description
1130.0	1250.0	5.0			50 SCREENS

Lithology Information

From	To	Description
0.0	21.0	GRAY SANDY SHALE
21.0	40.0	HARD GRAY SANDSTONE
40.0	83.0	DARK GRAY SANDY SHALE
83.0	89.0	DARK BROWN CARBONATED SHALE
89.0	94.0	TAN SILTSTONE HARD
94.0	114.0	GRAY SHALE
114.0	154.0	GRAY SANDSTONE AND SHALE

154.0	159.0	TAN SILSTONE HARD
159.0	190.0	HARD FINE GRAIN SANDSTONE
190.0	202.0	HARD BLACK SHALE COALISH
202.0	306.0	LIGHT GRAY SANDSTONE & SHALE
306.0	317.0	BLACK SHALE COALISH
317.0	364.0	GRAY SANDSTONE HARD
364.0	390.0	GRAY SHALE
390.0	480.0	GRAY SANDY SHALE
480.0	550.0	HARD GRAY SHALE
550.0	740.0	HARD GRAY SHALE WITH SEVERAL SOFT SHALE LAYERS
740.0	860.0	HARD GRAY SHALE AND GARY SANDSTONE
860.0	938.0	SOFT GRAY SHALE
938.0	1050.0	GRAY SANDY SHALE WITH LAYERS OF WHITE CLAY
1050.0	1080.0	HARD DARK GRAY SHALE
1080.0	1090.0	GRAY SANDSTONE
1090.0	1240.0	GRAY GREEN SANDSTONE
1240.0	1250.0	GRAY SHALE

Montana Bureau of Mines and Geology
Ground-Water Information Center Site Report
CITY OF BROADVIEW

Plot this site on a topographic map
View Water Quality for this Site

Location Information

GWIC Id:	15969	Source of Data:	LOG
Location (TRS):	04N 23E 16 BCCC	Latitude (dd):	46.0957
County (MT):	YELLOWSTONE	Longitude (dd):	-108.8831
DNRC Water Right:	W005924-00	Geomethod:	MAP
PWS Id:	00167002	Datum:	NAD27
Block:		Altitude (feet):	3960.00
Lot:		Certificate of Survey:	
Addition:		Type of Site:	WELL

Well Construction and Performance Data

Total Depth (ft):	992.00	How Drilled:	UNKNOWN
Static Water Level (ft):		Driller's Name:	HANLON
Pumping Water Level (ft):		Driller License:	
Yield (gpm):	50.00	Completion Date (m/d/y):	10/22/1954
Test Type:	PUMP	Special Conditions:	
Test Duration:		Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	211JDRV
Recovery Time (hrs):		Well/Water Use:	PUBLIC WATER SUPPLY

Well Notes: WATER FILLED UP TO 125 FT FROM TOP SAME AS M15974 ONLY 6 INCH CASING NOTE CHEMICAL DIFFERENCE BETWEEN THIS WELL AND M15974

Hole Diameter Information

No Hole Diameter Records currently in GWIC.

Casing Information[1]

From	To	Dia	Wall Thickness	Pressure Rating	Joint	Type
0.0	992.0	6.0				15 LB STEEL

Annular Seal Information

No Seal Records currently in GWIC.

Completion Information[1]

From	To	Dia	# of Openings	Size of Openings	Description
992.0	992.0	6.0			OPEN BOTTOM *

Lithology Information

No Lithology Records currently in GWIC.

[1] - All diameters reported are **inside** diameter of the casing.

Montana Bureau of Mines and Geology
Ground-Water Information Center Site Report
CITY OF BROADVIEW

Plot this site on a topographic map
View Water Quality for this Site

Location Information

GWIC Id:	15974	Source of Data:	LOG
Location (TRS):	04N 23E 16 BCCC	Latitude (dd):	46.0957

County (MT): YELLOWSTONE
DNRC Water Right:
PWS Id: 00167003
Block:
Lot:
Addition:

Longitude (dd): -108.8833
Geomethod: MAP
Datum: NAD27
Altitude (feet): 3960.00
Certificate of Survey:
Type of Site: WELL

Well Construction and Performance Data

Total Depth (ft): 1100.00
Static Water Level (ft): 534.00
Pumping Water Level (ft): 714.00
Yield (gpm): 30.00
Test Type: PUMP
Test Duration: 24.00
Drill Stem Setting (ft):
Recovery Water Level (ft):
Recovery Time (hrs):

How Drilled: FORWARD ROTARY
Driller's Name: JOHNSON
Driller License: WWC154
Completion Date (m/d/y): 3/1/1974
Special Conditions:
Is Well Flowing?:
Shut-In Pressure:
Geology/Aquifer: 211EGLE
Well/Water Use: PUBLIC WATER SUPPLY

Well Notes: NATURAL GAMMA LOG IN FILE. 8 INCH STEEL CASING SEALED CAP SUBMERSIBLE PUMP WELL FEEDS WATER TANK FOR CITY OF BROADVIEW CAN ISOLATE WELL FROM TREATMENT AND PUMP FROM PIPE NOTE CHEM DIFFERENCE BETWEEN THIS WELL AND (M15969) AND SIMILARITY TO 1242 FEET CITY WELL

Hole Diameter Information

From	To	Diameter
0.0	1100.0	11.0

Casing Information[1]

From	To	Dia	Wall Thickness	Pressure Rating	Joint	Type
-1.0	1003.0	8.0				28 LB STEEL
997.0	1100.0	6.0				19 LB STEEL

Annular Seal Information

From	To	Description
0.0	1004.0	CEMENT AND NEOPRENE

Completion Information[1]

From	To	Dia	# of Openings	Size of Openings	Description
1035.0	1075.0	6.0		1/8	SLOTS
1100.0	1100.0	6.0			OPEN BOTTOM

Lithology Information

From	To	Description
0.0	2.0	BROWN TOPSOIL
2.0	20.0	RED ROCK - STRINGERS OF CLAY
20.0	40.0	DARK SHALE - STRINGERS OF SANDSTONE AND COAL
40.0	70.0	GRAY SANDSTONE
70.0	80.0	DARK GRAY SHALE - ROCK
80.0	90.0	GRAY SANDSTONE
90.0	120.0	GRAY ROCK
120.0	140.0	GRAY SHALE - ROCK
140.0	150.0	GRAY SHALE - COAL
150.0	170.0	CLAY
170.0	190.0	SANDSTONE
190.0	209.0	GRAY SANDSTONE
209.0	210.0	HARD ROCK
210.0	230.0	GRAY SHALE - STRINGERS OF ROCK
230.0	260.0	GRAY CLAY - STRINGERS OF ROCK

260.0	290.0	SAND ROCK
290.0	330.0	CLAY AND ROCK
330.0	350.0	GRAY ROCK
350.0	400.0	GRAY ROCK- STRINGERS OF WHITE CLAY AND BLACK SHALE
400.0	430.0	BLACK SHALE - STRINGERS OF ROCK - TO CLAY
430.0	510.0	SHALE ROCK - GRAY
510.0	777.0	GRAY SHALE ROCK - STRINGERS SANDSTONE
777.0	800.0	RED ROCK - STRINGERS OF SHALE
800.0	810.0	SHALE AND YELLOW ROCK
810.0	840.0	SANDSTONE WITH GAS
840.0	850.0	SHALE AND STRINGERS SANDSTONE
850.0	910.0	GRAY SANDROCK
910.0	930.0	BLUE HARD SHALE
930.0	940.0	BLUE SHALE - STRINGERS OF YELLOW ROCK
940.0	1000.0	GRAY SANDSTONE
1000.0	1010.0	BROWN CLAY
1010.0	1075.0	LT. GRAY SANDSTONE
1075.0	1100.0	BLACK SHALE

Appendix B – DEQ Water Quality Report
APPENDIX C - Sanitation Survey

APPENDIX D - Concurrence Letter

FIGURES

Figure 1. Map of the town Broadview, MT.

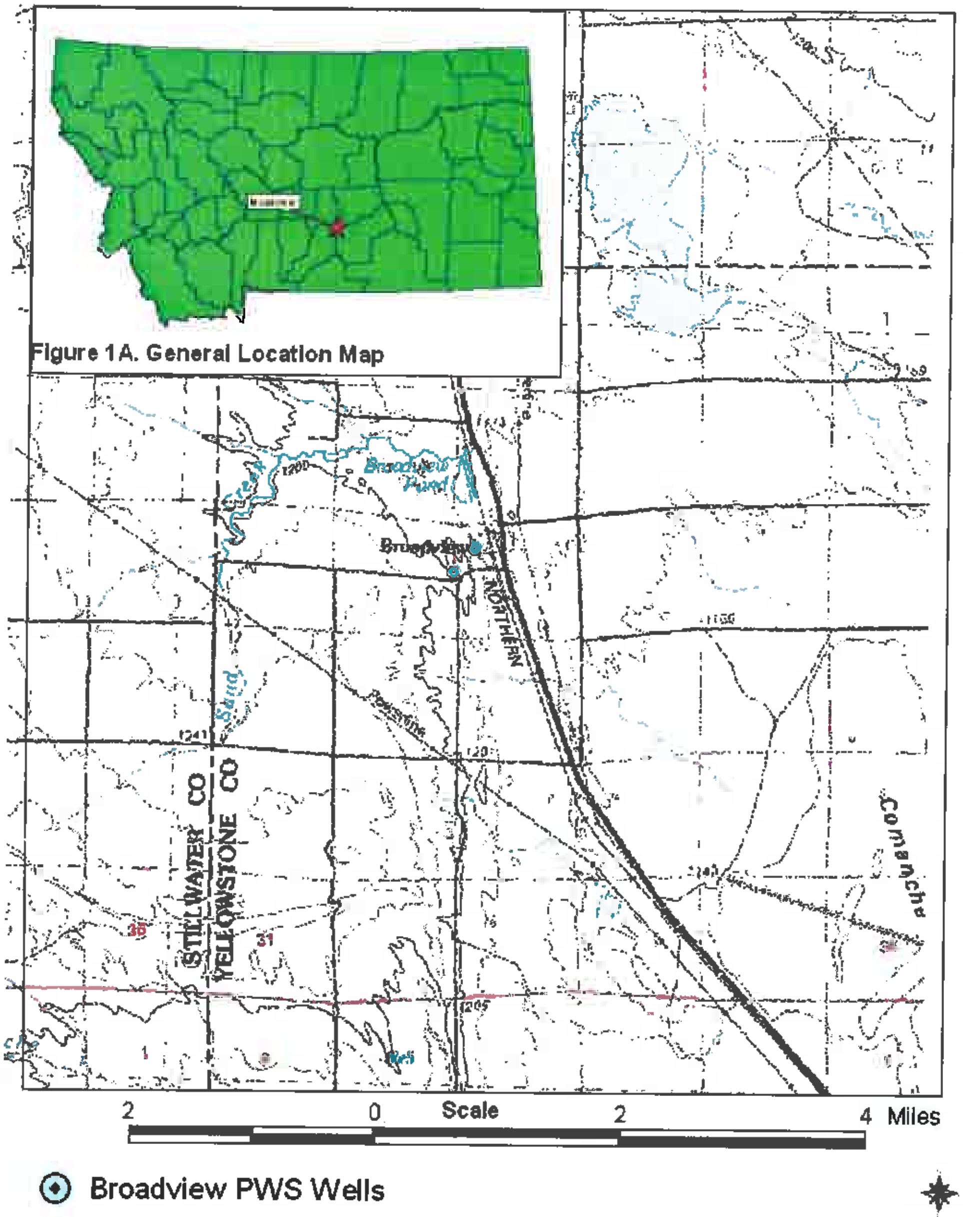


Figure 3A. Broadview PWS Wells with 100' Control Zones and Possible Contaminants.

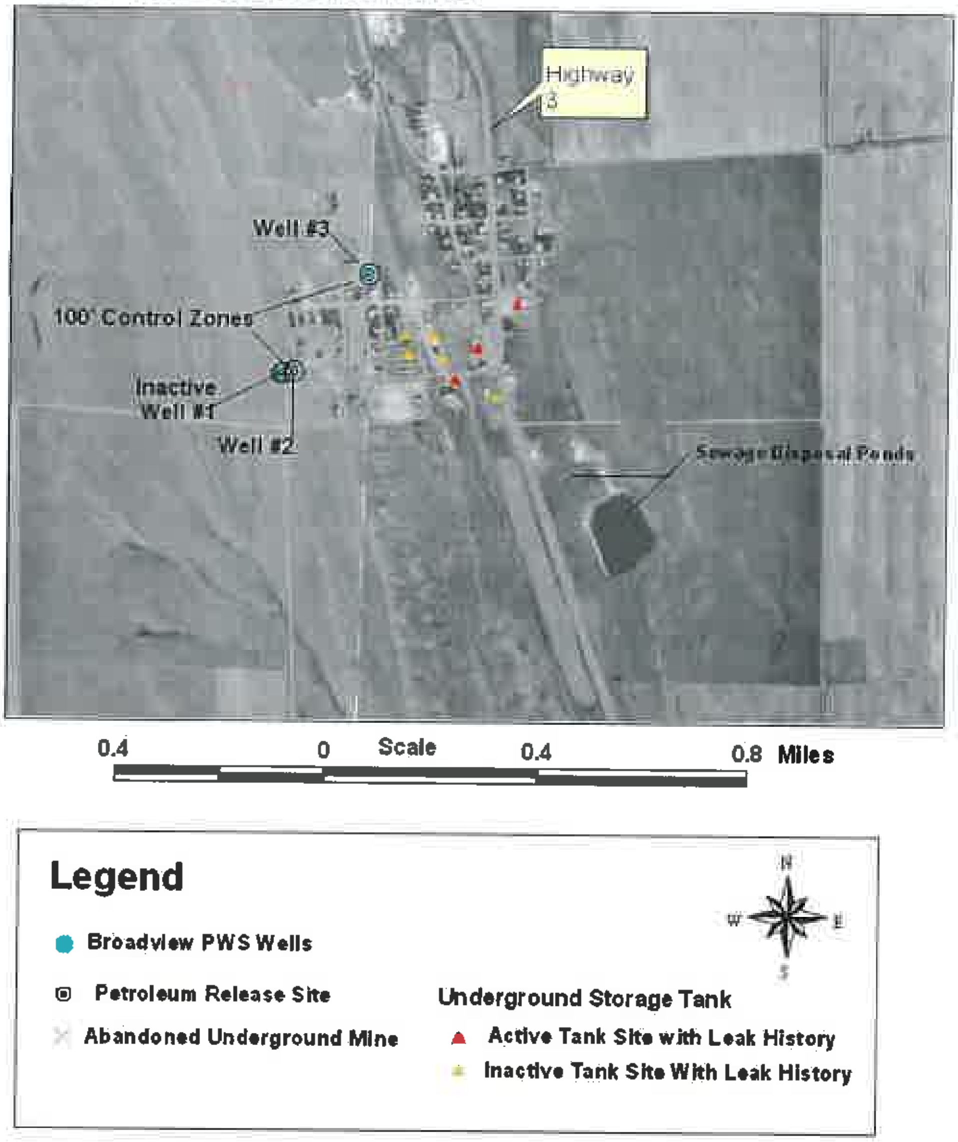
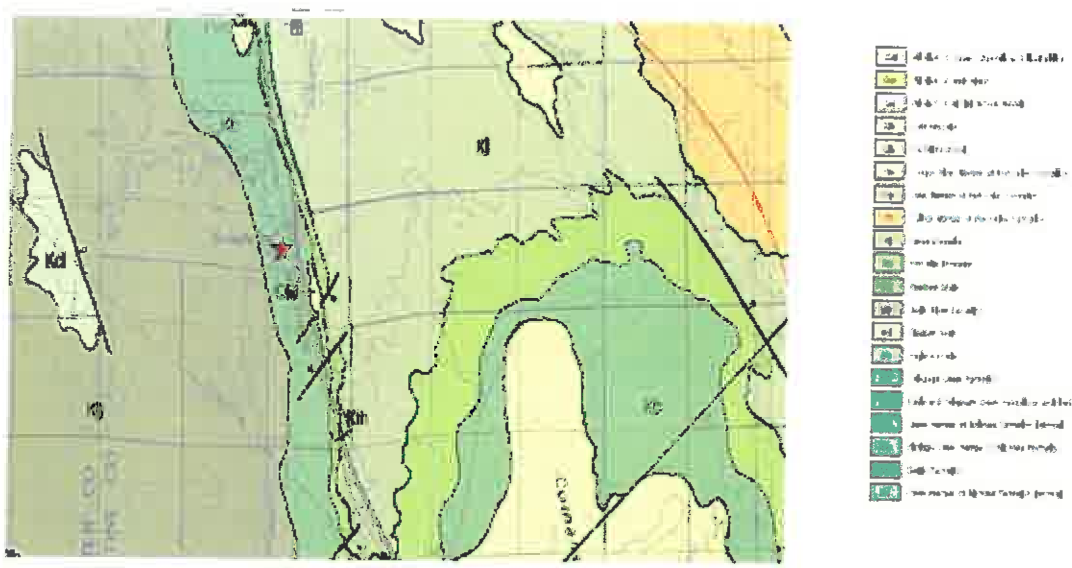
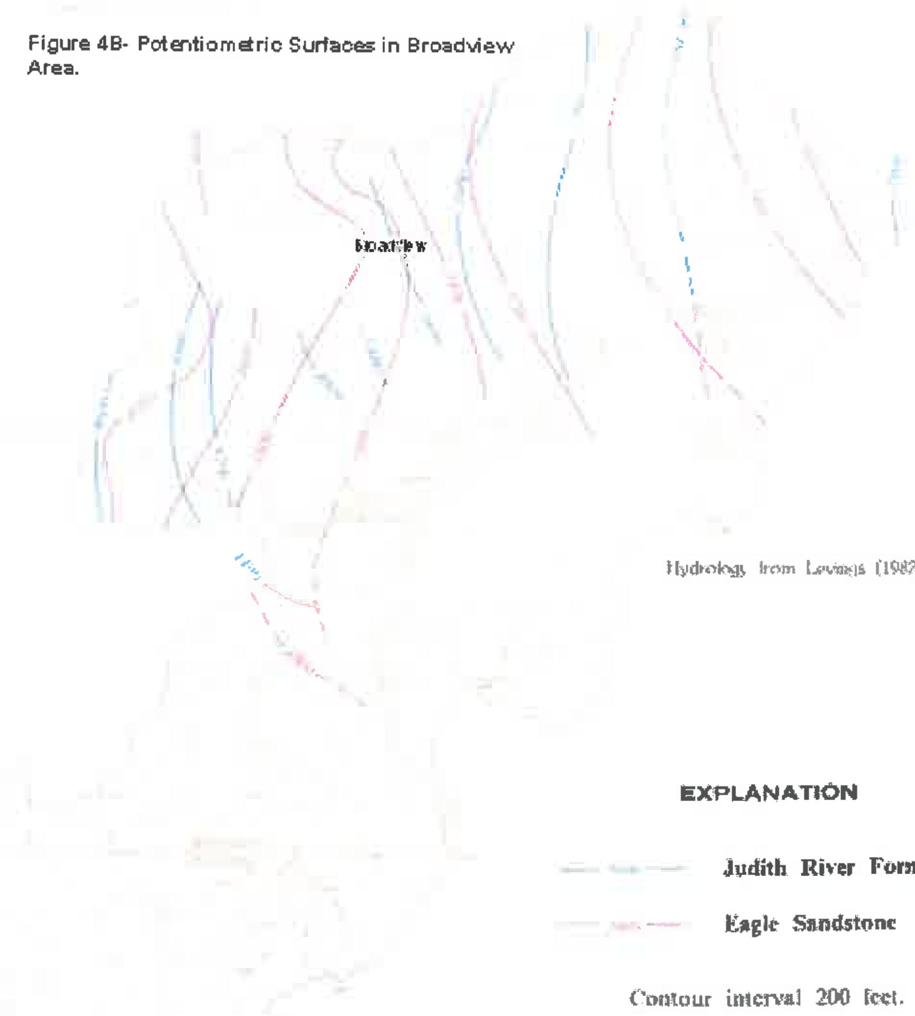


Fig. 4A Geology of the Broadview area.



Town of Broadview

Figure 4B- Potentiometric Surfaces in Broadview Area.



Hydrology from Levings (1982c, 1982d)

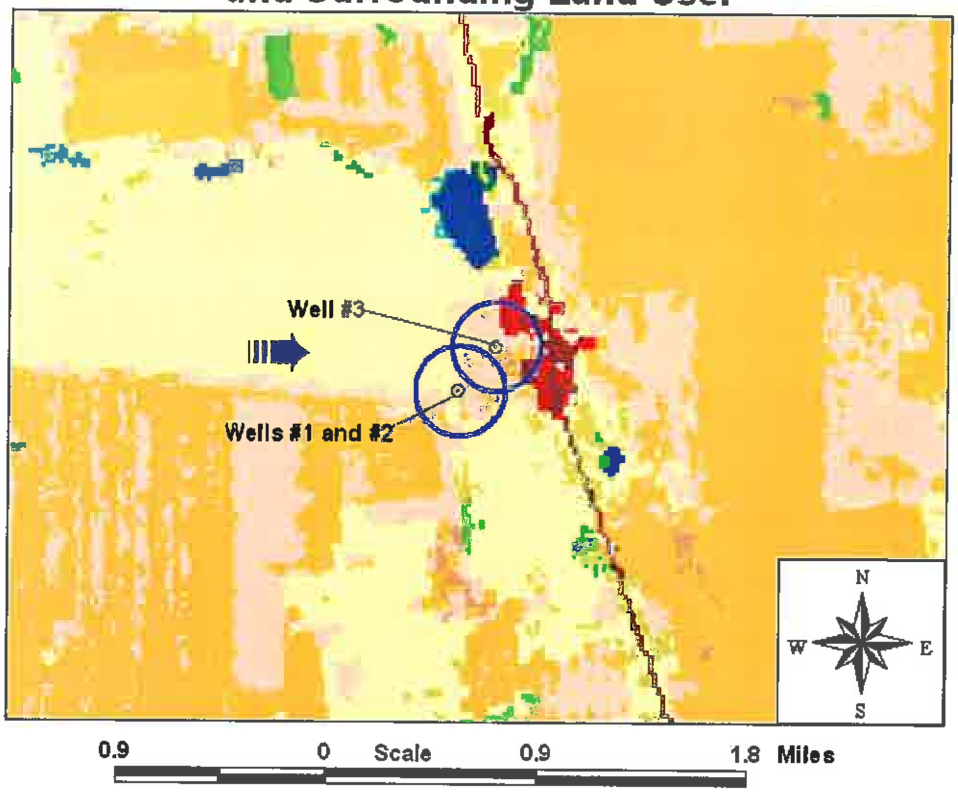
EXPLANATION

Judith River Formation

Eagle Sandstone

Contour interval 200 feet.

Figure 5. Inventory Region for the Broadview PWS and Surrounding Land Use.



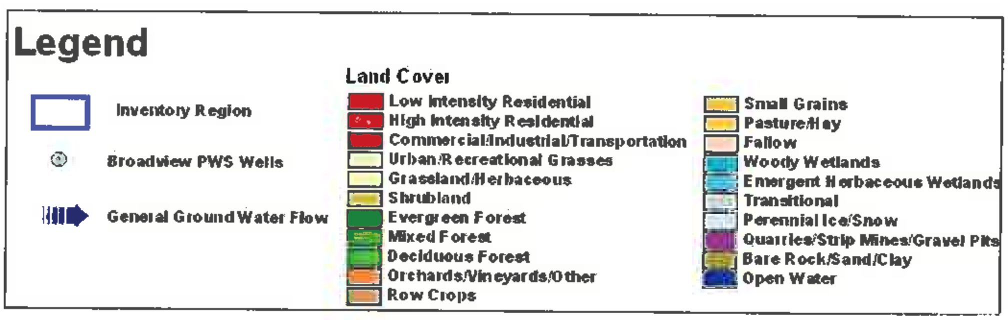


Figure 6. Recharge Region for Broadview PWS with Possible Contaminant Sources.

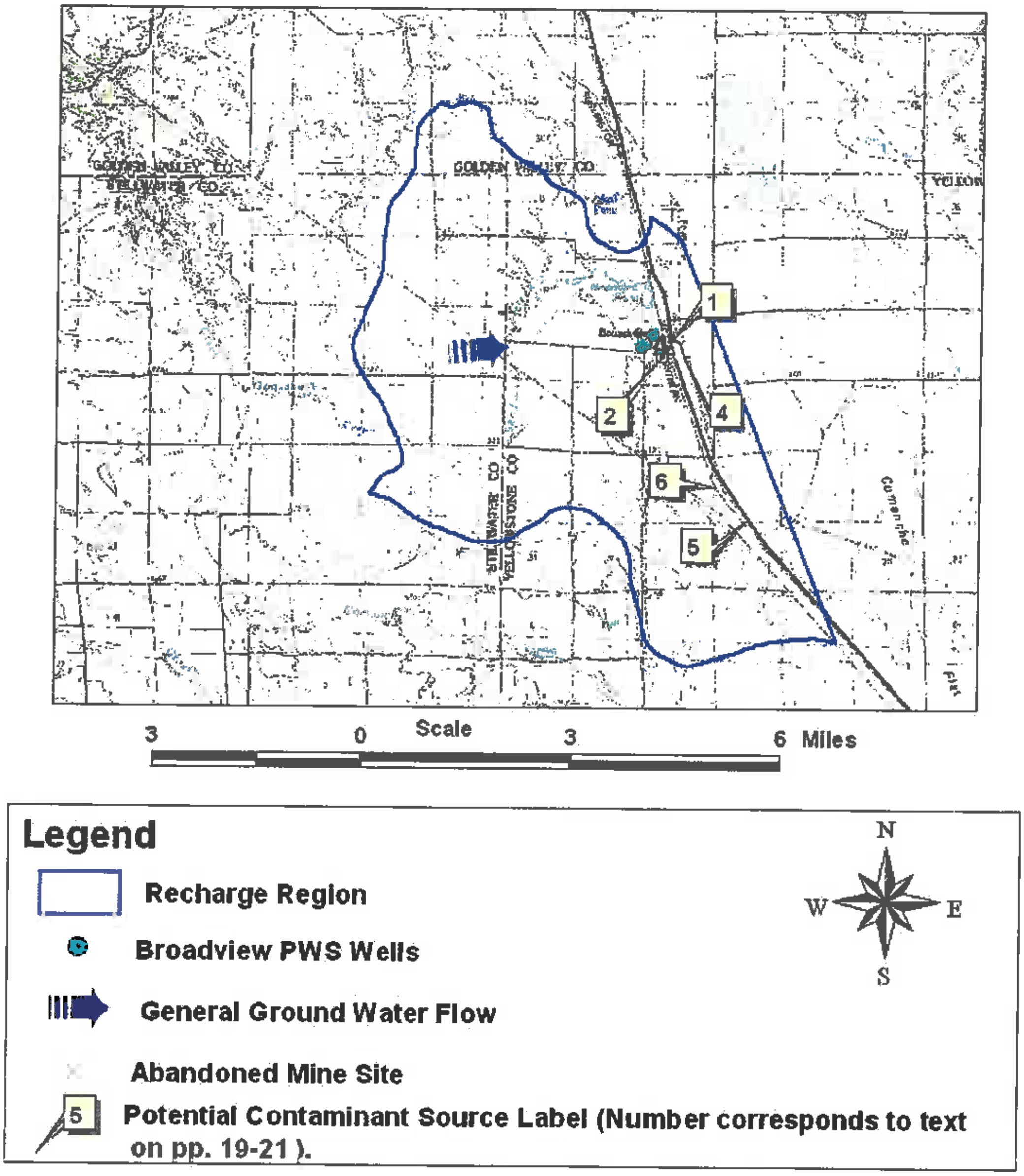
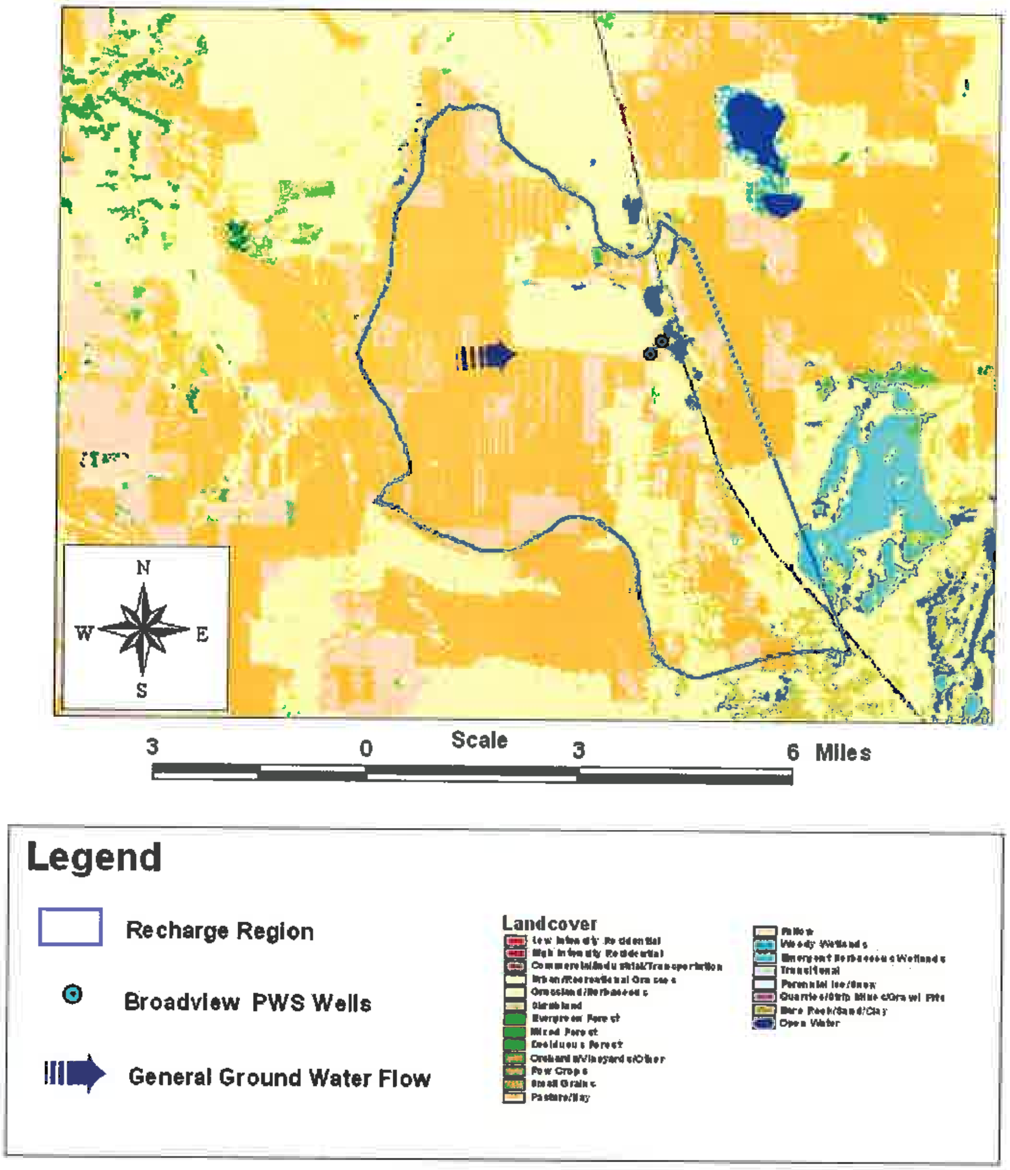
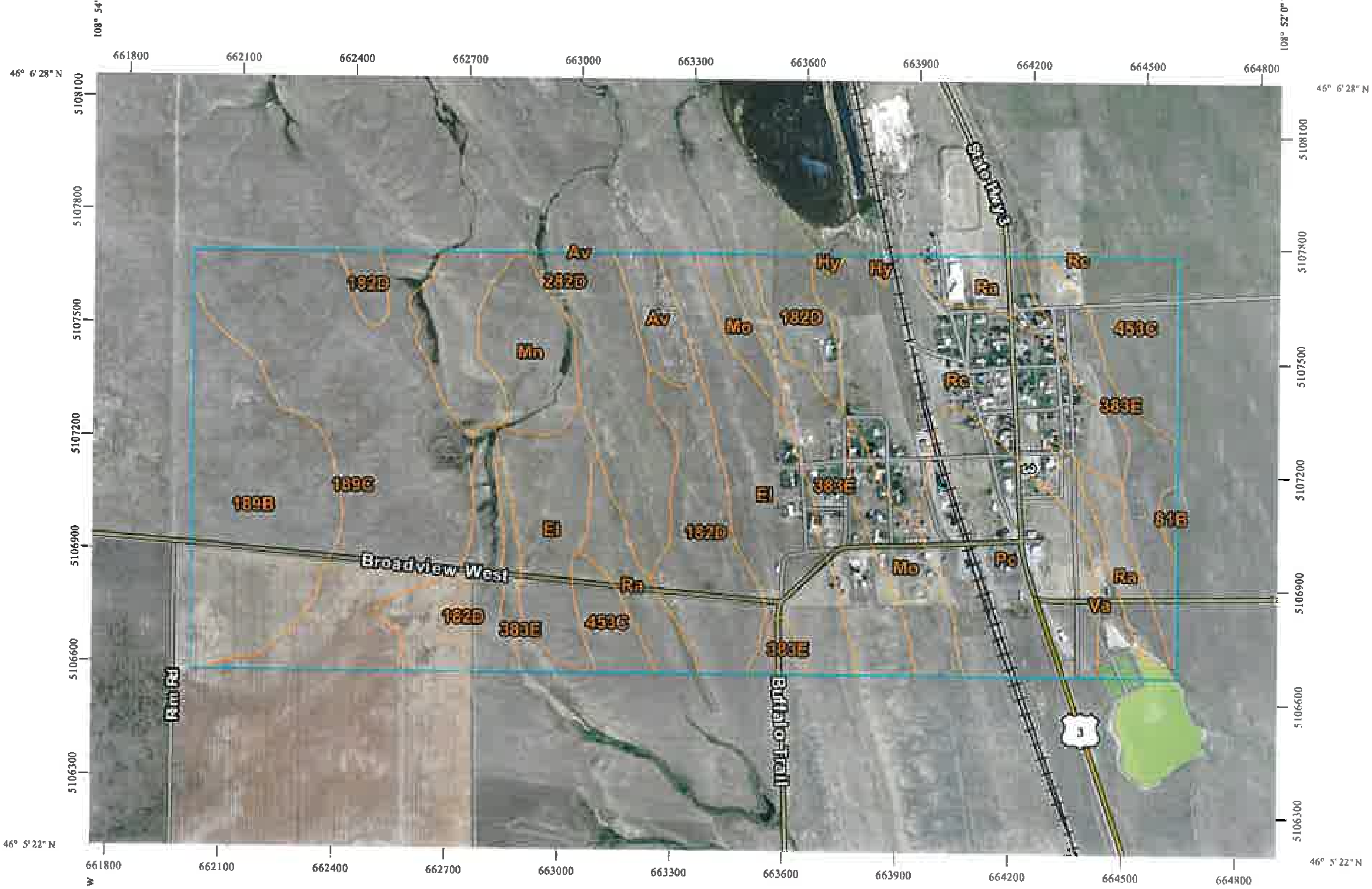


Figure 7. Recharge Region for Broadview PWS with Surrounding Land Use.



APPENDIX B

NRCS Soil Conservation Data



Map Scale: 1:14,400 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 200, 400, 800, 1200

Feet: 0, 500, 1000, 2000, 3000

N

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Yellowstone County, Montana
Survey Area Data: Version 12, Dec 4, 2013

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

Date(s) aerial images were photographed: Jul 30, 2011—Aug 19, 2011

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

Yellowstone County, Montana (MT111)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
81B	Delpoint-Cabbart loams, 2 to 8 percent slopes	1.6	0.2%
182D	Cabbart-Delpoint loams, 4 to 15 percent slopes	76.8	10.6%
189B	Rentsac-Beenom complex, 1 to 4 percent slopes	66.1	9.2%
189C	Rentsac-Cabbart complex, 2 to 15 percent slopes	109.0	15.1%
282D	Cabbart-Blacksheep complex, 4 to 15 percent slopes	56.8	7.9%
383E	Cabbart-Blacksheep complex, 8 to 25 percent slopes	66.5	9.2%
453C	Cabbart-Bonfri loams, 2 to 8 percent slopes	33.2	4.6%
Av	Arvada clay loam, 1 to 4 percent slopes	10.2	1.4%
El	Elso clay loam, 7 to 15 percent slopes	76.5	10.6%
Hy	Hysham-Laurel silty clay loams, 0 to 2 percent slopes	1.4	0.2%
Mn	McRae loam, 1 to 4 percent slopes	22.0	3.0%
Mo	McRae loam, 4 to 7 percent slopes	25.4	3.5%
Pc	Pierre clay, 4 to 7 percent slopes	59.1	8.2%
Ra	Razor clay loam, 2 to 7 percent slopes	34.7	4.8%
Rc	Razor-Cushman complex, 2 to 4 percent slopes	72.2	10.0%
Va	Vananda silty clay, 0 to 1 percent slopes	10.9	1.5%
Totals for Area of Interest		722.4	100.0%

APPENDIX C

Environmental Agency Correspondence

HELENA
PO Box 4817 ♦ 2501 Belt View Drive
Helena, MT 59604
(406) 449-8627 ♦ Fax (406) 449-8631
www.greatwesteng.com

BILLINGS
115 N Broadway ♦ Suite 500
Billings, MT 59101
(406) 652-5000 ♦ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Alan Steinle
US Army Corp of Engineers
10 West 15th Street, Suite 2200
Helena MT 59626

**RE: Town of Broadview
Water System Improvements**

Dear Mr. Steinle:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

Site Latitude: 46º 5' 56"
Site Longitude: -108º 52' 45"

Site Township: 4N
Site Range: 23E
Site Section: 16

Project Description:
Phase I consists of installing 3 new water wells approximately 7 miles west of town near the intersection of Church Road and Gooseneck Road. A new transmission main will be constructed from the new well site to Town. It is intended to construct the new transmission main in existing highway right-of ways. If topography dictates, portions of the transmission main may be installed on private property near the existing highway right-of-ways. See the attached map for an outline of the Phase I improvements.

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The US Army Corp of Engineers has reviewed the enclosed proposal and has no comments.

____
Signature

HELENA
PO Box 4817 ♦ 2501 Belt View Drive
Helena, MT 59604
(406) 449-8627 ♦ Fax (406) 449-8631
www.greatwesteng.com

BILLINGS
115 N Broadway ♦ Suite 500
Billings, MT 59101
(406) 652-5000 ♦ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Mike Trombetta
DEQ - Hazardous Waste Site Cleanup Bureau
PO Box 200901
Helena MT 59620-0901

RE: Town of Broadview
Water System Improvements

Dear Mr. Trombetta:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

Site Latitude: 46º 5' 56"
Site Longitude: -108º 52' 45"

Site Township: 4N
Site Range: 23E
Site Section: 16

Project Description:
Phase I consists of installing 3 new water wells approximately 7 miles west of town near the intersection of Church Road and Gooseneck Road. A new transmission main will be constructed from the new well site to Town. It is intended to construct the new transmission main in existing highway right-of ways. If topography dictates, portions of the transmission main may be installed on private property near the existing highway right-of-ways. See the attached map for an outline of the Phase I improvements.

GreatWest engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The DEQ - Hazardous Waste Site Cleanup Bureau has reviewed the enclosed proposal and has no comments.

____
Signature

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(406) 652-5000 ♦ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Bonnie Lovelace
DEQ - Water Protection Bureau
PO Box 200901
Helena MT 59620-0901

**RE: Town of Broadview
Water System Improvements**

Dear Ms. Lovelace:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

Site Latitude: 46º 5' 56"
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Project Description:
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GreatWest engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The DEQ - Water Protection Bureau has reviewed the enclosed proposal and has no comments.

Signature

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GreatWest engineering

April 2, 2008

Karl Christians
DNRC
PO Box 201601
Helena MT 59601-1601

**RE: Town of Broadview
Water System Improvements**

Dear Mr. Christians:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

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Great West
engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The DNRC has reviewed the enclosed proposal and has no comments.

____
Signature

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(406) 652-5000 ♦ Fax (406) 248-1363

Great West engineering

April 2, 2008

Montana Dept. of Fish, Wildlife and Parks
2300 Lake Elmo Drive
Billings MT 59105

RE: Town of Broadview
Water System Improvements

Dear Sir or Madame:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

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GreatWest
engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The Montana Dept. of Fish, Wildlife and Parks has reviewed the enclosed proposal and has no comments.

____
Signature

HELENA
PO Box 4817 ◆ 2501 Belt View Drive
Helena, MT 59604
(406) 449-8627 ◆ Fax (406) 449-8631
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Billings, MT 59101
(406) 652-5000 ◆ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Mark Wilson
U.S. Fish and Wildlife Service
100 N Park, Suite 320
Helena MT 59601

RE: Town of Broadview
Water System Improvements

Dear Mr. Wilson:

We are requesting a review of possible impacts from the below described project in Montana.

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GreatWest
engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The U.S. Fish and Wildlife Service has reviewed the enclosed proposal and has no comments.

Signature

HELENA
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(406) 449-8627 ♦ Fax (406) 449-8631
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Billings, MT 59101
(406) 652-5000 ♦ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Martin Miller
Montana Natural Heritage Program
PO Box 201800
Helena MT 59620-1800

RE: Town of Broadview
Water System Improvements

Dear Mr. Martin:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

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Great West
engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The Montana Natural Heritage Program has reviewed the enclosed proposal and has no comments.

____
Signature

HELENA
PO Box 4817 ♦ 2501 Belt View Drive
Helena, MT 59604
(406) 449-8627 ♦ Fax (406) 449-8631
www.greatwesteng.com

BILLINGS
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Billings, MT 59101
(406) 652-5000 ♦ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Dave White
Natural Resources Conservation Service
10 E Babcock St, Room 443
Bozeman MT 59715-4704

RE: Town of Broadview
Water System Improvements

Dear Mr. White:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

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GreatWest
engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The Natural Resources Conservation Service has reviewed the enclosed proposal and has no comments.

____
Signature

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Helena, MT 59604
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www.greatwesteng.com

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(406) 652-5000 ♦ Fax (406) 248-1363

GreatWest engineering

April 2, 2008

Mark Baumler
State Historic Preservation Office
PO Box 201202
Helena MT 59620-1202

**RE: Town of Broadview
Water System Improvements**

Dear Mr. Baumler:

We are requesting a review of possible impacts from the below described project in Montana.

Project Location:
The project will take place within and west of the Town of Broadview located in Yellowstone County. The Town boundary encompasses approximately 150 acres as depicted in the attached map.

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GreatWest
engineering

If you have no comment on this project please check the box below and countersign the bottom of this letter and return to me at the address listed above.

We would appreciate a response by 4/28/2008. If you need any further information or wish to discuss the project, please contact myself or Robert Church at (406) 449-8627.

Sincerely,

Great West Engineering

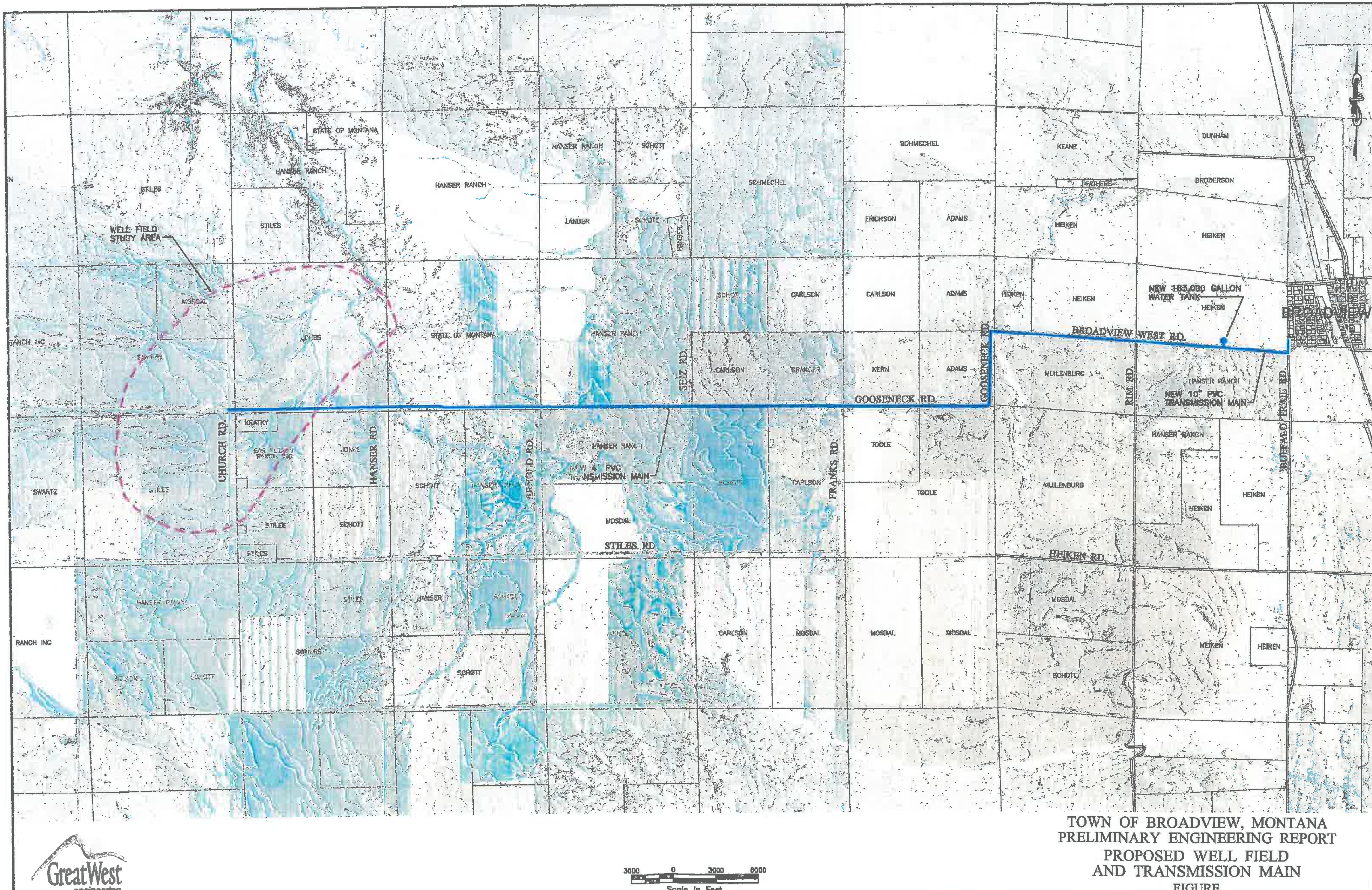
Robert E. Kimble

Robert E. Kimble, P.E.
Project Engineer

Enclosures

[ ] The State Historic Preservation Office has reviewed the enclosed proposal and has no comments.

Signature



GreatWest engineering

TOWN OF BROADVIEW, MONTANA
PRELIMINARY ENGINEERING REPORT
PROPOSED WELL FIELD
AND TRANSMISSION MAIN
FIGURE

APPENDIX D

Floodplain Map

Floodplain information is maintained by the Federal Emergency Management Agency (FEMA). This agency is responsible for mapping floodplain areas for federal flood insurance purposes. These floodplain maps are known as Flood Insurance Rate Maps (FIRM) and are filed by panel number. It is possible to alter the floodplain information shown on FIRM maps. Such changes typically result from the discovery of additional data, or the production additional hydrologic or hydraulic studies. Oftentimes, these changes do not result in direct changes to the original FIRM map; rather, such changes are documented by the agency using a Letter of Map Change (LOMC). The LOMC allows the agency to modify the original FIRM map without physically revising or republishing a new version of this map.

The Montana Natural Resources Inventory System (www.nris.mt.gov) was queried for floodplain maps within five miles of Broadview. This query indicated that all the area within a five mile radius is rated *Zone D*. Flood hazards are undetermined in *Zone D*. There are no known areas in the vicinity of the Town or the project area that are believed to pose a significant flooding hazard.

APPENDIX E

Water System Sanitary Survey

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

Airport Business Park • 1371 Rimtop Dr. • Billings, MT 59105-1978 • Website: www.deq.mt.gov

2/22/06

John Hougardy, Mayor
Town of Broadview
PO Box 115
Broadview, MT 59015

Dear Mr. Hougardy,

On February 3, 2006, with the assistance of Leo Bogden, I conducted a routine sanitary survey inspection of the Town of Broadview's Public Water Supply System, PWSID # MT0000167. Sanitary Surveys are required in the Administrative Rules of Montana (ARM), section 17.38.231 to ensure adequate protection of public health through proper construction and maintenance of Public Water Supplies (PWS). In addition, it allows the PWS system owners/operators to be informed of current regulatory requirements. I would like to Leo for his time, assistance and the tour of the entire system.

Broadview receives its water from two active wells. These wells, (Wells 2 & 3) are chlorinated with sodium hypochlorite injection systems for disinfection purposes and then pumped to distribution and storage. The following report contains descriptions of each of the sections of the water system; any recommendations for the system are numbered at the end of the report.

__Sources:__ Well 2 was drilled to a depth of 1100-ft by Joe Johnson Drilling in March of 1974. It is cased with 8-in steel casing to a depth of 1003-ft and 6-in steel casing to 1075-ft. The static water level is 534-ft and the well was grouted with cement to a depth of 1004-ft. A 20-hp/24-gpm submersible pump is used in this well. A sanitary well cap is provided with a turned downward screened vent and the well appears to be in good condition.

Well 3 was drilled to a depth of 1250-ft by DeBuff Drilling out of Lewistown, MT in July of 1995. The well has an 8-in steel casing and is cased to a depth of 1100-ft. The static water level is 320-ft and log pumping level was at 680-ft. The well was grouted with cement to 1075-ft. The intake type is a Stainless Steel screen at the interval of 1070 to 1240-ft.

__Treatment:__ A sodium hypochlorite system at each well provides disinfection for the entire system. A small, hypochlorite batch tank and displacement pump are the main components of the disinfection systems. The treatment process appears to be working very well and is in good condition. Although this treatment system was constructed without approval, "as-built" plans and specifications were submitted as requested. Based on Jerry Burns's review and my inspection, the chlorination system was found to be satisfactory. Please be reminded that plans and specifications must be reviewed and approved prior to construction of any future modifications.

__Distribution System:__ The distribution system for the town is in relatively good condition with the exception of low pressure areas on the hillside near the storage reservoir. Other than this area, the piping around town is fairly new. Few leaks are detected and freezing does not appear to be a problem.

__Storage Reservoir:__ The storage reservoir is a 21,000-gallon above ground, steel standpipe that was installed in 1983. It is inspected every 5-yrs and the last inspection was in August 2005. The tank appears to be in very good condition.

Recommendations/Minor Deficiencies:

1) If Well 1 will no longer be in use and is permanently inactive, then it should be properly abandoned per the Board of Water Well Contractors rules and regulations.
2) I am enclosing application from the Dept. of Natural Resources & Conservation, (DNRC) for the changing of a water right. A business card is included for the contact person and I recommend that you contact the DNRC at your earliest convenience to discuss the water rights for the town of Broadview.
3) If the chlorinators at Well two and Well 3 are not vented, I recommend that they be vented outside the pump-house with tubing. The end of the vent should be screened because past history indicates that bees are attracted to the tubing/chlorine and will build nests and such that will plug the vent on occasion.
4) Please be advised that any modifications or improvements to a Community water system such as yours requires that plans and specifications be prepared by a professional engineer and are submitted to the department for review and approval before any construction can begin.
5) A seal should be installed at the access hatch to the reservoir. Weather stripping obtained at most hardware stores would be an effective seal and will aid in the protection of the stored water.

Significant Deficiencies:

Important note: Significant deficiencies can be defined as a defective water supply component(s) having or likely to have an adverse influence on public health. Significant deficiencies require immediate corrective action in efforts to protect consumers. Documentation of the corrective action is required i.e.; photos of the correction and a letter signed by the operator in responsible charge. Future monitoring waivers will not be issued and current monitoring waivers can be revoked if significant deficiencies are not corrected and documentation is not received by the inspector.
No significant deficiencies noted during inspection.

Aside from the recommendation(s) noted above, the water system at Broadview appears to be in good condition.

If you have any questions, comments, or corrections regarding this report, please feel free to contact me at 247-4455.

Sincerely,

Matthew Usuriello

Matthew Usuriello
Water Quality Specialist
Billings Regional Office

Cc: Yellowstone County Sanitarian
Billings PWS file
Lyla Bowen/Helena Sanitary Survey File
Leo Bogden, operator

SANITARY SURVEY RE-INSPECTION SHORT FORM

DATE OF SURVEY 2/3/06	COUNTY Yellostone	SURVEYOR NAME Matthew Usuriello
PWSID MT0000167	SYSTEM NAME Townof Broadview	☐ Seasonal operation dates: ____ to ____ ☒ Year round operation
(SYSTEM REPRESENTATIVE) Leo Bogden	(OTHER REPRESENTATIVE)	

SYSTEM ADDRESS

Addressee Townof Broadview

Primary Address

Street PO Box 115

City Broadview State MT Zip 59015

System Phone (406) 667-2156 Fax ( )

SYSTEM OWNER

Addressee Townof Broadview

Owners Address

Street ____

City ____ State ____ Zip ____

Owner Phone ( ) ____ Fax ( ) ____

OPERATOR OF SYSTEM

Name Leo Bogden

Certified Operator ☐ No ☒ Yes If, yes

Certification # 4162 Phone (406) 667-2278 Cell ( )

SYSTEM CLASS

☒ C = Community
☐ NC = Transient Non-Community
☐ NTNC = Non-Transient Non-Community

Total Service Connections: Residential / Non-Transient: 71
Transient: NA

Total Active Connections: Residential / Non-Transient: 71
Transient: NA

Service Connections Metered? ☐ Yes ☒ No % ____ Metered

Resident Population — Number of permanent residents utilizing PWS daily: 200

Non-Transient Population — Maximum number of non-transient persons utilizing PWS daily: NA

Transient Population — Maximum number of transient persons served by PWS daily: NA

WATER SYSTEM FACILITIES SUMMARY (WSF)

Is current facility list accurate? ☐ YES ☒ NO

If "NO", list facility changes below.

Added (A) or Removed (R)	WSF ID	Facility Name	Water Type Code	Purchased	Seller PWSID	Activity Status
R	WL002	Well 1 1954 N	GW	☐ Yes ☒ No		I
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		

Description of Water System Facility flow: Wells 2 & 3, (WL003 & WL004) to treatment plants at each well, (TP001 & TP002) to distribution system, (DS001) & to storage, (ST001) and back to distribution, (DS001).

(Facility flow must be completed with every inspection.)

Example: *Well 1(WL002) to treatment plant (TP001) to storage tank (ST001) to distribution (DS001).*

FACILTIY LATITUDE / LONGITUDE

List system latitude/longitude for sources, treatment plants and storage facilities that are incorrect or not currently listed.

WSF ID	FACILITY NAME	LATITUDE	LONGITUDE
WL003	Well 2 (& TP001)	46°05' 46.3"	108°53' 02.0"
WL004	Well 3 (& TP002)	46°05' 58.8"	108°52' 56.0"
ST001	Storage Facility, (21,000-gallon)	46°05' 46.6"	108°53' 02.5"
		° ' "	° ' "

WATER TREATMENT FACILITIES

Is current treatment facility list accurate? ☒ YES ☐ NO

If "NO", list treatment facility changes below.

WSF ID	Treatment Plant Name	Added (A) or Removed (R)	Treatment Objective and Code

Treatment Description / Comments: Water is pumped from Well 2 and Well 3 to treatment plants, (sodium hypochlorite disinfection) at each well house before entering the distribution system.

PRESSURE CONTROL ASSEMBLY

CAPTIVE AIR TANK(S)

WSF ID ____ Location, Description ____

Pump run time ____

Time of Day ____

Cut-In ____ psi Cut-Out ____ psi

Describe pressure control assembly changes and / or concerns: ____

PRESSURE TANK(S)

WSF ID ____ Location, Description ____

Pump recharge rate ____

Time of day ____

Cut-In ____ psi Cut-Out ____ psi

Describe pressure control assembly changes and / or concerns: ____

STORAGE

WSF ID *ST001* Location, Description *On west edge of town near pumphouse for Well 2.*

Date of last inspection and / or cleaning *August 2005 by Inland Marine out of Denver, CO.*

Has condition of the storage facility changed? ☐ YES ☒ NO

Describe storage facility changes and / or concerns: *Reservoir appears to be in very good condition.*

DISTRIBUTION

WSF ID *DS001*

Has condition of distribution changed? ☐ YES ☒ NO

Describe distribution changes and / or concerns: ____

SAFETY

Did system correct previous safety concerns? ☐ YES ☐ NO ☒ NA

Describe all safety concerns (new and previous): ____

MONITORING / MANAGEMENT

Did system correct previous monitoring / management concerns?

☐ YES ☐ NO ☒ NA

Describe all monitoring and / or management concerns (new and previous): ____

Comments: *System is in good condition and appears to be well operated.*

SDWIS State data sheets must be stapled to the back of this report if the short form is used.

REPORT SUMMARY

The State, or an authorized agent, must conduct sanitary surveys for all public water supply systems in Montana. DEQ believes that periodic sanitary surveys, along with appropriate corrective actions, are indispensable for assuring the long-term quality and safety of drinking water. When properly conducted, sanitary surveys can provide important information on a water system's design and operations and can identify minor and significant deficiencies for correction before they become major problems.

Minor deficiencies do not pose serious health threats. However, corrective action of minor deficiencies can be critical in the long-term operation and safety of a public water system. Minor deficiencies are generally described as suggested or recommended corrections in the letter to system owner(s).

Significant deficiencies can be defined as a defective water supply component(s) having or likely to have an adverse influence on public health. Significant deficiencies require immediate corrective action in efforts to protect consumers.

EPA and ASDWA guidance identifies eight broad components that should be covered in a sanitary survey. Using these eight broad components as a guide, minor and significant deficiencies should be described in the letter to system owner(s).

1) Source
2) Treatment
3) Distribution system
4) Finished water storage
5) Pumps, pump facilities, and controls
6) Monitoring and reporting, and data verification
7) System management and operation
8) Operator compliance with State requirements

With consideration that significant deficiencies may influence regulatory decisions and monitoring requirements, please list all significant deficiencies observed and corrective action(s) taken below.

Comments:

No significant deficiencies noted during inspection.

Recommendations/Minor Deficiencies:

1) If Well 1 will no longer be in use and is permanently inactive, then it should be properly abandoned per the Board of Water Well Contractors rules and regulations.

2) I am enclosing application from the Dept. of Natural Resources & Conservation, (DNRC) for the changing of a water right. A business card is included for the contact person and I recommend that you contact the DNRC at your earliest convenience to discuss the water rights for the town of Broadview.

3) If the chlorinators at Well two and Well 3 are not vented, I recommend that they be vented outside the pump-house with tubing. The end of the vent should be screened because past history indicates that bees are attracted to the tubing/chlorine and will build nests and such that will plug the vent on occasion.

4) Please be advised that any modifications or improvements to a Community water system such as yours requires that plans and specifications be prepared by a professional engineer and are submitted to the department for review and approval before any construction can begin.

5) A seal should be installed at the access hatch to the reservoir. Weather stripping obtained at most hardware stores would be an effective seal and will aid in the protection of the stored water.

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000167 **Name:** BROADVIEW TOWN OF

City: BROADVIEW **County:** YELLOWSTONE **Tot Pop:** 200

Pri Src: GW **Class:** C **Last Snty Srv Dt:** 10/28/2003 **Activity Status:** A

Type	Conn's	In Srvc Dts	Eff Begin Dt	Avg Daily Cnt	Type
RS	71	1/1-12/31	10/29/2003	200	R

Administrative Contact
HOUGARDY, JOHN
PO BOX 115
BROADVIEW, MT 59015
406-667-2393

Financial Contact
BOGDEN, LEO
BROADVIEW MUNICIPAL WATER
PO BOX 115
BROADVIEW, MT 59015
406-248-2463

Operator
BOGDEN, LEO H
PO BOX 64
BROADVIEW, MT 59015-0064
406-667-2278

Operator
HOUGARDY, JOHN H.
PO BOX 130
BROADVIEW, MT 59015

Owner
TOWN OF BROADVIEW
PO BOX 115
BROADVIEW, MT 59015
406-667-2156

Facilities and Entry Points

Status: A 10/21/2000 **Fac ID:** CH001 COMMON HEADER WELLS 1 2 **Src:** GW
Lat/Long Dec: **DMS:**

Smp Pt ID	Status	Description
EP502	A 08/16/2005	INACT EP FOR CH 1 2

Status: A 02/14/2000 **Fac ID:** DS001 DISTRIBUTION SYSTEM **Src:** GW
Lat/Long Dec: **DMS:**

Smp Pt ID	Status	Description
DBPMAX1	A 01/01/2004	DBP FOR WELL 3
DBPMAX2	A 01/01/2004	DBP FOR WELL 1AND2
SP001	A 03/31/2000	SP FOR DS

Status: A 05/24/2000 **Fac ID:** ST001 STORAGE FACILITY 1 **Src:** GW
Lat/Long Dec: **DMS:**

Status: A 08/02/2005 **Fac ID:** TP001 TP WELL 1 AND 2 **Src:** GW
Lat/Long Dec: 46.099487 **DMS:** .00 .00
TP Units: D421

Smp Pt ID	Status	Description
EP502	A 08/16/2005	EP FOR WL 1 2

Status: A 05/24/2000 **Fac ID:** TP002 TP WELL 3 **Src:** GW
Lat/Long Dec: 46.099487 **DMS:** .00 .00
TP Units: D401

PWSID: MT0000167 Name: BROADVIEW TOWN OF **(continued)**

Fac ID: TP002 Fac Name: TP WELL 3 Status: A Src: GW

Smp Pt ID	Active	Smp Pt Description
EP503	A	EP FOR WELL 3

Group	Name	Schd Beg Date	Init MP Beg	Seas Coll Per	Requirement
ARSE	CDS ARSENIC	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
COMB	CDS RADIUMS COMBINED	01/01/2004	01/01/2004	1/1-12/31	1 RT QT
GRAL	CDS RAD GROSS ALPHA	01/01/2004	01/01/2004	1/1-12/31	1 RT QT
INO1	CDS P2-5 INORGANICS	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
NITR	CDS NITRATE NITRITE	01/01/2000	01/01/2000	1/1-12/31	1 RT YR
SOC1	CDS SOC	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
VOC1	CDS VOC	01/01/2002	01/01/2002	1/1-12/31	1 RT 3Y

Bacti Results **FROM 01/01/2003 TO 02/10/2006**

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence	Fec/EC Result
02/03/2006	B06020276-001A	RT		3014	COLIFORM, E. COLI	A	-
02/03/2006	B06020276-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
01/13/2006	B06010797-001A	RT		3014	COLIFORM, E. COLI	A	-
01/13/2006	B06010797-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
12/02/2005	B05120071-001A	RT		3014	COLIFORM, E. COLI	A	-
12/02/2005	B05120071-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
11/04/2005	B05110388-001A	RT		3014	COLIFORM, E. COLI	A	-
11/04/2005	B05110388-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
10/07/2005	B05100455-001A	RT		3014	COLIFORM, E. COLI	A	-
10/07/2005	B05100455-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
09/09/2005	B05090540-001A	RT		3014	COLIFORM, E. COLI	A	-
09/09/2005	B05090540-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
08/18/2005	B05081369-001A	RT		3014	COLIFORM, E. COLI	A	-
08/18/2005	B05081369-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
07/08/2005	B05070483-001A	RT		3014	COLIFORM, E. COLI	A	-
07/08/2005	B05070483-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
06/16/2005	B05061179-001A	RT		3014	COLIFORM, E. COLI	A	-
06/16/2005	B05061179-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
05/03/2005	B05050202-001A	RT		3014	COLIFORM, E. COLI	A	-
05/03/2005	B05050202-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
04/15/2005	B05041120-001A	RT		3014	COLIFORM, E. COLI	A	-
04/15/2005	B05041120-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
03/04/2005	B05030277-001A	RT		3014	COLIFORM, E. COLI	A	-
03/04/2005	B05030277-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	
02/04/2005	B05020293-001A	RT		3014	COLIFORM, E. COLI	A	-
02/04/2005	B05020293-001A	RT		3100	COLIFORM, TOTAL (TCR)	A -	

PWSID: MT0000167 Name: BROADVIEW TOWN OF

(continued)

Fac ID: CH001 **Fac Name:** COMMON HEADER WELLS 1 2 **Avl:** P **Status:** A **Src:**

Smp Pt ID: EP502 **Status:** I **Description:** INACT EP FOR CH 1 2 **Src Typ:** FN

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	79-00-5	2985	1,1,2-TRICHLOROETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-34-3	2978	1,1-DICHLOROETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-35-4	2977	1,1-DICHLOROETHYLENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	563-58-6	2410	1,1-DICHLOROPROPENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	87-61-6	2420	1,2,3-TRICHLOROBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	96-18-4	2414	1,2,3-TRICHLOROPROPANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	120-82-1	2378	1,2,4-TRICHLOROBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	95-63-6	2418	1,2,4-TRIMETHYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	107-06-2	2980	1,2-DICHLOROETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	78-87-5	2983	1,2-DICHLOROPROPANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	108-67-8	2424	1,3,5-TRIMETHYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	142-28-9	2412	1,3-DICHLOROPROPANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	542-75-6	2413	1,3-DICHLOROPROPENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	594-20-7	2416	2,2-DICHLOROPROPANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	71-43-2	2990	BENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	108-86-1	2993	BROMOBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	74-97-5	2430	BROMOCHLOROMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-27-4	2943	BROMODICHLOROMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-25-2	2942	BROMOFORM	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	74-83-9	2214	BROMOMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	56-23-5	2982	CARBON TETRACHLORIDE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	124-48-1	2944	CHLORODIBROMOMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-00-3	2216	CHLOROETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	67-66-3	2941	CHLOROFORM	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	74-87-3	2210	CHLOROMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	156-59-2	2380	CIS-1,2-DICHLOROETHYLENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	74-95-3	2408	DIBROMOMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-71-8	2212	DICHLORODIFLUOROMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-09-2	2964	DICHLOROMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	100-41-4	2992	ETHYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	87-68-3	2246	HEXACHLOROBUTADIENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	98-82-8	2994	ISOPROPYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	541-73-1	2967	M-DICHLOROBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	108-90-7	2989	MONOCHLOROBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	104-51-8	2422	N-BUTYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	103-65-1	2998	N-PROPYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	91-20-3	2248	NAPHTHALENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	95-49-8	2965	O-CHLOROTOLUENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	95-50-1	2968	O-DICHLOROBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	106-43-4	2966	P-CHLOROTOLUENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	106-46-7	2969	P-DICHLOROBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	99-87-6	2030	P-ISOPROPYLTOLUENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	135-98-8	2428	SEC-BUTYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	100-42-5	2996	STYRENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	98-06-6	2426	TERT-BUTYLBENZENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	127-18-4	2987	TETRACHLOROETHYLENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	108-88-3	2991	TOLUENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC		2950	TOTAL TRIHALOMETHANES (TTHM)	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	156-60-5	2979	TRANS-1,2-DICHLOROETHYLENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	79-01-6	2984	TRICHLOROETHYLENE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-69-4	2218	TRICHLOROFLUOROMETHANE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	75-01-4	2976	VINYL CHLORIDE	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	95-47-6	2997	XYLENE, ORTHO	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	1330-20-7	2955	XYLENES	RT	08/20/2004	08	B04081351-001A	< MRL .5 UG/L
OC	16655-82-6	2066	3-HYDROXYCARBOFURAN	RT	08/20/2004	24	B04081351-001B	< MRL .5 UG/L
OC	116-06-3	2047	ALDICARB	RT	08/20/2004	24	B04081351-001B	< MRL .5 UG/L

Montana Department of
Environmental Quality
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0000167 Name: BROADVIEW TOWN OF **(continued)**

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Avl:** P **Status:** A **Src:**
Smp Pt ID: SP001 **Status:** A **Description:** SP FOR DS **Src Typ:** FN

Analyte	CAS No	Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
IOC	7440-50-8	1022	COPPER	RT	08/13/2004	08	B04081037-001A	0.01 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/13/2004	08	B04081037-001A	< MRL .001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/13/2004	08	B04081037-002A	< MRL .01 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/13/2004	08	B04081037-002A	< MRL .001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/13/2004	08	B04081037-003A	0.15 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/13/2004	08	B04081037-003A	0.001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/13/2004	08	B04081037-004A	0.04 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/13/2004	08	B04081037-004A	< MRL .001 MG/L
IOC	7440-50-8	1022	COPPER	RT	08/13/2004	08	B04081037-005A	0.14 MG/L
IOC	7439-92-1	1030	LEAD	RT	08/13/2004	08	B04081037-005A	0.002 MG/L

Smp Pt ID: DBPMAX1 **Status:** A **Description:** DBP FOR WELL 3 **Src Typ:** FN

Analyte	CAS No	Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	75-27-4	2943	BROMODICHLOROMETHANE	RT	08/18/2005	08	B05081372-001A	1.0 UG/L
OC	75-25-2	2942	BROMOFORM	RT	08/18/2005	08	B05081372-001A	17 UG/L
OC	124-48-1	2944	CHLORODIBROMOMETHANE	RT	08/18/2005	08	B05081372-001A	2.1 UG/L
OC	67-66-3	2941	CHLOROFORM	RT	08/18/2005	08	B05081372-001A	< MRL .5 UG/L
OC		2950	TOTAL TRIHALOMETHANES (TTHM)	RT	08/18/2005	08	B05081372-001A	21 UG/L
OC	5589-96-3	2455	BROMOCHLOROACETIC ACID	RT	08/18/2005	08	B05081372-001B	< MRL .5 UG/L
OC	631-64-1	2454	DIBROMOACETIC ACID	RT	08/18/2005	08	B05081372-001B	2.8 UG/L
OC	79-43-6	2451	DICHLOROACETIC ACID	RT	08/18/2005	08	B05081372-001B	< MRL .75 UG/L
OC	79-08-3	2453	MONOBROMOACETIC ACID	RT	08/18/2005	08	B05081372-001B	< MRL .5 UG/L
OC	79-11-8	2450	MONOCHLOROACETIC ACID	RT	08/18/2005	08	B05081372-001B	< MRL .75 UG/L
OC		2456	TOTAL HALOACETIC ACIDS (HAA5)	RT	08/18/2005	08	B05081372-001B	2.8 UG/L
OC	76-03-9	2452	TRICHLOROACETIC ACID	RT	08/18/2005	08	B05081372-001B	< MRL .5 UG/L

Smp Pt ID: DBPMAX2 **Status:** A **Description:** DBP FOR WELL 1AND2 **Src Typ:** FN

Analyte	CAS No	Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	75-27-4	2943	BROMODICHLOROMETHANE	RT	08/20/2004	08	B04081351-003A	2.0 UG/L
OC	75-25-2	2942	BROMOFORM	RT	08/20/2004	08	B04081351-003A	19 UG/L
OC	124-48-1	2944	CHLORODIBROMOMETHANE	RT	08/20/2004	08	B04081351-003A	9.6 UG/L
OC	67-66-3	2941	CHLOROFORM	RT	08/20/2004	08	B04081351-003A	< MRL .5 UG/L
OC		2950	TOTAL TRIHALOMETHANES (TTHM)	RT	08/20/2004	08	B04081351-003A	31 UG/L
OC	5589-96-3	2455	BROMOCHLOROACETIC ACID	RT	08/20/2004	08	B04081351-003B	1.0 UG/L
OC	631-64-1	2454	DIBROMOACETIC ACID	RT	08/20/2004	08	B04081351-003B	4.1 UG/L
OC	79-43-6	2451	DICHLOROACETIC ACID	RT	08/20/2004	08	B04081351-003B	< MRL .75 UG/L
OC	79-08-3	2453	MONOBROMOACETIC ACID	RT	08/20/2004	08	B04081351-003B	1.1 UG/L
OC	79-11-8	2450	MONOCHLOROACETIC ACID	RT	08/20/2004	08	B04081351-003B	< MRL .75 UG/L
OC		2456	TOTAL HALOACETIC ACIDS (HAA5)	RT	08/20/2004	08	B04081351-003B	6.0 UG/L
OC	76-03-9	2452	TRICHLOROACETIC ACID	RT	08/20/2004	08	B04081351-003B	0.84 UG/L

Fac ID: TP001 **Fac Name:** TP WELL 1 AND 2 **Avl:** E **Status:** A **Src:** GW
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WL 1 2 **Src Typ:** FN

Analyte	CAS No	Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
IOC		1038	NITRATE+NITRITE (AS N)	RT	12/08/2005	08	B05120502-001A	< MRL .05 MG/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	08/13/2004	24	B04080958-001A	< MRL 1 PIC/L
RA		4010	RADIUM, COMBINED (226, 228)	RT	08/13/2004	24	B04080958-001A	< MRL 1 PIC/L
RA	13982-63-3	4020	RADIUM-226	RT	08/13/2004	24	B04080958-001A	< MRL .2 PIC/L
RA	15262-20-1	4030	RADIUM-228	RT	08/13/2004	24	B04080958-001A	< MRL 1 PIC/L

Fac ID: TP002 **Fac Name:** TP WELL 3 **Avl:** P **Status:** A **Src:** GW
Smp Pt ID: EP503 **Status:** A **Description:** EP FOR WELL 3 **Src Typ:** FN

Public Water Supply System

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

PWSID: MT0000167 Name: BROADVIEW TOWN OF

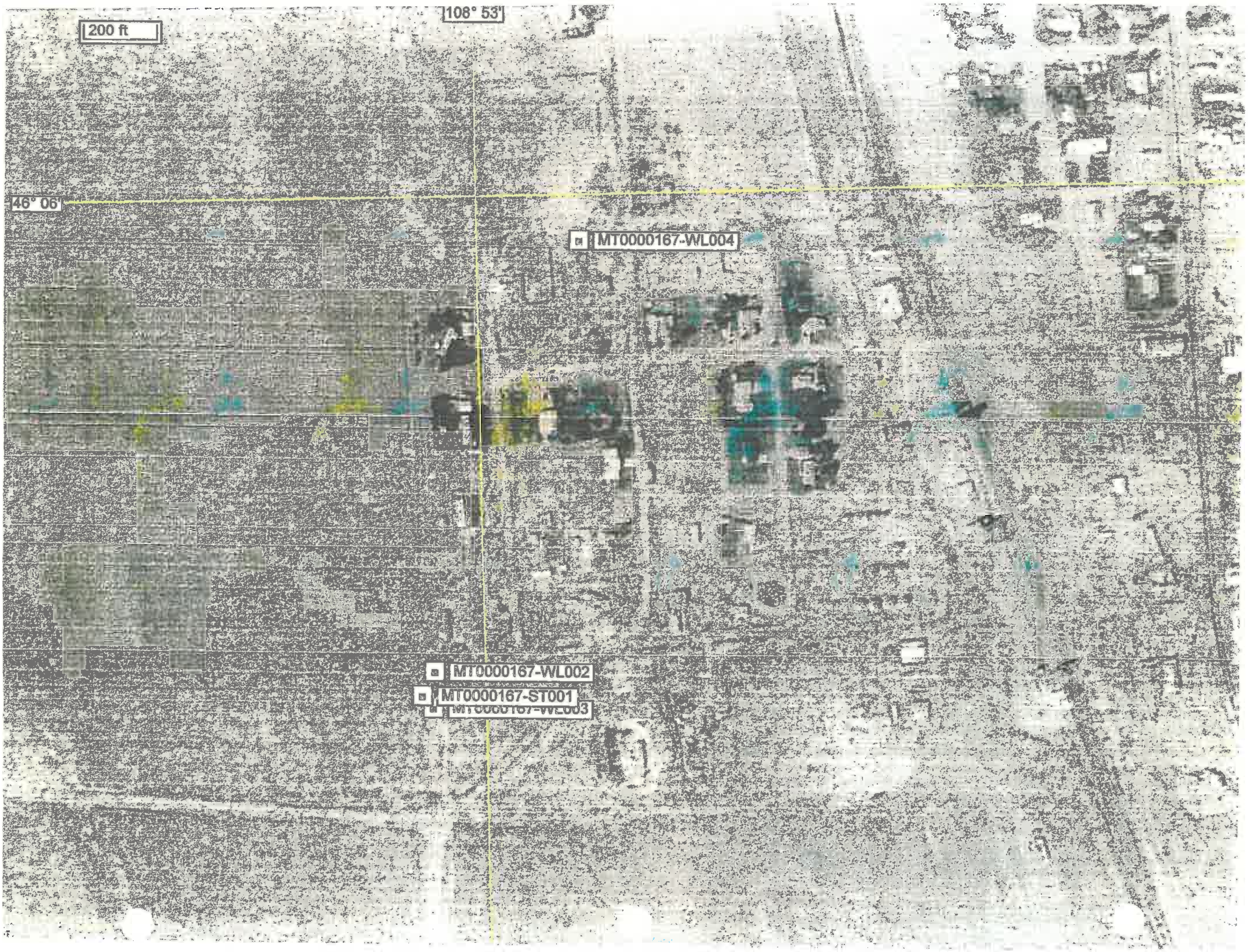
(continued)

Fac ID: TP002 Fac Name: TP WELL 3
Smp Pt ID: EP503 Status: A Description: EP FOR WELL 3
Avl: P Status: A Src:
Src Typ: FN

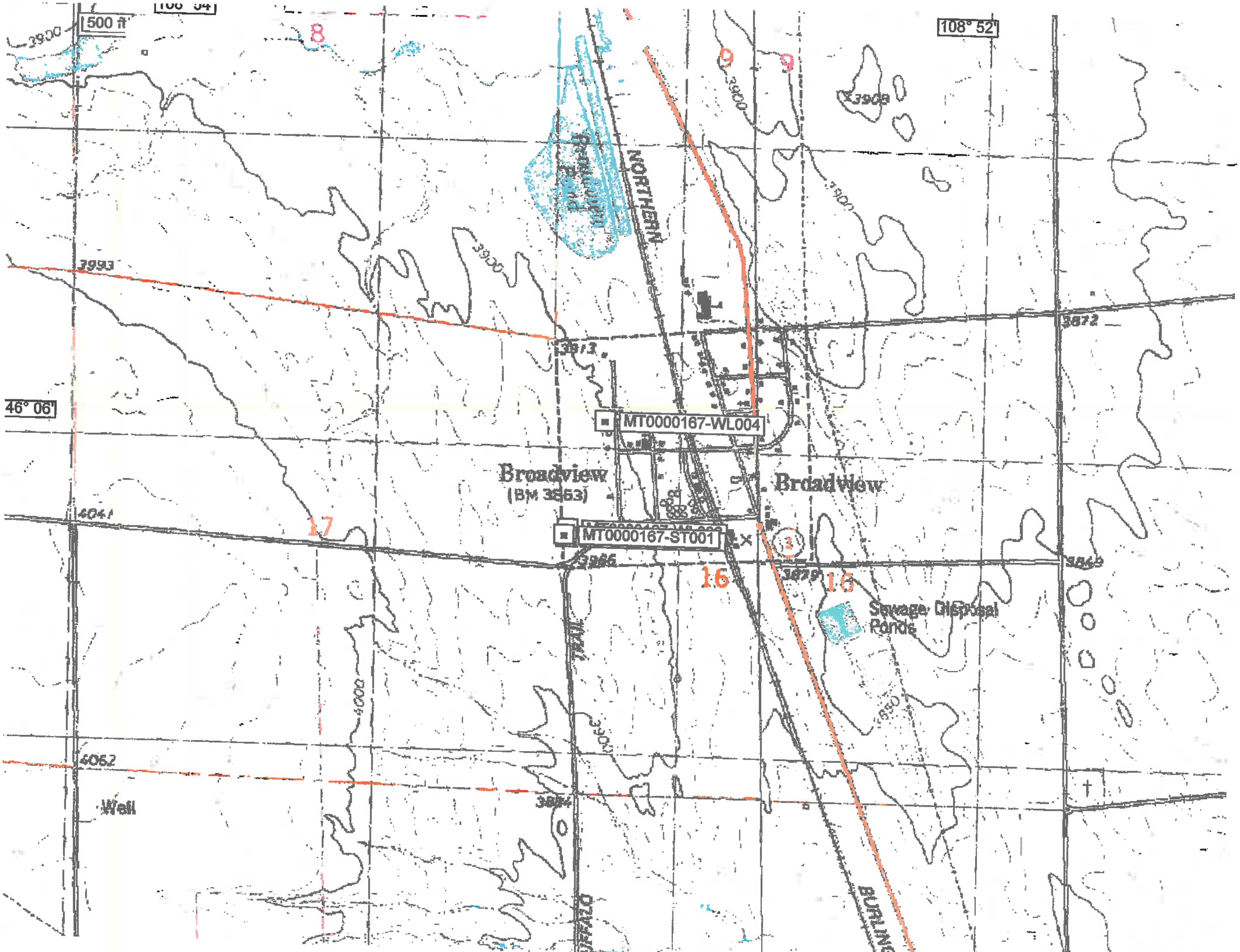
Analyte	CAS No	Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	95-47-6	2997	XYLENE, ORTHO	RT	08/20/2004	08	B04081351-002A	< MRL .5 UG/L
OC	1330-20-7	2955	XYLENES	RT	08/20/2004	08	B04081351-002A	< MRL .5 UG/L
OC	16655-82-6	2066	3-HYDROXYCARBOFURAN	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	116-06-3	2047	ALDICARB	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	1646-88-4	2044	ALDICARB SULFONE	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	1646-87-3	2043	ALDICARB SULFOXIDE	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	63-25-2	2021	CARBARYL	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	1563-66-2	2046	CARBOFURAN	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	16752-77-5	2022	METHOMYL	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	23135-22-0	2036	OXAMYL (VYDATE)	RT	08/20/2004	24	B04081351-002B	< MRL .5 UG/L
OC	93-72-1	2110	2,4,5-TP (SILVEX)	RT	08/20/2004	08	B04081351-002C	< MRL .2 UG/L
OC	94-75-7	2105	2,4-D	RT	08/20/2004	08	B04081351-002C	< MRL 1 UG/L
OC	75-99-0	2031	DALAPON	RT	08/20/2004	08	B04081351-002C	< MRL 1 UG/L
OC	1918-00-9	2440	DICAMBA	RT	08/20/2004	08	B04081351-002C	< MRL 2.5 UG/L
OC	88-85-7	2041	DINOSEB	RT	08/20/2004	08	B04081351-002C	< MRL .25 UG/L
OC	87-86-5	2326	PENTACHLOROPHENOL	RT	08/20/2004	08	B04081351-002C	< MRL 1 UG/L
OC	1918-02-1	2040	PICLORAM	RT	08/20/2004	08	B04081351-002C	< MRL .04 UG/L
OC	15972-60-8	2051	ALACHLOR (LASSO)	RT	08/20/2004	08	B04081351-002C	< MRL .5 UG/L
OC	309-00-2	2356	ALDRIN	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	1912-24-9	2050	ATRAZINE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	50-32-8	2306	BENZO (A) PYRENE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	58-89-9	2010	BHC-GAMMA (LINDANE)	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	23184-66-9	2076	BUTACHLOR (MACHETE)	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
	57-74-9	2959	CHLORDANE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
	103-23-1	2035	DI(2-ETHYLHEXYL) - ADIPATE	RT	08/20/2004	08	B04081351-002D	< MRL 1 UG/L
OC	117-81-7	2039	DI(2-ETHYLHEXYL) - PHTHALATE	RT	08/20/2004	08	B04081351-002D	< MRL .5 UG/L
OC	60-57-1	2070	DIELDRIN	RT	08/20/2004	08	B04081351-002D	< MRL 2 UG/L
OC	72-20-8	2005	ENDRIN	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	76-44-8	2065	HEPTACHLOR	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	1024-57-3	2067	HEPTACHLOR EPOXIDE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	118-74-1	2274	HEXACHLOROBENZENE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	77-47-4	2042	HEXACHLOROCYCLOPENTADIENE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	72-43-5	2015	METHOXYCHLOR	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	51218-45-2	2045	METOLACHLOR	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	21087-64-9	2595	METRIBUZIN (SENCOR)	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	1918-16-7	2077	PROPACHLOR	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	122-34-9	2037	SIMAZINE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
OC	8001-35-2	2020	TOXAPHENE	RT	08/20/2004	08	B04081351-002D	< MRL .1 UG/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	08/20/2004	08	B04081351-002D	< MRL 2 UG/L
RA		4010	RADIUM, COMBINED (226, 228)	RT	08/13/2004	24	B04080958-002A	4.7 PIC/L
RA	13982-63-3	4020	RADIUM-226	RT	08/13/2004	24	B04080958-002A	< MRL 1 PIC/L
RA	15262-20-1	4030	RADIUM-228	RT	08/13/2004	24	B04080958-002A	< MRL .2 PIC/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	08/13/2004	24	B04080958-002A	< MRL 1 PIC/L
IOC	7440-36-0	1074	ANTIMONY	RT	08/13/2004	08	B04080958-002B	< MRL .05 MG/L
IOC	7440-38-2	1005	ARSENIC	RT	11/10/2003	08	B03110441-002-I503	< MDL .003 MG/L
IOC	7440-39-3	1010	BARIUM	RT	11/10/2003	08	B03110441-002-I503	< MDL .005 MG/L
IOC	7440-41-7	1075	BERYLLIUM	RT	11/10/2003	08	B03110441-002-I503	< MDL .1 MG/L
IOC	7440-43-9	1015	CADMIUM	RT	11/10/2003	08	B03110441-002-I503	< MDL .001 MG/L
IOC	7440-47-3	1020	CHROMIUM	RT	11/10/2003	08	B03110441-002-I503	< MDL .001 MG/L
IOC	16984-48-8	1025	FLUORIDE	RT	11/10/2003	08	B03110441-002-I503	< MDL .01 MG/L
IOC	7439-97-6	1035	MERCURY	RT	11/10/2003	08	B03110441-002-I503	1.42 MG/L
IOC	7440-02-0	1036	NICKEL	RT	11/10/2003	08	B03110441-002-I503	< MDL .0002 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	11/10/2003	08	B03110441-002-I503	< MDL .01 MG/L
IOC	7782-49-2	1045	SELENIUM	RT	11/10/2003	08	B03110441-002-I503	< MDL .05 MG/L
IOC	7440-28-0	1085	THALLIUM	RT	11/10/2003	08	B03110441-002-I503	< MDL .005 MG/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	11/10/2003	08	B03110441-002-R503	< MDL .001 MG/L
								< MDL 3 PIC/L

NFPA CODE 291
HYDRANT COLOR

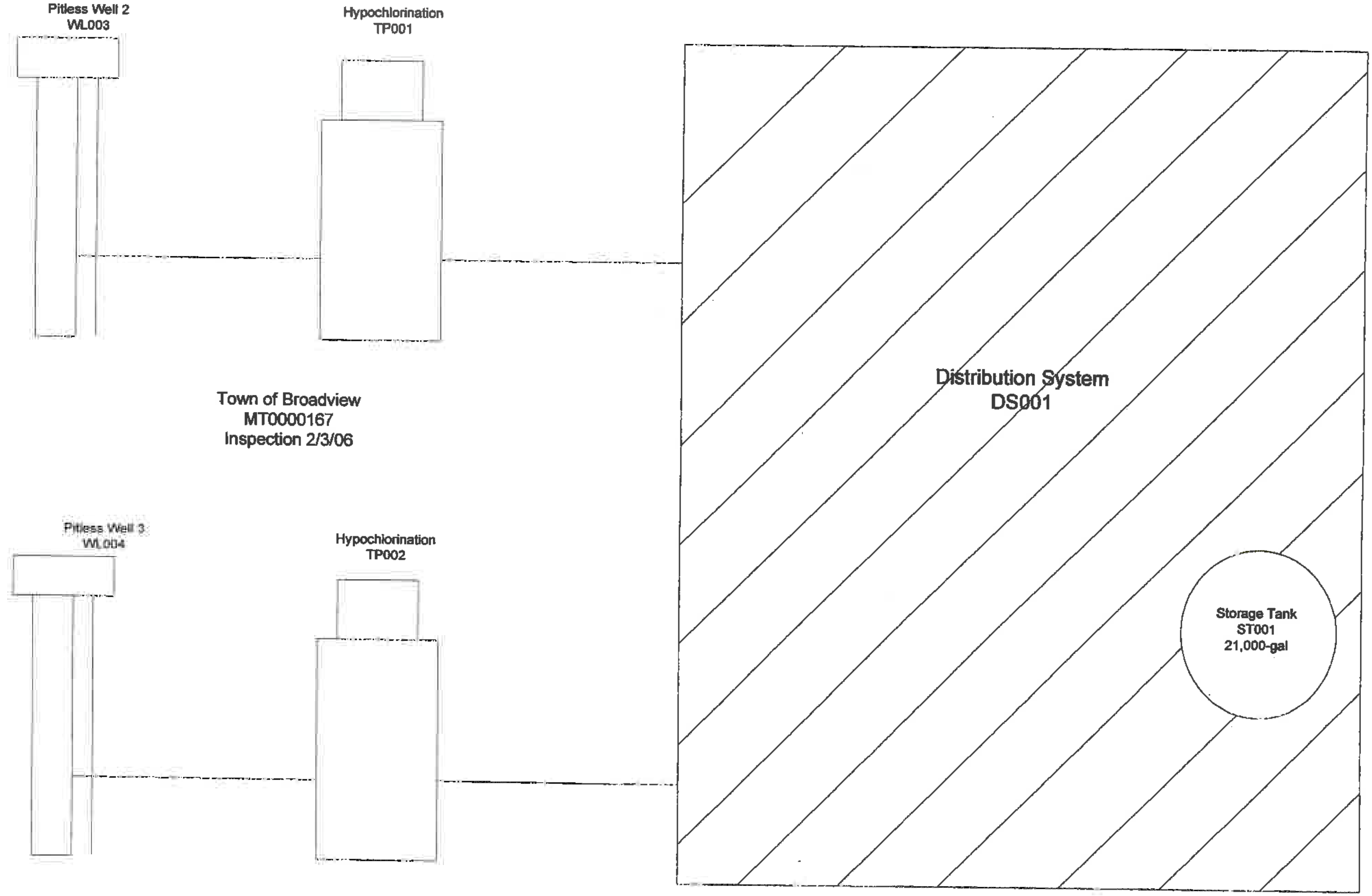
- AA 1500 gpm and up — light blue
- A 1000-1499 gpm — green
- B 500-999 gpm — orange
- C below 500 gpm — red
- White can also be used on hydrants not intended for fire protection.
- Color code is for hydrant cap and nozzle.

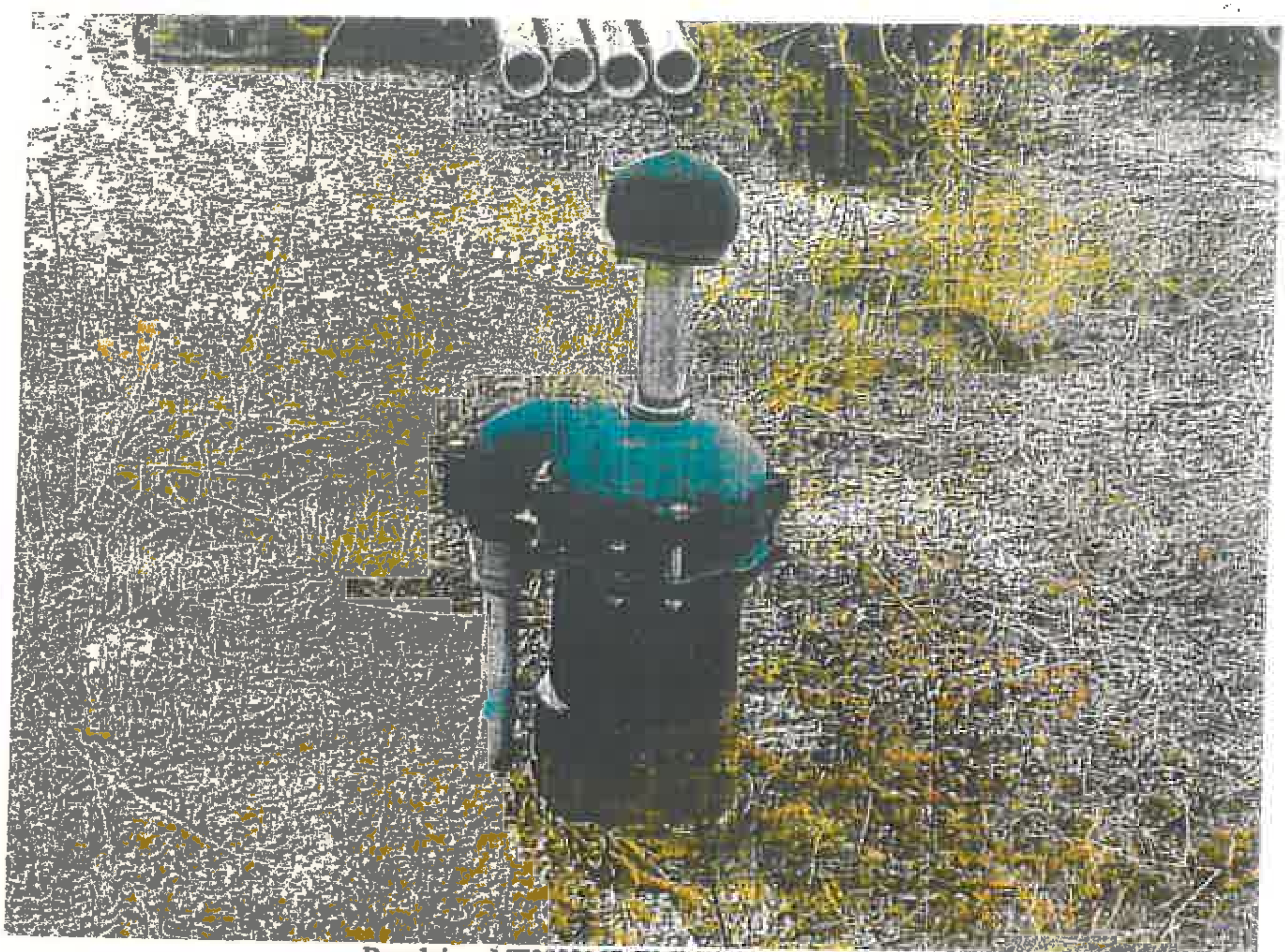


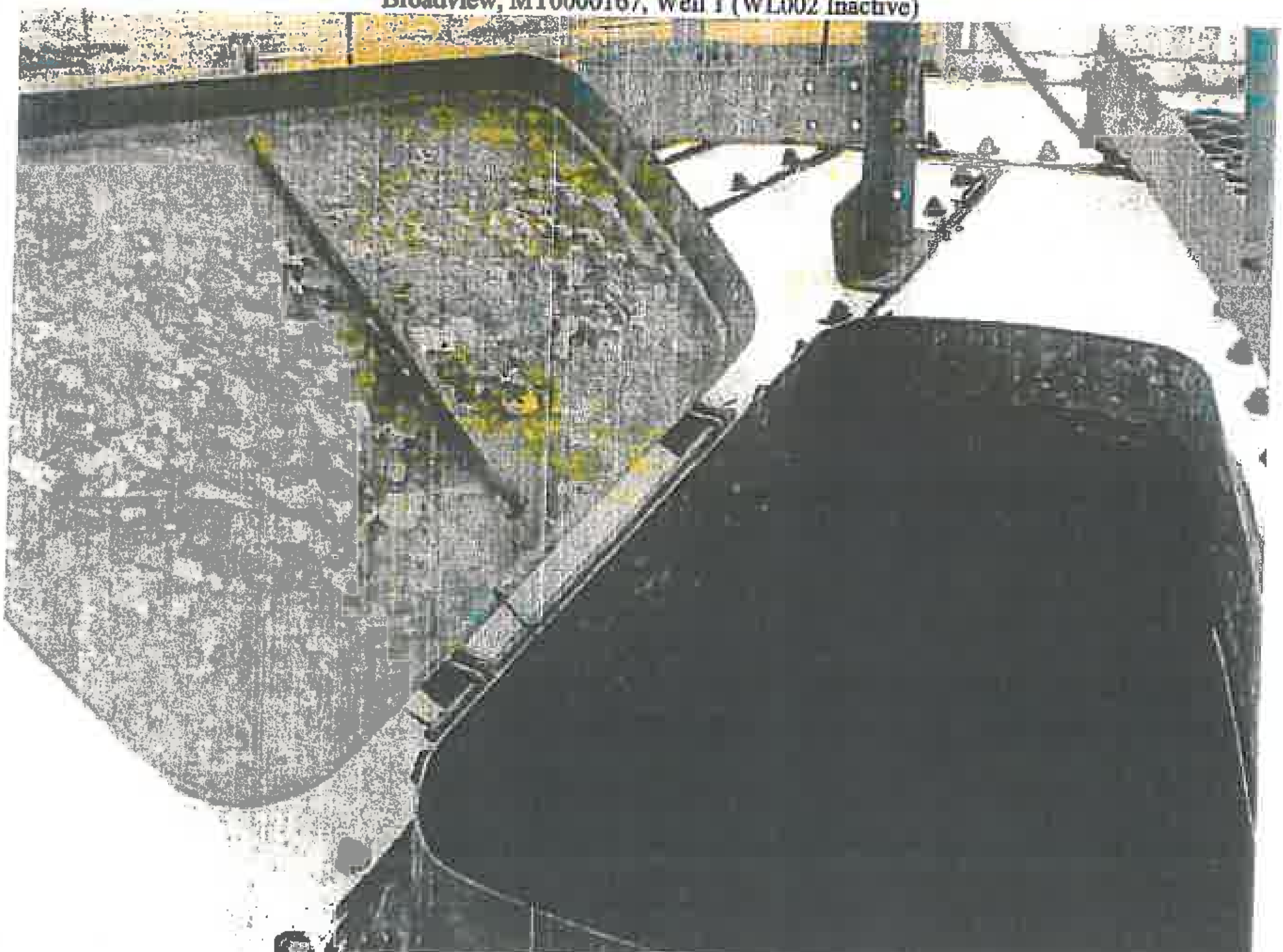
200 ft
108° 53'
46° 06'
MT0000167-WL004
MT0000167-WL002
MT0000167-ST001

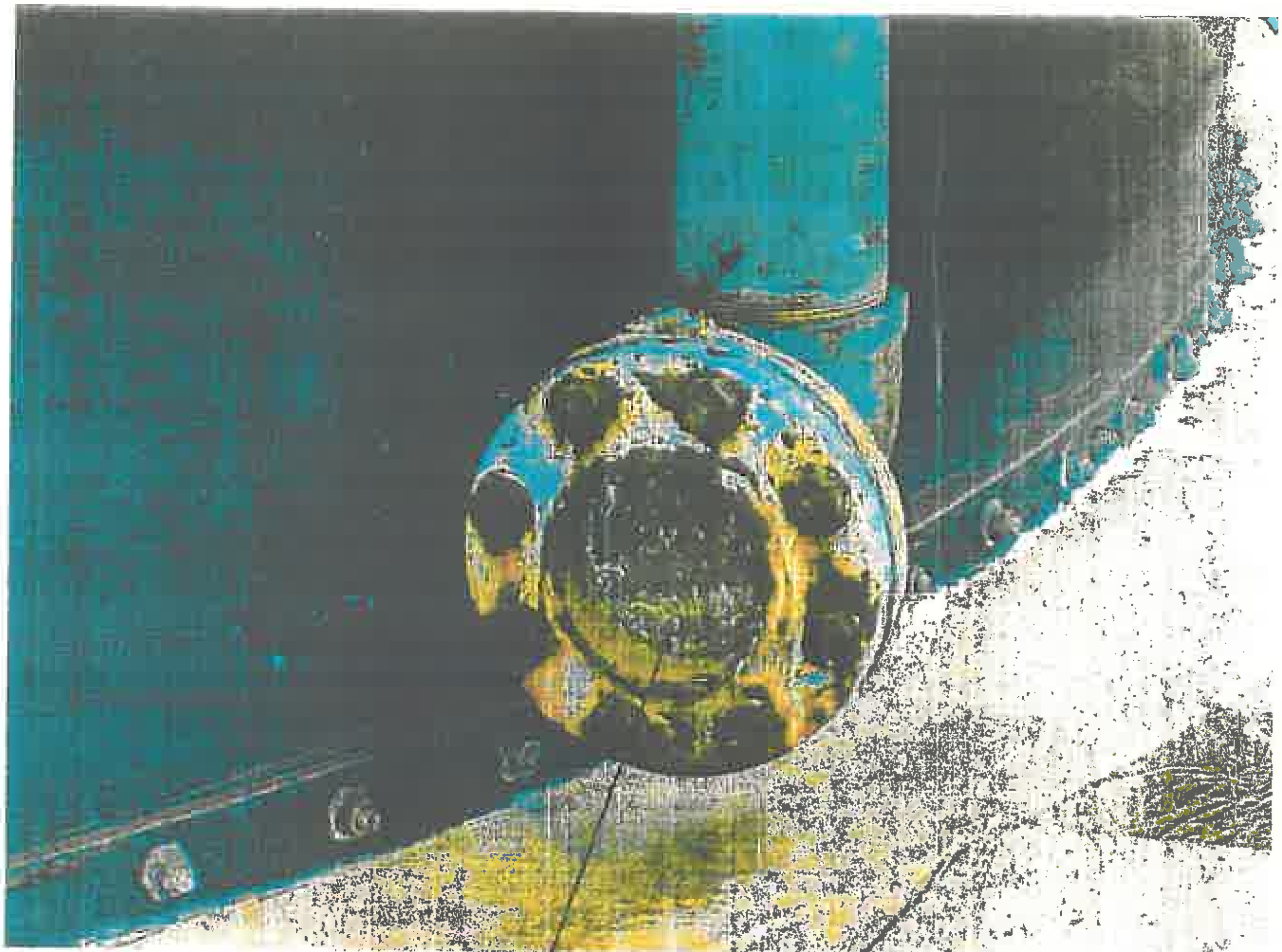


500 ft
108° 52'
46° 06'
3900
8
9
9
3909
NORTHERN
3993
3873
3872
MT0000167-WL004
Broadview
(BM 3863)
Broadview
4041
17
MT0000167-ST001
3866
16
3879
16
3865
Sewage Disposal
Ponds
4000
3850
4062
Well
BURLING

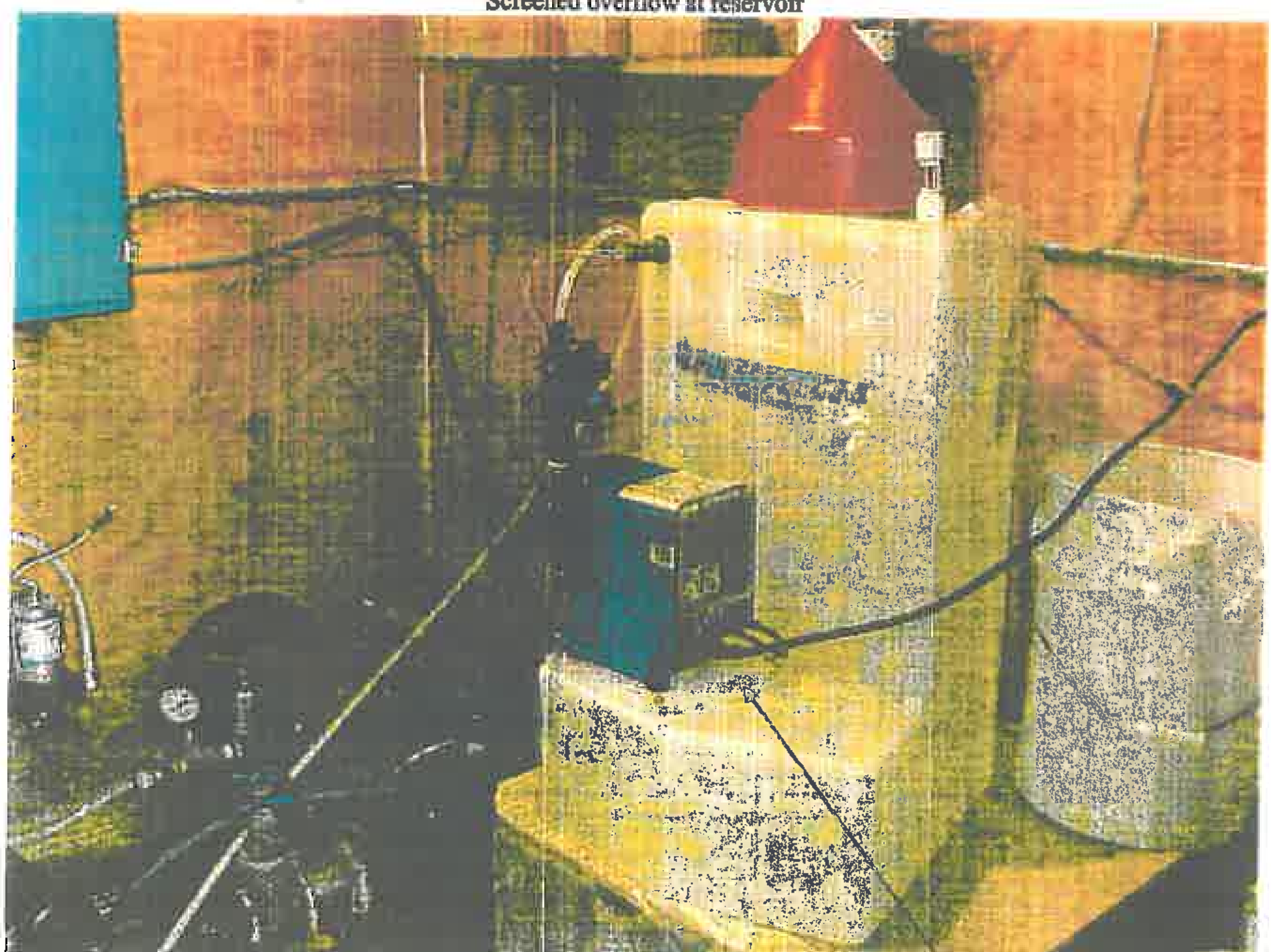

Pitless Well 2
WL003
Hypochlorination
TP001
Distribution System
DS001
Town of Broadview
MT0000167
Inspection 2/3/06
Pitless Well 3
WL004
Hypochlorination
TP002
Storage Tank
ST001
21,000-gal


Broadview, MT0000167, Well 1 (WL002 Inactive)


Storage reservoir, (ST001) access hatch must have seal installed

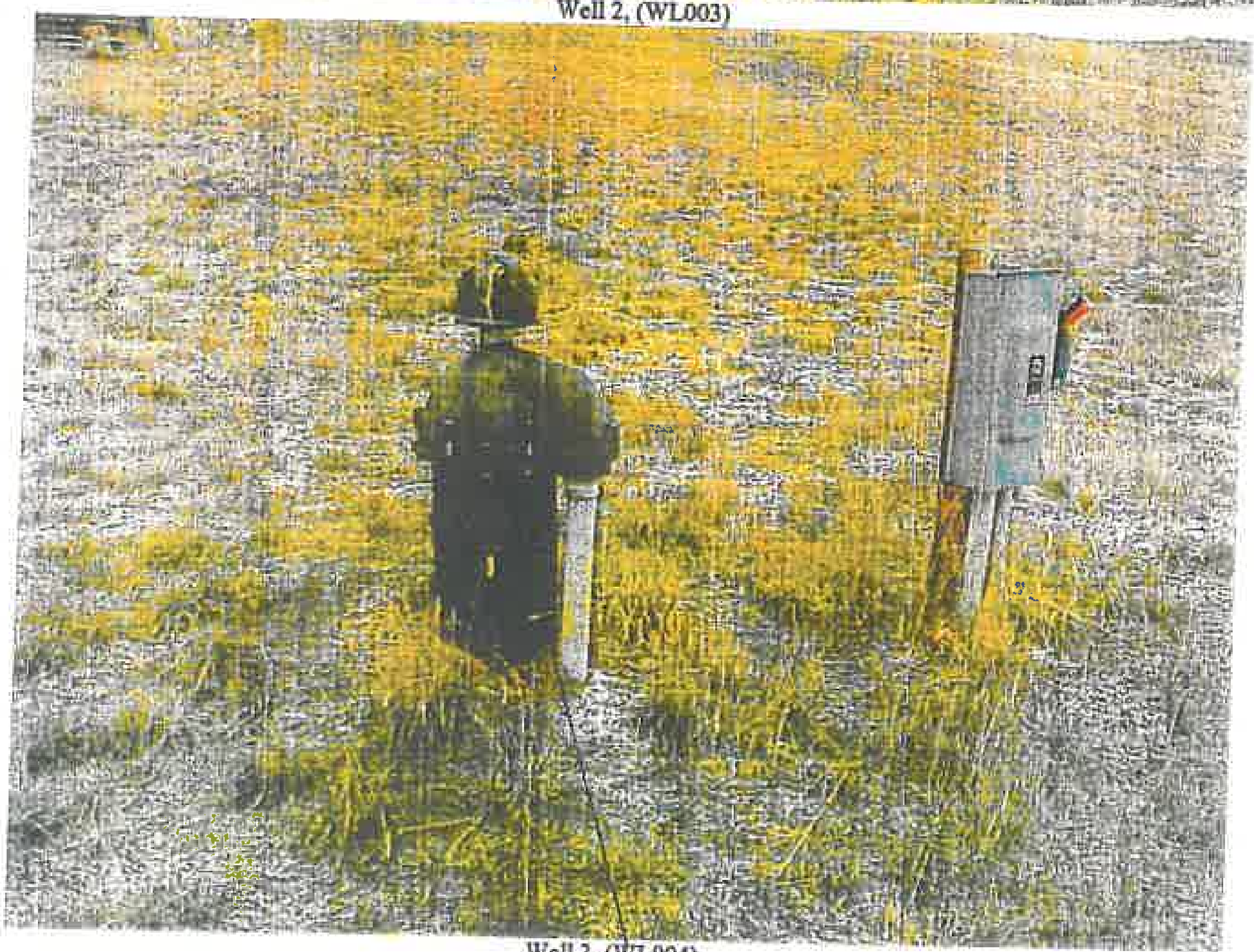


Screened overflow at reservoir

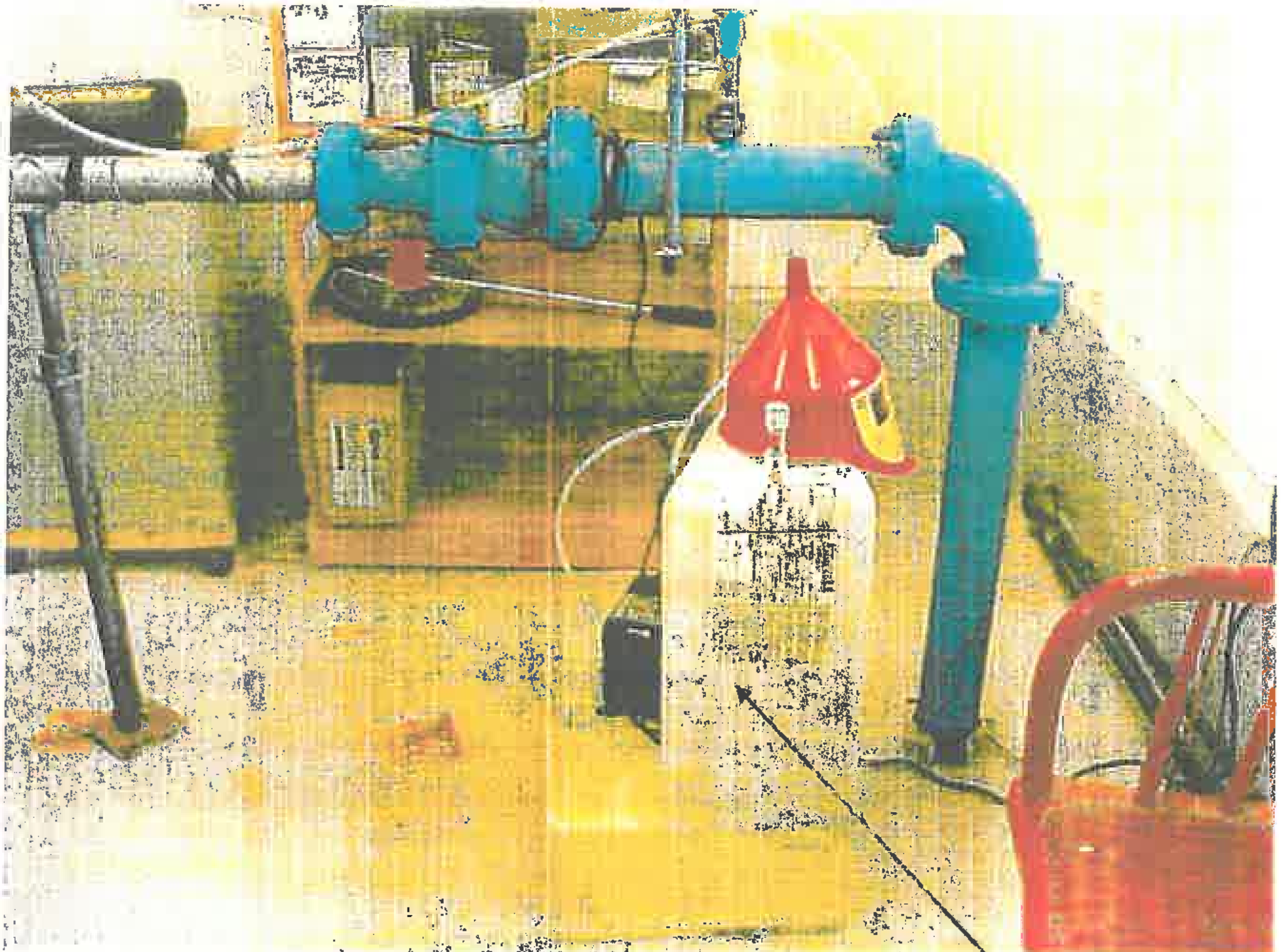


New Pulsafeed sodium hypochlorite injection system at Well 2, (TP001)

Well 2, (WL003)



Well 3, (WL004)



New Pulsafeed sodium hypochlorite injection system at Well 3, (TP002)

APPENDIX F

Water Rights

THE INFORMATION SHOWN BELOW REFLECTS THE ENTIRE WATER RIGHT.
AN ASTERISK (*) HAS BEEN PLACED NEXT TO EACH ITEM ALTERED BY THIS CHANGE AUTHORIZATION.

Water Right Number: 43Q 5924-00 STATEMENT OF CLAIM
Version: 2 -- CHANGE AUTHORIZATION
Version Status: ACTIVE

Owners: BROADVIEW, TOWN OF
PO BOX 115
BROADVIEW, MT 59015

Priority Date: DECEMBER 31, 1954
Enforceable Priority Date: DECEMBER 31, 1954

Purpose (use): MUNICIPAL
Maximum Flow Rate: 50.00 GPM
Maximum Volume: 13.26 AC-FT

Source Name: GROUNDWATER
Source Type: GROUNDWATER

***Point of Diversion and Means of Diversion:**

ID	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
*1		SWSWNW	16	4N	23E	YELLOWSTONE

Period of Diversion: JANUARY 1 TO DECEMBER 31
Diversion Means: WELL
Subdivision: BROADVIEW ORIGINAL TOWNSITE
Well Depth: 1,100.00 FEET
Static Water Level: 534.00 FEET
Casing Diameter: 8.00 INCHES

ID	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
*2		SWNWNW	16	4N	23E	YELLOWSTONE

Period of Diversion: JANUARY 1 TO DECEMBER 31
Diversion Means: WELL
Subdivision: BROADVIEW ORIGINAL TOWNSITE
Well Depth: 1,250.00 FEET
Static Water Level: 320.00 FEET
Casing Diameter: 8.00 INCHES

ID	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
3		NWNWNW	21	4N	23E	YELLOWSTONE

Period of Diversion: JANUARY 1 TO DECEMBER 31
Diversion Means: WELL
Subdivision: BROADVIEW ORIGINAL TOWNSITE
Well Depth: 1,060.00 FEET
Static Water Level: 190.00 FEET
Casing Diameter: 8.63 INCHES

ID	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
4		SWSWSW	21	4N	23E	YELLOWSTONE

Period of Diversion: JANUARY 1 TO DECEMBER 31
Diversion Means: WELL
Well Depth: 1,020.00 FEET
Static Water Level: 190.00 FEET
Casing Diameter: 8.63 INCHES

Purpose (Use): MUNICIPAL
Volume: 13.26 AC-FT
Period of Use: JANUARY 1 to DECEMBER 31
Place of Use:

ID	Acres	Govt Lot	Qtr Sec	Sec	Twp	Rge	County
1			NW	16	4N	23E	YELLOWSTONE

IMPORTANT INFORMATION

WELL POD ID #1 IS LOCATED 300' SOUTH OF THE OLD WELL; WELL POD ID #2 IS LOCATED 1400' NORTH OF THE OLD WELL; WELL POD ID #3 IS LOCATED 2700' SOUTH OF THE OLD WELL; AND WELL POD ID #4 IS LOCATED 7700' SOUTH OF THE OLD WELL.

IMPORTANT INFORMATION

APPROPRIATOR REFERS TO WELLS AS: POD ID #1 IS WELL #2; POD ID #2 IS WELL #3; POD ID #3 IS WELL #4; AND POD ID 4 IS WELL #5.

STATE OF MONTANA

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1424 9TH AVENUE P.O.BOX 201601 HELENA, MONTANA 59620-1601

CHANGE AUTHORIZATION

UPON FINDING THE REQUIREMENTS OF SECTION 85-2-402, MCA HAVE BEEN MET, APPLICATION TO CHANGE WATER RIGHT NUMBER 43Q-30066813 SUBMITTED ON APRIL 17, 2013, IS APPROVED.

Application From: BROADVIEW, TOWN OF
PO BOX 115
BROADVIEW, MT 59015

Water Right Number(s) Changed:	Wr #	Ext	Type
	43Q-5924	00	STATEMENT OF CLAIM

Change Description:

ONE EXISTING WELL HAS BEEN REPLACED BY FOUR NEW WELLS.

CONDITIONAL APPROVAL

THIS AUTHORIZATION IS LIMITED TO THE AMOUNT OF THE HISTORIC USE RECOGNIZED BY THE DEPARTMENT IN THIS PROCEEDING AS SUBJECT TO CHANGE, AND WILL THEREAFTER NOT EXCEED THAT AMOUNT. IF THE HISTORIC USE IS REDUCED UNDER ADJUDICATION PROCEEDINGS PURSUANT TO TITLE 85, CHAPTER 2, PART 2, MCA, THIS AUTHORIZATION WILL BE LIMITED TO A LESSER AMOUNT.

FAILURE TO COMPLY WITH ANY OF THESE TERMS AND CONDITIONS MAY RESULT IN THE LOSS OF THIS CHANGE AUTHORIZATION.

Joel Harris
Witness Signature

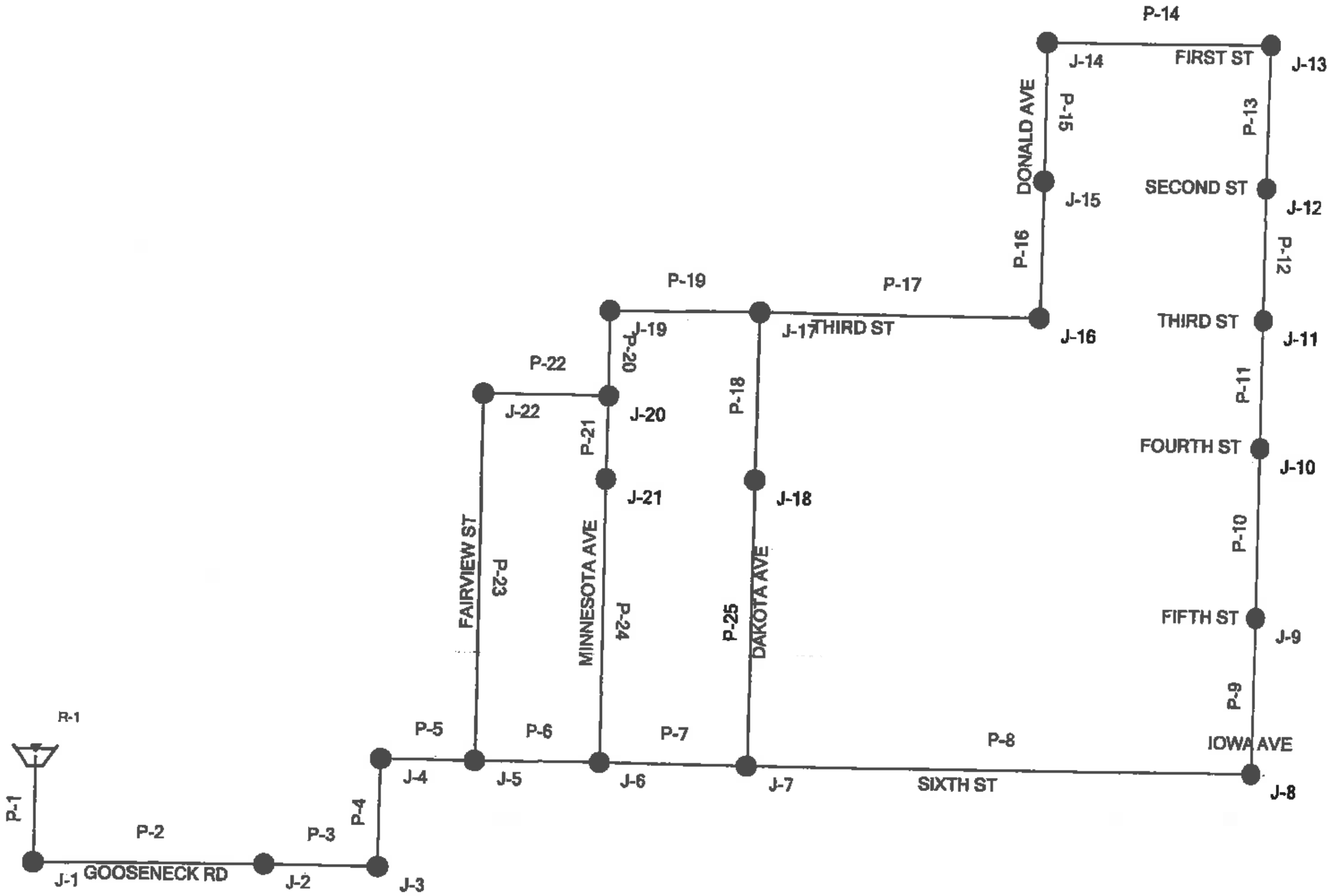
Kimberly Overcast
Water Resources Division

DATE ISSUED: OCTOBER 30, 2013

APPENDIX G

Distribution System Hydraulic Model

Active Scenario: Town of Broadview



Town of Broadview
Junction Input Data Summary

Label	Elevation (ft)	Demand (gpm)
J-1	4000	0
J-2	3950	0
J-3	3960	0
J-4	3960	0
J-5	3952	1.63
J-6	3933	1.63
J-7	3895	1.63
J-8	3876	1.63
J-9	3870	1.63
J-10	3870	1.63
J-11	3873	1.63
J-12	3878	1.63
J-13	3882	1.63
J-14	3878	1.63
J-15	3880	1.63
J-16	3880	1.63
J-17	3883	1.63
J-18	3883	1.63
J-19	3895	1.63
J-20	3904	1.63
J-21	3909	1.63
J-22	3936	1.63

Town of Broadview
Junction Input Data Summary

Label	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Length (ft)
P-1	R-1	J-1	10	PVC	140	300
P-2	J-1	J-2	10	PVC	140	1700
P-3	J-2	J-3	10	PVC	140	600
P-4	J-3	J-4	10	PVC	140	540
P-5	J-4	J-5	12	PVC	140	230
P-6	J-5	J-6	12	PVC	140	412
P-7	J-6	J-7	8	PVC	140	410
P-8	J-7	J-8	8	PVC	140	1095
P-9	J-8	J-9	8	PVC	140	345
P-10	J-9	J-10	8	PVC	140	400
P-11	J-10	J-11	8	PVC	140	390
P-12	J-11	J-12	8	PVC	140	410
P-13	J-12	J-13	8	PVC	140	430
P-14	J-13	J-14	8	PVC	140	500
P-15	J-14	J-15	8	PVC	140	375
P-16	J-15	J-16	8	PVC	140	445
P-17	J-16	J-17	8	PVC	140	825
P-18	J-17	J-18	6	Ductile Iron	130	340
P-19	J-17	J-19	8	PVC	140	385
P-20	J-19	J-20	8	PVC	140	180
P-21	J-21	J-20	8	PVC	140	160
P-22	J-20	J-22	2	PVC	140	350
P-23	J-22	J-5	8	PVC	140	955
P-24	J-21	J-6	8	PVC	140	785
P-25	J-18	J-7	8	PVC	140	760

Town of Broadview
Reservoir/Tank Input Data Summary

Label	Elevation (ft)
R-1	4038

Active Scenario: P_BroadviewAveDay

Scenario Summary

ID	73
Label	P_BroadviewAveDay
Notes	
Active Topology	<I> Base Active Topology
Physical	<I> Base Physical
Demand	Broadview Demand
Initial Settings	<I> Base Initial Settings
Operational	<I> Base Operational
Age	<I> Base Age
Constituent	<I> Base Constituent
Trace	<I> Base Trace
Fire Flow	<I> Base Fire Flow
Flushing	<I> Base Flushing
Energy Cost	<I> Base Energy Cost
Transient	<I> Base Transient
Pressure Dependent Demand	<I> Base Pressure Dependent Demand
User Data Extensions	<I> Base User Data Extensions
Steady State/EPS Solver Calculation Options	<I> Base Calculation Options
Transient Solver Calculation Options	<I> Base Calculation Options

Hydraulic Summary

Time Analysis Type	Steady State	Use Simple Controls?	True
Friction Method	Hazen-Williams	Is EPS Snapshot?	False
Accuracy	0.001	Start Time	12:00:00 AM
Trials	40		

Water Quality (Advanced)

Calculation Type	Hydraulics Only

FlexTable: Pipe Table (HydraulicModel_Broadview.wtg)

Active Scenario: P_BroadviewAveDay

Current Time: 0.000 hours

P-1	R-1	J-1	10.0	PVC	140.0	0.000	29.34	0.12	0.000	300.00
P-2	J-1	J-2	10.0	PVC	140.0	0.000	29.34	0.12	0.000	1,700.00
P-3	J-2	J-3	10.0	PVC	140.0	0.000	29.34	0.12	0.000	600.00
P-4	J-3	J-4	10.0	PVC	140.0	0.000	29.34	0.12	0.000	540.00
P-5	J-4	J-5	12.0	PVC	140.0	0.000	29.34	0.08	0.000	230.00
P-6	J-5	J-6	12.0	PVC	140.0	0.000	25.58	0.07	0.000	412.00
P-7	J-6	J-7	8.0	PVC	140.0	0.000	14.03	0.09	0.000	410.00
P-8	J-7	J-8	8.0	PVC	140.0	0.000	7.80	0.05	0.000	1,095.00
P-9	J-8	J-9	8.0	PVC	140.0	0.000	6.17	0.04	0.000	345.00
P-10	J-9	J-10	8.0	PVC	140.0	0.000	4.54	0.03	0.000	400.00
P-11	J-10	J-11	8.0	PVC	140.0	0.000	2.91	0.02	0.000	390.00
P-12	J-11	J-12	8.0	PVC	140.0	0.000	1.28	0.01	0.000	410.00
P-13	J-12	J-13	8.0	PVC	140.0	0.000	-0.35	0.00	0.000	430.00
P-14	J-13	J-14	8.0	PVC	140.0	0.000	-1.98	0.01	0.000	500.00
P-15	J-14	J-15	8.0	PVC	140.0	0.000	-3.61	0.02	0.000	375.00
P-16	J-15	J-16	8.0	PVC	140.0	0.000	-5.24	0.03	0.000	445.00
P-17	J-16	J-17	8.0	PVC	140.0	0.000	-6.87	0.04	0.000	825.00
P-18	J-17	J-18	6.0	Ductile Iron	130.0	0.000	-2.96	0.03	0.000	340.00
P-19	J-17	J-19	8.0	PVC	140.0	0.000	-5.53	0.04	0.000	385.00
P-20	J-19	J-20	8.0	PVC	140.0	0.000	-7.16	0.05	0.000	180.00
P-21	J-21	J-20	8.0	PVC	140.0	0.000	8.30	0.05	0.000	160.00
P-22	J-20	J-22	2.0	PVC	140.0	0.000	-0.50	0.05	0.000	350.00
P-23	J-22	J-5	8.0	PVC	140.0	0.000	-2.13	0.01	0.000	955.00
P-24	J-21	J-6	8.0	PVC	140.0	0.000	-9.93	0.06	0.000	785.00
P-25	J-18	J-7	8.0	PVC	140.0	0.000	-4.59	0.03	0.000	760.00

FlexTable: Junction Table (HydraulicModel_Broadview.wtg)

Active Scenario: P_BroadviewAveDay

Current Time: 0.000 hours

Label	Elevation	Demand	Hydraulic Grade	Pressure Head	Pressure
J-1	4,000.00	0.00	4,038.00	38.00	16.4
J-2	3,950.00	0.00	4,037.98	87.98	38.1
J-3	3,960.00	0.00	4,037.98	77.98	33.7
J-4	3,960.00	0.00	4,037.98	77.98	33.7
J-5	3,952.00	1.63	4,037.97	85.97	37.2
J-6	3,933.00	1.63	4,037.97	104.97	45.4
J-7	3,895.00	1.63	4,037.97	142.97	61.9
J-8	3,876.00	1.63	4,037.97	161.97	70.1
J-9	3,870.00	1.63	4,037.97	167.97	72.7
J-10	3,870.00	1.63	4,037.97	167.97	72.7
J-11	3,873.00	1.63	4,037.97	164.97	71.4
J-12	3,878.00	1.63	4,037.97	159.97	69.2
J-13	3,882.00	1.63	4,037.97	155.97	67.5
J-14	3,878.00	1.63	4,037.97	159.97	69.2
J-15	3,880.00	1.63	4,037.97	157.97	68.3
J-16	3,880.00	1.63	4,037.97	157.97	68.3
J-17	3,883.00	1.63	4,037.97	154.97	67.0
J-18	3,883.00	1.63	4,037.97	154.97	67.0
J-19	3,895.00	1.63	4,037.97	142.97	61.9
J-20	3,904.00	1.63	4,037.97	133.97	58.0
J-21	3,909.00	1.63	4,037.97	128.97	55.8
J-22	3,936.00	1.63	4,037.97	101.97	44.1

FlexTable: Reservoir Table (HydraulicModel_Broadview.wtg)
Active Scenario: P_BroadviewAveDay

Current Time: 0.000 hours

[illegible]	[illegible]	Zone	[illegible]	[illegible]
R-1	4,038.00	<None>	29.34	4,038.00

Scenario Summary Report
Scenario: P_BroadviewFF
Active Scenario: P_BroadviewFF

Scenario Summary

ID	74
Label	P_BroadviewFF
Notes	
Active Topology	<I> Base Active Topology
Physical	<I> Base Physical
Demand	<I> Broadview Demand
Initial Settings	<I> Base Initial Settings
Operational	<I> Base Operational
Age	<I> Base Age
Constituent	<I> Base Constituent
Trace	<I> Base Trace
Fire Flow	Broadview FF
Flushing	<I> Base Flushing
Energy Cost	<I> Base Energy Cost
Transient	<I> Base Transient
Pressure Dependent Demand	<I> Base Pressure Dependent Demand
User Data Extensions	<I> Base User Data Extensions
Steady State/EPS Solver Calculation Options	Fire Flow
Transient Solver Calculation Options	<I> Base Calculation Options

Hydraulic Summary

Time Analysis Type	Steady State	Use Simple Controls?	True
Friction Method	Hazen-Williams	Is EPS Snapshot?	False
Accuracy	0.001	Start Time	12:00:00 AM
Trials	40		

Water Quality (Advanced)

Calculation Type	Fire Flow

Fire Flow Node FlexTable: Fire Flow Report (HydraulicModel_Broadview.wtg)

Active Scenario: P_BroadviewFF

Current Time: 0.000 hours

Label	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J-1	(N/A)	(N/A)	1,000.00	(N/A)	(N/A)	(N/A)	0.0	(N/A)	(N/A)	(N/A)	4,038.00
J-2	(N/A)	(N/A)	1,000.00	(N/A)	(N/A)	(N/A)	0.0	(N/A)	(N/A)	(N/A)	4,037.98
J-3	(N/A)	(N/A)	1,000.00	(N/A)	(N/A)	(N/A)	0.0	(N/A)	(N/A)	(N/A)	4,037.98
J-4	(N/A)	(N/A)	1,000.00	(N/A)	(N/A)	(N/A)	0.0	(N/A)	(N/A)	(N/A)	4,037.98
J-5	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	2.4	0.0	J-4	4,037.97
J-6	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	8.9	0.0	J-4	4,037.97
J-7	5	True	1,000.00	2,257.12	1,001.63	2,258.75	0.0	18.3	0.0	J-4	4,037.97
J-8	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	11.1	0.0	J-4	4,037.97
J-9	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	11.1	0.0	J-4	4,037.97
J-10	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	9.0	0.0	J-4	4,037.97
J-11	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	6.4	0.0	J-4	4,037.97
J-12	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	3.7	0.0	J-4	4,037.97
J-13	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	2.3	0.0	J-4	4,037.97
J-14	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	5.5	0.0	J-4	4,037.97
J-15	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	6.5	0.0	J-4	4,037.97
J-16	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	9.8	0.0	J-4	4,037.97
J-17	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	18.5	0.0	J-4	4,037.97
J-18	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	15.3	0.0	J-4	4,037.97
J-19	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	13.9	0.0	J-4	4,037.97
J-20	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	10.8	0.0	J-4	4,037.97
J-21	5	True	1,000.00	2,257.13	1,001.63	2,258.76	0.0	9.4	0.0	J-4	4,037.97
J-22	3	True	1,000.00	1,872.44	1,001.63	1,874.07	0.0	0.0	9.8	J-4	4,037.97

FlexTable: Junction Table (HydraulicModel_Broadview.wtg)

Active Scenario: P_BroadviewFF

Current Time: 0.000 hours

J-1	4,000.00	0.00	4,038.00	38.00	16.4
J-2	3,950.00	0.00	4,037.98	87.98	38.1
J-3	3,960.00	0.00	4,037.98	77.98	33.7
J-4	3,960.00	0.00	4,037.98	77.98	33.7
J-5	3,952.00	1.63	4,037.97	85.97	37.2
J-6	3,933.00	1.63	4,037.97	104.97	45.4
J-7	3,895.00	1.63	4,037.97	142.97	61.9
J-8	3,876.00	1.63	4,037.97	161.97	70.1
J-9	3,870.00	1.63	4,037.97	167.97	72.7
J-10	3,870.00	1.63	4,037.97	167.97	72.7
J-11	3,873.00	1.63	4,037.97	164.97	71.4
J-12	3,878.00	1.63	4,037.97	159.97	69.2
J-13	3,882.00	1.63	4,037.97	155.97	67.5
J-14	3,878.00	1.63	4,037.97	159.97	69.2
J-15	3,880.00	1.63	4,037.97	157.97	68.3
J-16	3,880.00	1.63	4,037.97	157.97	68.3
J-17	3,883.00	1.63	4,037.97	154.97	67.0
J-18	3,883.00	1.63	4,037.97	154.97	67.0
J-19	3,895.00	1.63	4,037.97	142.97	61.9
J-20	3,904.00	1.63	4,037.97	133.97	58.0
J-21	3,909.00	1.63	4,037.97	128.97	55.8
J-22	3,936.00	1.63	4,037.97	101.97	44.1

FlexTable: Pipe Table (HydraulicModel_Broadview.wtg)

Active Scenario: P_BroadviewFF

Current Time: 0.000 hours

P-1	R-1	J-1	10.0	PVC	140.0	0.000	29.34	0.12	0.000	300.00
P-2	J-1	J-2	10.0	PVC	140.0	0.000	29.34	0.12	0.000	1,700.00
P-3	J-2	J-3	10.0	PVC	140.0	0.000	29.34	0.12	0.000	600.00
P-4	J-3	J-4	10.0	PVC	140.0	0.000	29.34	0.12	0.000	540.00
P-5	J-4	J-5	12.0	PVC	140.0	0.000	29.34	0.08	0.000	230.00
P-6	J-5	J-6	12.0	PVC	140.0	0.000	25.58	0.07	0.000	412.00
P-7	J-6	J-7	8.0	PVC	140.0	0.000	14.03	0.09	0.000	410.00
P-8	J-7	J-8	8.0	PVC	140.0	0.000	7.80	0.05	0.000	1,095.00
P-9	J-8	J-9	8.0	PVC	140.0	0.000	6.17	0.04	0.000	345.00
P-10	J-9	J-10	8.0	PVC	140.0	0.000	4.54	0.03	0.000	400.00
P-11	J-10	J-11	8.0	PVC	140.0	0.000	2.91	0.02	0.000	390.00
P-12	J-11	J-12	8.0	PVC	140.0	0.000	1.28	0.01	0.000	410.00
P-13	J-12	J-13	8.0	PVC	140.0	0.000	-0.35	0.00	0.000	430.00
P-14	J-13	J-14	8.0	PVC	140.0	0.000	-1.98	0.01	0.000	500.00
P-15	J-14	J-15	8.0	PVC	140.0	0.000	-3.61	0.02	0.000	375.00
P-16	J-15	J-16	8.0	PVC	140.0	0.000	-5.24	0.03	0.000	445.00
P-17	J-16	J-17	8.0	PVC	140.0	0.000	-6.87	0.04	0.000	825.00
P-18	J-17	J-18	6.0	Ductile Iron	130.0	0.000	-2.96	0.03	0.000	340.00
P-19	J-17	J-19	8.0	PVC	140.0	0.000	-5.53	0.04	0.000	385.00
P-20	J-19	J-20	8.0	PVC	140.0	0.000	-7.16	0.05	0.000	180.00
P-21	J-21	J-20	8.0	PVC	140.0	0.000	8.30	0.05	0.000	160.00
P-22	J-20	J-22	2.0	PVC	140.0	0.000	-0.50	0.05	0.000	350.00
P-23	J-22	J-5	8.0	PVC	140.0	0.000	-2.13	0.01	0.000	955.00
P-24	J-21	J-6	8.0	PVC	140.0	0.000	-9.93	0.06	0.000	785.00
P-25	J-18	J-7	8.0	PVC	140.0	0.000	-4.59	0.03	0.000	760.00

FlexTable: Reservoir Table (HydraulicModel_Broadview.wtg)

Active Scenario: P_BroadviewFF

Current Time: 0.000 hours

[illegible]	[illegible]	Zone	Net Outflow ([illegible])	Hydraulic Grade ([illegible])
R-1	4,038.00	<None>	29.34	4,038.00

APPENDIX H

Pumping Records

January 2012

S nday

1	TIME 9:30PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1504.2	14,656,220	1.0
Previous Day	1500.9	14,649,420	
Daily			
94 Well #3	1344.7	15,086,049	0.6
Previous Day	1341.4	15,080,341	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.3

Monday

2	TIME 9PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1507.5	14,663,043	1.0
P evious Day			
Daily			
94 Well #3	1348.0	15,091,774	0.4
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.4

Tuesday

3	TIME 9:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1512.1	14,672,578	1.0
Previous Day			
Daily			
94 Well #3	1352.6	15,099,763	1.5
Previous Day			
I ly			
Daily Total Gal.			
Distribution	16641 Iowa		0.6

January 2012

Wednesday

4	TIME N/A	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily			
94 Well #3			1.2
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.6

Thursday

5	TIME 10pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily			
94 Well #3			1.2
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.7

Friday

6	TIME 10PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1523.2	14,695,808	1.0
Previous Day			
Daily			
94 Well #3	1363.7	15,119,009	1.2
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.0

January 2012

Saturday

7	TIME 8:30pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1525.6	14,700,650	0.8
Previous Day			
Daily			
94 Well #3	1366.1	15,123,078	0.8
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.7

Sunday

8	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1530.3	14,710,273	
Previous Day			0.6
Daily			
94 Well #3			0.8
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.0

Monday

9	TIME 8:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1534.1	14,718,205	Pumps Run.
Previous Day			2.0
Daily			
94 Well #3	1374.4	15,137,705	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.8

January 2012

Tuesday

10	TIME 9PM		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	1538.3	14,726,850	0.6
Previous Day	1534.1	14,718,205	
Daily	4.2	8,645 (34.2 gpm)	
94 Well #3	1378.8	15,145,235	1.0
Previous Day	1374.4	15,137,705	
Daily	4.4	7,530	
Daily Total Gal.		18,175 (28.5 gpm)	
Distribution	16641 Iowa Ave		0.8

Wednesday

11	TIME 8:30PM		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	1541.7	14,733,816	0.6
Previous Day			
Daily			
94 Well #3	1382.2	15,151,173	0.9
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.7

Thursday

12	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.0
Previous Day			
Daily			
94 Well #3			2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.4

January 2012

F day

13	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily			
94 Well #3			1.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.6

SATURDAY

14	TIME 9PM		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	1555.7	14,762,400	Pumps Run... 2.0
P evious Day			
Daily			
94 Well #3	1396.2	15,175,545	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.5

SUNDAY

~~14~~ 15	TIME 9PM		TANK % 94
	Hours	Gallons	Chlorine ppm
74 WELL #2	1561.1	14,773,349	0.5
Previous Day			
Daily			
94 Well #3	1401.6	15,184,517	0.7
Previous Day			
I ily			
Daily Total Gal.			
Distribution	16641 Iowa		0.5

January 2012

Monday

16	TIME 9:45PM	TANK % 97	Pumps Run..
	Hours	Gallons	Chlorine ppm
74 WELL #2	1566.4	14,784,220	2.0
Previous Day	1561.1	14,773,349	
Daily	5.3	10,871	(34.2 GPM)
94 Well #3	1406.8	15,193,605	2.0
Previous Day	1401.6	15,184,517	
Daily	5.2	9 088	29.1
Daily Total Gal.		19,959	
Distribution	16641 Iowa Ave		0.5

Tuesday

17	TIME 10PM	TANK % 97	Pumps Run.-
	Hours	Gallons	Chlorine ppm
74 WELL #2	1570.7	14,793030	2.0
Previous Day	1566.4	14,784,220	
Daily	4.3	8,810	
94 Well #3	1411.3	15,201,360	2.0
Previous Day	1406.8	15,193,605	
Daily	4.5	7,755	
Daily Total Gal.		16,565	
Distribution	16641 Iowa Ave		0.6

Wednesday

18	TIME 9PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1575.3	14,802,430	0.6
Previous Day	1570.7	14,793,030	
Daily	4.6	9,400	
94 Well #3	1415.8	15 209,085	0.8
Previous Day	1411.3	15,201,360	
Daily	4.5	7 725	
Daily Total Gal.		17,125	
Distribution	16641 Iowa Ave		0.6

January 2012

T[illegible]ursday

19	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.0
Previous Day	1575.3		
Daily			
94 Well #3			2.0
Previous Day			
Daily	4.8		
Daily Total Gal.			
Distribution	16641 Iowa		0.4

FRIDAY

20	TIME 11PM		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	1584.8	14,821,663	0.4
Previous Day			
Daily	4.8		
94 Well #3	1425.3	~~15,225~~ 15,225,306	0.8
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.3

SATURDAY

21	TIME 10PM		TANK % 96
	Hours	Gallons	Chlorine ppm
74 WELL #2	1589.4	14,831,180	0.7
Previous Day	1584.8	14,821,663	
Daily	4.6	9,517	34.5 GPM
94 Well #3	1429.9	15,233,278	1.0
Previous Day	1425.3	15,225,306	
Daily	4.6	7,972	28.9 GPM
Daily Total Gal.		17,489	
Distribution	16641 Iowa Ave		0.4

January 2012

Sunday

22	TIME 8:30PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~14~~ 1593.1	14,838,560	0.7
Previous Day	1589.4	14,831,180	
Daily	3.7	7380	
94 Well #3	1433.5	15,239,582	0.8
Previous Day	1429.9	15,233,278	
Daily	3.6	6304	
Daily Total Gal.		13,684	
Distribution	16641 Iowa Ave		0.7

Monday

23	TIME 9:30PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1597.6	14,847,970	0.4
Previous Day	1593.1	14,838,560	
Daily	4.5	9,410	
94 Well #3			0.8
Previous Day		7.7	
Daily			
Daily Total Gal.		17,110	
Distribution	16641 Iowa		0.5

Tuesday

24	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.6
Previous Day			
Daily	3.4		
94 Well #3			0.8
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.4

January 2012

Wednesday

25	TIME 8:30	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1604.4	14,862,030	pump run 2.0
Previous Day	97.6		
Daily	GT 3.4		
94 Well #3	1445.0	15,259,485	pump running 2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.4

Thursday

26	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.6
Previous Day			
Daily	3.9	8.24	
94 Well #3			1.0
Previous Day			
Daily	3.9	8.24	
Daily Total Gal.			
Distribution			0.5

Friday

27	TIME 8:30pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~1452.8~~	14,878,350	0.6
Previous Day	1612.3 1604.4		
Daily	7.9 / 3.95	16 300 8.24	
94 Well #3	1452.8	15,273,027	1.5
Previous Day	1445.0		
Daily	7.8 / 3.9		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.6

January 2012

SATURDAY

28	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.4
Previous Day			
Daily			
94 Well #3			0,6
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.4

SUNDAY

29	TIME 7PM		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	1619,8	14,893,977	2.0
Previous Day			
Daily			
94 Well #3	1460.3	15,285,800	Pumps Run 2,0
Previous Day			
Daily	4.1		
Daily Total Gal.			
Distribution	16641 IowA		0.4

Monday

30	TIME 8:30PM		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	1623.9	14,902,105	0.6
Previous Day	1619.8	893,977	
Daily	4.1	8,128	
94 Well #3	1464.4	15,293,055	2.0
Previous Day	1460.3	285 800	
Daily	4,1	7,255	
Daily Total Gal.	15,383		
Distribution	16641 Iowa		0.3

February 2012

T esday - JANUARY

31	TIME 9:45		TANK % 99
	Hours	Gallons	Chlorine ppm
74 WELL #2	1628.3	14,911,252	~~0.8~~ 0.8
Previous Day	1623.9	14 902,105	
Daily	4.4	9,147	
94 Well #3	1468.8	15,300,762	2.5 Decreased 60→55%, c
Previous Day	1464.4	15 293 055	
Daily	4.4	7,707	
Daily Total Gal.		16,854	
Distribution	16641 Iowa Ave		0.3

Wednesday

1	TIME 9:15 PM		TANK % N/A
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.6
P evious Day			
Daily			
94 Well #3			1.0
Previous Day			
Daily	5.4		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.4

Thursday

2	TIME 8:30 Pm		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	1635.2	14,925,467	0.4
Previous Day		911	
Daily			
94 Well #3	1475.7	15,312,741	0.6
Previous Day	68.[illegible]	[illegible]	
I ly	5.5		
Daily Total Gal.			
Distribution	16641 Iowa		0.2

February 2012

FRIDAY

3	TIME 8:30 Pm		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	1639.8	14,934,873	0.4 [illegible] 1 [illegible]
Previous Day	1635.2		
Daily	4.6		
94 Well #3	1480.3	15,320,657	2.0
Previous Day	1475.7	12 7[illegible]	
Daily	4.6	7,916	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.2

SATURDAY

4	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.8
Previous Day			
Daily			
94 Well #3			0.8
Previous Day			
Daily	3.6		
Daily Total Gal.			
Distribution			0.2

SUNDAY

5	TIME 11Pm		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily			
94 Well #3			1.0
Previous Day			
Daily	3.6		
Daily Total Gal.			
Distribution			0.2

February 2012

Monday

6	TIME 9pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1651.1	14,958,146	0.6
Previous Day	34.8 11.3		
Daily			
94 Well #3	1491.6	15,340,417	0.6
Previous Day			
Daily	4.1		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.4

Tuesday

7	TIME 10PM	TANK % 95%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1655.7	14,967,780	0.8
Previous Day	1651.1	958 145	
Daily	4.6	9,645	
94 Well #3	1496.2	15,348,438	0.8
Previous Day	1491.6	15 340,417	
Daily	4.6	8,021	
Daily Total Gal.		17,666	
Distribution	16641 Iowa Ave		0.3

Wednesday

8	TIME 9pm	TANK % 95%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1660.3	14,976,953	0.6
Previous Day	1655.7	14 967,780	
Daily	4.6	9,173	
94 Well #3			0.6
Previous Day			
Daily	4.6	8[illegible]	
Daily Total Gal.		17,2[illegible]	
Distribution	16641 Iowa		0.3

February 2012

Thursday

9	TIME 9:45Pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1664.7	14,986,986	Pumps Run
Previous Day			2.0
Daily			
94 Well #3	1505.2	15,364,085	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.3

Friday

10	TIME 8:30	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1.5
Daily	4.8		
94 Well #3			
Previous Day	4.8		0.6
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.3

Saturday

11	TIME 10:30Pm	TANK % 100%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1674.3	15,005,573	2.0
Previous Day	[illegible]		
Daily	4.8		
94 Well #3	1514.8	15,380,559	0.8
Previous Day			
Daily	4.8		[illegible] 60 → 65
Daily Total Gal.			
Distribution	16641 Iowa		0.3

February 2012

Sunday

12	TIME 8PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1678.0	15,013,123	0.7
Previous Day	1674.3	15,005,573	
Daily	3.7	7,550	
94 Well #3	1518.5	15,386,904	2.0
Previous Day	1514.8	15,380,559	
Daily	3.7	6,345	Bch 10 6%
Daily Total Gal.		13,895	
Distribution	16641 Iowa Ave		0.3

Monday → Town meeting

13	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily	4.9	9966	
94 Well #3			0.8
Previous Day			
Daily	4.9	8.408	
Daily Total Gal.		18,374	
Distribution	16641 Iowa ~~[illegible]~~		0.3

Tuesday

14	TIME 8:30PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1687.8	15,033,055	0.8
Previous Day			
Daily	4.9	9966	
94 Well #3	1528.3	15,403,721	0.4
Previous Day			
Daily	4.9	8,408	
Daily Total Gal.		18,374	
Distribution	16641 Iowa		0.3

February 2012

Wednesday

15	TIME 10:30pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.9
Previous Day			
Daily			
94 Well #3			1.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.4

Thursday

16	TIME 9:15am	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1695.5	15,049,098	0.8
Previous Day			
Daily			
94 Well #3	1536.0	15,417,225	1.5
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.6

Friday

17	TIME 8:30am	TANK % 98%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1698.9	15,056,290	0.8
Previous Day	5.5	15,049,098	
Daily	3.4	7,192	
94 Well #3	1539.5	15,423,290	0.9
Previous Day	1536.0	15417,225	
Daily	3.5	6,065	
Daily Total Gal.	5	13257	
Distribution	16641 Iowa Ave		0.4

February 2012

S turday

18	TIME 8:20 PM	TANK % 91
	Hours	Gallons	Chlorine ppm
74 WELL #2	1702.5	15,063,527	0.8
Previous Day	1698.4		
Daily	3.6		
94 Well #3			2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.4

Sunday

19	TIME 8PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1707.4	15,073,567	0.8
P evious Day	1702.5	15 063 527	
Daily	4.9	10,040	
94 Well #3	1547.9	15,437,767	2.0
Previous Day			Decrease CL 63→60%
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.6

Monday

20	TIME 8:30 Am	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily			
94 Well #3			1.2
Previous Day			
I ly			
Daily Total Gal.			
Distribution	16641 Iowa		0.6

February 2012

Tuesday

21	TIME 8:30 pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1715.8	15,090,955	0.3
Previous Day			
Daily			
94 Well #3	1556.3	15,452,333	1.5 Decrease 60→56
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.4

Wednesday

22	TIME 8:30pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1719.4	15,098,189	0.4 Increase Cl 20% to 75
Previous Day	1715.8	90,955	
Daily	3.6	7,234	
94 Well #3	1559.9	~~15,459~~ 15,458,500	1.0
Previous Day	1556.3	15,452,333	
Daily	3.6	6,167	
Daily Total Gal.		13,401	
Distribution	16641 Iowa		0.3

Thursday

23	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.4
Previous Day			
Daily			
94 Well #3			0.8
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.3

February 2012

F day

24	TIME 7PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1726.7	15,113,133	0.8
Previous Day			
Daily			
94 Well #3	1567.2	15,471,363	0.4
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Tower		0.3

Saturday

25	TIME 8PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1730.3	15,120,532	0.6
P evious Day	1726.7		
Daily	3.6		
94 Well #3	1571.0	15,477,835	Pump Run 2.0
Previous Day	1567.2		
Daily	3.8		
Daily Total Gal.			
Distribution	16641 Tower		0.2

Sunday

26	TIME 7:30Pm	TANK % 100	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1735.0	15,130,037	Pump Run 2.0
Previous Day	1730.3		
Daily	4.7		
94 Well #3	1575.5	15,485,692	2.0
Previous Day	1571.0		
I ly	4.5		
Daily Total Gal.			
Distribution			On

February 2012

Monday

27	TIME 8:30	TANK % 99%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1739.6	15,139,502	1.0
Previous Day	1735.0		
Daily	4.6		
94 Well #3	1580.1	15,493,745	1.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.3

Tuesday

28	TIME 8:40	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			.08
Previous Day			
Daily			
94 Well #3			0.4
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.3

Wednesday

29	TIME 9pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1747.7	15,156,078	0.8
Previous Day			
Daily			
94 Well #3	1588.3	15,507,851	0.4
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.4

March 2012

Thursday

1	TIME 10Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1751.3	15,163,330	Pumps Run
Previous Day	1747.7	15,156,078	2.0
Daily	3.6	7,252	
94 Well #3	1591.8	15,514,160	Pump Run
Previous Day	1588.3	15,507,851	2.0
Daily	3.5	6,309	
Daily Total Gal.		13,561	
Distribution	1664 Iowa		0.8

Friday

2	TIME 8Pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.39

Saturday New Cl_2 Electronic meter

3	TIME 8:30	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1759.2	15,179,495	0.62
Previous Day			
Daily			
94 Well #3	1599.7	15,527,865	0.88
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.20

March 2012

Sunday

4	TIME 9pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1763.0	15,187,147	1.10
Previous Day			
Daily			
94 Well #3	1603.5	15 534,335	0.3
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.20

Monday

5	TIME 8:30Am	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1766.5	15,194,330	2.0 pumps Run
Previous Day			
Daily			
94 Well #3	1607.1	15,540,733	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.2

Tuesday

6	TIME 8 PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1771.5	15,204,256	1.26
Previous Day			
Daily			
94 Well #3	1612.0	15,549,064	0.49
Previous Day	1607.1		
Daily	4.9		
Daily Total Gal.			
Distribution	16641 Iowa		0.98

March 2012

Wednesday

7	TIME 9:15pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~1616.8~~ 1776.3	15,214,008	1.57
Previous Day	1771.5	204,256	
Daily	4.8	9,752	
94 Well #3	1616.8	15,557,409	0.98
Previous Day	1612.0	15,549,064	
Daily	4.8	8,345	
Daily Total Gal.		18,097	
Distribution	16641 Town		1.33

Thursday

8	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

Friday

9	TIME 8:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1783.7	15,229,105	Pump Ann... 2.0 68°
Previous Day			
Daily			
94 Well #3	1624.3	15,570,569	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	1664 Town		1.63

March 2012

Saturday

10	TIME 9:30 PM	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1787.8	15,237,296	1.15
Previous Day	1783.7	15,229,105	
Daily	4.1	8,191	
94 Well #3	1628.3	15,577,420	
Previous Day		15,570,569	0.92
Daily		6,851	
Daily Total Gal.		15,042	
Distribution	16641 Iowa		1.48

Sunday

11	TIME 8 PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1791.3	15,244,472	1.14
Previous Day	1788.8	15 237 296	
Daily	3.5	7,176	34.2 GPM
94 Well #3	1631.8	15,583,693	
Previous Day	1628.3	577 420	2.29
Daily	3.5	6,273 29.9 GPM	decrease Cl2 70 → 60%
Daily Total Gal.		13,449	
Distribution	16641 Iowa		1.24

Monday

12	TIME 9:30 PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.40
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		~~1.24~~ 1.21

March 2012

T[illegible]esday

13	TIME 9pm	TANK % 96%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1799.5	15,260,703	0.40
Previous Day			
Daily			
94 Well #3	1640.0	15,597,849	2.0 Decrease 50%
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.05

Wednesday

14	TIME 11:15 pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.32
Previous Day			
Daily			
94 Well #3			1.21
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		1.02

Thursday

15	TIME 9:15pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1807.4	15,277,035	0.28 Increase Cl_2 65% 78%
Previous Day			
Daily			
94 Well #3	1647.9	15,611,658	0.22 Increase 50 → 60%
Previous Day			
Daily			
Daily Total Gal.			0.25
Distribution	16641 Iowa		

MARCH 2012

Friday

16	TIME		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	1811.9	15,286,246	
Previous Day			0.49
Daily			INC → 75% → 81%
94 Well #3	1652.5	15,619,698	
Previous Day			0.85
Daily			
Daily Total Gal.			
Distribution	16641 Tank		0.22

Saturday

17	TIME 8pm		TANK % 89
	Hours	Gallons	Chlorine ppm
74 WELL #2	1817.2	15,296,659	
Previous Day	1811.9		1.58
Daily	5.3	10,	Dec 81 → 78% CS
94 Well #3	1657.7	15,628,519	
Previous Day	1652.5		0.20
Daily	5.2		INC 60 → 68
Daily Total Gal.			
Distribution	16641 Tank		0.23

Sunday

18	TIME 8:15pm		TANK % 94
	Hours	Gallons	Chlorine ppm
74 WELL #2	1822.6	15,307,449	Pumps Run
Previous Day	1817.2	15,296,659	2.0
Daily	5.4	10,790	
94 Well #3	1663.1	15,637,855	Run
Previous Day	1657.7	15,628,519	2.0
Daily	5.4	9,336	
Daily Total Gal.		20,126	
Distribution	16641		0.62

March 20'2

Monday

19	TIME 9:30 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1826.8	15,316,138	1.95
Previous Day			
Daily			Dec 78->75%
94 Well #3	1667.4	15 645,308	0.65
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.08

Tuesday

20	TIME 8PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1830.8	15,324,180	2.0
Previous Day			Dec 75-65%
Daily			
			~~[illegible]~~
94 Well #3	1671.4	15,652,273	2.0
Previous Day			Pumps Run..
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.81

Wednesday

21	TIME 10PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1835.0	15,332,693	1.02
Previous Day	1830.8	15,324 180	
Daily	4.2	8,513	
94 Well #3	1675.8	15,659,470	1.33
Previous Day	1671.4	15 652,273	
Daily	4.4	7,197	
Daily Total Gal.		15,710	
Distribution	16641 Iowa Ave		1.62

March 2012

Thursday

22	TIME 9:30 pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1838.4	15,339,437	0.44
Previous Day	1835.0	332 693	
Daily	3.4	6,744	
94 Well #3	1678.9	15,665,182	0.87
Previous Day	1675.8	659, 470	
Daily	3.1	5 712	
Daily Total Gal.		12,456	
Distribution	16641		1.55

Friday

23	TIME 9:30	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1841.5	15,345 923	0.21
Previous Day	1838.4	339 437	Bleed air out of
Daily	3.1	6,486	Line & got to 75%
94 Well #3	1682.0	15 670 766	0.65
Previous Day	1678.9	15 665 182	
Daily	3.1	5 584	
Daily Total Gal.		12 050	
Distribution	16641 Iowa Ave		1.14

Saturday

24	TIME 10:30 PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1846.3	15,355,318	0.65
Previous Day	1841.5	15, 345 923	
Daily	4.8	9,395	
94 Well #3	1686.8	15,679,054	1.14
Previous Day	1682.0	15, 670 766	
Daily	4.8	8,288	
Daily Total Gal.		17683	
Distribution	16641 Iowa Ave		0.60

March 2012

Sunday

25	TIME 8:30Pm	TANK % 90%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1848.7	15,360,160	P 2.0
Previous Day			
Daily			
			Pump Ran
94 Well #3	1689.4	15683,558	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.18

Monday

26	TIME 9:45Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1853.4	15,369,618	1.55 Da to 72%
Previous Day	48.7		
Daily	4.7		
94 Well #3	1693.9	15,691,444	0.98
Previous Day	89.4		
Daily	4.5		
Daily Total Gal.			
Distribution	16641 Town		0.37

Tuesday

27	TIME 11PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1857.9	15,378,740	1.71 Da to 70%
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Town		0.95

March 2012

Wednesday

28	TIME 8:30 pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1860.7	15,384,418	2.0
Previous Day			
Daily			
			Pumps Run
94 Well #3	1701.3	15,704,440	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		1.16

Thursday

29	TIME 10 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1864.8	15,392,628	
Previous Day	60.7	15,384,418	1.16
Daily	4.1	8,210	
94 Well #3	1705.3	15,711,463	
Previous Day	1701.3		1.40
Daily	4.0		Dec 67% → 65% [illegible]
Daily Total Gal.			
Distribution	16641		1.36

Friday

30	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

March 2012

Suturday

31	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

April 2012

S nday

1	TIME 8:45 PM	TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	1876.4	15,415,956	0.92
Previous Day			
Daily			
94 Well #3	1716.4	15,731,790	1.5
Previous Day			
Daily			
Daily Total Gal.			
Distribution	N6641 Iowa Ave		1.17

Monday

2	TIME 10PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.20
P evious Day			
Daily			
94 Well #3			1.35
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.17

Tuesday

3	TIME 9:30 pm	TANK % 85	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1883.0	15,429,500	0.91
Previous Day			
Daily			
94 Well #3	1723.6	15,743,492	1.00
Previous Day			
I ily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.05

April 2012

Wednesday

4	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.98
Previous Day			
Daily			
94 Well #3			1.11
Previous Day			
Daily			
Daily Total Gal.			
Distribution			1.10

Thursday

5	TIME 9:45 pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1890.7	15,445,098	1.03
Previous Day			
Daily			
94 Well #3	1731.2	15,756,810	0.88
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.70

Friday

6	TIME 9:30 Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1893.9	15,451,768	2.0
Previous Day	1890.7		
Daily	3.2		
			Pumps Ran
94 Well #3			2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.78

April 2012

S turday

7	TIME 10:10 PM	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1897.3	15,458,655	2.0
Previous Day	1893.9		
Daily	3.4		
			Pump Ran
94 Well #3	1737.8	15,768,485	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.58

Sunday

8	TIME 8PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1899.6	15,463,648	1.03
P evious Day	97.3	458,655	
Daily	2.3	5,000	
94 Well #3	1740.2	15,772,732	1.28
Previous Day	37.8	768,485	
Daily	2.4	4.2	
Daily Total Gal.		9.25	
Distribution	16641 Iowa Av		0.89

Monday

9	TIME 8:30Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1903.3	15,471,200	2.0
Previous Day			
Daily			
			Pan P.R.
94 Well #3	1743.9	15,779,355	2.0
Previous Day	1740.2		
I ly	3.7		
Daily Total Gal.			
Distribution	16641		~~0.6~~ 0.60

April 2012

Tuesday

10	TIME 9PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1907.6	15,480,193	0.22 Added 5gal ~~top~~ to CL2 Tank
Previous Day			
Daily			
94 Well #3	1748.2	15,786,855	0.71
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.87

Wednesday

11	TIME 9:45 Pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1910.8	15,486,540	0.25 Increase CL2 68% → 76%
Previous Day	1907.6	480,193	
Daily	3.2	6,400	
94 Well #3			0.65
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.46

Thursday

12	TIME 9:20 Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1915.2	15,495,643	0.68
Previous Day	10.8	486 590	
Daily	4.4	9,103	
94 Well #3	1755.7	15,800,244	0.20 Inc 68-72%
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.31

April 2012

Friday

13	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.05
Previous Day			
Daily			
94 Well #3			1.27
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.41

SATURDAY

14	TIME 8:30PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1922.3	15,510,139	1.46
Previous Day			
Daily			
94 Well #3	1762.8	15,812,718	1.38
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16441 [illegible]		0.39

SUNDAY

15	TIME 9:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1926.7	15,519,085	2.0
Previous Day	22.3		
Daily	4.4	9k	
			Pumps Run
94 Well #3	1767.3	15,820,500	2.0
Previous Day	62.8		
Daily	4.8		
Daily Total Gal.			
Distribution	16641 [illegible]		1.05

April 2012

Monday

16	TIME 11:15 PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1930.5	15,526,298	1.92
Previous Day	1926.7	15,519,085	Red. Cl_2 ~~74~~ → 70
Daily	3.8	7,213	
94 Well #3	1771.1	15,827,110	
Previous Day	1767.3	15,820,500	0.84
Daily	3.8	6,610	
Daily Total Gal.		13,823	
Distribution	16641 Iowa Ave		1.31

Tuesday

17	TIME 8:30P	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1933.8	15,533,555	
Previous Day	1930.5	15,526,298	1.66
Daily	3.3	6,257	Red. Cl_2 → 68%
94 Well #3	1774.3	15,832,869	
Previous Day	1771.1	827,110	0.98
Daily	3.2	5759	
Daily Total Gal.		12,016	
Distribution	16641 Iowa Ave		1.34

Wednesday

18	TIME 9:30 Am	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1937.0	15,540,266	2.0
Previous Day			
Daily			Red Cl_2 → 58%
			Pump Run
94 Well #3	1777.8	15,839,135	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		1.67

April 2012

T urday

19	TIME 8:45pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1941.1	15,548,608	
Previous Day	1932.0	15,540,266	1.75
Daily	4.1	8,342	
			P. R...
94 Well #3	1781.8	15,846,095	
Previous Day	1777.8	15,839,135	2.25
Daily	4.0	6,960	Red to 50%
Daily Total Gal.		15,302	
Distribution	16641 Iowa Ave		1.58

FRIDAY

20	TIME 10:30Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1945.0	15,556,429	
P evious Day	1941.1	15,548,606	0.30
Daily	3.9		
94 Well #3	1785.5	15,852,626	
Previous Day	1781.8	15,846,095	0.21
Daily	~~1~~ 3.7		INC. 50% → 63%
Daily Total Gal.			
Distribution	16641 IowA Ave		0.56

SATURDAY

21	TIME 8:30Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1948.2	15,563,053	
Previous Day	1945.0	56,429	0.24
Daily	3.2	6,624	Inc → 60 → 65%
94 Well #3	1788.8	15,858,356	
Previous Day	1785.5	852,626	0.67
I ly	3.3	5,730	
Daily Total Gal.		12,354	
Distribution	16641 IowA Ave		0.21

April 2012

Sunday

22	TIME 9:35 PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1951.5	15,569,742	0.25 Inc 65 → 72%
Previous Day	1948.2		
Daily	3.3		
94 Well #3	1792.1	15,864,168	1.73 Dec 63% → 60%
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.25

Monday

23	TIME 9:16	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1954.8	15,576,420	Cl Back to 62% since ~~ata~~ lowered Cl [illegible] 0.22 ~~Inc → 65%~~
Previous Day	1951.5	15,569,742	
Daily	3.3	6,678	
94 Well #3	1795.4	15 870 019	0.21 Inc → 63%
Previous Day	1792.1	15,864,168	
Daily	3.3	5,851	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.27

Tuesday

24	TIME 9pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1959.2	15,585,130	0.24 IN 64 → 70%
Previous Day	1954.8	15,576,420	
Daily	4.4	8,710	
94 Well #3	1799.8	15, 879.822	2.35 Dec → 61%
Previous Day	1795.4	15, 870, 019	
Daily	4.4		
Daily Total Gal.			
Distribution	16641 Iowa		0.39

April 2012

W dnesday

25	TIME 8:30PM	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1962.7	15,592,133	0.24
Previous Day	1959.2	15,585,130	INC → 75%
Daily	3.5	7,003	
94 Well #3	1803.3	15,883,929	0.11 → 21
Previous Day	1799.8	15,877,822	INC → 62%
Daily	3.5	6,107	
Daily Total Gal.		13110	
Distribution	16641 Iowa Av		0.26

Thursday

26	TIME 1150 PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.76
P evious Day	1962.7	15,592,133	
Daily			
94 Well #3			0.33
Previous Day	1803.3	15,883,929	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.21

Friday

27	TIME 9:20Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1970.5	15,607,744	1.03
Previous Day			
Daily			
94 Well #3	1811.0	15,897,581	0.45
Previous Day			INC TO 63%
I ly			
Daily Total Gal.			
Distribution	16641 Iowa		0.19

April 2012

SATURDAY

28	TIME 6:30Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1973.8	15,614,446	1.22
Previous Day	1970.5	15,607,744	
Daily	3.3	6,702	
94 Well #3	1811.0	15,903,476	0.82
Previous Day		897,581	
Daily		5,895	
Daily Total Gal.		12,597	
Distribution	16641		0.58

SUNDAY

29	TIME 10Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1977.7	15,622,348	2.0
Previous Day	1973.8	15,614,446	
Daily	3.9	7,902	
			Pumps Ran
94 Well #3			2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Towpa		0.63

Monday

30	TIME 10Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1981.8	15,630,442	1.44
Previous Day	1979.7	15,622,348	
Daily	4.1	8,100	Dec 74 → 70%
94 Well #3 Broken	1811.0	15,917,533	0.41
Previous Day	4.1		
Daily			Inc → 66 → 68%
Daily Total Gal.			
Distribution	16641	Towpa Ave	0.78

May 2012

S nday

Monday

Tuesday

1	TIME 9:30 AM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1985.5	15,638,100	2,0
Previous Day	1981.8		
Daily	3.7		Red CL 70→68
			Pumps Raw
94 Well #3	~~15,924~~	15,924,400	
Previous Day			2.0
D ly			Red CL 62%
Daily Total Gal.			
Distribution	16641 Iowa		1.42

May 2012

Wednesday

2	TIME 10PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1989.9	15,646,857	1.31
Previous Day			
Daily			
94 Well #3	1811.0	15,931,762	1.46
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.22

Thursday

3	TIME 10pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1993.4	15,653,936	1.20
Previous Day			
Daily			
94 Well #3		15,937,853	0.45
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.13

Friday

4	TIME 9pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1998.2	15,663,639	0.94
Previous Day			
Daily			
94 Well #3		15,946,343	1.45
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.59

May 2012

S turday

5	TIME 9:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2002.8	15,673,002	1.13
Previous Day	1998.2	15,663,639	
Daily	4.6	9,363	
94 Well #3		15,954,491	2.0
Previous Day		15,946,343	Red 62 → 58%
Daily		8,148	
Daily Total Gal.		17,511	
Distribution	16641 Iowa Ave		0.62

Sunday

6	TIME 9:10 PM	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2006.4	15,680,050	1.11
P evious Day	2002.8	15,673,002	
Daily	3.6	7,048	
94 Well #3		15,960,625	
Previous Day		15,954,491	1.89
Daily			Red → 52%
Daily Total Gal.			
Distribution	16641 Iowa		0.97

Monday

7	TIME 10pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.0
Previous Day			
Daily			
94 Well #3			2.0
Previous Day			
I ly			
Daily Total Gal.			
Distribution	16641		1.01

May 2012

Tuesday

8	TIME 9:00P	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2014.3	15,696,700	2,0
Previous Day			
Daily			
94 Well #3	n/c	15,975,375	2.0
Previous Day	~~18~~		
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.79

Wednesday

9	TIME 8:30Pm	TANK % ~~88~~ 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2019.1	15,705,797.1	1.25
Previous Day	2014.3	15,696,700	
Daily	4.8	9,097	
94 Well #3	1811.0	15,982,892	1.72
Previous Day		15,975,375	
Daily		7,517	
Daily Total Gal.		16,614	
Distribution	16641		0.55

Thursday

10	TIME 9:30Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2023.6	15,714,818	0.74
Previous Day	2019.1	15,705,797	
Daily	4.5	9,021	
94 Well #3		15,990,718	0.22
Previous Day		15,982,892	
Daily		7,826	INC 58 → 60%
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.23

May 2012

F 'day

11	TIME 9:30PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2028.3	15,724,262	
Previous Day	2023.6	15,714,818	1.15
Daily	4.7	9,444	
94 Well #3		15,998,998	
Previous Day		15,990,798	0.45
Daily		8,200	INC→60→62%
Daily Total Gal.			
Distribution	16641	Iowa	0.25 0.05

SATURDAY

12	TIME 9PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2033.1	~~16,007,379~~ 15,733,894	2.24
Previous Day	2028.3	15,724,262	
Daily	4.8	~~3,112~~ 9,632	
94 Well #3		16,007379	
Previous Day		15 998,998	1.90
Daily		8,381	
Daily Total Gal.			
Distribution	16641	Iowa	0.36

SUNDAY

13	TIME 7:30PM	TANK % 90%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2036.7	15,741,079.2	1.26
Previous Day	2033.1	15,733,894	
Daily	3.6	~~8,908~~ 7,185	
94 Well #3		16013512	0.51
Previous Day		16007379	
Daily	16013512	6133	inc 62-64%
Daily Total Gal.		13,318	
Distribution	16641		0.60

May 2012

Monday

14	TIME 7:30 PM	TANK %	86
	Hours	Gallons	Chlorine ppm
74 WELL #2	2044.8	15750086.7	
Previous Day	2036.7	15741079.2	1,25
Daily	5.1	9007	
94 Well #3		16022242	.67
Previous Day		16013512	
Daily		8730	
Daily Total Gal.		17,737	
Distribution	16641 Iowa Ave		0,26

Tuesday

15	TIME 7:30Pm	TANK %	95
	Hours	Gallons	Chlorine ppm
74 WELL #2	2046.5	15760581.1	
Previous Day	2044.8	15750086.7	2.44
Daily	5.7	10,495	
			Pump Running
94 Well #3		16030662	
Previous Day		16022242	2.50
Daily		8420	
Daily Total Gal.			
Distribution	16641 Iowa Av		1.16

Wednesday

16	TIME 7:30 pm	TANK %	91
	Hours	Gallons	Chlorine ppm
74 WELL #2	2049.9	15767203.4	
Previous Day	2046.5	15760581.1	1,25
Daily	3.4	6622.3	
94 Well #3		16036435	
Previous Day		16030662	1.83
Daily		5773	Decrease 64-62
Daily Total Gal.			
Distribution	16641 Iowa		1.12

May 2012

T urday

17	TIME 8:45 PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2054.7	15,776,828	
Previous Day	2049.9	15,767,203	1.60
Daily	4.8	9,625	
Grainger.com	new HR meter		
94 Well #3	00.1	16,044,810	
Previous Day	—	16,036,435	1.34
Daily	4.8	8,375	
Daily Total Gal.		18,000	
Distribution	16641 Iowa		1.39

FRIDAY

18	TIME 9:15 PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2058.2	15,783,820	
P evious Day	2054.7	776,828	1.47
Daily	3.5	6,992	
94 Well #3	3.6	16,051,186	
Previous Day	0.1	16,044,810	0.51
Daily	3.5	6,676	Inc → 62-63
Daily Total Gal.		13668	
Distribution	16641 ~~Iowa~~ Ave		1.63

SATURDAY

19	TIME 11:30 PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2062.6	~~16,051,186~~	1.49
Previous Day	2058.2 ~~0.1~~	~~16,0~~ 15,793,334	
Daily	4.7 ~~3.5~~	15,783,820	
		9,514	
94 Well #3	8.3	16,059,414 8228	
Previous Day	3.6	16,051,186	1.70
I ly	4.7	8228	Dec 63 → 62.5
Daily Total Gal.		17,742	
Distribution	16641 Iowa Ave		1.57

May 2012

Sunday

20	TIME 11:55PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2066.6	15,800,873	1.51
Previous Day	2062.9	15,793,820	
Daily	3.7	7,053	
94 Well #3	12.0	16,065,241	1.20
Previous Day	8.3	16,059,414	
Daily	3.7	5,827	
Daily Total Gal.		12,880	
Distribution	16641 [illegible]		1.28

Monday

21	TIME 9:35PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2070.1	15,807,958	1.47
Previous Day	2066.6	15,800,873	
Daily	3.5	7,085	
94 Well #3	15.5	16,072,041	0.86
Previous Day	12.0	16,065,241	
Daily	3.5	6,800	
Daily Total Gal.		13,885	
Distribution	16641 [illegible]		1.21

Tuesday

22	TIME 9PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2074.2	15,816,424	1.36
Previous Day	2070.1	15,807,958	
Daily	4.1	8,466	
94 Well #3	19.7	16,079,369	0.32
Previous Day	15.5	16,072,041	
Daily	4.2	7,328	IN - 63 → 65%
Daily Total Gal.		15,794	
Distribution	16641		1.13

May 2012

\ dnesday

23	TIME 0730 Pm	TANK % 96%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2078.2	15824658.3	
Previous Day	2074.2	15,816,424	2.50
Daily	4.0	8234	Pump Running
94 Well #3	23.9	16,086,783	
Previous Day	19.7	16'079'369	2.35
Daily	4.2	7414	
Daily Total Gal.		15,648	Pump Running
Distribution	16641 Iowa Av		1.20

Thursday

24	TIME 7:30 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2082.1	~~16086783~~ 158324.778	
P evious Day	2078.2	15824658.3	1.09
Daily		7819	
94 Well #3	27.6	16093227	
Previous Day	23.9	16086783	0.88
Daily	3.7	6444	
Daily Total Gal.		14,263.5	
Distribution	16641		1.08

Friday

25	TIME 7:30 pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2085.4	158392 83.5	
Previous Day	2082.1	158324 77.8	1.40
Daily	3.3	6805.7	
94 Well #3	30.9	16099089	
Previous Day	27.6	16093227	0.66
I ily	3.3	5852	increase 64-66
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.10

May 2012

SATURDAY

26	TIME 6:30Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2088.8	15,846,289	1.48
Previous Day	2085.4	15 839 283	
Daily	3.4	7,006	
94 Well #3	34.3	16,105,192	
Previous Day	30.9	16,099,079	1.25
Daily	3.4	6 113	
Daily Total Gal.		13,119	
Distribution	16641 Iowa Av		1.01

SUNDAY

27	TIME 8:30Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2093.4	15,855,669	
Previous Day	2088.8	15 846,289	1.66
Daily	4.6	9,380 34GPm	
94 Well #3	38.8	16,113,133	
Previous Day	34.3	16 105 192	1.40
Daily	4.5	7,941 29.4GPm	
Daily Total Gal.		17,321	
Distribution	16641 Iowa Ave		1.27

Monday

28	TIME 8 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2096.7	15,862,433	
Previous Day	2093.4	15,855,669	1.76
Daily	3.3	6 764 34GPm	
94 Well #3	42.1	16,119,064	
Previous Day	38.8	16 113, 133	1.35
Daily	3.3	5 931.1 30GPm	
Daily Total Gal.	64GPm Ave	12,695	
Distribution	16641 IOWA Ave		0.91

May 2012

TUESDAY

29	TIME 8:30 PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2100.2	15,869,514	
Previous Day	2096.7	15,862,433	1.77
Daily	3.5	7,081	Red 68→65%
94 Well #3	45.6	16,125,086	
Previous Day	42.1	16,119,064	1.80
Daily	3.5	6,022	Red 65→63
Daily Total Gal.		13,103	
Distribution	16641 Iowa Av		1.45

WEDNESDAY

30	TIME 8:30Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2104.1	15,877,595	
Previous Day	2100.2	15,869,514	2.0
Daily	3.9	8,081	
			Pump RUN.—
94 Well #3	49.7	16,132,418	
Previous Day	45.6	16,125,086	2.25
Daily	4.1	7332	
Daily Total Gal.		15,413	
Distribution	16641 Iowa Ave		1.14

THURSDAY

31	TIME 8:30Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2108.4	15,886,343	
Previous Day	2104.1	15,877,595	0.29
Daily	4.3	8,748	INC→ 65→68.5%
94 Well #3	53.8	16,139,693	
Previous Day	49.7	16,132,418	2.22
Daily	4.1	7,275	
Daily Total Gal.		16,023	
Distribution	16641 Iowa		1.36

June 2012

ursday

Friday

1	TIME 10:15PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2111.7	15,892,953	0.30
Previous Day			Inc 68 -> 70%
Daily			
94 Well #3	57.15	16,145,592	0.45
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.07

Saturday

2	TIME 10PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.0
Previous Day			
Daily			
94 Well #3			1.2
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.88

June 2012

Sunday

3	TIME 9PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2120.4	15,910,549	2,0
Previous Day			
Daily			
			Pumps Run
94 Well #3	65.9	16,160,777	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.89

Monday

4	TIME 10:25PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2126,0	15,921,710	2,0
Previous Day			
Daily			
			Pumps Run
94 Well #3	71.5	16,170,440	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0,77

Tuesday

5	TIME 10PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2130.1	15,924,863	1.34
Previous Day			
Daily	3.9	7,153	
94 Well #3	75.4	16,177,271	0.57
Previous Day	71.5		Inc 65→67%
Daily	3.9	6,831	
Daily Total Gal.		13,984	
Distribution			1.12

June 2012

\ dnesday

6	TIME 9:30PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2133.4	15,936,733	1.47
Previous Day			
Daily			
94 Well #3	78.8	16,183,359	2.25
Previous Day			Dec 67→66%
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.41

Thursday

7	TIME 10PM	TANK % N/A	
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.0
F evious Day			
Daily			
94 Well #3			2.75
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.12

Friday

8	TIME 11:45PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2141.1	15,952,528	2.50
Previous Day			
Daily			
94 Well #3			2.18
Previous Day			
I ily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.27

June 2012

Saturday

9	TIME 11PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2143.4	15,957,202	1.33
Previous Day			
Daily			
94 Well #3	88.8	16,201,035	0.72
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 IOWA		1.16

Sunday

10	TIME 7:30PM	TANK % 95%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2146.7	15,964,089	1.40
Previous Day	2143.4	15,957 202	
Daily	3.3	6,887	
94 Well #3	92.1	16,207,073	0.38
Previous Day	88.8	16 201,035	
Daily	3.3	6,038	
Daily Total Gal.		12,925	
Distribution	16641 Iowa Ave		1.41

Monday

11	TIME 10PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2150.0	15,970,895	1.31 Rd 70 → 68
Previous Day	2146.7	964 089	
Daily	3.3	6 806	
94 Well #3	95.4	16,213,088	2.10 Pump [illegible]
Previous Day	92.1	16 207,073	
Daily	3.3	6 015	
Daily Total Gal.		12,821	
Distribution	16641 IOWA		1.43

June 2012

Tuesday

12	TIME 9PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2153.3	15,977,590	1.23
Previous Day	2150.0	15 970 895	
Daily	3.3	6,695	
94 Well #3	98.6	16,218,677	
Previous Day	95.4	16 213, 088	0.49
Daily	3.2	5,589	
Daily Total Gal.			
Distribution	16641 Towr		1:38

Wednesday

13	TIME 10:55 Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2157.4	15,986,238	
Previous Day	2153.3		2,0
Daily	4.1		
			Pump RUN
94 Well #3			
Previous Day			2,0
Daily			
Daily Total Gal.			
Distribution	16641		1.40

Thursday

14	TIME 9:30 AM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2159.7	15,991,058	
Previous Day	57.4	15,986,238	1.42
Daily	2.3	4,820	
94 Well #3	105.1	16,230,345	
Previous Day			0.83
Daily			
Daily Total Gal.			
Distribution	16641 Towr Rd		1.19

June 2012

Friday

15	TIME 10:30PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2163.0	15,997,753	1.17
Previous Day	2159.7	15,991,058	
Daily	3.3	6,695	
94 Well #3	108.6	16,236,846	Pump Run 2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.18

Saturday

16	TIME 10PM	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2166.4	16,004,840	1.02
Previous Day	2163.0	15,997,753	
Daily	3.4	7,087	
94 Well #3	111.9	16,242,476	Pump Run 2.50
Previous Day	108.6	16,236,846	
Daily	3.3	5,630	
Daily Total Gal.		12,717	
Distribution	16641 Iowa Ave		1.15

Sunday

17	TIME 9:30 PM	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2170.2	16,012,640	2.20
Previous Day	2266.4	4 ~~994~~ 0840	
Daily	3.8	7,800	
			Pump Run
94 Well #3	115.6	16,249,200	2.25
Previous Day	111.9	16 242,476	
Daily	3.7	6,724	
Daily Total Gal.		13,411	
Distribution	16641 Iowa Ave		1.11

June 2012

Monday

18	TIME 8:40 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2174.4	16,021,150	2.15
Previous Day	2170.2	16,012,640	
Daily	4.2	8,510	
			Pumps RUN…
94 Well #3	119.8	16,256,555	2.21
Previous Day	115.6	16,249,200	
Daily	4.2	7,355	
Daily Total Gal.		15,865	
Distribution	16641 Iowa		1.03

Tuesday

19	TIME 9:30 pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2178.1	16,028,899	0.92
Previous Day	2174.4	16,021,150	
Daily	3.7	7,749	
94 Well #3	123.5	16,263,103	0.44
Previous Day	119.8	16,256,555	
Daily	3.7	6,548	
Daily Total Gal.		14,297	
Distribution	16641 Iowa Ave		1.02

Wednesday

20	TIME 9:30 pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2181.3	16,035,465	0.97
Previous Day	2178.1	28,899	
Daily	3.2	6,566	
94 Well #3	126.6	16,268,783	1.36
Previous Day	123.5	16,263,103	
Daily	3.1	5,680	
Daily Total Gal.		12,246	
Distribution			0.97

June 2012

Thursday

21	TIME 10:30pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1,12
Previous Day			
Daily			
94 Well #3			0.89
Previous Day			
Daily	3.3		
Daily Total Gal.			
Distribution	16641		0.60

Friday

22	TIME 9:30pm	TANK % 86%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2188.0	16,049,400	2.0
Previous Day	2181.3		
Daily	(3.3) 6.7		
			Pump Room
94 Well #3	133.5	16,281,070	2,50
Previous Day			
Daily	3.3		
Daily Total Gal.			
Distribution	16641	[illegible]	1.03

Saturday

23	TIME 11:00pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.43
Previous Day			
Daily			
94 Well #3			1.21
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641	[illegible]	0.93

June 2012

Sunday

24	TIME 9PM	TANK % 86 ~~85~~%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2196.6	16, ~~[illegible]~~ 067,185	Pump Running Just Started 2.1
Previous Day			
Daily			
94 Well #3	141.8	16, 295, 871	1.11
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		1.09

Monday

25	TIME 10PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2203.4	16, 080 973	0.97
Previous Day	2196.6	16, 067, 185	
Daily	6.8	13 787	
94 Well #3	148.7	16, 307, 790	1.20
Previous Day	141.8	16, 295, 871	
Daily	6.9	11, 919	
Daily Total Gal.		25, 706	
Distribution	16641 Town		1.19

Tuesday

26	TIME 9PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2208.0	16, 090, 367	0.63
Previous Day	2203.4	16, 080 973	
Daily	4.6	9,394	
94 Well #3	153.3	16, 315, 881	0.85
Previous Day	148.7	16, 307, 790	
Daily	4.6	8, 091	
Daily Total Gal.		17,485	
Distribution	16641		1.03

June 2012

Wednesday

27	TIME 8:30PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2211.4	16,097,508	
Previous Day	2208.0	16,090,367	0.35
Daily	3.4	7,141	inc 70→72%
94 Well #3	157.7	16,322,025	
Previous Day	153.3	16 315 881	2.50
Daily	4.4	6,144	
Daily Total Gal.			
Distribution	16641	Iowa Ave	0.95

Thursday

28	TIME 10PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2216.2	16,107 113	
Previous Day	2211.4	16 097508	0.99
Daily	4.8	9,605	
94 Well #3	161.5	16 330,442	2.50
Previous Day	157.7	322 025	Dec 64→60%
Daily	4.8	8417	
Daily Total Gal.		18 025	
Distribution	16641	Iowa	1.08

Friday

29	TIME 10PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2219.7	16,114,149	
Previous Day	2216.2	16,107,113	2.08
Daily	3.5	7036	
94 Well #3	164.9	16, 336,613	
Previous Day	161.5	16, 330,442	0.54
Daily	3.4	6,171	
Daily Total Gal.		13,207	
Distribution	16641	Iowa	0.49

June 2012

S turday

30	TIME 9PM		TANK % 90
	Hours	Gallons	Chlorine ppm
74 WELL #2	2223.1	16,121,151	1.65
Previous Day	2219.7	1 14149	
Daily	3.4	7,002	
94 Well #3	168.4	16,342,706	0.20
Previous Day	164.9	16, 336613	
Daily	3.5	6093	INC TO 62
Daily Total Gal.		13,095	
Distribution	1664		0.51

July 2012

S nday

1	TIME 10:15PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2227.8	16,130,769	B. 1.45
Previous Day	2223.1	16,121,151	
Daily	4.7	9,618	
			Pump Just Shut Off
94 Well #3	173.1	16,351,096	2.50
Previous Day	168.4	342,706	
Daily	4.7	8,390	
Daily Total Gal.		18,008	
Distribution	16641		1.10

Monday

2	TIME 9:30PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2232.7	16,140,595	1.51
P evious Day	2227.8	16,130,769	
Daily	4.9	9,826	
94 Well #3	178.0	16,359,641	0.68
Previous Day	173.1	16,351,096	
Daily	4.9	8,545	
Daily Total Gal.			
Distribution	16641 Iowa		1.05

Tuesday

3	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			N/A Est 2.0
Previous Day			
Daily	3.6		
94 Well #3			N/A Est 2.1
Previous Day			
D ily	3.6	13,702	
Daily Total Gal.			
Distribution			1.08

July 2012

Wednesday

4	TIME 7:30 PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2239.9	16,155,185	2.21
Previous Day	32.7	40 595	
Daily	(3.6) 7.2	7,290 14 580	
			Pumps Run
94 Well #3	185.2	16,372,480	2.32
Previous Day	178.0	59 641	
Daily	3.6 7.2	6,412 11 849	
Daily Total Gal.		13,702	
Distribution	16641 Iowa		1.40

Thursday

5	TIME 9pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2244.2	16,163,988	1.46
Previous Day	2239.9	16,155,185	
Daily	4.3	8 803	
94 Well #3	189.5	16,379,884	1.28
Previous Day	185.2	372 480	
Daily	4.3	7,404	
Daily Total Gal.		16,207	
Distribution			1.25

Friday

6	TIME 9pm	TANK % 92%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2247.1	16,170,020	2.25
Previous Day	2244.2		
Daily	2.9		
			Pumps Run
94 Well #3	192.4	16,385,685	2.20
Previous Day	189.5		
Daily	2.9		
Daily Total Gal.			
Distribution	16641		1.22

July 2012

S turday

7	TIME 9PM	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2250.9	16,177,793	1.41
Previous Day	2247.1	16,170,020	
Daily	3.8	7,773	
94 Well #3	196.1	16 391,705	0.29
Previous Day	192.4	16,385,685	
Daily	3.7	6 020	
Daily Total Gal.		13793	
Distribution	16641	Iowa Ave	1.19

Sunday

8	TIME 10PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2254.3	16,184,923	1.49
Previous Day	2250.9	16,177,793	
Daily	3.4	7,130	
94 Well #3	199.6	16,397,837	1.65
Previous Day	196.1	16,391,705	
Daily	3.5	6,132	
Daily Total Gal.		13,262	
Distribution	16641		1.32

Monday

9	TIME 11PM	TANK % 84	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2257.7	16,192,012	1.62
Previous Day	2254.3	16,184,923	
Daily	3.4	7,089	
94 Well #3	203.0	16,403,875	0.48
Previous Day	199.6	16,397,839	
Daily	3.4	6036	
Daily Total Gal.		13,125	
Distribution	16641		1.07

July 2012

Sunday

22	TIME 8PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2306.2	16293450	1.18
Previous Day	2302.5	162~~76368~~ 85797	
Daily	3.7	7653	
94 Well #3	251.5	16,489,846	.45
Previous Day	247.9	164~~85403~~ 83356	
Daily	~~8.7~~ 3.8	6490	
Daily Total Gal.	~~4.9~~ 7.5	14,143	
Distribution	16641 Iowa		0.67

Monday

23	TIME 10:45PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2311.3	16,303959	1.15
Previous Day	2306.2	16,293450	
Daily	5.1	10,509	
			9
94 Well #3	256.6	16,498,815	0.60
Previous Day	251.5	16,489,846	
Daily	5.1	8,969	
Daily Total Gal.		19,478	
Distribution	16641		0.60

Tuesday

24	TIME 7:30PM	TANK % 85%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2313.8	16309255	1.0
Previous Day	2311.3	~~16293450~~	
Daily	2.5	16303959	
	2.5	5296	
94 Well #3	259.1	16503308	.05
Previous Day	256.6	16498815	
Daily	2.5	4493	
Daily Total Gal.	5.0	9789	
Distribution	16641 Iowa		0.70

July 2012

dnesday

25	TIME 8:30PM	TANK % 87
	Hours	Gallons	Chlorine ppm
74 WELL #2	2317.3	16,316,643	0.75
Previous Day	2313.8	16,309,255	
Daily	3.5	7,388	
	262.6		
94 Well #3	~~259.6~~	16,509,600	0.66
Previous Day	259.1	16,503,308	
Daily	3.5	6,292	
Daily Total Gal.		13,680	
Distribution	16641		0.48

Thursday

26	TIME 7:30Pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2320.8	16,323,915	0.96
Previous Day	2317.3	16,316,643	
Daily	3.5	7,272	
94 Well #3	266.1	16,515,846	0.73
Previous Day	262.6	16,509,600	
Daily	3.5	6,246	
Daily Total Gal.		13 518	
Distribution	16641		0.55

Friday

27	TIME	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2325.4	16,333,370	0.87
Previous Day	2320.8	16,323,915	
Daily	4.6	9 455	
94 Well #3	270.6	16,524,068	0.25
Previous Day	266.1	16,515,846	
Daily	4.5	8,222	
Daily Total Gal.		17,677	
Distribution	16641		0.58

July 2012

SATURDAY

28	TIME 11:45PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2330.5	16,343,923	
Previous Day	2325.4	16,333,370	0.76
Daily	5.1	10,553	
		12,9..	
94 Well #3	275.7	16,533,030	
Previous Day	270.6	524,068	0.34
Daily	5.1	8,962	
Daily Total Gal.		19,515	
Distribution	16641		0.38

SUNDAY

29	TIME 8:30	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2334.1	16351436	
Previous Day	2330.5	16,343,923	0.90
Daily	3.6	7,513	
94 Well #3	279.3	16,539383	0.03
Previous Day	275.7	16,533,030	~~0.90~~
Daily	3.6	~~16,539 383~~	64 - 66%
Daily Total Gal.		6353	
Distribution	16441	13,866	0.41

Monday

9:15Pm Changed CL_2 Hose on Metering pumps

30	TIME ~~9:15~~Pm	TANK % 84	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2337.8	16,359,036	
Previous Day	2334.1	16,351,436	0.71
Daily	3.7	7,600	
94 Well #3	283.0	16,546,103	
Previous Day	279.3	16,539,383	0.20
Daily	3.7	6,720	
Daily Total Gal.		14,320	
Distribution	16641		0.28

July 2012

T esday

31	TIME 8:30PM	TANK % 85	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2341.4	16,366,305	
Previous Day	2337.8	16,359,036	0.25
Daily	3,6	7,269	Rwc → 68-723
94 Well #3	286.6	16,552,333	
Previous Day	283.0	16,546,103	0.32
Daily	3,6	6,230	
Daily Total Gal.		13,499	
Distribution	16641		0.29

August 2012

Wednesday 8:45pm

1	TIME		TANK % 90
	Hours	Gallons	Chlorine ppm
74 WELL #2	2345.4	16,374,500	
Previous Day	2341.4	16,366,305	2.47
Daily	4.0	8,195	
			Pumps RUN
94 Well #3	290.6	16,559,488	
Previous Day	286.6	16,552,333	2.22
Daily	4.0	7155	
Daily Total Gal.		15,350	
Distribution	16641		0.37

Thursday

2	TIME 8:00 PM	TANK %	94%
	Hours	Gallons 36	Chlorine ppm
74 WELL #2	2349.7	1638286	INC. 78-80
Previous Day	2345.4	16374500	1.02
Daily	4.3	~~1638891~~	
		8386	
94 Well #3	294.9	16,567,941	
Previous Day	290.6	16,559,488	1.96
Daily	4.3	8453	
Daily Total Gal.		~~15,608~~	
Distribution	16641 - 0.19	16,845	0.07

August 4 2012

1

FRIDAY

3	TIME 8PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2353.1	16389479	
Previous Day	2349.7	16382836	0.94
Daily	~~3.4~~	6643	
	3.4	7.1	
94 Well #3	298.2	16572837	
Previous Day	294.9	16567941	0.60
Daily	3.3	4896	
Daily Total Gal.		11,539	inc 70-74
Distribution	16641 Iowa		0.05

SATURDAY

4	TIME 7:00 pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2355.7	16,395,079	
Previous Day	2353.1	16,389479	1.38
Daily	2.6	5600	
94 Well #3	301.0 ~~298.2~~	16,577,837	
Previous Day	298.2	16572837	0.45
Daily	2.8	5,000	
Daily Total Gal.		10,600	inc 74-76
Distribution	16618 Iowa Ave		0.49

SUNDAY

5	TIME 7:30 PM	TANK % 92%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2360.0	16,403,812	
Previous Day	~~298~~ 2355.7	16,395,079	2.50
Daily	4.3	8733	
			Pump Running
94 Well #3	305.4	16,585,686	
Previous Day	301.0	16,577,837	2.48
Daily	4.4	7849	
Daily Total Gal.			Pump Running
Distribution	16618 Iowa Ave		0.53

August 2012

Monday

6	TIME 8:30PM	TANK % 9[illegible]	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2363.9	16,411,535	1.61
Previous Day	2360.0	16,403,812	
Daily	3.9	7,723	
94 Well #3	309.1	16,592,380	0.28
Previous Day	305.4	16,585,686	
Daily	3.7		Dr 76 → 787
Daily Total Gal.			
Distribution	16641 Ins		0.41

Tuesday

7	TIME 9:30Pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2367.5	16,419,068	2.47
Previous Day	2363.9	16,411,535	
Daily	3.6	7,533	
			Pumps Run
94 Well #3	312.7	16,598,588	2.50
Previous Day	309.1	16,592,380	
Daily	3.6	6,208	
Daily Total Gal.			
Distribution	16641		0.68

Wednesday

8	TIME 9:30Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2371.8	16,427,700	2.50
Previous Day	2367.5	16,419,068	
Daily	4.3	8,632	
			Pumps Run
94 Well #3	317.0	16,606,340	2.45
Previous Day	312.7	598,588	
Daily	4.3	~~3,962~~ 7,752	
Daily Total Gal.			
Distribution	16641	16,384	0.86

August 2012

Thursday

9	TIME 9:30Pm	TANK % 84	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2374.3	16,432,885	1.61
Previous Day	2371.8	16,427,700	
Daily	2.5	5,185	
94 Well #3	319.5	16,610,730	
Previous Day	317.0	16 606 340	0.27
Daily	2.5	4390	INC-80-D822
Daily Total Gal.		9575	
Distribution	16641 Iowa Ave		0.79

Friday

10	TIME 8:30Pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~327.2~~ 2378.9	16,442,535	
Previous Day	2374.3	16,432,885	1.58
Daily	4.6		
94 Well #3	324.2	16,619,948	
Previous Day	319.5	16,610,730	1.22
Daily	4.7	9,218	
Daily Total Gal.			
Distribution	16641 Iowa		1.18

Saturday

11	TIME 8:30 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2382.4	16,449,598	
Previous Day	2378.9	16,442,535	1.47
Daily	3.5	7063	
94 Well #3	327.6	16,625,056	
Previous Day	324.2	16,619,948	0.44
Daily	3.4	5108	
Daily Total Gal.		12,171	
Distribution	16641 Iowa		1.15

August 2012

Sunday

12	TIME 7:30pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2385.6	16,456,268	2.48
Previous Day	2382.4	16,449,598	
Daily	3.2	6,670	
			Pumps RUN
94 Well #3	330.7	16 630,656	2.80
Previous Day	327.6	16,625,056	
Daily	3.1	5600	
Daily Total Gal.		12,270	
Distribution	16641 Town		1.13

Monday

13	TIME 8pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2389.4	16,463979	1.35
Previous Day	2385.6	16,456,268	
Daily		7,711	
94 Well #3	334.6	16,637,434	0.35
Previous Day	330.7	16,630,656	
Daily	3.9	6,778	
Daily Total Gal.		14,489	
Distribution	16641 Town		1.17

Tuesday

14	TIME 8:30p	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2392.9	16,471,250	2.42
Previous Day	2389.4	16, 637,434	
Daily	3.5		
			Pumps Run
94 Well #3	338.1	16,643,855	2.50
Previous Day	334.6	16637,434	
Daily	3.5		
Daily Total Gal.			
Distribution	16641		0.96

August 2012

Wednesday

15	TIME 9:30pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2397.4	16 480,545	
Previous Day	2392.9	16, 471,250	1.07
Daily	4.5	9,295	
94 Well #3	342.6	16,651,658	
Previous Day	338.1	16,643,855	0.21
Daily	4.5	7 803	Inc-85-88
Daily Total Gal.		17,098	
Distribution	16641		0.92

Thursday

16	TIME 9:30 Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2400.8	16,487,549	
Previous Day	2397.4	16,480,545	1.27
Daily	3.4	7004	
94 Well #3	346.0	16,657,658	
Previous Day	342.6	16,651,658	0.76
Daily	3.4	6,000	
Daily Total Gal.		13,004	
Distribution	16644		0.81

Friday

17	TIME 9PM	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2404.2	16,494,634	
Previous Day	2400.8	16,487,549	1.11
Daily	3.4	7085	
		691	
94 Well #3	349.4	16 663,706	
Previous Day	346.0	16,657,658	0.47
Daily	3.4	6,048	Inc 88-90
Daily Total Gal.		13,133	
Distribution	16641		0.86

August 2012

Saturday

18	TIME 9:45pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2407.7	16,501,565	1.29
Previous Day	2404.2	16,494,634	
Daily	3.5	6,931	
94 Well #3	352.9	16,66[illegible]990	0.23
Previous Day	349.4	16,663,706	
Daily	3.5	6,284	Inc 90 → 92
Daily Total Gal.		13,215	
Distribution	16641 Iowa Ave		0.66

Sunday

19	TIME 9:15pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2412.3	16,510986	1.56
Previous Day	2407.7	16,501 565	
Daily	4.6	9,421	
94 Well #3	357.5	16 678,025	0.51
Previous Day	352.9	16,669,990	
Daily	4.6	8,095	
Daily Total Gal.		17,516	
Distribution	16641 Iowa Ave		0.75

Monday

20	TIME 10PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2416.9	16,520,479	1.63
Previous Day	2412.3	16,510,986	
Daily	4.6	9,493	
94 Well #3	362.1		0.77
Previous Day	357.5		
Daily	4.6		
Daily Total Gal.			
Distribution	16641		0.83

August 2012

Tuesday

21	TIME 9pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2420.5	16,527,837	2.05
Previous Day	2416.9	16,520,479	
Daily	3.6		
94 Well #3	365.7	16,692,749	1.25
Previous Day	362.1		
Daily	3.6		
Daily Total Gal.			
Distribution	16641		0.77

Wednesday

22	TIME 9pm	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2423.8	16,534,462	1.17
Previous Day	2420.5	16,527,837	
Daily	3.3	6,625	
94 Well #3	369.0	16 698,542	0.40
Previous Day	365.7	16,692,749	
Daily	3.3	5,793	
Daily Total Gal.		12,418	
Distribution	16641 Iowa Av		1.02

Thursday

23	TIME 8:30pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2428.7	16,544 335	1.36
Previous Day	2423.8	16,534,462	
Daily	4.9	9,873	
94 Well #3	373.9	16,707,187	2.17
Previous Day	369.0	16,698,542	
Daily	4.9	8,645	
Daily Total Gal.		18,518	
Distribution	16641 Iowa Av		0.94

August 2012

F 'day

24	TIME 9:30 PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2432.2	16,551,488	1.11
Previous Day	2428.7	16,544,462	
Daily	3.5	7026	
94 Well #3	377.4	16,713,439	1.36
Previous Day	373.9	16,707,187	
Daily	3.5	6,352	
Daily Total Gal.		13,378	
Distribution	16641 Iowa		1.06

Saturday

25	TIME 9:30 PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2435.6	16,558,449	1.05
Previous Day	2432.2	16,551,488	
Daily	3.4	6,961	
94 Well #3	380.8	16,719,516	0.65
Previous Day	377.4	16,713,439	
Daily	3.4	6,077	
Daily Total Gal.		13,038	
Distribution	16641 IOWA Ave		1.01

Sunday

26	TIME 7:45 PM	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2439.2	16 565 989	Pump Running 2.25
Previous Day	2435.6	16,558,449	
Daily	3.6	7 540	
94 Well #3	384.4	16,725,856	1.17
Previous Day	380.8	16,719,516	
Daily	3.6	6,340	
Daily Total Gal.		13,880	
Distribution	16641 IOWA		1.02

August 2012

Monday

27	TIME 9PM	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2443.8	16,574,885	1.42
Previous Day	2439.2	16,565,989	
Daily	4.6	8,896	
94 Well #3	388.9	16,732,988	1.19
Previous Day	384.4	16,725,856	
Daily	4.5	7,132	
Daily Total Gal.		16,028	
Distribution	16641 Iowa Ave		0.91

Tuesday

28	TIME 11:20 pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2448.3	16,584,057	1.42
Previous Day	2443.8	16,574,885	
Daily	4.5	~~16,565,989~~ 9,172	
	393.4		
94 Well #3	388.9	16,732,988	1.50
Previous Day	~~384.4~~	~~16,725,856~~	
Daily	4.5		
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.11

Wednesday

29	TIME 10:45PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2451.8	16,591,220	1.45
Previous Day	2448.3	16,584,057	
Daily	3.5	7163	
94 Well #3	397.0	16,748,183	1.80
Previous Day	393.5		
Daily	3.5		
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.59

August 2012

T' ursday

30	TIME 9:15PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2455.3	16,598,323	
Previous Day	2451.8	16,591,220	1.14
Daily	3.5	7,113	
94 Well #3	400.5	16,754,360	
Previous Day	397.0	16,748,183	0.75
Daily	3.5	6,177	
Daily Total Gal.		13290	
Distribution	16641		1.20

Friday

31	TIME 9:30PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2459.9	16,607,589	
Previous Day	2455.3	16 598,323	1.05
Daily	4.6	9 266	
94 Well #3	405.1	16 762,479	
Previous Day	400.5	16,754,360	1.32
Daily	4.6	8 119	
Daily Total Gal.		17 296	
Distribution	16641 Iowa Ave		1.13

Sept 1 16641 Iowa Ave $\boxed{1.16}$ 9PM

sept 2 16641 Iowa Ave $\boxed{1.16}$ 7:45PM 89%

74 - 2465.7 16,619,344 $\boxed{0.92}$

94 - 410.8 16,772,678 0.97

Sept 4 16641 Iowa Ave 0.97 8Pm 90%

74 2473.7 16,635,988 Raw 2.0

94 418.7 16,786,900 pump Raw 2.0

September 2012

T ursday

Friday

Saturday

1	TIME 9AM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day	2459.9	16,607,589	2.20
Daily			
			Pumps Am
94 Well #3			
Previous Day	405.1	16,762,479	2.25
I ily			
Daily Total Gal.			
Distribution	16641 Iowa		1.66

September 2012

Sunday

2	TIME 7:45pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2465.7	16,619,344	0.92
Previous Day	2461.7		
Daily	4.0		
94 Well #3	410.8	16,772,678	0.97
Previous Day			
Daily	4		
Daily Total Gal.			
Distribution	16641 Town		1.16

Monday

3	TIME 8:30P	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2469.7		1.03
Previous Day	2465.7	16,619,344	
Daily	4.0		
94 Well #3			1.10
Previous Day	410.8	16,772,678	
Daily	4.0		
Daily Total Gal.			
Distribution	16641		1.08

Tuesday

4	TIME 8pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2473.7	16,635,988	2.0
Previous Day			
Daily			
			Pumps Run
94 Well #3	418.7	16,786,900	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.97

September 2012

Wednesday

5	TIME 9:30PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2478.2	16,645,113	1.46
Previous Day	2473.7	16,635,988	
Daily	4.5	9,125	
94 Well #3	423.3	16,795,065	1.10
Previous Day	418.7	16,786,900	
Daily	4.6	8,165	
Daily Total Gal.		17,290	
Distribution	16641 Iowa Ave		0.82

Thursday

6	TIME 9:15PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2481.4	16,651,758	0.76
Previous Day	2478.2	16,645,113	
Daily	3.2	6,645	
94 Well #3	426.5	16,800,707	0.87
Previous Day	423.3	16,795,065	
Daily	3.2	5,642	
Daily Total Gal.		12,287	
Distribution	16641 Iowa Ave		~~0.81~~ 0.81

Friday

7	TIME 8:30PM	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2484.7	16,658,440	0.74
Previous Day	2481.4	16,651,758	
Daily	3.3	6,692	
94 Well #3	429.8	16,806,677	0.60
Previous Day	426.5	16,800,707	
Daily	3.3	5,970	
Daily Total Gal.		12662	
Distribution	16641 Iowa Ave		0.84

September 2012

Saturday

8	TIME 7PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2488.1	16,665,299	0.81
Previous Day	2484.7	16 658 440	
Daily	3.4	6,859	
94 Well #3	433.2	16,812,624	1.42
Previous Day	429.8	16 806 677	
Daily	3.4	5947	
Daily Total Gal.		12,806	
Distribution	16641		0.81

Sunday

9	TIME 8:30PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2491.6	16,672,359	0.69
Previous Day	2488.1	16,665,299	
Daily	35	7,060	
94 Well #3	436.7	16 818,881	0.33
Previous Day	433.2	16,812,624	
Daily	3.5	6257	
Daily Total Gal.		13317	
Distribution	16641 Iowa Ave		0.64

Monday

10	TIME 10:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2496.1	16 681,625	0.73
Previous Day	2491.6	16,672,359	
Daily	4.5	9,266	
94 Well #3	441.2	16 826,847	0.97
Previous Day	436.7	16,818,881	
Daily	4.5	7,966	
Daily Total Gal.		17,236	
Distribution	16641		0.63

September 2012

Tuesday

11	TIME 9PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2499.6	16,688,720	Int 82 → 85%
Previous Day	2496.1	16,681,625	0.64
Daily	3.5	7,095	
94 Well #3	444.7	16,833,038	
Previous Day	441.2	16,826,847	1.20
Daily	3.5	6,191	
Daily Total Gal.		13,286	
Distribution	16641 Iowa Ave		0.53

Wednesday

12	TIME 8Pm	TANK % 90%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2501.8	16,693,222	
Previous Day	2499.6	16,688,720	0,72
Daily	2.2	4,502	
94 Well #3	446.8	16,837,015	
Previous Day	444.7	16,833,038	0.80
Daily	2.1	3977	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.45

Thursday

13	TIME 8 Pm	TANK % 87%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~2501.8~~ 2505.1	16700046	
Previous Day	~~2499.6~~ 2501.8	16,693,222	0.88
Daily	~~2.2~~ 3.3	6,824	
94 Well #3	~~446~~ 450.3	16843335	
Previous Day	446.8	16837015	2.50
Daily	3.5	6,320	Pump Running
Daily Total Gal.	6.8	13,144	
Distribution	16641 Iowa Ave		0.62

September 2012

SAW A 78-83 - SUBURBAN CREAM BROWN color. License MA 3-5??? Lights off Parking on Access Road. when I ~~[illegible]~~ drove up They took off w/o lights

Friday

14	TIME 8:45PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2509.3	16,708,775	Pump Rm
Previous Day			2.02
Daily			
94 Well #3	454.3	16,850,440	Pump Rm
Previous Day			2.06
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.70

Saturday

15	TIME 8:15pm	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2513.3	16,716,578	
Previous Day	2509.3	16,708,775	0.72
Daily	4.0	7,803	
94 Well #3	458.4	16,857,654	
Previous Day	454.3	16,850,440	0.66
Daily	4.1	7,214	
Daily Total Gal.		15,017	
Distribution	16641 Iowa Ave		0.62

Sunday

16	TIME 9pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2517.8	16,725,800	Pump Rm
Previous Day	2513.3	16,716,578	2.41
Daily	4.5	9,322	
94 Well #3	462.8	16,865,580	Pump Rm
Previous Day	458.4	16,857,654	2.26
Daily	4.4	8,126	
Daily Total Gal.		17,448	
Distribution	16641 Iowa Ave		0.65

September 2012

Monday

17	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1,08
Daily			
94 Well #3			
Previous Day			1, 14
Daily			
Daily Total Gal.			
Distribution	16641		0.67

Tuesday

18	TIME 8:45 Am		TANK % 94
	Hours	Gallons	Chlorine ppm
74 WELL #2	2524.8	16,739,785	Pump on
Previous Day			2.15
Daily			
94 Well #3	469.8	16,878,039	Run [illegible]
Previous Day			2.24
Daily			
Daily Total Gal.			
Distribution	16641 [illegible]		0.63

Wednesday

19	TIME		TANK % 90%
	Hours	Gallons	Chlorine ppm
74 WELL #2	2528.5	16747478	
Previous Day	2524.8	16,739,785	0.75
Daily	3.7	7,693	
		16,884,654	
94 Well #3	473.6	~~1688454~~	
Previous Day	469.8	16,878,039	1.16
Daily	3.8	6,615	
Daily Total Gal.			
Distribution	16641		0.61

September 2012

Thursday

20	TIME 9:30PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2533.1	16 756,808	0.73
Previous Day	2528.5	16,~~[illegible]~~, 747 478	
Daily	4.6	9, 330	
94 Well #3	478.1	16,892,751	1.20
Previous Day	473.6	16' 884 654	
Daily	4.5	8 197	
Daily Total Gal.		17527	
Distribution	16641 Iowa Ave		0.64

Friday

21	TIME 8:45 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2536.6	16 764 378	0.81
Previous Day	2533.1	16, 756, 808	
Daily	3.5	7, 570	
94 Well #3	481.6	16, 899, 021	1.58
Previous Day	478.1	16, 892, 751	
Daily	3.5	6, 270	
Daily Total Gal.		13, 840	
Distribution	16641		0.66

Saturday

22	TIME 10 PM	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2540.2	16,771,341	0.62
Previous Day	2536.6	16, 764 378	
Daily	3.6	6, 963	
94 Well #3	485.3	16,905,395	1.25
Previous Day	481.6	16, 899, 021	
Daily	3.7	6 374	
Daily Total Gal.		14337	
Distribution	16641 Iowa Av.		0.74

September 2012

S[illegible]nday

23	TIME 8:20PM	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2543.9	16,778,795	0.68
Previous Day	2540.2	16,771,341	
Daily	3.7	7,454	
94 Well #3	488.9	16,911,829	0.83
Previous Day	485.3	16,905,395	
Daily	3.6	6,434	
Daily Total Gal.		13,888	
Distribution	16641 Iowa Av		0.73

Monday

24	TIME 8PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2547.3	16,785,786	0.72
Previous Day	2543.9	16,778,795	
Daily	3.4	6,991	
94 Well #3	492.3	16,917,927	1.30
Previous Day	488.9	16,911,829	
Daily	3.4	6,098	
Daily Total Gal.		13,089	
Distribution	16641 Iowa Ave		0.68

Tuesday

25	TIME 8:30PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2550.5	16,792,464	0.67
Previous Day	2547.3	16,785,786	
Daily	3.2	6,678	
94 Well #3	495.5	16,923,727	1.23
Previous Day	492.3	16,917,927	
Daily	3.2	5,800	
Daily Total Gal.		12,478	
Distribution	16641 Iowa Ave		0.72

September 2012

Wednesday

26	TIME 9pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2554.5	16,800,330	pump run 2.0
Previous Day	2550.5	16,792,464	
Daily	4.0	7,866	
94 Well #3	499.5	16,930,875	2.0 pump run
Previous Day	495.5	16,923,727	
Daily	4.0	7,146	
Daily Total Gal.		16,012	
Distribution	16641 Iowa Ave		0.70

Thursday

27	TIME 8pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2558.5	16,808,454	
Previous Day	2554.5	16,800,330	0.56
Daily	4.0	8,124	
94 Well #3	503.5	16,938,048	
Previous Day	499.5	16,930,875	1.48
Daily	4.0	7,173	
Daily Total Gal.		15,297	
Distribution	16641 Iowa Ave		0.65

Friday

28	TIME 8PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2561.7	16,814,953	
Previous Day	2558.5	16,808,454	1.63
Daily	3.2	6,500	
94 Well #3	506.7	16,943,634	
Previous Day	503.5	16,938,048	1.33
Daily	3.2	5,586	
Daily Total Gal.		12,086	
Distribution	16641 Iowa Ave		0.60

September 2012

Saturday

29	TIME 10:30PM	TANK %
	Hours	Gallons	Chlorine ppm

	Hours	Gallons	Chlorine ppm
74 WELL #2			1.35
Previous Day			
Daily			
94 Well #3			1.23
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.76

Sunday

30 TIME 8:30PM TANK % 92

	Hours	Gallons	Chlorine ppm
74 WELL #2	2569.1	16,830,009	Pump Run → 2.25
Previous Day			
Daily			
			Pump Run
94 Well #3	514.1	16,657,335	2.0
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.47

Monday Oct 1 - 2012 8:30PM Redundancy

16641 Iowa Ave 2.02 93% → tank Reduce Cl2

74 - 2573.1 16,838,000 Pumps Run "2.50" 90→70°

94 - 518.0 16,963,970 Pumps Run "2.50" 92→82%

Tuesday Oct 2 - 2012 8:45PM 90%

16641 Iowa 2.10 Cl2

74 - 2577.0 16,846,189 1.86

94 - 521.9 16,970,863 1.03

Wed Oct 3 - 2012 9:20PM Tank 98%

4.5hrs 16641 Iowa 1.69 "2.50"

74 2581.5 16,855,548 Pump Just turned OFF 1.88

94 526.4 16,978,997

September 2012

Wednesday

26	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

Thursday

27	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

Friday

28	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

October 2012

Sunday

Monday

1	TIME 8:30pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2573.1	16,838,000	Reduce Cl_2
Previous Day			90 → 70%
Daily			"2.50"
			Pumps Run:—
94 Well #3	518.0	16,963,970	92 → 82%
Previous Day			
Daily			"2.50"
Daily Total Gal.			
Distribution	16641 Town Av		2.02

Tuesday

2	TIME 8:45pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2577.0	16,846,189	
Previous Day			1.86
Daily			
94 Well #3	522.0	16,970,863	
Previous Day			1.03
Daily			
Daily Total Gal.			
Distribution	16641		2.10

October 2012

Wednesday

3	TIME 9:20pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2581.5	16,855,548	Pump Just turned off 2.50'
Previous Day			
Daily			
94 Well #3			
Previous Day	526.4	16,978,997	1.88
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		1.69

Thursday

4	TIME 9:30PM	TANK % 95%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2585.0	16,862,805	
Previous Day			1.19
Daily			
94 Well #3	530.0	16,985,164	
Previous Day			1.00
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.24

Friday

5	TIME 8Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2588.3	16,869,516	
Previous Day	2585.0	16,862,805	1.35
Daily	3.3	6,711	
94 Well #3	533.3	16,991,018	
Previous Day	530.0	16,985,164	1.54
Daily	3.3	5,854	
Daily Total Gal.			
Distribution	16641 Iowa Av		1.09

October 2012

Saturday

6	TIME 8:30PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2591.7	16,877,000	2.34
Previous Day	2588.3	16,869,516	
Daily	3.4	7,484	
			Pumps run —
94 Well #3	536.7	16,997,199	2.60
Previous Day	533.3	16,991,018	Reduced 85- ~~80~~ 75%
Daily	3.4	6,181	
Daily Total Gal.		13,665	
Distribution	16641 Iowa Ave		1.24

Sunday

7	TIME 9:40 PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2596.6	16,886,458	1.30
Previous Day	2591.7	16,877,000	
Daily	4.9	9,458	
94 Well #3	541.5	17,005,605	
Previous Day	536.7	16,997,199	1.35
Daily	4.8	8,406	
Daily Total Gal.		17,864	
Distribution	16641 Iowa		1.42

Monday

8	TIME 9:30PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2600.0	16,893,544	Blead out air Locks
Previous Day	2596.6	16,886,458	0.23 IN Cl2 Pump
Daily	3.4	7,086	INC - 70% - 75%
94 Well #3	544.9	17,011,805	
Previous Day	541.5	17,005,605	0.42
Daily	3.4	6,200	INC 75 → 80
Daily Total Gal.		13,286	
Distribution	16641 Iowa Ave		1.07

October 2012

Tuesday

9	TIME 7:15Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2603.2	16,900,068	Inc 75 → 78 2
Previous Day	2600.0	16,893,544	0.52
Daily	3.2	6,524	
94 Well #3	548.1	17,017,533	
Previous Day	544.9	17,011,805	0.98
Daily	3.2	5,728	
Daily Total Gal.			
Distribution	16641 Iowa		0.64

Wednesday

10	TIME 8:30Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2608.1	16,909,945	
Previous Day	2603.2	16,900,068	1.25
Daily	4.9	9,877	
94 Well #3	553.0	17,026,137	
Previous Day	548.1	17,017,533	1.24
Daily	4.9	8,604	
Daily Total Gal.		18,481	
Distribution	16641 Iowa Ave		0.53

Thursday

11	TIME 9pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2612.7	16,919,359	
Previous Day	2608.1	16,909,945	0.69
Daily	4.6	9,414	
94 Well #3	557.6	17,034,337	
Previous Day	553.0	17,026,137	0.79
Daily	4.6	8,200	
Daily Total Gal.		17,614	
Distribution	16641 Iowa Ave		1.13

October 2012

Friday

12	TIME 8:30pm		TANK % 88
	Hours	Gallons	Chlorine ppm
74 WELL #2	2616.2	16,926,526	
Previous Day	2612.7	16,919,359	1.20
Daily	3.5	7,167	
94 Well #3	561.1	17,040,537	Inc 80 → 83%
Previous Day	557.6	17,034,337	0.31
Daily	3.5	6,200	
Daily Total Gal.		13,367	
Distribution	16641 Iowa Ave		1.06

SATURDAY

13	TIME 8PM		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	2619.7	16,933,744	
Previous Day	2616.2	16,926,526	1.67
Daily	3.5	7,218	
94 Well #3	564.6	17,046,808	
Previous Day	561.1	17,040,537	1.41
Daily	3.5	6,271	
Daily Total Gal.		13,489	
Distribution	16641 Iowa Ave		1.16

SUNDAY

14	TIME 9PM		TANK % 90
	Hours	Gallons	Chlorine ppm
74 WELL #2	2623.4	16,941,264	Dec 80 → 75
Previous Day	2619.7	16,933,744	2.08
Daily	3.7	7,520	
94 Well #3	568.3	17,053,337	
Previous Day	564.6	17,046,808	1.38
Daily	3.7	6,529	
Daily Total Gal.		14,049	
Distribution	16641 Iowa Ave		1.45

October 2012

Monday

15	TIME 10 PM		TANK % 91
	Hours	Gallons	Chlorine ppm
74 WELL #2	2627.6	16,948,644	2.40
Previous Day			
Daily			
			Pump Run
94 Well #3	571.8	17,059,540	2.25
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.68

Tuesday

16	TIME 8:30 Pm		TANK % 93
	Hours	Gallons	Chlorine ppm
74 WELL #2	2630.5	16,955,775	Red 75→65
Previous Day			2.40
Daily			
			Pumps Run
94 Well #3	575.3	17,066,048	Reduced 80→70
Previous Day			2.30
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		2.00

Wednesday

17	TIME 9:45 Pm		TANK % 94
	Hours	Gallons	Chlorine ppm
74 WELL #2	2634.9	16,964,938	
Previous Day	30.5		0.21
Daily	4.4		Incre 65→72
94 Well #3	579.7	17,073,990	
Previous Day	575.3		0.42
Daily	4.4		Inc 70→75
Daily Total Gal.			
Distribution	16641 Iowa		0.81

October 2012

Thursday

18	TIME 9:30PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2638.7	16,972,450	2.50
Previous Day	2634.9	16,964,938	
Daily	3.8		
			Pump RUN.--
94 Well #3	583.6	17,080,815	2.60
Previous Day	579.7	17,073,990	
Daily	3.9	6,828	
Daily Total Gal.			
Distribution	16641 Iowa Av		0.19

FRIDAY

19	TIME 9:00 PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2641.6	16,978,444	1.00
Previous Day	2638.7	16,972,450	
Daily	2.9	5,994	
94 Well #3	586.4	17,085,784	0.60
Previous Day	583.6	17,080,815	
Daily	2.8	4,969	
Daily Total Gal.		10,963	
Distribution	16641 Iowa Av		0.28

SATURDAY

20	TIME 8:30 PM	TANK % ~~95~~ 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2645.0	16,985,581	0.57
Previous Day	2641.6	16,978,444	
Daily	3.4	7,137	Int 72->75
94 Well #3	589.8	17,092,077	0.69
Previous Day	586.4	17,085,784	
Daily	3.4	6,293	
Daily Total Gal.		13,430	
Distribution	16641 Iowa Ave		0.51

October 2012

Sunday

21	TIME 10Pm	TANK % 91
	Hours	Gallons	Chlorine ppm
74 WELL #2	2648.7	16,993,001	
Previous Day	2645.0	16 985 581	1,22
Daily	3.7	7420	
94 Well #3	593.5	17 098,455	
Previous Day	589.8	17 092,077	0,22
Daily	3,7	6,378	Inc 75-80
Daily Total Gal.		13,798	
Distribution	16641 Jara		0.29

Monday

22	TIME 10:30Pm	TANK % 99
	Hours	Gallons	Chlorine ppm
74 WELL #2	2653.1	17 002025	
Previous Day	2648.7	16,993,001	2.50
Daily	4.4	9,024	
			Pumps RUN..
94 Well #3	597.9	17 106,335	
Previous Day	593.5	17,098,455	2,500+
Daily	4.4	7,880	Dec 80-78
Daily Total Gal.		16,904	
Distribution	16641 Dora Ave		0.84

Tuesday

23	TIME 10PM	TANK % 96
	Hours	Gallons	Chlorine ppm
74 WELL #2	2656.4	17 008,865	
Previous Day	2653.1	17,002,025	0.28
Daily	3.3	6,840	
94 Well #3	601.2	17,112,339	
Previous Day	597.9	17,106,335	0.78
Daily	3.3	6,004	
Daily Total Gal.		12,844	
Distribution			0.71

74 well needs KOP Kit # K3VTCI

Pulsafeeder MP LMA3TA-VTC1-500

October 2012

dnesday

24	TIME 8:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2659.8	17 015 639	0.44
Previous Day	2656.4	17,008,865	
Daily		6 774	ANCS 75-78
94 Well #3	604.6	17,118,555	0.82
Previous Day	601.2	17,112,339	
Daily	3.4	6,216	
Daily Total Gal.		12,990	
Distribution	16641 Iowa Ave		0.69

Thursday

25	TIME 8:30 PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2663.2	17,022,425	~~10~~ 1.02
Previous Day	2659.8	17,015,639	
ily	3.4	6 786	
94 Well #3	608.0	17 124,588	1.29
Previous Day	604.6	17,118,555	
Daily	3.4	6,030	
Daily Total Gal.		12816	
Distribution	16641 Iowa Ave		0.40

Friday

26	TIME 10PM	TANK % ~~92~~ 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2666.8	17 029,785	2.0
Previous Day	2663.2	17,022,425	
Daily	3.6	7 360	
			Pumps Run
94 Well #3			2.0
Previous Day			
Daily			
ily Total Gal.			
Distribution	16641 Iowa Ave		0.69

October 2012

SATURDAY

27	TIME 9:45	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2671.3	17,039,055	
Previous Day	2666.8	17,029,785	1.33
Daily	4.5	9,270	
94 Well #3	616.0	17,139,949	
Previous Day			1.27
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.06

SUNDAY

28	TIME 8:40 pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2674.9	17,046,505	
Previous Day	2671.3	17,039,055	2.50
Daily	3.6	7,450	
			Pumps Ran..
94 Well #3	619.6	17,145,390	
Previous Day	616.0	17,139,949	"2.50"
Daily	3.6	5,441	
Daily Total Gal.		12,891	
Distribution	16641 Iowa Ave		0.94

Monday

29	TIME 8pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2678.2	17,053,449	
Previous Day	2674.9	17,046,505	1.28
Daily	3.3	6,944	
94 Well #3	623.0	17,151,379	
Previous Day	619.6	17,145,390	1.16
Daily	3.4	5,989	
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.22

October 2012

Tuesday

30	TIME 16Pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1.25
Daily			
94 Well #3			
Previous Day			1.19
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.30

Wednesday

31	TIME 9Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2685.9	17 069,225	
Previous Day			2.0
Daily			
			Pumps Run
94 Well #3	630.7	17 165,300	
Previous Day			2.0
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.26

NOV 1 - 2012 8pm

16641 Iowa Ave 1.22 JA Arch 94% Pumps Run

74 2688.9 17 075,415 2.2

94 2.5

NOV 2-2012 10Pm 16641 Iowa 1.14 97%

74 17,083,984 1.20

94 637.8 17,178,084 1.12

NOV-3-2012 16641 Iowa 1.16

Pumps Run...

Nov 4 - 2012 8:30pm ~~tank~~ 98% 2.0

74 - 2700.2 HRS ~~17,098,~~ 17,098,255

94 - 644.8 17,190,668 2.50

16641 Iowa Ave $\boxed{1.12}$

November 2012

Thursday

1	TIME 8PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~2722~~.5	~~17,143,796~~	
Previous Day			~~2.10~~ 2.25
Daily			
			Pumps Runn.
94 Well #3			
Previous Day			2.50
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.22

Friday

2	TIME 10PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2		17,083,984	
Previous Day	2688.9	17,075,415	1.20
Daily			
94 Well #3	637.8	17,178,084	
Previous Day			1.12
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.16

Saturday

3	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1.50
Daily			
94 Well #3			
Previous Day			1.37
Daily			
Daily Total Gal.			
Distribution	16641		1.08

November 2012

Sunday

4	TIME 8:30PM	TANK % 98%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2700.2	17,098,255	2.0
Previous Day			
Daily			
			Pumps Run.—
94 Well #3	644.8	17,190,668	2.5
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		1.12

Monday

5	TIME 8:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2703.7	17,105 575	0.78
Previous Day	2700.2	17,098,255	
Daily	3.5	7,320	
94 Well #3	648.4	17,196 938	1.22
Previous Day	644.8	17,190,668	
Daily	3.6	6,270	
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.15

Tuesday

6	TIME 8:30pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2707.3	17 112 685	0.91
Previous Day	2703.7	17,105,575	
Daily	3.6	7 110	
94 Well #3	651.9	17,203,331	2.34
Previous Day	648.4	17,196,938	
Daily	3.5	6,393	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.83

November 2012

V' dnesday

7	TIME 9pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2710.7	17,119,595	1.15
Previous Day	2707.3	17,112,680	
Daily	3.4	6,910	
94 Well #3	655.3	17,209,411	1.64
Previous Day	651.9	17,203,331	
Daily	3.4	6,080	
Daily Total Gal.		12,990	
Distribution	16641		1.28

Thursday

8	TIME 9pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2714.2	17,126,867	1.39
P-evious Day	2710.7	17,119,595	
Daily	3.5	7,272	
94 Well #3	658.9	17,215,816	0.90
Previous Day	655.3	17,209,411	
Daily	3.6	6,405	
Daily Total Gal.		13,677	
Distribution	16641 Town		1.25

Friday

9	TIME 9:30pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.12
Previous Day			
Daily			
94 Well #3			0.87
Previous Day			
I ly			
Daily Total Gal.			
Distribution	16641 [illegible] [illegible]		0.39

November 2012

Saturday

10	TIME 9:20pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2722.5	17,143,796	2.00
Previous Day			
Daily			
94 Well #3	667.2	17,230,664	1.11
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.27

Sunday

11	TIME 9 PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2727.6	17,154,060	Pwr 75-72%
Previous Day	2722.5	17,143,796	1.60
Daily	5.1	10,264	
94 Well #3	672.2	17,239,626	
Previous Day	667.2	17,230,664	1.27
Daily	5.0	8,962	
Daily Total Gal.		19,226	
Distribution	16641 Iowa Ave		1.42

Monday

12	TIME 9pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2731.2	17,161,245	
Previous Day	2727.6	17,154,060	1.82
Daily	3.6	7,185	
94 Well #3	675.8	17,246,055	Pump Just Started
Previous Day	672.2	17,239,626	2.00
Daily	3.6	6,429	
Daily Total Gal.		13,614	
Distribution	16641 Iowa Ave		1.28

November 2012

Tuesday 13

	TIME 9 pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 Well #2	2735.9	17,170,866	
Previous Day	2731.2	17161,245	1.65
Daily	4.7	9,621	
84 Well #3	680.5	17,254,498	
Previous Day	675.8	17246,055	1.32
Daily	4.7	8,443	
Daily Total Gal		18,064	
Bac T Location	16641 ~~E~~ Iowa		1.35

Wednesday

14	TIME 9 PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 Well #2	2739.4	17,178,086	
Previous Day	2735.9	17,170,866	~~2.40~~ 1,5
Daily	3.5	7,220	
84 Well #3			Pumps pw
Previous Day	680.5	17,254,498	2.00
Daily Total Gal			
Bac T Location	16641 Iowa		1.07

Thursday

15	9:30	98	
	Hours	87 Gallons	Chlorine ppm
74 Well #2	2743.8	17,188,979	
Previous Day	2739.4	17,178,086	0,20
Daily	4.4	9,893	
84 Well #3	688.4	17,268,629	
Previous Day			1,25
Daily			
Bac T Location	16641 Iowa		1.25

November 2012

Thursday

22	TIME 11:45Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2771.0	17,241,833	
Previous Day			0.21
Daily			In → 75 - 7970
94 Well #3	715.5	17,317,074	
Previous Day			0.37
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.73

Friday

23	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.75
Daily			
94 Well #3			
Previous Day			0.63
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.19

Saturday

24	TIME 9:30Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2778.0	17,255,855	
Previous Day			2.43
Daily			
			Pumps Run...
94 Well #3	722.5	17,329,595	
Previous Day			2.13
Daily			
Daily Total Gal.			
Distribution	16641		0.22

November 2012

Sunday

25	TIME 7:45 PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2781.7	17,263,140	
Previous Day	2778.0	17,255,855	1.05
Daily	3.7		Inc 79→80
94 Well #3	726.1	17,336,090	
Previous Day	722.5	17,329,595	1.88
Daily	3.6	6,495	
Daily Total Gal.			
Distribution	16641 Iowa		0.23

Monday

26	TIME 10PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2786.1	17,271,968	
Previous Day	2781.7	17,263,140	1.80
Daily	4.4	8,828	
94 Well #3	730.5	17,343905	
Previous Day	726.1	17,336,090	1.41
Daily	4.4	7815	
Daily Total Gal.		16,643	
Distribution	16641 Iowa Ave		0.62

Tuesday

27	TIME 10:30 PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2789.7	17,279,309	
Previous Day	86.1		2.06
Daily	3.6		Dec 80→78
94 Well #3	734.1	17,350,391	
Previous Day	730.5		0.96
Daily	3.6		
Daily Total Gal.			
Distribution	16641		1.32

November 2012

Wednesday

28	TIME 8PM	TANK % 93%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2792.8	17 285,585	
Previous Day	2789.7	17,279 309	2.20
Daily	3.1	6,276	Dec 78-72
94 Well #3	737.3	17,356,021	
Previous Day	734.1	17,350,391	0.68
Daily	3.2	5,630	
Daily Total Gal.			
Distribution	16641 Town Avg		1.49

Thursday

29	TIME 8:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2797.1	17,294,045	
Previous Day	92.8	17,285,585	0.56
Daily	4.3	8,460	INC-73→74
			Pumps Run
94 Well #3	741.6	17,363,820	
Previous Day	737.3	17,356,021	2.50
Daily	4.3	7,799	Dec 78→75
Daily Total Gal.		16,259	
Distribution	16641 Town		1.67

Friday

30	TIME 11 PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2800.6	17,301 269	
Previous Day	2797.1	17,294 045	1.73
Daily	3.5 ~~3.5~~	7,224	Dec 74→72
94 Well #3	745.1	17,370,098	
Previous Day	741.6	17,363,820	1.11
Daily	3.5	~~13~~ 6,278	
Daily Total Gal.			
Distribution	16641 Town		1.73

December 2012

T urday

Friday

Saturday

1	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1.10
Daily			
94 Well #3			
Previous Day			1.25
I ly			
Daily Total Gal.			
Distribution			1.67

December 2012

Sunday

2	TIME 6pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2807.7	17,315,205	0.32 Air Bubble In Pump Lines
Previous Day			
Daily			
94 Well #3	752.0	17,382,447	0.36
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		1.34

Monday

3	TIME 9pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2812.5	17,324,769	2.50
Previous Day	2807.7	315 205	dec 70 → 68
Daily	4.8	9 564	Pump Just Shut off
94 Well #3	756.8	17,391,003	1.42
Previous Day	752.0		
Daily	4.8		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.90

Tuesday

4	TIME 10:15pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2815.9	17331,689	0.28
Previous Day	2812.5	17,324,769	Inc - 68 → 68
Daily	3.4	6,920	
94 Well #3	760.3	17 397156	1.20
Previous Day	756.8	17,391,003	
Daily	3.5	6,153	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.47

December 2012

V' dnesday

5	TIME 8:15Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.25
Previous Day			
Daily			
			Rw
94 Well #3			2.41
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.36

Thursday

6	TIME 8:15Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2822.4	17,344,600	1.65
P-evious Day			
Duily			
			Pumps Run
94 Well #3	766.8	17,408,840	2.50
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.44

Friday

7	TIME 9Pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.52
Previous Day			
Daily			
94 Well #3			.90
Previous Day			
I 'ly			
Daily Total Gal.			
Distribution			0.56

December 2012

Saturday

8	TIME 9pm	TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	2831.4	17,362,560	0.45
Previous Day			
Daily			
94 Well #3	775.7	17,424,643	0.70
Previous Day			
Daily	8.9		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.66

Sunday

9	TIME 4:50Pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2835.2	17,370,081	0.86
Previous Day	2831.4	17 362 560	
Daily	3.8	7,521	Pump Just Shut off
			Filled Chl Tank
94 Well #3	779.5	17 431 335	1.27
Previous Day	775.7	17 424 643	
Daily	3.8	6,692	
Daily Total Gal.		14 213	
Distribution	16641 Iowa Ave		0.49

Monday

10	TIME 8:45pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2840.0	17,379,555	0.48
Previous Day	2835.2	17,370,081	Inc 68-69
Daily	4.8	9,474	
94 Well #3	784.2	17,439,783	1.27
Previous Day	779.5	17,431,335	
Daily	4.7		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.56

December 2012

T esday

11	TIME 9pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2843.2	17,386,173	
Previous Day	2840.0	17,379,555	0.90
Daily	3.2	6,618	
94 Well #3	787.5	17,445,703	
Previous Day	784.2	17,439,783	0.82
Daily	3.3	5,920	
Daily Total Gal.		12 538	
Distribution	16641		0.62

Wednesday

12	TIME 10 pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2847.6	17,394,993	
Previous Day	2843.2	17386,173	1.17
Daily	4.4	8,820	
94 Well #3	791.9	17 453,560	
Previous Day	787.5	17 445 703	1.47
Daily	4.4	7857	pcc 72-70
Daily Total Gal.		16,677	
Distribution	16641 Jms		0.86

Thursday

13	TIME 9:45pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2850.9	17401,463	
Previous Day	2847.6	17,394,993	1.13
Daily	3.3	6 470	
94 Well #3	795.2	17,459,440	
Previous Day	791.9	17,453,560	0.94
I ily	3.3	5 880	
Daily Total Gal.		12350	
Distribution	16641 Jms		0.99

December 2012

Friday

14	TIME 10:20	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2855.4	17 410 455	1.31
Previous Day	2850.9	17 401 463	
Daily	4.5	8,992	
94 Well #3	799.6	17,467,454	1.40
Previous Day	995.2	459 440	
Daily	4.4	8 014	
Daily Total Gal.		17,006	
Distribution	16641 Town	(17,006) total	0.92

Saturday

15	TIME 9:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2858.6	17,417,025	2.50
Previous Day	2855.4	17,410 455	
Daily	3.2	6570	
			Pumps Running
94 Well #3	802 8		2.25
Previous Day	799.6	17,467,454	
Daily	3.2		
Daily Total Gal.			
Distribution	16641 Town Tie		0.77

Sunday

16	TIME 8Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2862.5	17,424,735	1.18
Previous Day	2858.6	17,417 025	
Daily	3.9	7710	
94 Well #3	806.7	17,480,122	1.31
Previous Day	802.8	17	
Daily	3.9		
Daily Total Gal.			
Distribution	16641 Town		1.33

December 2012

Monday

17	TIME 8:30 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2866.4	17,432,739	0.46 Bleed air out of lid
Previous Day			
Daily			
			Pumps Running
94 Well #3	810.5	17,486,925	2.50
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.05

Tuesday

18	TIME 10:20 pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2870.5	17,440,765	0.88
Previous Day	2866.4	17,432,734	
Daily	4.1	8 030	
94 Well #3			1.10
Previous Day	810.5	17,486,925	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.73

Wednesday

19	TIME 11 Pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.72
Previous Day			
Daily			
94 Well #3			1.33
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iw		0.89

December 2012

Thursday

20	TIME 10:20 pm	TANK % 95
	Hours	**Gallons**	**Chlorine ppm**

	Hours	Gallons	Chlorine ppm
74 WELL #2	2878.0	17,455,900	
Previous Day			2.39
Daily			
			Pumps Run
94 Well #3	822.3	17,508,100	
Previous Day			2.00
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.85

Friday

21	TIME 7pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2882.0	17,463,665	
Previous Day	2878.0	17,455,900	0.91
Daily	4.0	7765	
94 Well #3	826.2	17,515,075	
Previous Day	822.3	508,100	1.86
Daily	3.9	6,975	
Daily Total Gal.		14,740	
Distribution	16641 Iowa Ave		1.00

Saturday

22	TIME 8PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2885.5	17,470,768	
Previous Day	2882.0	17,463,665	1.02
Daily	3.5	7,113	
94 Well #3	829.7	17,521,305	Dec-70→67
Previous Day	826.2	17,515,075	1.77
Daily	3.5	6,230	
Daily Total Gal.		13,343	
Distribution	16641 Iowa Ave		1.41

December 2012

S nday

23	TIME 10PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2889.4	17,478,655	2.46
Previous Day	2885.5	17,470,768	
Daily	3.9	7,887	
			Pumps Ran
94 Well #3	833.7	17,528,577	2.50
Previous Day	829.7	17,521,305	
Daily	4.0	7,272	
Daily Total Gal.		15,159	
Distribution	16641 Iowa		0.91

Monday

24	TIME 10:40PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2893.5	17,486,882	1.20
Previous Day	2889.4	17478,655	
Daily	4.1	8 237	
94 Well #3	837.7	17,535,763	0.53
Previous Day	833.7	17,528,577	
Daily	4.0	7 186	
Daily Total Gal.		15,423	
Distribution	16641 Iowa		0.90

Tuesday

25	TIME 11:30PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2897.0	17493,763	1.31
Previous Day	2893.5	17,486,882	
Daily	3.5	6 871	
		41	
94 Well #3	841.1	17 5 ~~40~~ 984	0.85
Previous Day	837.7	17,535,763	
Daily	3.4	6 221	
Daily Total Gal.		13 092	
Distribution	16641 Iowa		0.86

December 2012

Wednesday

26	TIME 10PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2900.3	17 500 465	
Previous Day	2897.0	17,493, 753	0.92
Daily	3.3	6 712	
94 Well #3	844.4	17, 547, 862	
Previous Day	841.1	17 541, 984	1,29
Daily	3.3	5 878	
Daily Total Gal.		12 590	
Distribution	16641		~~0.8~~ 0.86

Thursday

27	TIME 10:55 Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2904.8	17 509 535	
Previous Day	2900.3	17, 500, 465	1,14
Daily	4.5	9 070	
94 Well #3	848.9	17 556 067	
Previous Day	844,4	17, 547, 862	0.64
Daily	4.5	8 205	
Daily Total Gal.		17 275	
Distribution	16641 Iowa		1.10

Friday

28	TIME 9:45 PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2908.2	17, 516, 422	
Previous Day	2904.8	509 535	1.34
Daily	3.4	6 887	Pcc 69 → 67%
94 Well #3	852.4	17, 562,139	
Previous Day	848.9	17, 556, 067	1. 07
Daily	3.5	6 072	
Daily Total Gal.		12 959	
Distribution	16641		2.50 @ 0.94

Second post

December 2012

S turday 10

29	TIME 10PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~20~~		
Previous Day	2911.7	17 523,407	0.28
Daily	2908.2	17, 516 422	[illegible] 67 > 70%
	3.5	6985	
94 Well #3	855.8	17 568,422	
Previous Day	852.4	17, 562, 139	0.78
Daily	3.4	6,283	
Daily Total Gal.		13,268	
Distribution	1664 [illegible] Air		0.92

Sunday

30	TIME 10:20pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2916.5	17 533,077	[illegible] started
Previous Day	2911.7	17, 523, 407	"2.50"
Daily	4.8	9,670	
94 Well #3	860.6	17,576 944	
Previous Day	855.8	17, 568,422	0.81
Daily	4.8	8 522	
Daily Total Gal.		18 192	
Distribution	16641 [illegible]		0.34

Monday

31	TIME 9:30pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2921.2	17 542, 162	
Previous Day	2916.5	17, 533,077	0.94
Daily	4.7	9,084	
94 Well #3	865.3	17,585,367	
Previous Day	860.6	17 576,944	1.15
I ly	4.7	8 423	
Daily Total Gal.		17,507	
Distribution	16641 [illegible] [illegible]		0.45

January 2013

Sunday Dec 30, 2012

30	TIME 10:20 Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2916.5	17,533,073	Pumps Just Starting "2.50"
Previous Day	2911.7	17,523,407	
Daily	4.8	9,670	
94 Well #3	860.6	17,576,944	0,81
Previous Day	855.8	17,568,422	
Daily	4.8	8,522	
Daily Total Gal.		18,192	
Distribution	16641	Iowa Ave	0.34

Monday Dec 31, 2012

31	TIME 9:30 Pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2921.2	17,542,162	0.94
Previous Day	2916.5	17,533,077	
Daily	4.7	9,084	
94 Well #3	865.3	17,585,367	1,15
Previous Day	860.6	17,576,944	
Daily	4.7	8,423	
Daily Total Gal.		17,507	
Distribution	16641 Iowa Ave		0.45

Tuesday

1	TIME 8:30 Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2924.5	17 548 800	"2.60"
Previous Day	2921.2	17,542,162	
Daily	3.3	6,638	
			Pumps Running
94 Well #3	868.7	17 591 547	2.16
Previous Day	865.3	17 585 367	
Daily	3.4	6,180	
Daily Total Gal.		12818	
Distribution	16641 Iowa Ave		0.56

January 2013

Wednesday

2	TIME 8:30 pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2928.4	17 556,636	1.10
Previous Day	2924.5	17, 548,800	
Daily	3.9	7 836	
94 Well #3	872.5	17 598,307	0.96
Previous Day	868.7	17 591,547	
Daily	3.8	6760	
Daily Total Gal.		14,598	
Distribution	16641 Iowa Ave		0.78

Thursday

3	TIME 9:20 pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2932.9	17,565,606	0.24
Previous Day	2928.4	17,556,636	SNC 59772
Daily	4.5	8,970	
94 Well #3	877.0	17,606,455	0.94
Previous Day	872.5	17.598,307	
Daily	4.5	8 148	
Daily Total Gal.		17 118	
Distribution	16641 Iowa Ave		0.86

Friday

4	TIME 9 pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2936.3	17,572,309	0.85
Previous Day	2932.9	17,565,606	
Daily	3.4	6,703	
94 well #3	880.4	17,612,535	1.08
Previous Day	877.0	17,606,455	
Daily	3.4	6,080	
Daily Total Gal.		12,783	
Distribution	16641 Iowa Ave		0.86

January 2013

5	TIME 11:30PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			
Daily			
94 well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641		0.78

Sunday

6	TIME 9pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2943.6	17,586,785	
Previous Day			1.84
Daily	3.4		Doc 72-70
94 well #3	887.6	17,625,448	
Previous Day			1.02
Daily	3.8		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.87

Monday

7	TIME 9pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day	2943.6	17,586,785	
Daily			
94 well #3			
Previous Day	887.6	17,625,448	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.27

	TIME 8:30Pm		TANK % 93
	Hours	Gallons	Chlorine ppm
74 WELL #2	2952.0	17,603,574	1.85
Previous Day			Dec 70-67
Daily			
94 Well #3	896.1	17,640,543	0.~~20~~
Previous Day	~~887.6~~	~~17,625,448~~	
Daily			
Daily Total Gal.			
Distribution	16641 Tank		1.15

Wednesday

9	TIME 10:30PM		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	2959.1	17,617,449	2.26
Previous Day	2952.0	17,603,574	Dec 365
Daily	7.1	13875	
			Pump Rm
94 Well #3	903.2	17,653,275	2.0
Previous Day	896.1	17,640,543	
Daily	7.1	12732	
Daily Total Gal.			
Distribution	16641		1.30

Thursday

10	TIME 7:30PM		TANK % 93
	Hours	Gallons	Chlorine ppm
74 WELL #2	2963.8	17,626,786	0.26
Previous Day	2959.1	17,617,449	Inc 65 → 68
Daily	4.7	9337	
		10	
94 Well #3	907.8	17,661,190	0.52
Previous Day	903.2	17,653,275	
Daily	4.6	7915	
Daily Total Gal.			
Distribution	16641		0.82

January 2013

[illegible]	Time 6:30Pm		Tank 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	2968.5	17,635,878	0.31
Previous Day	2963.8	17,626,786	
Daily	4.7	9,092	Inc 68→72
54 Well #3	912.5	17,669,443	1.56
Previous Day	907.8	17,661,190	
Daily	4.7	8,253	
Daily Total Gal		17,345	
Distribution	16641		0.65

SATURDAY

12	Time 7:30Pm		Tank 91
	Hours	Gallons	Chlorine ppm
74 WELL #2	2972.3	17,643,488	0.49
Previous Day	2968.5	17,635,878	
Daily	3.8	7,210	
54 Well #3	916.4	17,676,246	0.53
Previous Day	912.5	17,669,443	
Daily	3.9	6,803	
Daily Total Gal		14,013	
Distribution	16641 Iowa Ave		0.21

SUNDAY

13	TIME 7:20PM		Tank 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	2977.1	17,652,945	0.36
Previous Day	2972.3	17,643,488	
Daily	4.8	9459	Inc. 70-74
54 Well #3	921.1	17,684,734	1.18
Previous Day	916.4	17,676,246	
Daily	4.7	8,488	
Daily Total Gal		17,945	
Distribution	16641 Iowa Ave		0.54

	Time 8:30 Pm	Tank % 97	
	Hours	Gallons	Chlorine
[illegible]	29818	17,662,449	0,50
Previous Day	2977.1	17,653,946	
Daily	4.7	9504	
[illegible]	925.8	17,693,254	0.59
Previous Day	921.1	17,684,734	
Daily	4.7	8520	
Daily Total Gal		18024	
Distribution	16641 Iowa Ave		0,21

	Time 10:30Pm	Tank % 98	
	Hours	Gallons	Chlorine ppm
[illegible]	2986.4	17,671,475	1.32
Previous Day	2981.8	17,662,449	
Daily	4.6	9026	
[illegible]			
Previous Day	925.8	17,693,254	
Daily			
Daily Total Gal			
Distribution	16641 Iowa Ave		0.29

	Time 9:45	Tank % 98%	
	Hours	Gallons	Chlorine ppm
[illegible]	2990.1	17,678,859	0.25 Inc. 74→78
Previous Day	2986.4	17,671,475	
Daily	3.7	7384	
[illegible]	934.1	17,708,025	1.10
Previous Day			
Daily			
Daily Total Gal			
Distribution	[illegible]		0.86

January 2013

THURSDAY

17	TIME 10PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2993.5	17685 715	0.29
Previous Day	2990.1	17,678,859	
Daily		6,856	INC - 78 → 80%
94 Well #3	937.5	17 714,188	1.26
Previous Day	934.1	17,708,025	
Daily	3.4	6 163	
Daily Total Gal.		13,019	
Distribution	16641 Iowa Ave		0.26 Actual

FRIDAY

18	TIME 10:30PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	2997.0	17,692,795	0.00 → 0.33
Previous Day	2993.5	17,688,715	
Daily	3.5	7 080	INC 80 → 85%
94 Well #3	941.0	17,720 529	0.48
Previous Day	937.5	17,714,188	
Daily	3.5	6,341	
Daily Total Gal.		13,421	
Distribution	16641 Iowa Ave		0.22 Dist

SATURDAY

19	TIME 9PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3 000.2	17,699,238	0.81
Previous Day	2997.0	17 692 795	
Daily	3.2	6,443	
94 Well #3	944.2	17 726,370	~~0.78~~ 2.05
Previous Day	941.0	17,720 529	
Daily	3.2	5841	
Daily Total Gal.		12,284	
Distribution	16641 Iowa Ave		0.37

7:30Pm 92

3002.6	17,703 939	
3000.2	17 699 238	1.78
2.4	4 701	Dec 84-82%
946.6	17 730 612	
944.2	17 726,370	
2.4	4 242	0.95
	8,943	
16641 Iowa Ave		0.23

8:15PM 98

3007.4	17,713,452	0.40
3002.6	17,703,939	
4.8	9 513	INC - 82 → 83
951.3	17,739,116	
946.6	17,730,612	1.09
4.7	8,504	
	18,017	
16641 Iowa		0.79

7:45PM 98

3010.5	17,719,895	
3007.4	17,713,452	2.50
3.1	6,443	Dec 83 → 80 Pumps Run..
954.4	17,744,686	
951.3	17,739,116	2.8
3.1	5,570	
	12,013	
16641 Iowa Ave		1.65

January 2013

Wednesday

23	TIME 8:45 Pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3014.2	17,727,122	2.60
Previous Day	3010.5	17,719,895	Dec 80-76%
Daily	3.7	7,227	Tank full
			Pumps Just Shut off
94 Well #3	958.1	17,751,336	2.48
Previous Day	954.4	17,744,686	
Daily	3.7	6,650	
Daily Total Gal		13,877	
Distribution	16641 Tower		0.55

Thursday

24	TIME 10PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3017.5	17,733,966	
Previous Day	3014.2	17,727,122	0.25 Actual
Daily	3.3	6,844	Inc - 76 - 78
94 Well #3	961.5	17,757,421	
Previous Day	958.1	17,751,336	0.71
Daily	3.4	6,085	
Daily Total Gal		12,929	
Distribution	16641		1.18

Friday

25	TIME 11Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3020.9	17,740,670	
Previous Day	3017.5	17,733,966	1.22
Daily	3.4	6,704	
94 Well #3	964.8	17,763,565	
Previous Day	961.5	17,757,421	~~0.95~~ 0.97
Daily	3.3	6,144	
Daily Total Gal		12,848	
Distribution	16641 Jeep		1.38

8 PM 89

3023.4	17 745 770	1.71
3020.9	17 740 670	Dec 75 - 71
2.5	5 100	
	9 950	
967.3	17 767 950	
964.8	17 763 565	0.74
2.5	4 385	
	9 485	
16641 Town Av		0.68

8:30 PM 95

3027.9	17,754,777	2.22
3023.4	17,745,770	Dec 71→68
4.5	9,007	
971.8	17,776,053	
967.3	17,767 950	0.84
4.5	8,103	
	17,110	
16641 Town Av		0.87

9 PM

3031.2	17 761 327	1.81
3027.9	17 754,777	
3.3	6,550	Dec 68 - 62
975.1	17 782,083	
971.8	17,776,053	0.87
3.3	6,030	
	12,580	
16641		1.21

January 2013

29	TIME 8:30Pm	TANK %: 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3034.5	17,768,058	0.18
Previous Day	3031.2	17,761,327	
Daily	3.3	6731	
94 Well #3	978.4	17,788,188	
Previous Day	975.1	17,782,083	0.70
Daily	3.3	6105	
Daily Total Gal		12836	
Distribution	16641 Iowa Av		1.77

Wednesday

30	TIME 7:45Pm	TANK %: 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3037.9	17,774,898	
Previous Day	3034.5	17,768,058	0.26
Daily	3.4	6840	
94 Well #3	981.8	17,794,242	
Previous Day	978.4	17,788,188	0.60
Daily	3.4	6054	
Daily Total Gal		12,894	
Distribution	16641 Iowa Av		0.98

Thursday

31	TIME 10PM	TANK %: 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3042.5	17,784,049	
Previous Day	3037.9	17,774,898	0.26
Daily	4.6	9151	FNC 64-68
94 Well #3	986.3	17,802,696	
Previous Day	981.8	17,794,242	0.84
Daily	4.5	8454	
Daily Total Gal		17605	
Distribution	16641 Iowa Av		0.19

Feb 1 - 2013 10Pm TANK 93

16641 Iowa Ave 0.45

74	3046.1 3042.5 3.6	17,791,299 17 784 049 7250	1.05
94	989.9 986.3 3.6	17809 187 17,802 696 6,491	0.73

TOTAL 13,741

Feb 2 - 2013 9Pm TANK 90

16641 Iowa Ave

74	3049.6 3046.1 3.5	17,798,338 17,791 299 7 039	1.20
94	993.5 989.9 3.6	17 815,540 17,809,187 6353	0.63

TT 13,392

February 2013

Friday

	TIME 10 Pm	TANK 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3046.1	17,791,299	1.05
Previous Day		17,784 049	
Daily	3.6	7, 250	
94 Well #3	989.9	17,809,187	0.77
Previous Day		17 802 696	
Daily	3,6	6, 491	
Daily Total Gal		13, 741	
Distribution	16641 Iowa Ave		0.45

Saturday

	TIME	TANK 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3049.6	17, 798, 338	1.20
Previous Day			
Daily	3.5	7, 037	
94 Well #3	993.5	17, 815, 540	0,63
Previous Day			
Daily	3,6	6,353	
Daily Total Gal		13,390	
Distribution	16641 Iowa Ave		0.64

Sunday

	TIME 10:45 Pm	TANK 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3054.5	17808090	0.18
Previous Day	3049.6	17,798 338	Inc - 68 -> 70
Daily	4.9	9 752	
94 Well #3	998.3	17 824236	0.57
Previous Day	993.5	17, 815, 540	
Daily	4.8	8 696	
Daily Total Gal		18 448	
Distribution	16641 Iowa Ave		0.78

February 2013

Monday

4	TIME 10:30pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3057.9	17815 033	
Previous Day	3054.5	17808 090	0.26
Daily	3.4	6,943	
94 Well #3	1001.7	17,830,544	
Previous Day	998.3	17 824 236	0.45
Daily	3.4	6,308	
Daily Total Gal.		13251	
Distribution	16641 Iowa Av		1.16

Tuesday

5	TIME 10pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.47
Daily			
94 Well #3			
Previous Day			0.52
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.12 0.23

Wednesday

	TIME 11pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3064.9	17,829,025	
Previous Day			1.50
Daily			
94 Well #3	1008.7	17,843,149	
Previous Day			0.30
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.02 → 0.20

February 2013

Thursday

7	TIME 11:20pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3068.3	17 835, 875	1.36
Previous Day	3064.9	17,829,025	
Daily	3.4	6,850	
94 Well #3	1012.1		1.50
Previous Day	1008.7	17,843,149	
Daily	3.4		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.45

Friday

8	TIME 10pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3071.7	17,842,777	1.80
Previous Day	3068.3	17,835,875	
Daily	3.4	6,902	
94 Well #3	1015.5	17,855,598	1.85
Previous Day	1012.1		
Daily	3.4		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.76

Saturday

9	TIME 10pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3075.4	17,850,104	2.06
Previous Day	3071.7	17,842,777	
Daily	3.7	7,327	Dec 68965
94 Well #3	1019.1	17,862,223	0.35
Previous Day	1015.5	17,855,598	
Daily	3.6	6,625	
Daily Total Gal.		13,952	
Distribution	16641 Iowa Ave		0.94

February, 2013

10	TIME 9:20 Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
T4 WELL #2	3079.0	17,857,430	2.21
Previous Day	3075.4	17,850,104	Dec 68-66
Daily	3.6	7326	
#2	1022.8	17,868,835	
Previous Day	1014.1	17,862,223	0.24
	3.7	6,612	Inc-68-70
Daily Total Gal		13,938	
Distribution	16641 Iowa Ave		0.95

	TIME 8:30 Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
T4 WELL #2	3082.5	17,864,460	Pump Just Turned
Previous Day	3079.0	17,857,430	0.99
Daily	3.5	7030	
S4 Well #2	1026.2	17,875,015	
Previous Day	1022.8	17,868,835	0.93
	3.4	6,180	
	16641 Iowa Ave		1.24

	TIME 8:30 Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
T4 WELL #2	3086.7	17,872,900	2.50
Previous Day	3082.5	17,864,460	
	4.2	8,440	
			Pumps on
Well #2	1030.5	17,882,945	" 2.50"
Previous Day	1026.2	17,875,015	
Daily	4.3	7930	
Daily Total Gal		16,370	
Distribution			1.12

February 2013

Wednesday

13	TIME 8:45 pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
94 WELL #2	3090.5	17,889,358	1.06
Previous Day	3086.7	17,872,900	
Daily	3.8	7,458	
94 Well #1	1034.2	17,889,663	1.01
Previous Day	1030.5	17,882,945	
Daily	3.7	6,718	
Daily Total Gal		14,176	
Distribution	16641 Iow		1.01

Thursday

14	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
94 WELL #2			0.60
Previous Day			
Daily			
94 Well #1			0.71
Previous Day			
Daily			
Daily Total Gal			
Distribution			0.82

Friday

15	TIME 9:45 pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
94 WELL #2	3097.3	17,894,015	0.77
Previous Day			
Daily			
94 Well #1	1041.0	17,902,076	1.00
Previous Day			
Daily			
Daily Total Gal			
Distribution	16641 Iowa Ave		0.78

February 2013

Saturday

16	TIME 8:30pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3101.1	17,901,491	
Previous Day	3097.3	894 015	0.69
Daily	3.8	7,476	
		Pump	Just turned off ^ Full
74 Well #3	1044.8	17,908,998	
Previous Day	1041.0	902 076	1.56
Daily	3.8	6 922	
Daily Total Gal		14398	
Distribution			0.57

Sunday

[illegible]	TIME 8:15pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3103.7	17 906, 795	
Previous Day	3101.1	17, 901, 491	0.95
Daily	2.6	5 304	
			Pump Running
74 Well #3	1047.5	17, 913 958	
Previous Day	1044.8	908,998	2.50
Daily	2.7	4 960	
Daily Total Gal		10'264	
Distribution	16641 Iowa Ave		0.71

Monday

[illegible]	TIME 9pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.95
Daily			
74 Well #3			
Previous Day			1.86
Daily			
Daily Total Gal			
Distribution	16641 Iowa Ave		0.50

February 2013

Tuesday

19	TIME 9:30Pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3110.6	17,920,740	0.21
Previous Day			
Daily			
			Pumps Run
94 Well #3	1054.2	17,926,150	2.50
Previous Day			
Daily			
Daily Total Gal			
Distribution	16641 Iowa Ave		0.56

Wednesday

20	TIME 11:40Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3115.0	17,929,530	0.73
Previous Day	3110.6	17,920,740	
Daily	4.4	8,790	
94 Well #3	1058.7	17,934,371	0.58
Previous Day	1054.2	17,926,150	
Daily	4.5	8,221	
Daily Total Gal		17,011	
Distribution	16641 Iowa		0.29

Thursday

21	TIME 9:20Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3118.1	17,936,030	2.10
Previous Day	3115.0	17,929,530	
Daily	3.1	6,500	
			Pumps Run
94 Well #3	1061.7	17,939,925	(2.50)
Previous Day	1058.7	17,934,371	
Daily	3.0	5,554	
Daily Total Gal		12,054	
Distribution	16641 Iowa Ave		0.66

February 2013

12:30 am — 96

3121.8 17,943,285
3118.1
3.7 — 0.97

0.68

16641 Ja... — 0.71

9:30 pm — 99

3125.2 17,950,165
3121.8 17,943,285
3.4 6,880 — 1.14

1068.8 17,952,774 — 0.73

16641 Ja... Ave — 0.63

8:45 pm — 97

3128.9 17,957,675
3125.2 17,950,165
3.7 7,510 — 1.09

1072.5 17,959,494
1068.8 17,952,774
3.7 6,720
14,230 — 0.88

0.71

February 2013

Monday

25	TIME 8:30pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3132.3	17,964,676	1.11
Previous Day	3128.9	17,957,675	
Daily	3.4	7,001	
94 Well #3			0.81
Previous Day	1072.5	17,959,494	
Daily	3.4		
Daily Total Gal.			
Distribution	16641 Iowa		0.75

Tuesday

26	TIME 9pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3135.6	17,971,400	1.33
Previous Day	3132.3	17,964,676	
Daily	3.3	6,724	
94 Well #3	1079.2	17,971,828	0.77
Previous Day	1075.9		
Daily	3.3		
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.10

Wednesday

27	TIME 8:15pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3137.9	17,976,027	0.80
Previous Day	3135.6	17,971,400	
Daily	2.3	4,627	
94 Well #3	1081.5	17,976,065	0.57
Previous Day	1079.2	17,971,828	
Daily	2.3	4,237	Add 10gal to Tank
Daily Total Gal.		8,864	
Distribution	16641 Iowa		0.78

March 2019

20	TIME 10:30pm → 7am	Emily	TANK % 94
	Hours	Gallons	Chlorine ppm
74 WELL #2	3142.3	17 984 933	1,21
Previous Day	3137.9	17,976,027	
Daily	4.5	8 906	
94 Well #3	1085.8	17 984 001	1,14
Previous Day	1081.5	17,976,065	
Daily	4.3	7 936	
Daily Total Gal			
Distribution	16641 Iowa Ave		0.56

	TIME 8pm		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	3144.4	17 989 358	0.98
Previous Day	3142.3	17,989,933	
Daily	2.1	4 425	
94 Well #3	1087.4		0.75
Previous Day	1085.8		
Daily	2.1		
Daily Total Gal			
Distribution	16641 Iowa Ave		1.24

	TIME 8:30pm		TANK % 96
	Hours	Gallons	Chlorine ppm
74 WELL #2	3147.8	17,996,213	0.62 In → 68 to 70%
Previous Day	3144.3	989,358	
Daily	3.5	6,856	
94 WELL #3	1091.4	17,994,276	1,02
Previous Day	1087.9		
Daily	3.5		
Daily Total Gal			
Distribution	16641		1.16

	TIME 8:30pm		98
	Hours	Gallons	
	3151.4	18,003,165	
	3147.8	17,996,213	0.64
		6,952	
	1094.9	18,000,733	
	1091.4	17,994,276	2.12
	3.5	6,457	
		13,409	
Distribution	16641 Iowa Ave		0.85

	TIME 11pm		93
	Hours	Gallons	
	3154.9	18,010,388	
	3151.4	18,003,165	0.93
	3.5	7,223	
			1.05
	16641 Iowa Ave		0.49

	TIME 9pm		94
	3158.7	18,018,168	
	3154.9	18,010,388	0.29
	3.8	7780	FWC-70-42 Pumps Run
	1102.2	18,014,070	2.50
	16641 Iowa Ave		1.09

water leak at Bethel ~~Evan~~ Evangelical Church

March 2013

Wednesday

	TIME 10Pm		TANK % 97
	Hours	Gallons	Chlorine ppm
74 WELL #2	3162.9	18 026,500	0.31
Previous Day	3158.7	18,018,168	~~1.61~~ In 73–75
Daily	4.2	8,332	~~Dec 70→ 68~~
84 Well #3	1106.4	18,021,870	
Previous Day	1102.2	18,014,070	1.61
Daily	4.2	7,800	Dec 70→60
Daily Total Gal		16,132	
Distribution	16641 Iowa Ave		1.40

Thursday

	TIME 8:30Pm		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	3165.8	18,032,600	1.28
Previous Day	3162.9	18,026,500	
Daily	2.9	6,100	
			Pumps Run
84 Well #3	1109.4	18,027,651	2.80
Previous Day	1106.4	18,021,870	Dec 68→62
Daily	3.0		
Daily Total Gal			
Distribution	16641 Iowa Ave		1.73

Friday

	TIME 4pm		98
	Hours	Gallons	Chlorine ppm
74 WELL #2	3169.5	18 040,030	0.37
Previous Day	3165.8	18,032 600	
Daily	3.7	7 430	In 78→80
			Pumps Run
84 Well #3	1112.9	18,033,910	
Previous Day	1109.4	18,027,651	2.50
Daily	3.5	6 259	Dec 60→60
Daily Total Gal		13,689	
Distribution	16641		0.42

March 2013

Saturday

9	TIME 11:50 pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3173.2	18 047,455	2.44
Previous Day	3168.5	18 040 030	Dec 81→78
Daily	3.7	7 425	
94 Well #3	1116.7	18,040,860	0.23
Previous Day	1112.9	18,033 910	
Daily	3.8	6950	Inc 60→67
Daily Total Gal		14375	
Distribution	16641 Iowa Ave		1.19

Sunday

10	TIME 8pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3176.6	18 054,468	2.60
Previous Day	3173.2	18,047,455	Dec 78 → 75
Daily	3.4	7013	
94 Well #3	1120.1	18 047,145	1.13
Previous Day	1116.7	18,040,860	
Daily	3.4	6285	
Daily Total Gal		13,298	
Distribution	16641 Iowa		0.92

Monday

11	TIME 10Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3180.1	18,061,588	0.92
Previous Day	3176.6	18 054,468	
Daily	3.5	7 120	
94 Well #3	1123.6	18,053,464	
Previous Day	1120.1	18,047,145	0.73
Daily	3.5	6319	
Daily Total Gal			
Distribution	16641 Iowa Ave		1.34

March 2013

Tuesday

14	TIME 10:30pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3182.9	18,067,250	0.24
Previous Day	3180.1	18,061,588	
Daily	2.8	5,662	Iron
			Pump Rm
94 Well #3	1126.5	18,058,805	
Previous Day	1123.6	18,053,464	2.14
Daily	2.9	4,341	
Daily Total Gal		10,003	
Distribution	16641 Jump Ave		1.88

Wednesday

15	TIME 8:30pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3185.7	18072935	2.00
Previous Day	3182.9	18,067,250	
Daily	2.8	5,685	Dec 73→70%
94 Well #3	1129.2	18,063,788	
Previous Day	1126.5	18,058,805	0.22
Daily	2.7	4,983	
Daily Total Gal		10,668	
Distribution	16641 Jump Ave		0.93

Thursday

16	TIME 10:20pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3189.5	18,080,745	1.91
Previous Day	3185.7	72 935	
Daily	3.8	7,810	Dec 70→64
94 Well #3	1133.0	18,070,839	
Previous Day	1129.2	18,063 788	1.79
Daily	3.8	7,051	Dec 60-56
Daily Total Gal		14861	
Distribution	16641 Jump		0.76

MARCH 2013

Friday

15	TIME 7:45pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3192.8	18,087,455	
Previous Day	3189.5	18,080,745	1.28
Daily	3.3	6,710	Rw
94 Well #3	1136.3	18,076,819	0.21
Previous Day	1133.0	18,020,839	
Daily	3.3	5,980	Inc-~~58~~-58
Daily Total Gal.		12,690	
Distribution	16641 Iowa Ave		1.22

Saturday

16	TIME 9PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3196.4	18,094,500	
Previous Day	3192.8	18,087,455	0.78
Daily	3.6	7,045	
94 Well #3	1139.8	18,083,285	
Previous Day	1136.3	18,076,819	0.52
Daily	3.5	6,466	
Daily Total Gal.		13,511	
Distribution	16641 Iowa Ave		1.18

Sunday

17	TIME 7:40 pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3199.8	18,101,400	
Previous Day	3196.4	18,094,500	0.64
Daily	3.4	6,900	
94 Well #3	1143.3	18,089,580	
Previous Day	1139.8	18,083,285	0,24
Daily	3.5	6,295	Inc 58-60
Daily Total Gal.		13,195	
Distribution	16641 Iowa Ave		0.85

March 2018

[illegible]

18	TIME 10pm		TANK % 98
	Hours	Gallons	Chlorine ppm
94 WELL #2	3204.4	18 110, 542	~~0.8~~ 0.81
Previous Day	3199.8	18, 101, 400	
Daily	4.6	9 142	
94 Well #3	1147.8	18,097,864	0.41
Previous Day	1143.3	18,089,580	
Daily	4.5	8 284	
Daily Total Gal		17 446	
Distribution	16641 Iowa Ave		0.54

[illegible]

19	TIME 9pm		TANK % 99
	Hours	Gallons	Chlorine ppm
94 WELL #2	3207.6	18 117, 205	1.00
Previous Day	3204.4	18, 110, 542	
Daily	3.2	6 663	
94 Well #3	1151.0	18, 103, 849	0.75
Previous Day	1147.8	18, 097, 864	
Daily	3.2	5,985	
Daily Total Gal		12,648	
Distribution	16641 Iowa Ave		0.49

[illegible]

20	TIME 8:30Pm		TANK % 90
	Hours	Gallons	Chlorine ppm
94 WELL #2	3209.9	18 121 758	0.87
Previous Day	3207.6	18, 117, 205	
Daily	2.3	4,553	
94 Well #3	1153.3	18 107,959	0.21
Previous Day	1151.0	18, 103, 849	
Daily	2.3	4, 110	
Daily Total Gal		10 663	
Distribution	16641 Iowa Ave		0.46

March 2013

Thursday

21	TIME 9:20 Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3213.2	18,128,460	0.25
Previous Day	3209.9	18,121,758	
Daily	3.3	6,702	INC 62-#64
94 Well #3	1156.7	18,114,335	"2.50"
Previous Day	1153.3	18,107,959	
Daily	3.4	6,276	
Daily Total Gal		12,978	Pump Just Start Run
Distribution	16641 Iowa Ave		0.56

Friday

22	TIME 9pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3216.4	18,135,103	0.21
Previous Day	3213.2	18,128,460	
Daily	3.2	6,643	INC 64-66
94 Well #3	1159.8	18,120,045	
Previous Day	1156.7	18,114,335	0.25
Daily	3.1	5,710	"0"
Daily Total Gal		12,353	
Distribution	16641 Iowa Ave		0.56

Saturday

23	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.44
Daily			
94 Well #3			
Previous Day			0.62
Daily			
Daily Total Gal			
Distribution			0.43

March 2013

Sunday

24	TIME 9PM		TANK % 96
	Hours	Gallons	Chlorine ppm
74 WELL #2	3224.8	18,152,265	0.21 Inc. 64 → 68%
Previous Day			
Daily			
94 Well #3	1168.2	18,135,323	0.48
Previous Day			
Daily			
Daily Total Gal			
Distribution	16641 Iowa Ave		0.21

Monday

25	TIME 8:30PM		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	3228.2	18,159,218	0.29
Previous Day	3224.8	18,152,265	
Daily	3.4	6953	
94 Well #3	1171.6	18,141,505	0.39
Previous Day	1168.2	18,135,323	
Daily	3.4	6,182	
Daily Total Gal		13,135	
Distribution	16641 Iowa Ave		0.18

Tuesday

26	TIME 10PM		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	3232.8	18168,420	0.35
Previous Day	3228.2	18,159,218	
Daily	4.6	9,202	
94 Well #3	1176.1	18,149,775	1.22
Previous Day	1171.6	18,141,505	
Daily	4.5	8270	
Daily Total Gal		17,472	
Distribution	16641 Iowa		0.14 → 0.21

March 2013

Wednesday

27	TIME 10pm		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	3236.3	18,175,465	0.01 →,24
Previous Day	3232.8	18,168,420	
Daily	3,5	7 046	Inc 68 → 70
94 Well #3	1179.6	18,156,128	0.38
Previous Day	1176.1	18,149,775	
Daily	3.5	6'353	
Daily Total Gal.		13,398	
Distribution	16641 Iowa Ave		0.00 - .23

Thursday

28	TIME 9:30pm		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	3239.1	18,181,380	2.50
Previous Day	~~3232.8~~ 3236.3	18,175,465	
Daily	2.8	5,915	
			Pump Running
94 Well #3	1182.4	18,161,205	2.50
Previous Day	1179.6	18,156,128	
Daily	2.8	5,077	
Daily Total Gal.		10,992	
Distribution	16641 Iowa Ave		0.19

Friday

29	TIME 9:30pm		TANK % 89
	Hours	Gallons	Chlorine ppm
74 WELL #2	3241.8	18,186,738	0.23
Previous Day	3239.1	18,181,380	
Daily	2.7	5358	
94 Well #3			0.37
Previous Day	1182.4	18,161,205	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.2

March 2013

	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
[illegible]			0.88
Previous Day			
Daily			
24 Well #3			0.75
Previous Day			
Daily			
Daily Total for Distribution			0.25

	TIME 9:15Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
24 WELL #2	3248.9	18,200,985	0.61
Previous Day			
Daily			
24 Well #3	1192.2	18,179,219	0.10 → 0.21
Previous Day			Iowa 60-62
Daily			
Daily Total for Distribution	16641 Iowa Ave		0.22

4-01-2013

9:18Pm

Tank 89%

3252.4	18207918	1.50
3248.9	18,200,985	
3.5	6,933	
1195.6	18,185,519	0.80
1192.2	18,179,219	
3.4	6300	
	Total 13,233	

16641 Iowa Ave 0.40

4-02-2013

10Pm

Tank 96

3257.0	18217318	1.53
3252.4	18,207,918	
4.6	9400	
1200.3	18,194,099	
1195.6	18,185,519	
	8580	
	17980	

16641 Iowa Ave 0.75

April 2013

Monday

1	TIME 9:15pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3252.4	18,207 918	1.50
P evious Day	3248.9	18,200 985	
Daily	3.5	6,933	
94 Well #3	1195.6	18,185519	0.80
Previous Day	1192.	18 179 219	
Daily	3.4	6300	
Daily Total Gal.		13,233	
Distribution	16641 Iowa		0.40

Tuesday

2	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3257.0	18,217,318	1.53
Previous Day			
Daily	4.6		
94 Well #3	1200.3	18,194,099	1.23
Previous Day			
I ily	4.7		
Daily Total Gal.		17,980	
Distribution	16641 Iowa Ave		0.75

April 2013

Wednesday

3	TIME 9pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3260.5	18,224,513	1.88
Previous Day	3257.0		
Daily	3.5	7,145	
94 Well #3	1203.8	18,200,585	0.91
Previous Day	1200.3		
Daily	3.5	6,486	
Daily Total Gal.		13,486	
Distribution	16641 Iowa Ave		0.88

Thursday

4	TIME 10:20 pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3263.9	18,231,253	2.11
Previous Day	3260.5	18,224,513	
Daily	3.4	6740	Dec 80-75
94 Well #3	1207.1	18 206,585	0.35
Previous Day	1203.8	18,200 585	
Daily	3.3	6000	
Daily Total Gal.		12,740	
Distribution	16641 Iowa Ave		1.37

Friday

5	TIME 10pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3267.2	18 238,004	2.32
Previous Day	3263.9	18,231,253	
Daily	3.3	6,751	Dec - 74→68%
94 Well #3			
Previous Day	1207.1	18,206,58	
Daily			
Daily Total Gal.			
Distribution	16641		1.28

April 2013

S turday

6	TIME 10Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3270.6	18 ~~244~~ 244,995	1.90
Previous Day	3267.2	18, 238, 089	
Daily	3.4		Dec 68-64
94 Well #3	1213.8	18, 218, 997	
Previous Day			0.45
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		1.60

Sunday

7	TIME 9pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3274.0	18, 251, 900	
Previous Day	3270.6	18, 244, 995	1.46
Daily	3.4	6, 905	
94 Well #3	1217.2	18, 225, 063	
Previous Day	1213.8	18, 218, 997	0.30
Daily	3.4	6, 066	
Daily Total Gal.		12, 971	
Distribution	16641 Iowa		1.23

Monday

8	TIME 9PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3278.5	18, 261123	0.87
Previous Day	3274.0	18, 251, 900	
Daily	4.5	9 223	
	1221.7	18 233 379	
94 Well #3	~~1217.2~~	~~18, 225, 063~~	
Previous Day	1217.2	18, 225, 063	2.05
Daily	4.5	7 316	
Daily Total Gal.		16, 539	
Distribution	16641 Iowa Av		1.20

April 2013

Tuesday

9	TIME 9PM		TANK % 97
	Hours	Gallons	Chlorine ppm
74 WELL #2	3282.1	18,268,200	0.62
Previous Day	3278.5	18,261,123	
Daily	3.6	7077	
94 Well #3	1225.3	18,239,792	1.16
Previous Day	1221.7	18,233,379	
Daily	3.6	6,413	
Daily Total Gal.		13,490	
Distribution	16641 Iowa Ave		0.50

Wednesday

10	TIME 10:45PM		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	3285.6	18,275,316	0.85
Previous Day	3282.1	18,268,200	
Daily	3.5	7,116	
94 Well #3			.89
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.70

Thursday

11	TIME 8:15 PM		TANK % 93
	Hours	Gallons	Chlorine ppm
74 WELL #2	3288.9	18,282,186	0.82
Previous Day	3285.6	18,275,316	
Daily	3.3	6,870	
94 Well #3	1232.1	18,252,333	0.87
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.58

April 2013

F day

12	TIME		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2			~~0.22~~
Previous Day			
Daily			~~Inc - 65~~ > 68
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

SATURDAY

13	TIME 10Am (morning)		TANK % 97
	Hours	Gallons	Chlorine ppm
74 WELL #2	3294.7	18,294,963	0.22
P evious Day			
Daily			Inc 65-68
94 Well #3	1237.9	18,263,080	1.42
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.93

SUNDAY

14	TIME 8:30 PM		TANK % 96
	Hours	Gallons	Chlorine ppm
74 WELL #2	3301.1	18 306 718	0.26
Previous Day	3294.7	18, 294, 963	
Daily	6.4	11,755	Inc 68-73
94 Well #3	1244.3	18,274,355	
Previous Day	1237.9	18,263 080	0.30
Daily	6.4	11 275	
Daily Total Gal.		23030	
Distribution	16641 Iowa Ave		0.53

April 2013

Monday

15	TIME 9:15pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3304.5	18,313,620	0.46
Previous Day	3301.1	18,306,778	
Daily	3.4	6842	
94 Well #3			0.91
Previous Day	1244.3	18,274,355	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.46

Tuesday

16	TIME 9:30pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3309.1	18,323,050	2.02
Previous Day	3304.5	18,313,620	
Daily	4.6	9,430	
94 Well #3	1252.3	18,289,093	1.18
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.26

Wednesday

17	TIME 9pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3312.5	18329960	2.00
Previous Day	3309.1	18,323,050	
Daily	3.4	6910	
94 Well #3	1255.7	18,295,207	0.68
Previous Day	1252.3	18,289,093	
Daily	3.4	6,114	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.85

April 2013

T urday

18	TIME 9:50 pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3316.7	18,338,640	2.50
Previous Day	3312.5	18,329,960	
Daily	4.2	8680	
94 Well #3	1260.0	18303098	1.89
Previous Day	1255.7	18295207	
Daily	4.3	7891	
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.76

FRIDAY

19	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	1260.0	18303098	
P evious Day		18 289 093	
Daily			
94 Well #3			
Previous Day			
Daily			
Daily Total Gal.			
Distribution			

SATURDAY

20	TIME 8:30 pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3324.2	18,353,649	1.57 Set 75-90
Previous Day			
Daily			
94 Well #3	1267.3	18,316,222	0.38
Previous Day			
I ily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.81

April 2013

Sunday

21	TIME 10:15 pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3328.9	18,363,314	2.10 Red wat 70-65%
Previous Day	3324.2	18,353,649	
Daily	4.7	9,665	
	1272.0		
94 Well #3	~~1278.0~~	18,324,770	1.41
Previous Day	1267.3	18,316,222	
Daily	4.7	8,548	
Daily Total Gal.		18,213	
Distribution	16641 Iowa Ave		1.41

Monday

22	TIME 9pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3332.3	18,370,250	1.68
Previous Day	3328.9	18,363,314	
Daily	3.4	6,936	
			Pumps Running
94 Well #3	1275.5	18,331,196	2.00
Previous Day	1272.0	18,324,770	
Daily	3.5	6,426	Dec 61-58
Daily Total Gal.		13,362	
Distribution	16641 Iowa Ave		1.02

Tuesday

23	TIME 9:30pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3335.9	18,377,575	1.10
Previous Day	3332.7	18,370,250	
Daily	3.2	7,325	
94 Well #3	1279.0	18,337,538	0.39
Previous Day		18,331,196	
Daily		6,342	
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.41

April 2013

V' dnesday

24	TIME 9:20Pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3338.8	18,383,685	1.45
Previous Day	3335.9	18,377,575	
Daily	2.9	6110	
			Pmps Rnn
94 Well #3			
Previous Day	1279.0	18,337,538	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.07

Thursday

25	TIME ~~3~~' 9:30Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3342.1	18,390,428	
P-evious Day	3338.8	18,383686	2.50
Daily	3.3	6743	Rec 65-60%
			Pump Ra
94 Well #3	1285.4	18,349,330	2.50
Previous Day			
Daily			Rec 56-50%
Daily Total Gal.			
Distribution	16691 Iowa Ave		0.75

Friday

26	TIME 8:30Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3346.4	18,399,300	0.30
Previous Day	3342.1	18,390,428	
Daily	4.3	8,872	
94 Well #3	1289.4	18,356,632	
Previous Day	1285.4	18,349,330	0.19 Detained
D ly	4.0	7,302	Inc 50-51
Daily Total Gal.	16,174		
Distribution	16641 Iowa Ave		0.69

April 2013

SATURDAY

27	TIME 9pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3350.1	18,406,644	
Previous Day	3346.4	18,399,300	0.60
Daily	3.7	7,344	
94 Well #3	1293.2	18,363,372	
Previous Day	1289.4	18,356,632	0.18 Actual
Daily	3.8	6,740	INC 51-~~53~~ 53
Daily Total Gal.		14,084	
Distribution	16641 Iowa Ave		0.32

SUNDAY

28	TIME 10:15 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3354.1	18,414,915	
Previous Day	3350.1	18,406,644	0.00
Daily	4.0		Inc 60-659
	1297.3	18,371,000	pumps Run...
94 Well #3	1293.2	18,363,372	2.50
Previous Day	~~1293~~ 4.1		
Daily	~~4~~		
Daily Total Gal.			
Distribution	16641 Iowa		0.16

Monday

29	TIME 9pm	TANK % 100	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3357.9	18,422,750	
Previous Day	3354.1	18,414,915	2.40
Daily	3.8	7,835	Dec 65-63
			Pump on
94 Well #3	1300.9	18,377,694	
Previous Day	1297.3	18,371,000	2.50
Daily	3.6	6,694	Dec 53-~~52~~
Daily Total Gal.		14,529	
Distribution	16641 Iowa Ave		0.00

April 2013

T esday

30	TIME 8:30 PM	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3361.5	18,430,175	2.50
Previous Day	3357.9	18,[illegible]950	
Daily	3.6	7,425	
94 Well #3	1304.5	18,384,195	2.11
Previous Day	1300.9	18,377,694	
Daily	3.6	6,501	
Daily Total Gal.		13,926	
Distribution	16641 Iowa Av		0.13

Duane Swartz 14043 4th Street
14047 4th Str.

May 2013

W dnesday

1	TIME 9:30am	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3365.0	18,437,265	0.56
Previous Day	3361.5	18,430,175	
Daily	3.5	7,090	
94 Well #3	1308.0	18,390,463	0.77
Previous Day	1304.5	18,384,195	
Daily	3.5	6268	
Daily Total Gal.		13,358	
Distribution	16641 Iowa Ave		0.06

Thursday

2	TIME 9PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3368.6	18,444,675	0.90
P evious Day	3365.0	18,437,265	
Daily	3.65	7,410	INC 60-68
94 Well #3	1311.6	18,397,053	0.27
Previous Day	1308.0	18,390,463	
Daily	3.65	6,590	
Daily Total Gal.		14,000	
Distribution	16641 Iowa		0.25

Friday

3	TIME 11AM	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3371.8	18,451,345	0.68
Previous Day	3368.6	18,444,675	
Daily	3.2	6,670	
94 Well #3			0.87
Previous Day	1311.6	18,397,053	
D ily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.23

3

Saturday

4	TIME 8pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3375.3	18,458,340	1.44
Previous Day	3371.8	18 451 345	
Daily			
94 Well #3	1318.3	18,409,160	
Previous Day			0.34
Daily			
Daily Total Gal.			
Distribution			0.31

Repaired switch on Tower Mon

Sunday

5	TIME 10pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3379.9	18,467,800	1.51
Previous Day	3375.3	18,458,340	
Daily	4.6	9,460	
			Pump Rm.
94 Well #3	1322.9	18,417,800	"2.50"
Previous Day	1318.3	18,409,160	
Daily	4.6	8,640	
Daily Total Gal.		18,100	
Distribution	16641 Iowa Ave		0.29

Monday

6	TIME 8:20 PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3384.6	18,477,368	1.15
Previous Day	3379.9	18,467,800	
Daily	4.7	9,568	
94 Well #3	1327.6	18,426,078	0.60
Previous Day	1322.9	18,417,800	
Daily	4.7	8,278	
Daily Total Gal.		17,846	
Distribution	16641 Iowa Av		0.66

May 2013

Tuesday

7	TIME 8:30 pm	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3387.9	18,484,130	
Previous Day	3384.6	18,477,368	1.41
Daily	3.3	6,762	
			Pump Room (Storage)
94 Well #3	1330.9	18,432,258	
Previous Day	1327.6	18,426,078	1.95
Daily	3.3	6,180	
Daily Total Gal.		12,942	
Distribution	16641 Iowa Ave		0.87

Wednesday

8	TIME 9PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3391.8	18,492,170	
Previous Day	3387.9	18,484,130	2.50
Daily	3.9	8,040	
			Pump Room
94 Well #3	1334.8	18,439,400	
Previous Day	1330.9	18,432,258	1.60
Daily	3.9	7,142	
Daily Total Gal.		15,182	
Distribution	16641 Iowa Ave		0.66

Thursday

9	TIME 9:25Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3396.0	18,500,620	
Previous Day	3391.8	18,492,170	1.75
Daily	4.2	8,450	
94 Well #3			
Previous Day	1334.8	18,439,400	1.51
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.74

May 2013

Friday

10	TIME 9:35pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3399.7	18509130	2.50 Red 70-68? Pmps Run
Previous Day	3396.0	18,500,620	
Daily	3.7	8510	
94 Well #3	1342.7	18,453,765	2.12
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.72

SATURDAY

11	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.85
Previous Day			
Daily			
94 Well #3			0.91
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.3?

SUNDAY

12	TIME 8:30Pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3407.7	18,524,136	0.28 Inc. 64 → 090
Previous Day			
Daily			
94 Well #3	1350.6	18,467,865	0.32
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.13

May 2013

Monday

13	TIME 8:30 PM	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3412.7	18,534,225	0.62
Previous Day	3407.7	18,524,135	
Daily	5.0	10,090	
94 Well #3	1355.6	18,476,915	0.19
Previous Day	1350.6	18,467,865	
Daily	5.0	9,050	
Daily Total Gal.		19,140	
Distribution	16641 Iowa		0.28

Tuesday

14	TIME 7:45	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3417.6	18,543,945	~~1~~.66
Previous Day	3412.7	18,534,225	
Daily	4.9	9,720	
94 Well #3	1360.5	18,485,635	
Previous Day	1355.6	18,476,915	0.13
Daily	4.9	8,720	
Daily Total Gal.		18,440	~~0~~
Distribution	16641 Iowa Ave		0.36

Wednesday

15	TIME 9:30 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3422.4	18,553,516	0.25
Previous Day	3417.6	18,543,945	
Daily	4.8	9,571	
94 Well #3	1365.3	18,494,390	0.13
Previous Day	1360.5	18,485,635	
Daily	4.8	8,755	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.29

May 2013

Thurday

16	TIME 10:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3426.7	18,562,330	2.31
Previous Day	3422.4	18,553,516	
Daily	4.3	9,814	
			Pumps Run
94 Well #3	1369.7	18,502,278	2.50
Previous Day	1365.3	18,494,390	
Daily	4.4	7,888	
Daily Total Gal.		17,702	
Distribution	16641 Iowa Ave		0.35 actual

FRIDAY

17	TIME 9 pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3430.4	18,569,630	0.33
Previous Day	3426.7	18,562,230	
Daily	3.7	7,400	
94 Well #3	1373.3	18,508,763	0.72
Previous Day	1369.7	18,502,278	
Daily	3.6	6,485	
Daily Total Gal.		13,885	
Distribution	16641 Iowa Ave		0.58

SATURDAY

18	TIME 8:30PM N/A	TANK % N/A	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.81
Previous Day			
Daily			
			~~Pumps Run~~
94 Well #3			1.95
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.38

May 2013

Sunday

19	TIME 8:30 Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3437.6	18,584,650	2.50
Previous Day			
Daily			
			Pumps Run
94 Well #3	1380.4	18,521,620	2.50
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.04 (0.24)

Monday

20	TIME 9:20 Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3442.1	18,593,430	2.50
Previous Day	3437.6	18584 650	
Daily	4.5	8,780	
			Pumps Run
94 Well #3	1385.0	18,530,200	1.44
Previous Day	1380.4	18,521620	
Daily	4.6	8580	
Daily Total Gal.		17,360	
Distribution	16641 Iowa Ave		0.33

Tuesday

21	TIME 9:45 Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3445.5	18,600,405	1.55
Previous Day	3442.1	18,593,430	
Daily	3.4	6,975	
94 Well #3	1388.4	18 536,340	0.23
Previous Day	1385.0	18,530,200	
Daily	3.4	6,140	
Daily Total Gal.		13,115	
Distribution	16641 Iowa Ave		0.56

May 2013

New CL_2 Pump
pulsatron
LMA3TA-WC9-XXX

Wednesday

22	TIME 11:45 PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3450.2	18,607,500	New PUMP CL_2
Previous Day	3445.5	Metr N/A	55% setting
Daily	4.7	Since Changing Plumbing	0.58 Cl
94 Well #3	1393.0	18,544,~~[illegible]~~ 670	
Previous Day	1388.4	18,536,340	0.17
Daily	4.6	8330	7
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.53

Thursday

23	TIME 9:30 Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3453.4	18,614,160	
Previous Day	3450.2	18,607,500	0.19
Daily	3.2	6,660	Inc 55-58%
			Pump Run
94 Well #3	1396.2	18,550,640	
Previous Day	1393.0	18,544,670	"2.50"
Daily	3.2	5970	
Daily Total Gal.		12,630	
Distribution	16641 Iowa Av		0.98

Friday

24	TIME 9:20	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.67
Daily			
94 Well #3			
Previous Day			0.85
Daily			
Daily Total Gal.			
Distribution			0.53

May 2013

SATURDAY

25	TIME 9:20 Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3459.5	18,526,675	0.26 INC 58-60%
Previous Day			
Daily			
94 Well #3	1402.2	18,561,514	0.18 INC 55-58
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.10

SUNDAY

26	TIME 9:30Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3462.9	18,633,418	0.62
Previous Day	3459.5	18,526,675	
Daily	3.4	6743	
94 Well #3	1405.6	18,567,578	0.21 INC 58>62%
Previous Day	1402.2	18,561,514	
Daily	3.4	6,069	
Daily Total Gal.		12,807	
Distribution	16641 Iowa Am		0.00

Monday

27	TIME 8Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3466.3	18,640,468	0.50
Previous Day	3462.9	18,633,418	
Daily	3.4	7050	
94 Well #3	1409.0	18,573,945	0.46
Previous Day	1405.6	18,567,578	
Daily	3.4	6,367	
Daily Total Gal.			
Distribution	16641		0.22

May 2013

TUESDAY

28	TIME 10 pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3469.8	18,647,568	0.81
Previous Day	3466.3	640 468	
Daily	3.5	7,100	
94 Well #3	1412.5	18,580,340	0.72
Previous Day	1409.0	18 573 945	
Daily	3.5	6395	
Daily Total Gal.		13,475	
Distribution	16641 Town		0.41

WEDNESDAY

29	TIME 10pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3473.1	18654500	0.86
Previous Day	3469.8	18,647,568	
Daily	3.3	6 932	
94 Well #3			0.77
Previous Day	1412.5	18,580.340	
Daily			
Daily Total Gal.			
Distribution	16641 Town		0.60

THURSDAY

30	TIME 10:45pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3476.5	18661350	0.55
Previous Day	3473.1	18,654,500	
Daily	3.4	6850	
94 Well #3	1419.2	18,592,583	0.72
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Town Aw		0.10

June 2013

Friday May 31, 2013

31	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.94
P evious Day			
Daily			
94 Well #3			0.47
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.25

Saturday

1	TIME 10Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3483.2	18,675,114	0.74
Previous Day			
Daily			
94 Well #3	1425.8	18,605,055	0.18
Previous Day			
I ily			
Daily Total Gal.			
Distribution	16641		0.35

June 2013

Sunday

2	TIME 5PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3486.7	18,682,298	0.92
Previous Day	3483.2	675 114	
Daily	3.5	7,184	
94 Well #3	1429.4	18,611,476	0.13 Inc. 63 - 66
Previous Day	1425.8	605,055	
Daily	3.6	6,421	
Daily Total Gal.		13605	
Distribution	16641 Iowa Ave		0.55

Monday turn water on at 16736 - Iowa Ave

3	TIME 9:30PM	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3491.1	18 691,166	1.11
Previous Day	3486.7	18,682,298	
Daily	4.4	8868	
94 Well #3	1433.8	18 619,544	1.34
Previous Day	1429.4	18,611,476	
Daily	4.4	8 068	
Daily Total Gal.		16,936	
Distribution	16641 Iowa Ave		0.62

Tuesday

4	TIME 9:45PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3494.5	18 698,043	1.11
Previous Day	3491.1	18 691, 166	
Daily	3.4	6, 877	
94 Well #3	1437.2	18,625,817	0.39
Previous Day	1433.8	18 619, 544	
Daily	3.4	6,273	
Daily Total Gal.		13 150	
Distribution	16641 Iowa Ave		0.55

June 2013

\ dnesday

5	TIME 9:40Pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3496.7	18,702,518	0.96
Previous Day	3494.5	18,698,043	
Daily	2.2	4 475	
94 Well #3	1439.4	18,629,916	1.14
Previous Day	1437.2	18 625,816	
Daily	2.2	4 100	
Daily Total Gal.		8,575	
Distribution	16641 Iowa Ave		0.44

Thursday

6	TIME 9:30Pm	TANK % 91 Rain	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3500.5	18 710,444	2.40
P evious Day	3496.7	18,702,518	
Daily	3.8	7 926	
			Pumps Running
94 Well #3	1443.1	18 636,800	"2.50"
Previous Day	1439.4	18,629 916	
Daily	3.7	6,884	
Daily Total Gal.		14 810	
Distribution	16641 Iowa Av		0.94

Friday

7	TIME 10Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3504.8	18,719,146	0.56
Previous Day	3500.5	18,710,444	
Daily	4.3	8,702	
94 Well #3	1447.5	18,644 986	2.12
Previous Day	1443.1	18,636,800	
I ly	4.4	8,186	
Daily Total Gal.		16,888	
Distribution	16641 Iowa Ave		0.85

June 2013

Saturday

8	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.85
Previous Day	30		
Daily			
94 Well #3			1.16
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.77

Sunday

9	TIME 10:40 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3511.9	18,733,380	1.41
Previous Day			
Daily			
94 Well #3	1454.5	18,657,877	0.59
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.73

Monday

10	TIME 8:20 PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3515.2	18,740,339	1.22
Previous Day	3511.9	18,733,380	
Daily	3.3	6959	
94 Well #3	1457.9	18,664,113	1.36
Previous Day	1454.5	18,657,877	
Daily	3.4	6236	
Daily Total Gal.		13,195	
Distribution	16641 Iowa Ave		0.59

June 2013

T esday

11	TIME 8:30 pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3518.8	18,747,619	1.08
Previous Day	35		
Daily			
			Pumps Run
94 Well #3	1461.5	18,870,839	2.01
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.75

Wednesday

12	TIME 10 pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.23
P evious Day			
Daily			
94 Well #3			0.82
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		1.12

Thursday

13	TIME 8:30 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3525.7	18,761,932	1.30
Previous Day			
Daily			
94 Well #3	1468.4	18,683,456	0.77
Previous Day			
I ly			
Daily Total Gal.			
Distribution	16641 IOWA Ave		0.80

June 2013

Friday

14	TIME 9:30pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3528.6	18,768,025	0.70
Previous Day	3525.7	18,761,932	
Daily	2.9	6,093	
94 Well #3	1471.3	18688897	0.23
Previous Day	1468.4	18683456	
Daily	2.9	5441	
Daily Total Gal.		11,534	
Distribution	16641 Iowa Ave		0.69

Saturday

15	TIME 10pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3532.9	18777000	1.94
Previous Day	3528.6	18,768,025	
Daily	4.3	8,975	
			Pumps Run..
94 Well #3	1475.7	18695947	2.34
Previous Day	1471.3	18,688,897	
Daily	4.4	7050	
Daily Total Gal.		16025	
Distribution	16641 Iowa Ave		0.59

Sunday

16	TIME 9:30pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3536.0	18,783,165	0.53
Previous Day	3532.9	18,777,000	
Daily	3.1	6165	
			Pumps Run..
94 Well #3	1478.7	18702,467	"2.50"
Previous Day	1475.7	18,695,947	
Daily	3.0	6,520	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.83

June 2013

M nday

17	TIME 9:20Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3540.4	18,792,327	1.27
Previous Day	3536.0	18 783 165	
Daily	4.4	9,162	
94 Well #3	1483.0	18,710,286	0.55
Previous Day	1478.7	18,702,467	
Daily	4.3	7,819	
Daily Total Gal.		16,981	
Distribution	16641 Jour Ave		0.67

Tuesday

18	TIME 10:30Pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3543.7	18,799,416	0.72
P evious Day	3540.4	18,792,327	
Daily	3.3	7,089	
94 Well #3	1486.4	18,716,490	0.41
Previous Day	1483.0	18,710,286	
Daily	3.4	6,204	
Daily Total Gal.		13293	
Distribution	16641 Jour Av		0.47

Wednesday

19	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.05
Previous Day			
Daily			
94 Well #3			1.96
Previous Day			
I ily			
Daily Total Gal.			
Distribution			0.68

June 2013

Thursday

20	TIME 9:40PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3550.3	18,813,292	1.49
Previous Day			
Daily			
94 Well #3	1492.9	18,728,595	Pmp just started 2.50
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.95

Friday

21	TIME 10:15PM	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.07
Previous Day	3550.3	18,813,292	
Daily			
94 Well #3			1.53
Previous Day	1492.9	18,728,595	
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.65

Saturday

22	TIME 8:45PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3557.8	18,829,455	1.32
Previous Day			
Daily			
			Pumps Run...
94 Well #3	1500.5	18,742,658	2.50
Previous Day			
Daily			Dec 64 to 62
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.98

June 2013

Sunday

23	TIME 10 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3561.9	18,838,100	1.40
Previous Day	3557.8	18,829,455	
Daily	4.1	8,645	
94 Well #3	1504.5	18,749,795	0.34
Previous Day	1500.5	18,742,658	
Daily	4.0	7 137	
Daily Total Gal.		15,782	
Distribution	16641 Iowa Ave		0.84

Monday

24	TIME 9:15Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3565.3	18,845,578	1.31
Previous Day	3561.9	18,838,100	
Daily	3.4	7 478	
94 Well #3	1507.9	18,756,125	0.62
Previous Day	1504.5	18,749,795	
Daily	3.4	6,330	
Daily Total Gal.		13,808	
Distribution	16641 Iowa Ave		0.79

Tuesday

25	TIME 8:30Pm	TANK % 87%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3567.6	18850,374	0.50
Previous Day	3565.3	18845,578	
Daily	2.3	4796	
94 Well #3	1510.2	18760267	0.66
Previous Day	1507.9	1875,6125	
Daily	2.3	4142	
Daily Total Gal.			
Distribution	16641 Iowa Ave		~~0.44~~ 0.44

June 2013

Wednesday

26	TIME 8:15	TANK % 90%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3571.2	18858393	
Previous Day	3567.6	18850374	0.93
Daily	3.6	8019	
			Pump Running
94 Well #3	1513.6	18766759	
Previous Day	1510.2	18760267	2.36
Daily	3.4	6492	Pump Running
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.36

Thursday

27	TIME 8:30 - 9:30	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3574.2	18864714	
Previous Day	3571.2	18,858,393	0.49
Daily	3.0	6,321	
	1517.4	739	
94 Well #3	1513.6	18,7~~[illegible]~~65	
Previous Day	8	18,766759	
Daily	3.8	7,206	2.50
Daily Total Gal.			Pump Running
Distribution	16618 Iowa Ave		0.69

Friday

28	TIME 7:30	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3577.9	18872409	
Previous Day	3574.2	18864714	0.47
Daily	3.7	7695	
		18779411	
94 Well #3	1520.5	18773965	
Previous Day	1517.4	5,446	
Daily	3.1		0.31
Daily Total Gal.			
Distribution	16618 Iowa Ave		1.08

June 2013

S turday

29	TIME 8:30		TANK % 88
	Hours	Gallons	Chlorine ppm
74 WELL #2	3582.7	18882695	
Previous Day	3577.9	72409 188 ~~[illegible]~~	0.59
Daily	4.8	10,286	
94 Well #3	1525.3	18788206	
Previous Day	1520.5	18779411	0.48
Daily	4.8	8,795	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.41

Sunday

30	TIME 8:00		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	3588.3	18894404	
Previous Day	3582.7	18882695	.76
Daily	5.6	11,719	
94 Well #3	1530.9	18798267	
Previous Day	1525.3	18788206	.70
Daily	5.6	10,061	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.39

July 2013

Monday

1	TIME 8:00	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3591.6	18901724	1.24
P evious Day	3588.3	18894404	
Daily	3.3	7,320	
94 Well #3	1534.2	18,804,446	1.02
Previous Day	1530.9	18,798,267	
Daily	3.3	6,179	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.45

Tuesday

2	TIME 8:00	TANK % 85%	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3595.1	18909490	0.94
Previous Day	3591.6	18901724	
Daily	3.5	7,766	
94 Well #3	1537.7	18810894	0.22
Previous Day	1534.2	18804446	
I ly	3.5	6,448	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.45

July 2013

Wednesday

3	TIME 8:00	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3598.7	18917554	1.08
Previous Day	3595.1	18909490	
Daily	3.6	8,064	
94 Well #3	1541.3	18817395	0.63
Previous Day	1537.7	18810894	
Daily	3.6	6,501	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.61

Thursday

4	TIME 8:00	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3602.0	18925096	1.42
Previous Day	3598.7	18917554	
Daily	3.3	7,542	
	1544.6	18823366	
94 Well #3	1541.3	18817395	0.48
Previous Day	3.3		
Daily	3.3	5,971	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.26

Friday

5	TIME 7:30	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3605.3	18932691	0.42
Previous Day	3602.0	18925096	
Daily	3.3	7,595	
94 Well #3	1547.9	18829587	0.76
Previous Day	1544.6	18823366	
Daily	3.3	6,221	
Daily Total Gal.			
Distribution	16618 Iowa Ave		0.28

July 2013

S turday

6	TIME 7:30 Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3608.6	18940476	0.81
Previous Day	3605.3	18932691	
Daily	3.3	7,785	
94 Well #3	1551.3	18835830	2.50
Previous Day	1547.9	18829587	
Daily	3.4	6,243	
Daily Total Gal.			
Distribution	16641 Town Av		0.45

Sunday

7	TIME 7:30 Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3612.0	18,949,356	1.20
P evious Day	3608.6	18,940 476	
Daily	3.4	8,880	
94 Well #3	1554.6	18,841,866	0.81
Previous Day	1551.3	18,835,830	
Daily	3.3	6,036	
Daily Total Gal.			
Distribution	16641 Town Av		0.59

Monday

8	TIME 8Pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3615.2	18,955,894	0.70
Previous Day	3612.0	18,949 356	
Daily	3.2	6,538	
94 Well #3			2.80
Previous Day			
D ly			
Daily Total Gal.			
Distribution	16641 Town A		0.60

July 2013

Tuesday

9	TIME 9pm	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3618.3	18,962,728	1.04
Previous Day	3615.2	18,955,894	
Daily	3.1	6,834	
94 Well #3	1560.8	18,853,690	0.43
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.51

Wednesday

10	TIME 9pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3622.2	18 971 300	1.12
Previous Day	3618.3	18,962,728	
Daily	3.9	8,572	
			Pumps Ru
94 Well #3	1564.7	18 860 775	2.50
Previous Day	1560.8	18,853,690	
Daily	3.9	7 085	
Daily Total Gal.		15 657	
Distribution	1664 Iowa Ave		0.82

Thursday

11	TIME 9pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3626.3	18 981,079	0.99
Previous Day	3622.2	18 971,300	
Daily	4.1	9 779	
94 Well #3	1568.8	18 868,270	0.34
Previous Day	1564.7	18 860 775	
Daily	4.1	7495	
Daily Total Gal.		17 274	
Distribution	1664 Iowa		0.78

July 2013

F day

12	TIME 8pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3629.5	18,988,028	0.33
Previous Day	3626.3	18,981,079	
Daily	3.2	6,949	
94 Well #3	1572.0	18,874,142	0.83
Previous Day	1568.8	18,868,270	
Daily	3.2	5,872	
Daily Total Gal.		12,821	
Distribution	16641 Iowa Ave		0.63

SATURDAY

13	TIME 9:30pm	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3632.8	18,994,963	0.48
P evious Day	3629.5	18,988,028	
Daily	3.3	6,935	
94 Well #3	1575.4	18,880,327	0.78
Previous Day	1572.0	18,874,142	
Daily	3.4	6,185	
Daily Total Gal.		13,120	
Distribution	16641 Iowa Av		0.37

SUNDAY

14	TIME 8:45 PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3637.7	19,005,176	0.71
Previous Day	3632.8	18,994,963	
Daily	4.9	10,213	
94 Well #3	1580.2	18,889,154	1.04
Previous Day	1575.4	18,880,327	
I ly	4.8	8827	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.65

July 2013

Monday

15	TIME 9:00 Pm		TANK % 100%
	Hours	Gallons	Chlorine ppm
74 WELL #2	3642.0	19,014,156	1.20
Previous Day	3637.7	19,005,176	
Daily	4.3	8980	
			Pumps Running.
94 Well #3	1584.5	18896935	2.50
Previous Day	1580.2	18,889,154	
Daily	4.3	7781	
Daily Total Gal.		16761	
Distribution	16641 Iowa Ave		0.51

Tuesday

16	TIME 9:30 Pm		TANK % 96
	Hours	Gallons	Chlorine ppm
74 WELL #2	3644.4	19,019,243	1.06
Previous Day	3642.0	19,014,156	
Daily	2.4	5,087	
94 Well #3	1586.9	18 901 308	1.31
Previous Day	1584.5	18,896,935	
Daily	2.4	4,373	
Daily Total Gal.		9,460	
Distribution	16641 Iowa Ave		0.45

Wednesday → Sampled for IOC, VOC, SOC at Both wells

17	TIME 10 PM		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	3648.0	19,026,896	1.09
Previous Day	3644.4	19,019,243	
Daily	3.6	7,653	
94 Well #3	1590.5	18907950	1.25
Previous Day	1586.9	18,901,308	
Daily	3.6	6642	
Daily Total Gal.		14294	
Distribution	16641 Iowa Ave		0.50

July 2013

T urday

18	TIME 9pm	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3650.6	19,031,735	0.86
Previous Day	3648.0	19,026,895	
Daily	2.6	4840	
94 Well #3	1593.3	18,913,088	0.37
Previous Day	1590.5	18,907,950	
Daily	2.8	5138	
Daily Total Gal.		9,973	
Distribution	16641 Iowa Ave		0.54

FRIDAY

19	TIME 9pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3654.0	19,038,875	0.63
P evious Day	3650.6	19,031,735	
Daily	3.4	7140	
94 Well #3			0.45
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.56

SATURDAY

20	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.05
Previous Day			
Daily			
94 Well #3			0.79
Previous Day			
I ly			
Daily Total Gal.			
Distribution			0.48

July 2013

Sunday

21	TIME 9:30pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3662.3	19,055,924	0.26 Inc 68 → 70%
Previous Day			
Daily			
			Pumps Run...
94 Well #3	1605.1	18,934,825	2.50
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.30

Monday

22	TIME 10:15Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3667.8	19067,241	0,92
Previous Day	3662.3	19,055,924	
Daily	5.5	11,317	
94 Well #3	1610.5	18,944,502	0.57
Previous Day	1605.1	18,934,825	
Daily	5.4	9,677	
Daily Total Gal.		20,994	
Distribution	16641 Iowa Ave		0.66

Tuesday

23	TIME 9:45Pm	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3670.6	19,073,196	1.11
Previous Day	3667.8	19,067,241	
Daily	2.8	5,955	
94 Well #3	1613.3	18,949,730	0.21
Previous Day	1610.5	18,944,502	
Daily	2.8	5,228	
Daily Total Gal.		11,183	
Distribution	16641 Iowa		0.63

July 2013

Wednesday

24	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1.41
Daily	4.0	8,350	
94 Well #3			
Previous Day			1.78
Daily	4.0	7,384	
Daily Total Gal.		15734	
Distribution			0.75

Thursday

25	TIME 10:25pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3678.6	19,089,900	
Previous Day	3670.6	19,073,196	1.01
Daily	4.0	16 700, 2= 8,350	
			Pumps Run
94 Well #3	1621.3	18,964,498	
Previous Day	1613.3	949 730	1.63
Daily	4.0	14 766 [illegible] 7,38[illegible]	
Daily Total Gal.		15,734	
Distribution	16641 Iowa Ave		0.90

Friday

26	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.88
Daily			
94 Well #3			
Previous Day			0.63
Daily			
Daily Total Gal.			
Distribution			0.81

July 2013

SATURDAY

27	TIME 9:20Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3685.4	19,104,230	~~1.80~~ 1.50
Previous Day			
Daily			
			Pumps RUN...
94 Well #3	1628.1	18,	2.25
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.49

SUNDAY

28	TIME 8Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3689.1	19 112 095	0.79
Previous Day	3685.4	19,104,230	
Daily	3.7	7 865	
94 Well #3	1631.8	18,983,895	1.02
Previous Day	1628.1		
Daily	3.7		
Daily Total Gal.			
Distribution	16641 IowA Av		0.44

Monday

29	TIME 9:20 pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3692.2	19 118,655	1.18
Previous Day	3689.1	19,112,095	
Daily	3.1	6560	
			Pumps RuN...
94 Well #3	1635.0	18,989 695	"2.00"
Previous Day	1631.8	18,983 895	
Daily	3.2	5,800	
Daily Total Gal.		12 360	
Distribution	16641 Iowa Ave		0.72

July 2013

T sday

30	TIME 8:30pm	TANK % ~~88~~ 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3694.7	19123985	0.88
Previous Day	3692.2	19,118,655	
Daily	2.5	5,330	
94 Well #3	1637.4	18,994,075	0.27
Previous Day	1635.0	18,989,695	
Daily	2.4	4380	
Daily Total Gal.		9,710	
Distribution	16641 Iowa Ave		0.43

Wednesday

31	TIME 9:45pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3699.6	19 134, 315	1.22
P evious Day	3694.7	19, 123, 985	
Daily	4.9	10, 330	
94 Well #3	1642.3	19 003,090	0.39
Previous Day	1637.4	18, 994, 075	
Daily		9,015	
Daily Total Gal.		19,345	
Distribution	16641 Iowa Ave		0.42

Thurs Aug 01-2013   10PM   Tank 97%

16641 Iowa 0.51

74 well 3702.9 Hr 19,141,475 0.94 3.3 Hrs 74

FRiday Aug 02-2013 16641 Iowa 0.23 8:30pm Tank 87%

74 well 3705.2 Hrs 19,146,195 0.61

94 well 1648.1 19,013,850 2.10 [illegible]

August 2013

Thursday

1	TIME 10PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3702.9	19,141,475	0.94
Previous Day	3699.6	19,134,315	
Daily	3.3	7,160	
94 Well #3	1645.6	19009319	0.43
Previous Day	1642.3	19,003,090	
Daily	3.3	6,229	
Daily Total Gal.	13,389		
Distribution	16641 Iowa Ave		0.57

August 2013

FRIDAY

2	TIME 8:30PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3705.2	19,146,195	0.61
Previous Day	3702.9	19,141 475	
Daily	2.3	4720	
94 Well #3	1648.1	19,013,850	Pump Just Turned On $\boxed{2.10}$
Previous Day	1645.6	19,009,319	
Daily	2.5	4531	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.23

SATURDAY

3	TIME 9PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3709.9	19,156,250	0.74
Previous Day	3705.2	19,146,195	
Daily	4.7	10,055	
94 Well #3	1652.8	19 022 365	0.51
Previous Day	1648.1	19,013,850	
Daily	4.7	8,515	
Daily Total Gal.		18,570	
Distribution	16641 Iowa Ave		0.49

SUNDAY

4	TIME 9:30PM	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3713.3	19,163 485	0.67
Previous Day	3709.9	19,156 250	
Daily	3.4	7,235	
94 Well #3	1656.0	19,028,270	0.44
Previous Day	1652.8	19,022 365	
Daily	3.2	5,905	
Daily Total Gal.		13,140	
Distribution	16641 Iowa Ave		0.41

August 2013

M nday

5	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3716.7	19,170,735	0.72
Previous Day	3713.3	19,163,485	
Daily	3.4	7,250	
94 Well #3	1659.4	19,034,446	0.53
Previous Day	1656.0	19,028,270	
Daily	3.4	6,171	
Daily Total Gal.		13,421	
Distribution	16641 Iowa		0.35

Tuesday

6	TIME 10:30pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3721.2	19,180,345	0.56
P evious Day	3716.7	19,170,735	
Daily	4.5	9,610	
94 Well #3	1663.8	19,042,740	0.25
Previous Day	1659.4	19,034,446	
Daily	4.4	8,299	
Daily Total Gal.		17,909	
Distribution	16641 Iowa Ave		0.24

Wednesday

7	TIME 9:45 pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3724.4	19,187,400	0.78
Previous Day	3721.2	19,180,345	
Daily	3.2	7,055	
94 Well #3	1667.0	19,048,540	0.33
Previous Day	1663.8	19,042,740	
D ily	3.2	5,800	
Daily Total Gal.		12,855	
Distribution	16641 Iowa Ave		0.21

August 2013

Thursday

8	TIME 10:45 PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3727.6	19,194,350	
Previous Day	3724.4	19,187,400	0.93
Daily	3.2	6,950	
94 Well #3	1670.2	19,054,700	
Previous Day	1667.0	19,048,540	0.47
Daily	3.2	6,160	
Daily Total Gal.		13,110	
Distribution	16641 Iowa Ave		0.52

Friday

9	TIME	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3730.8	19,201,490	
Previous Day	3727.6	19,194,300	1.0
Daily	3.2	7,040	
94 Well #3	1673.4	19,060,900	
Previous Day	1670.2	19,054,700	0.52
Daily	3.2	6,200	
Daily Total Gal.		13340	
Distribution	16641 Iowa Ave		0.40

Saturday

10	TIME 8:30pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3734.3	19,208,825	
Previous Day	3730.8	19,201,490	0.76
Daily	3.5	7,335	
94 Well #3	1676.9	19,066,855	
Previous Day	1673.4	19,060,900	0.24
Daily	3.5	5,955	
Daily Total Gal.		13,280	
Distribution	16641 Iowa Ave		0.29

August 2013

nday

11	TIME 8Pm	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3738.0	19 216 930	0.74
Previous Day	3734.3	19, 208, 825	
Daily	3.7	8 105	
			Pumps RUN
94 Well #3	1680.9	19 074,350	2.50
Previous Day	1676.9	19, 066, 855	
Daily	4.0	7,495	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.69

Monday

12	TIME 8:30 Pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3743.1	19 227,745	1.25
Previous Day	3738.0	19, 216, 930	
Daily	5.1	10 815	
94 Well #3	1685.7	19,082,985	2.40
Previous Day	1680.9	19, 074 350	
Daily	4.8	8,635	
Daily Total Gal.		19,450	
Distribution	16641 Iowa Ave		0.33

Tuesday

13	TIME	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3746.4	19, 235, 055	0.76
Previous Day	3743.1	19, 227 745	
Daily	3.3	7310	
94 Well #3	1689.0	19,089105	0.27
Previous Day	1685.7	19 82 985	
Daily	3.3	6120	
Daily Total Gal.		13430	
Distribution	16641		0.42

August 2013

Wednesday

14	TIME 9PM		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	3751.4	19 245,575	1.04
Previous Day	~~3746~~ 3746.4	19, ~~039~~ 235, 055	
Daily	5.0	10 520	
94 Well #3	1694.0	19 098,175	0.66
Previous Day	1689.0	19,089,105	
Daily	5.0	9 070	
Daily Total Gal.		19,595	
Distribution	16641 Iowa Ave		0.51

Thursday

15	TIME 10:20PM		TANK % 86
	Hours	Gallons	Chlorine ppm
74 WELL #2	3755.5	19,254,395	0.69
Previous Day	3751.4	19,245 575	
Daily	4.1	8,820	
			Pumps started Raw—
94 Well #3	1698.2	19,105955	2.50
Previous Day	1694.0	19,098,175	
Daily	4.2	7,780	
Daily Total Gal.		16,600	
Distribution	16641 IowA Ave		0.97

Friday

16	TIME 8:30PM		TANK % 97
	Hours	Gallons	Chlorine ppm
74 WELL #2	3760.9	19 265 665	.42
Previous Day	3755.5	19,254,395	
Daily	5.4	11,270	
94 Well #3	1703.5	19 115 255	1.35
Previous Day	1698.2	19,105 955	
Daily	5.3	9300	
Daily Total Gal.		20570	
Distribution	16641 IowA Ave		0.59

August 2013

Saturday 3763.4

17	TIME 8:30 PM	TANK % 85	
	Hours	Gallons	Chlorine ppm
74 WELL #2		19271139	
Previous Day	3760.9	19265665	0.58
Daily	2.5	5474	
	1706.2		Pump STARTED AT 8:35
94 Well #3		19120336	
Previous Day	1703.5	19115255	2.48
Daily	2.7	5,081	
Daily Total Gal.		10,555	
Distribution	16618 Iowa Ave		0.64

Sunday

18	TIME 8:00 PM	TANK % 86	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3768.3	19281383	
Previous Day	3763.4	19271139	0.74
Daily	4.9	10,244	
	1710.9	19,128,786	
94 Well #3	1706.2	19,120,336	
Previous Day			0.57
Daily	4.7	8450	
Daily Total Gal.		19,005	
Distribution	16618 Iowa Ave		0.47

Monday

19	TIME 8:00 PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3772.9	19291336	
Previous Day	3768.3	19,281383	0.98
Daily	4.6	9953	
			Pump Runnings
94 Well #3	1715.7	19137552	
Previous Day	1710.9	19,128,786	2.17
Daily	4.8	8,766	
Daily Total Gal.		18,723	
Distribution	16618 Iowa Ave.		0.31

August 2013

Changed Chlorine Hose from pump to Injector

Tuesday

20	TIME 9:30Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3776.6	19,299,180	0.63
Previous Day	3772.9	19,291,336	
Daily	3.7	7854	
94 Well #3	1719.2	19,144,065	0.43
Previous Day	1715.7	19,137,552	
Daily	3.5	6513	
Daily Total Gal.			
Distribution	16641 Town Ave		0.62

Wednesday

Need to order 3/8 Hose # 2VDN1, tank fitting Pulsafeeder 15gal

21	TIME 11Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3781.2	19,308,725	0.36
Previous Day	3776.6	19,299,180	
Daily	4.6	9545	Inc - 6 on 20
94 Well #3	1723.7	19,152,490	0.64
Previous Day	1719.2	19,144,065	
Daily	4.5	8425	
Daily Total Gal.		17,970	
Distribution	16641 Forsyth Ave		0.46

Thursday

22	TIME 9:20pm	19,316,425 TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3784.8	19,316,~~270~~	1.51
Previous Day	3781.2	19,308,725	
Daily	3.6	7,700	
94 Well #3	1727.3	19,158,990	0.51
Previous Day	1723.7	19,152,490	
Daily	3.6	6,500	
Daily Total Gal.		15,200	
Distribution	16641 Town		0.29

August 2013

F day

23	TIME 8:30 pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3788.1	19323,500	0.45
Previous Day	3784.8	19,316,425	
Daily	3.3	7 075	
94 Well #3	1730.6	19,165,090	0.42
Previous Day	1727.3	19,158,990	
Daily	3.3	7100	
Daily Total Gal.		14,175	
Distribution	16641 Iowa Av		0.56

Saturday

24	TIME 9:30	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3792.2		1.11
P evious Day	3788.1	19,323,500	
Daily	4.1		
94 Well #3	1734.7		0.52
Previous Day	1730.6	19,165,090	
Daily	4.1		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.67

Sunday

25	TIME 9pm	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3796.2	19,340,925	0.73
Previous Day	3792.2		
Daily	4.0		
94 Well #3	1738.8	19,180,090	0.22
Previous Day	1734.7	19	
I ly	4.1		
Daily Total Gal.			
Distribution	16,641 Iowa Ave		0.78

August 2013

Monday

26	TIME 10pm	TANK % 100	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3802.6	19,354,205	1.25
Previous Day	3796.2	19,340,925	
Daily	6.4	13,380	
94 Well #3	1745.2	19,191,460	0.85
Previous Day	1738.8	19,180,090	
Daily	6.4	11,370	
Daily Total Gal.		24,750	
Distribution	16641 Iowa Av		0.68

Tuesday

27	TIME 8PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3805.4	19359920	0.76
Previous Day	3802.6	19,354,205	
Daily	2.8	5715	
94 Well #3	1747.9	19,196,490	0.43
Previous Day	1745.2	19,191,460	
Daily	2.7	5030	
Daily Total Gal.		10,745	
Distribution	16641 Iowa Av		0.85

Wednesday

28	TIME 9pm	TANK % 87	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3808.7	19,367,785	0.56
Previous Day	3805.4	19,359,920	
Daily	3.3	7,865	
94 Well #3	1751.2	19,202,610	0.18
Previous Day	1747.9	19,196,490	
Daily		6,120	
Daily Total Gal.		13,985	
Distribution	16641 Iowa Ave		0.42

August 2013

Thursday

29	TIME 9:30Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3813.8	19,377,890	0.82
Previous Day	3808.7	19,367,785	
Daily	5.1	10,105	
94 Well #3	1756.4	19,212,000	1.35
Previous Day	1751.2	19,202,610	
Daily	5.2	9,390	
Daily Total Gal.		19,495	
Distribution	16641 Iowa Ave		0.59

Friday

30	TIME 9:45Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3817.3	19,385,395	0.65
Previous Day	3813.8	19,377,840	
Daily	3.5	~~7,555~~	
	1759.9	7555	
94 Well #3	~~1759.9~~	19,218,510	1.00
Previous Day	1756.4	19,212,000	
Daily	3.5	6,510	
Daily Total Gal.		14065	
Distribution	16641 Iowa Ave		0.71

Saturday

31	TIME 9:15Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3820.6	19,392,315	0.64
Previous Day	3817.3	19,385,395	
Daily	3.3	6,920	
94 Well #3	1763.1	19,224,510	0.87
Previous Day	1759.9	19,218,510	
Daily	3.2	6,000	
Daily Total Gal.		12,920	
Distribution	16641		0.64

September 2013

S[illegible]nday

1	TIME 11 PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3823.8	19 399 455	0.94
Previous Day	3820.6	19 392 315	
Daily	3.2	7140	
94 Well #3	1766.3	19 230 635	0.22
Previous Day	1763.1	19,224,510	
Daily	3.2	6,125	
Daily Total Gal.		13,265	
Distribution	16641 Iowa Ave		0.43

Monday

2	TIME 8:30 PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3827.4	19,407,050	1.15
Previous Day	3823.8	19,399,455	
Daily	3.6	7595	
94 Well #3	1769.9	19,237,240	INC. 68 → 70 0.16
Previous Day	1766.3	19,230,635	
Daily	3.6	6,605	
Daily Total Gal.		14,200	
Distribution	16641 Iowa Ave		0.51

Tuesday

3	TIME 11 PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3833.5	19 420 150	0.64
Previous Day	3827.4	19,407,050	
Daily	6.1	13 100	
			Pumps Run
94 Well #3	1776.0 ~~1770.0~~	19 247 865	1.25
Previous Day	1769.9	19.237,240	
Daily	6.1	10,625	
Daily Total Gal.		23,725	
Distribution	16641 Iowa Ave		0.49

September 2013

Wednesday

4	TIME 10:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3838.7	19 431,275	0.98
Previous Day	3833.5	19,420,150	
Daily	5.2	11,125	
94 Well #3	1781.2	19,257,075	0.71
Previous Day	1776.0	19 247,855	
Daily	5.2	9,220	
Daily Total Gal.		20,345	
Distribution	16641 Iowa Ave		1.12

Thursday

5	TIME 10pm	TANK % 85	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3843.3	19 441 100	0.87
Previous Day	3838.7	19,431,275	
Daily	4.6	9,825	
94 Well #3	1785.8	19 265 217	0.65
Previous Day	1781.2	19,257,075	
Daily	4.6	8,142	
Daily Total Gal.		17,767	
Distribution	16641 Iowa Ave		0.79

Friday

6	TIME 9:30pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3848.6	19 452 421	1.01
Previous Day	3843.3	19 441 100	
Daily	5.3	11 321	
		19 274 598	
94 Well #3	1791.1	19 265 217	0.51
Previous Day	1785.8		
Daily	5.3	9,381	
Daily Total Gal.		20,702	
Distribution	16641 Iowa Ave		0.83

September 2013

S turday

7	TIME 9:30 pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3852.6	19 460 970	1.19
Previous Day	3848.6	19452421	
Daily	4.0	8549	
94 Well #3	1795.1	19 282 665	0.23
Previous Day	1791.1	19,274,598	
Daily	4.0	8,067	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.86

Sunday

8	TIME 8:10 pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3857.7	19,467 585	0.40
P evious Day	3852.6	19,460970	
Daily	5.1	10515	
94 Well #3	1800.2	19291725	Incr 70→71 0.25
Previous Day	1795.1	19,281,665	
Daily	5.1	10 060	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.82

Monday

9	TIME 7:30 pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3862.3	19 471 455	0.52
Previous Day	3857.7	19,467,585	
Daily	4.6	3 870	
94 Well #3	1804.8	19 300955	increase to 73 0.10
Previous Day	1800.2	19 291,725	
I ly	4.6	9230	
Daily Total Gal.		13,100	
Distribution	16641 Iowa		0.74

September 2013

Tuesday

10	TIME 7:00 PM	TANK %	88
	Hours	Gallons	Chlorine ppm
74 WELL #2	3867.2	19478226	0.80
Previous Day	3862.3	19471455	
Daily	4.9	6,771	
94 Well #3	1809.4	19308251	0.26
Previous Day	1804.8	19300955	
Daily	4.6	7296	
Daily Total Gal.		14,067	
Distribution	16618 Iowa Ave		0.39

Wednesday

11	TIME 7:00 PM	TANK %	92
	Hours	Gallons	Chlorine ppm
74 WELL #2	3873.2	19486964	0.60
Previous Day	3867.2	19,478,226	
Daily	6	8,738	
			Pump Running
94 Well #3	1815.6	19319269	2.50
Previous Day	1809.4	19,308,251	
Daily	6.2	11,018	
Daily Total Gal.		19,756	
Distribution	16618 Iowa Ave		0.30

Thursday

12	TIME 7:00 PM	TANK %	88
	Hours	Gallons	Chlorine ppm
74 WELL #2	3877.8	19,493,416	0.62
Previous Day	3873.2	19,486,964	
Daily	4.6	6,452	
			Pump Running
94 Well #3	1820.2	19,327,336	2.50
Previous Day	1815.6	19,319,269	
Daily	4.7	8067	
Daily Total Gal.		14,519	
Distribution	16618 Iowa Ave		0.38

September 2013

F 'day

13	TIME 7:40Pm	TANK % 98
	Hours	Gallons	Chlorine ppm

	Hours	Gallons	Chlorine ppm
74 WELL #2	3883.8	19501918	0.90
Previous Day	3877.8	19493416	
Daily	6.0	8,502	
94 Well #3	1826.1	19337688	0.35
Previous Day	1820.2	19327336	
Daily	5.9	10352	
Daily Total Gal.		18,854	
Distribution	16641 Iowa Ave		0.35

Saturday

14 TIME 8:38Pm TANK % 91

	Hours	Gallons	Chlorine ppm
74 WELL #2	3888.7	19508768	0.61
Previous Day	3883.8	19501918	
Daily	4.9	6,850	
94 Well #3	1830.9	19346222	0.04 → 0.19
Previous Day	1826.1	19337688	Inc 74→76
Daily	4.8	8534	
Daily Total Gal.		15384	
Distribution	16691 Iowa Ave		0.57

Sunday

15 TIME 9:30Pm TANK % 94

	Hours	Gallons	Chlorine ppm
74 WELL #2	3894.2	19516,780	0.68
Previous Day	3888.7	19,508,768	
Daily	5.5	8012	
			Pump Run..
94 Well #3	1836.6	19356,533	2,37
Previous Day	1830.9	19346,222	
Daily	5.7	10311	
Daily Total Gal.		18,323	
Distribution	16641 Iowa Ave		0.46

September 2013

Monday

16	TIME 9:30PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3898.8	19 523,415	0.89
Previous Day	3894.2	19 516,780	
Daily	4.6	6,635	
			Pump Ran
94 Well #3	1841.1	19,364,450	2.41
Previous Day	1836.6	19 356,530	
Daily	4.5	7,920	
Daily Total Gal.		14,555	
Distribution	16641 Iowa Ave		0.42

Tuesday

17	TIME 9:30 pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3904.1	19 530 895	0.65
Previous Day	3898.8	19 523 415	
Daily	5.3	7,480	
			Pumps Ran
94 Well #3	1846.3	19,373,685	2.47
Previous Day	1841.1	19,364,450	
Daily	5.2	9 235	
Daily Total Gal.		16 715	
Distribution	16641 Iowa Ave		0.31

Wednesday

18	TIME 9:30Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3908.8	19 537,640	0.60
Previous Day	3904.1	19,530 895	
Daily	4.7	6,745	
			Pumps ran
94 Well #3	1851.0	19 382,100	2.50
Previous Day	1846.3	19,373,685	
Daily	4.7	8,415	
Daily Total Gal.		15,160	
Distribution	16641 Iowa Ave		0.33

September 2013

Thursday

19	TIME 8:30 PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3912.7	19543430	0.58
Previous Day	3908.8	19,537,640	
Daily	3.9	5790	
			Pumps RUN.
94 Well #3	1855.0	19389,320	2.39
Previous Day	1851.0	19,382,100	
Daily	4.0	7220	
Daily Total Gal.		13010	
Distribution	16641 Iowa Ave		0.57

Friday

20	TIME 10:30 PM	TANK % 88	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3917.4	19549,920	0.34
Previous Day	3912.7	19,543430	
Daily	4.7	6490	Inc - 70 → 72%
94 Well #3	1859.6	19397,340	0.44
Previous Day	1855.0	19,389,320	
Daily	4.6	8,020	
Daily Total Gal.		14,510	
Distribution	16641 Iowa Ave		0.21

Saturday

21	TIME 8:15 PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3922.6	19557,295	1.36
Previous Day	3917.4	19,549,920	
Daily	5.2	7375	
94 Well #3	1864.8	19406,465	0.45
Previous Day	1859.6	19,397,340	
Daily	5.2	9125	
Daily Total Gal.		16500	
Distribution	16641 Iowa Ave		0.26

September 2013

Sunday

22	TIME 8:20 PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3927.3	19,563,985	0.86
Previous Day	3922.6	19 557 295	
Daily	4.7	6690	
94 Well #3	1869.5	19,414,855	0.25
Previous Day	1864.8	19 406 465	
Daily	4.7	8390	INC 78→80%
Daily Total Gal.		15080	
Distribution	16641 Iowa Ave		0.54

Monday

23	TIME 8PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3931.8	19 570,500	0.91
Previous Day	3927.3	19,563,985	
Daily	4.5	6,515	
94 Well #3	1874.0	19423,085	0.67
Previous Day	1869.5	19,414,855	
Daily	4.5	8,230	
Daily Total Gal.		14 745	
Distribution	16641 Iowa Ave		0.67

Tuesday

24	TIME 9PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3936.6	19,577,330	1.03
Previous Day	3931.8	19,570,500	
Daily	4.8	6830	
			Pumps Rerun
94 Well #3	1878.8	19,431,590	2.39
Previous Day	1874.0	19 423,085	
Daily	4.8	8505	
Daily Total Gal.		15,335	
Distribution	16641 Iowa A		0.55

September 2013

\ dnesday

25	TIME 9:30PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3941.3	19584140	
Previous Day	3936.6	19,577,330	0.41
Daily	4.7	6,810	24 [illegible]
94 Well #3	1883.5	19 440 075	
Previous Day	1878.8	19 431, 590	~~0.71~~ 0.61
Daily	4.7	8,485	306pm
Daily Total Gal.		15,295	
Distribution	16641 Iowa Ave		0.48

Thursday

26	TIME 9PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3946.1	19590,955	
P evious Day	3941.3	19 584 140	0.44
Daily	4.8	6815	
94 Well #3	1888.2	19448,475	
Previous Day	1883.5	19,440,075	0.19
Daily	4.7	8400	
Daily Total Gal.		15,215	
Distribution	16641 Iowa Av		0.65

Friday

27	TIME 9:20PM	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3950.3	19 597185	
Previous Day	3946.1	19,590955	0.72
Daily	4.2	6230	
94 Well #3	1892.5	19 456,215	
Previous Day	1888.2	19,448,475	0.41
I ily	4.3	7740	
Daily Total Gal.		13970	
Distribution	16641 Iowa Ave		0.55

September 2013

Saturday

28	TIME 9PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3955.0	19,603,975	0.83
Previous Day	3950.3	19,597,185	
Daily	4.7	6790	
94 Well #3	1897.1	19,464,555	0.22
Previous Day	1892.5	19,456,215	
Daily	4.6	8340	
Daily Total Gal.		15130	
Distribution	16641 Iowa Ave		0.29

Sunday

29	TIME 8:30PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3959.8	19,610,750	0.55
Previous Day	3955.0	19,603,975	
Daily	4.8	6775	
94 Well #3	1902.0	19,473,165	"0.00" 0.21 Inc--
Previous Day	1897.1	19,464,555	
Daily	4.9	8610	
Daily Total Gal.		15385	
Distribution	16641 Iowa Ave		0.31

MONDAY

30	TIME 8:45PM	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3965.4	19,618,750	1.12
Previous Day	3959.8	19,610,750	
Daily	5.6	8,000	
			Pumps RUN...
94 Well #3	1907.7	19,483,495	0.40
Previous Day	1902.0	19,473,165	
Daily	5.7	10330	
Daily Total Gal.		18,330	
Distribution	16641 Iowa Ave		0.42

October 2013

S nday

Oct 24 2013 Street light Repair (Needs)
Fairview & 6th St out + Graham Iowa
Fairview Ave & 5th Street out
Dakota Ave & 3RD Intermittent on-off
Dakota Av & 4th Intermittent
~~on~~ 6th Between RR & Iowa Ave out
~~Harvest Ruston~~
3RD & Iowa Central not COWS — Intermittent → STAY ON

Monday 6th Street & Dakota

Tuesday

1	TIME 10Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3971.3	19626840	1.22
Previous Day	3965.4	19618,750	
Daily	5.9	8,090	
94 Well #3	1913.4	19493,430	0.37
Previous Day	1907.7	19483495	
Daily	5.7	9935	
Daily Total Gal.		18025	
Distribution	16641 Iowa Ave		0.41

October 2013

Wednesday

2	TIME 11pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3976.0	19,633,460	0.98
Previous Day	3971.3	19 626840	
Daily	4.7	6,620	
94 Well #3	1918.1	19501730	0.44
Previous Day	1913.4	19493430	
Daily	4.7	8,300	
Daily Total Gal.		14,920	
Distribution	16641 Iowa Ave		0.58

Thursday

3	TIME 9pm	TANK % 99	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3980.4	19,639,560	0.56
Previous Day	3976.0	19,633,460	
Daily	4.4	6,100	Inc. 74-77
94 Well #3	1922.5	19,509,550	0.47
Previous Day	1918.1	19501,730	
Daily	4.4	7820	
Daily Total Gal.		13920	
Distribution	16641 Iowa Ave		0.28

Friday

4	TIME 8:25PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3985.1	19646110	0.75
Previous Day	3980.4	19,639,560	
Daily	4.7	6550	
			Pumps Run
94 Well #3	1927.3	19518040	"2.50"
Previous Day	1922.5	19,509,550	
Daily	4.8	8490	
Daily Total Gal.		15040	
Distribution	16641 Iowa Ave		0.38

October 2013

Saturday

5	TIME 8:10pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3989.2	19,652 010	0.47
Previous Day	3985.1	19,646,110	Inc - 78 - 80
Daily	4.1	5 900	
			Pumps Run →
94 Well #3	1931.4	19525555	
Previous Day	1927.3	19,518,040	2.48
Daily	4.1	7 515	
Daily Total Gal.		13,415	
Distribution	16641 Iowa Ave		0.14

Sunday

6	TIME 9:45pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	3995.3	19 660,470	0.77
Previous Day	3989.2	19,652 010	
Daily	6.1	8,460	
94 Well #3	1937.4	19 536,170	
Previous Day	1931.4	19,525,555	0.72
Daily	6.0	10 615	
Daily Total Gal.		19 075	
Distribution	16641 Iowa Ave		0.66

Monday

7	TIME 10:05pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4000.1	19 667,050	
Previous Day	3995.3	19 660 470	1.24
Daily	4.8	6 580	
94 Well #3	1942.2	19 544,605	
Previous Day	1937.4	19,536,170	0.22
Daily		8,435	
Daily Total Gal.		15015	
Distribution	16641 Iowa Ave		0.43

October 2013

Replaced 840' Drop Pipe with 2" stainless
Flushed Well Run 3 Hrs
Restarted online at 4004.3 Hrs 19,669,630 gals

Tuesday

8	TIME 8:15 PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4001.7	19,669,430	Shut Down Pump for maintenance 8:30 AM
Previous Day	4000.1	19,667,050	
Daily	1.6	2380 24.8 gpm	Tank at 99% Full
			Pumps Running
94 Well #3	1949.3	19,556,740	74 Inc Cl → 85% 0.26
Previous Day	1942.2	19,544,605	74 Inc Cl → 90% ?
Daily	7.1	12,135 28.5 gpm	2.39
Daily Total Gal.		14,515	
Distribution	16641 Iowa Ave		0.57

Wednesday

Back online

9	TIME 8:15 PM	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4007.8	19,678,565	4005.6 Hrs 9am 0.55
Previous Day	4004.3	19,669,630	1.02
Daily	3.5	8,935 (42.5 gpm)	Cl_2 at 90%
94 Well #3	1952.7	19,563,030	0.11
Previous Day	1949.3	19,556,740	INC 85 → 90%
Daily	3.4	6,290 (30.8 gpm)	
Daily Total Gal.		15,225	
Distribution	16641 Iowa Av		0.26

Thursday

10	TIME 9 PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4012.5	19,689,600	1.06
Previous Day	40007.8	19,678,565	
Daily	4.7	10035 (35.6 gpm)	
94 Well #3	1957.4	19,571,680	
Previous Day	1952.7	19,563,030	0.92
Daily	4.7	8650	
Daily Total Gal.		18685 (30.7 gpm)	
Distribution	16641 Iowa Ave		0.46

total 66 gpm

October 2013

Friday

11	TIME 8Pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4015.9	19,697,895	1.00
Previous Day	4012.5	19,689,600	
Daily	3.4	8295 40.7gpm	
94 Well #3	1960.8	19577925	0.38
Previous Day	1957.4	19571680	
Daily	3.4	6245	
Daily Total Gal.		14540 30.6gpm	
Distribution	16641 Iowa Ave		0.58

SATURDAY

12	TIME 8:30Pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4020.8	19709270	0.90
Previous Day	4015.9	19,697,895	
Daily	4.9	11,375 38.7gpm	
94 Well #3	1965.7	19586925	1.21
Previous Day	1960.8	19,577,925	
Daily	4.9	9000 30.6gpm	
Daily Total Gal.		20,375	
Distribution	16641 Iowa Ave		0.55

SUNDAY

13	TIME 10:10 Pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4025.7	19720070	0.57
Previous Day	4020.8	19,709270	
Daily	4.9	10,800 (36.7gpm) Inc 90→92	
94 Well #3	1970.6	19595,835	1.07
Previous Day	1965.7	19,586,925	
Daily	4.9	8910	
Daily Total Gal.		19710 (30.3gpm)	
Distribution	16641 Iowa Ave		0.38

October 2013

Sunday

20	TIME 9pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4049.6	19772585	0.87
Previous Day	4046.2	19,765,270	
Daily	3.4	7,315	35.86 gpm
94 Well #3	1994.4	19,639,825	0.92
Previous Day	1991.0	19,633,510	
Daily	3.4	6315	30.95 gpm
Daily Total Gal.		13,630	
Distribution	16641 Iowa Ave		0.53

Monday

21	TIME 11pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4053.6		1.03
Previous Day	4049.6	19,772,585	
Daily	4.0		
94 Well #3	1998.4		1.25
Previous Day	1994.4	19,639,820	
Daily	4.0		
Daily Total Gal.			
Distribution	16641 Iowa Ave		~~0.26~~ 0.31

Tuesday

22	TIME 7:30 Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4057.6	19,789,475	1.98
Previous Day	4053.6		
Daily	4.0		
			Pumps Runn
94 Well #3	2002.5	19,654,785	2.50
Previous Day	1998.4		
Daily	4.1		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.23

October 2013

Wednesday

23	TIME 8:40 pm		TANK % 92
	Hours	Gallons	Chlorine ppm
74 WELL #2	4060.2	19,795,075	1.47
Previous Day	4057.6	19,789,475	
Daily	2.6	5,600	35.9 gpm
			Pumps Run
94 Well #3	2005.1	19,659,820	2.50
Previous Day	2002.5	19,654,785	
Daily	2.6	5 035	32.3 gpm
Daily Total Gal.		10 638	
Distribution	16641 Iowa Ave		0.20 Actual

Thursday

24	TIME 9:40 pm		TANK % 89
	Hours	Gallons	Chlorine ppm
74 WELL #2	4063.1	19 801,325	0.35
Previous Day	4060.2	19,795,075	
Daily	2.9	6 250	
94 Well #3	2008.0	19 665,395	Pump Just Started
Previous Day	2005.1	19 659 820	Run ~~2.50~~
Daily	2.9	5,575	2.24
Daily Total Gal.		11,825	
Distribution	16641 Iowa Ave		0.38

Friday

25	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.98
Previous Day			
Daily			
94 Well #3			2.01
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.45

October 2013

SATURDAY

26	TIME 9:30PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4071.3	19,819,020	0.89
Previous Day			
Daily			
94 Well #3	2016.1	19,680,195	1.01
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.30

SUNDAY

27	TIME 9:30pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4074.8	19,826,595	0.58
Previous Day	4071.3	19,819,020	
Daily	3.5	7,575	
94 Well #3	2019.6	19,686,535	1.00
Previous Day	2016.1	19,680,195	
Daily	3.5	6340	
Daily Total Gal.		13,915	
Distribution	16641 Iowa Ave		0.35

Monday

28	TIME 10:10Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4079.4	19,836,655	0.47
Previous Day	4074.8	19,826,595	
Daily	4.6	10,060	36.45gpd
94 Well #3	2024.2	19,694,815	0.71
Previous Day	2019.6	19,686,535	
Daily	4.6	8,280	30gpd
Daily Total Gal.		18,340	
Distribution	16641 Iowa Ave		0.32

October 2013

T esday

29	TIME 9pm	TANK % ~~92~~ 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4082.9	19844,185	
Previous Day	4079.4	19,836,655	0.69
Daily	3.5	7 530	35.8gm
94 Well #3	2027.6	19 701 070	
Previous Day	2024.2	19,694 815	2.10
Daily	3.4	6 255	30.6gm
Daily Total Gal.		13,785	
Distribution	16641 Iowa Ave		0.29

Wednesday

30	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
P evious Day			0.78
Daily			
94 Well #3			
Previous Day			0.85
Daily			
Daily Total Gal.			
Distribution			0.24

Thursday

31	TIME 9:30 pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4089.5	19,858,635	
Previous Day			1.25
Daily			
94 Well #3	2034.2	19 713, 335	
Previous Day			1.50
I ly			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.16 0.26

Nov 1 - 2013

16641 Iowa Ave 0.42 11PM TANK 97

74 4093.8 19,868,060 0.47
4089.5 858 635
4.3 9 425

94 - 2038.5 19,721,345 1.24
2034.2 19 713, 335
4.3 8 010

total 17 435

Nov 2 - 2013

16641 Iowa Ave 0.27 8:30AM Tank 90%

74 4096.1 19,873,005 0.76
4093.8 19 868,060
2.3 4 945

94 2040.8 19,721,345
2038.5
2.3

Nov 3 - 2013 Tank → 98% 10pm

16641 Iowa 0.20

74 4100.7 19,883,100 0.45
4096.1 19 873,005
4.6 tot 10,095

94 - 2045.4 19,734,305 1.09
2040.8
4.6

Nov 4 - 2013 tank 98% 9:30Am

16641 Iowa 0.17

74 4104.0 19 890,200 0.93 35.86gpm
4100.7 19,883,100
3.3 7100

94 2048.7 19 740,445 0.63 31.0gpm
2045.4 19 734 305
3.3 6,140

Total 13,240

November 2013

Friday

1	TIME 11Pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4093.8	19,868,060	0.47
Previous Day	4089.5	858,635	
Daily	4.3	9425	
94 Well #3	2038.5	19,721,345	1.24
Previous Day	2034.2	19,713,335	
Daily	4.3	8010	
Daily Total Gal.		17,435	
Distribution	16641 Iowa Ave		0.42

Saturday

2	TIME 8:30Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4096.1	19,873,005	0.76
Previous Day	4093.8	19,868,060	
Daily	2.3	4,945	
94 Well #3	2040.8		1.10
Previous Day	2038.5		
Daily	2.3		
Daily Total Gal.			
Distribution	16641 Iowa		0.27

November 2013

Sunday

3	TIME 10pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4100.7	19,883,100	
Previous Day	4096.1	19,873,005	0.45
Daily	4.6	10 095	
94 Well #3	2045.4	19,734,305	
Previous Day	2040.8	19,721,345	1.09
Daily	4.6	~~960~~	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.20

Monday

4	TIME 9:30pm	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4104.0	19,890,200	
Previous Day	4100.7	19,883,100	0.93
Daily	3.3	7,100	35.86gpm
94 Well #3	2048.7	19740445	
Previous Day	2045.4	19,734,305	0.63
Daily	3.3	6,140	31.0gpm
Daily Total Gal.		13,240	
Distribution	16641 Iowa Ave		0.17

Tuesday

5	TIME 9:30 PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4107.5	19,897,680	
Previous Day	4104.0	19,890,200	0.51
Daily	3.5	7,480	
94 Well #3	2052.1	19,746,870	
Previous Day	2048.7	19,740,445	1.40
Daily	3.4	6,225	
Daily Total Gal.		13,705	
Distribution	16641 Iowa Ave		0.42

November 2013

W dnesday

6	TIME 8:45PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4110.1	19,903,225	1.54
Previous Day	4107.5	19,897,680	
Daily	2.6	5,545	
			Pump Rw
94 Well #3	2054.8	19752000	2.50 2ND TEST
Previous Day	2052.1	19,746,870	
Daily	2.7	5130	Dec 88→70 (2.32)
Daily Total Gal.		10,675	
Distribution	16641 Iowa Av		0.70

Thursday

7	TIME 10:30PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4114.1	19911720	0.73
P evious Day	4110.1	19,903 275	
Daily	4.0	8,445	
94 Well #3	2058.8	19 ~~76~~ 759 295	0.51
Previous Day	2054.8	19,752,000	
Daily	4.0	7295	
Daily Total Gal.		15,740	
Distribution	16641 Iowa Av		0.22

Friday

8	TIME 9PM	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4117.4	19918710	0.71
Previous Day	4114.1	19,911,720	
Daily	3.3	6,990	
94 Well #3	2062.1	19,765,455	0.73
Previous Day	2058.8	19,759,295	
I ily	3.3	6,160	
Daily Total Gal.		13,150	
Distribution	16641 Iowa Av		0.32

November 2013

Saturday

9	TIME 9:40Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4120.9	19 925 970	0.86
Previous Day	4117.4	19, 918, 710	
Daily	3.5	7 260	
94 Well #3	2065.6	19 771 980	0.25
Previous Day	2062.1	19, 765 455	
Daily	3.5	6 525	
Daily Total Gal.		13 785	
Distribution	16641 Iowa		0.47

Sunday

10	TIME 10Pm	TANK % 91	
	Hours.5	Gallons	Chlorine ppm
74 WELL #2	4124.5	19 933 525	1.27
Previous Day	4120.9	19, 925, 970	
Daily	3.6	7 555	
			Pumps Run - -
94 Well #3	2069.2	19, 778, 780	"2.50"
Previous Day	2065.6	19, 771, 980	
Daily	3.6	6 800	DEC 70 → 65%
Daily Total Gal.			
Distribution	16641 Iowa Av		0.59

Monday

11	TIME 10:20Pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	41288	19 942, 785	0.58
Previous Day	4124.5	19 933, 525	
Daily	4.3	9, 260	
94 Well #3	2073.5	19 786 575	0.33
Previous Day	2069.2	19, 778, 780	
Daily	4.3	7 795	INC → 65 - 68
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.60

November 2013

T esday

12	TIME 7:30pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4131.3	19948030	1.20
Previous Day	4128.8	19,942,285	
Daily	2.5		
			Pump Rm.
94 Well #3	2075.9	19791,100	0.98
Previous Day	2073.5	19,786,575	
Daily	2.4		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.48

Wednesday

13	TIME 9pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4135.6	19,957 155	0.45
P evious Day	4131.3	19,948,030	
Daily	4.3	9 125	
94 Well #3	2080.3	19,799,255	0.21 Inc 68→72
Previous Day	2075.9	19 791,100	
Daily	4.4	8 155	
Daily Total Gal.		17280	
Distribution	16641 Iowa Ave		0.26

Thursday

14	TIME 6:40pm	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.52
Previous Day	4		
Daily	3.		
94 Well #3			0.55
Previous Day			
I ily	3.		
Daily Total Gal.			
Distribution	16641 Iowa Av		0.33

November 2013

Friday

15	TIME 6:40Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4142.2	19,971,250	0.92
Previous Day	413[illegible] 6		
Daily	3.3		
94 Well #3	2086.8	19,811,605	0.53
Previous Day			
Daily	3.2		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.47

Saturday

16	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			1.02
Previous Day			
Daily			
94 Well #3			0.[illegible]
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.32

Sunday

17	TIME 8:30Pm	TANK % 89	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4149.1	19,985,720	0.83
Previous Day			
Daily			
94 Well #3	2093.6	19,824,335	0.20
Previous Day			
Daily			Inc 72 → 75
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.17

November 2013

Monday

18	TIME 9:30pm	TANK % ~~93~~ 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4153.6	19,995,360	0.50
Previous Day	4149.1	19,985,720	
Daily	4.5	9,640	
94 Well #3	2098.2	19,832,820	0.17
Previous Day	2093.6	19,824,335	
Daily	4.6	8485	
Daily Total Gal.		18125	
Distribution	16641 Iowa Ave		0.26

Tuesday

19	TIME 11pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4157.0	20,002,476	0.66
Previous Day	4153.6	19995,360	
Daily	3.4	7,116	
94 Well #3			0.41
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.33

Wednesday

20	TIME 9:30pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4160.3	20,009,526	0.28
Previous Day	4157.0	20,002,476	
Daily	3.3	7,050	
94 Well #3	2104.8	19,845,340	0.21
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.57

November 2013

Thursday

21	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.46
Previous Day			
Daily			
94 Well #3			0.35
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.3[illegible]

Friday

22	TIME 11PM	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4167.7	20 025,355	0.30
Previous Day			
Daily			
94 Well #3	2112.3	19,859,320	0.60
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.25

Saturday

23	TIME 9:30Pm	TANK % 91	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4171.0	20032320	0.65
Previous Day	4167.7	20,025,355	
Daily	3.3	6965	
94 Well #3	2115.6	19865,465	0.64
Previous Day	2112.3	19,859,320	
Daily	3.3	6145	
Daily Total Gal.		13110	
Distribution	16641 Iowa Ave		0.20

November 2013

S[illegible]nday

24	TIME 8:20pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4175.8	20,042,250	
Previous Day	4171.0	20032 320	0.33
Daily	4.8	9 930	INC 92-95
94 Well #3	2120.3	19 874 230	
Previous Day	2115.6	19,865 465	0.63
Daily	4.7	8765	
Daily Total Gal.		18,695	
Distribution	~~1664~~ 1664 Iowa Ave		0.46

Monday

25	TIME 8:40pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4179.1	20,049,230	
P[illegible]evious Day	4175.8	20042 250	0.91
Daily	3.3	6 980	
94 Well #3	2123.6	19,880,485	
Previous Day	2120.3	19 874,230	0.49
Daily	3.3	6,255	
Daily Total Gal.		13,235	
Distribution	16641 Iowa Ave		0.57

Tuesday

26	TIME 8:35pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4183.3	20 058,255	
Previous Day	4179.1	20,049,230	2.50
Daily	4.2	9 025	
			Pumps RWN
94 Well #3	2127.7	19 888 200	
Previous Day	2123.6	19,880,485	" 2.50"
I[illegible]ly	4.1	7715	
Daily Total Gal.			
Distribution	1664 Iowa Ave		0.66

November 2013

Wednesday

27	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2	~~4190~~.2	20 072,650	
Previous Day	4183.3	20,098,250	0.66
Daily		~~23422~~	
94 Well #3			
Previous Day	2127.7	19, 880,[illegible]	0.51
Daily			
Daily Total Gal.			
Distribution			0.45

Thursday

28	TIME 8:20 pm		TANK % 91
	Hours	Gallons	Chlorine ppm
74 WELL #2	4190.2	20,072 650	
Previous Day			0.64
Daily			
			Filled Cl_2 Tanks
94 Well #3	2134.6	19,901,185	
Previous Day			0.49
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.59

Friday

29	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			0.77
Daily			
94 Well #3			
Previous Day			0.81
Daily			
Daily Total Gal.			
Distribution			0.47

November 2013

S turday

30	TIME 8:30 Pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4197.0	20,087,000	1.50
Previous Day			
Daily			
			Pumps Just Started Run
94 Well #3	2141.5	19,914,130	2.50
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.40

Dec 1 Sunday time 9Pm TANK 96

74 well 4201.9 20,097,180 ~~2.~~ 1.28
97.0
4.9

94 well 2146.3 19,922,865
14 123
8,735

16641 Iowa Ave $\boxed{0.17}$ 0.83

December 2013

S nday

1	TIME 9PM	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4201.9	20,097,180	~~1.50~~ 1.25
Previous Day	4197.0	20,087,060	
Daily	4.9	10,180	
94 Well #3	2146.3	19,922,865	~~2.50~~ 0.83
Previous Day	2141.5	19 914 130	
Daily	4.8	8,735	
Daily Total Gal.		18,915	
Distribution	16641 Iowa Ave		0.17

Monday

2	TIME 9:30Pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4205.4	20 104,575	0.60
P evious Day	4201.9	20,097,180	
Daily	3.5	7395	
94 Well #3	2149.8	19 929 380	0.71
Previous Day	2146.3	19,922,865	
Daily	3.5	6 515	
Daily Total Gal.		13910	
Distribution	16641 Iowa Ave		0.27

Tuesday

3	TIME 7:00Pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4208.5	20,111,250	0.69
Previous Day	4205.4	20,104,575	
Daily	3.1		
94 Well #3	2153.0	19935,305	0.87
Previous Day	2149.8	19929380	
D ily	3.2		
Daily Total Gal.			
Distribution	16641		0.21

December 2013

Wednesday

4	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			0.88
Previous Day			
Daily			
94 Well #3			0.67
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa		0.47

Thursday

-16°F

5	TIME 7:00PM		TANK % 95
	Hours	Gallons	Chlorine ppm
74 WELL #2	4217.5	20,130,055	0.90
Previous Day			
Daily			
94 Well #3	2161.9	19,952,945	0.56
Previous Day			
Daily			
Daily Total Gal.			
Distribution			0.31

Friday

Temp -20.0°F

6	TIME 8:15 pm		TANK % 94
	Hours	Gallons	Chlorine ppm
74 WELL #2	4222.3	20140,115	0.26
Previous Day	4217.5	20,130,055	
Daily	4.8	10,060	INC - 95-98%
94 Well #3	2166.7	19,960,820	1.00
Previous Day	2161.9	19,952,945	
Daily	4.8	7875	
Daily Total Gal.		17935	
Distribution	16641 Iowa Av		0.16
			0.22

December 2013

S turday Temp -20°F

7	TIME 8:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4227.9	20 151955	2.40
Previous Day	4222.3	20 140 115	
Daily		11 840	
			Pumps Running
94 Well #3	2172.1	19970850	2.50
Previous Day	2166.7	19,960,820	
Daily	5.4	10,030	
Daily Total Gal.		21,870	
Distribution	16641 Iowa Ave		0.35

Sunday

8	TIME 9pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4234.2	20 164,895	0.65
P evious Day	4227.9	20,151955	
Daily		12940	
94 Well #3	2178.6	19982,545	1.49
Previous Day	2172.1	19,970,850	
Daily	6.5	11,695	
Daily Total Gal.		24635	
Distribution	16641 Iowa Av		0.24

Monday

9	TIME 9pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4240.5	20,178,038	0.89
Previous Day	4234.2	20,164 895	
Daily	6.3	13 143	
94 Well #3	2184.9	19,994,030	1.74
Previous Day	2178.6	19,982,545	
I ily	6.3	11485	
Daily Total Gal.		24628	
Distribution	16641 Iowa Av		0.10 · 0.20

December 2013

Tuesday

10	TIME 8:45 pm	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4245.3	20187 950	
Previous Day	4240.5	20178 038	0.67
Daily	4.8	9 912	
94 Well #3	2189.6	~~20~~ 20 002 705	
Previous Day	2184.9	19994 030	2.44
Daily	4.7	8 675	
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.12 → 0.22

Wednesday

11	TIME 9:50 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4249.7	20 197 410	
Previous Day	4245.3	20,187,950	0.72
Daily	4.4	9 460	
94 Well #3	2194.0	20 010 935	
Previous Day	2189.6	20,002,705	1.30
Daily	4.4	8 230	
Daily Total Gal.		17 690	
Distribution	16641 Iowa Ave		0.22

Thursday

12	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day	4249.7	20,197,410	0.93
Daily			
94 Well #3			
Previous Day	2194.0	20,010,935	~~0.1.16~~ 1.45
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.22

December 2013

F day

13	TIME 10pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4259.1	20,217,320	2.43
Previous Day			
Daily			[illegible]
94 Well #3	2203.4	20,028,105	2.05
Previous Day	[illegible]		
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.12 → 0.27

Saturday

14	TIME 10:25pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4264.8	20229,395	1.42
P evious Day	4259.1	20,217,320	Inc 2X78 → 2.46
Daily	5.7	12075	Pumps Run
94 Well #3	2208.9	20038225	2.50
Previous Day	2203.4	20,028,105	
Daily	5.5	10,120	
Daily Total Gal.			
Distribution	16641 Iowa Av		0.19

Sunday

15	TIME 8:30pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4269.3	20,238,685	0.09 → 0.25
Previous Day	4264.8	20,229,395	Inc 72 → 78
Daily	4.5		
94 Well #3			2.41
Previous Day			
ily			
Daily Total Gal.			
Distribution	16641 Iowa Av		0.05 → 0.20

December 2013

Monday

16	TIME 10PM	TANK % 98	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4273.6	20247750	
Previous Day	4269.3	20,238,685	0.87
Daily	4.3	9068	Inc 80 → [illegible]
94 Well #3	2217.9	20,054,725	1.66
Previous Day	2213.6		
Daily	4.3		
Daily Total Gal.			
Distribution	16641 Iowa Ave		0.26

Tuesday

17	TIME	TANK %	
	Hours	Gallons	Chlorine ppm
74 WELL #2			
Previous Day			1.93
Daily	4.5	9,210	
94 Well #3			
Previous Day			1.80
Daily	4.5	8,300	
Daily Total Gal.	17,510		
Distribution			0.72

Wednesday

18	TIME 10:30pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4282.6	20,266,170	
Previous Day			+ 2.56
Daily	4.5	9,210	Dec 84 → 80
			Pumps Run
94 Well #3	2227.0	20,070,310	
Previous Day			2.58
Daily	4.6	8,300	
Daily Total Gal.	17,510		
Distribution	16641 Iowa Ave		1.08

December 2013

Thursday

19	TIME		TANK %
	Hours	Gallons	Chlorine ppm
74 WELL #2			2.40
Previous Day			
Daily			
94 Well #3			1.85
Previous Day			
Daily			
Daily Total Gal.			
Distribution			1.54

Friday

20	TIME 10:30 pm		TANK % 98
	Hours	Gallons	Chlorine ppm
74 WELL #2	4290.9	20,283,480	2.50 Rec 80-75
Previous Day			
Daily			
94 Well #3	2235.1	20,086,490	1.43
Previous Day			
Daily			
Daily Total Gal.			
Distribution	16641 Iowa Ave		1.75

Saturday

21	TIME 8:30Pm		TANK % 99
	Hours	Gallons	Chlorine ppm
74 WELL #2	4294.5	20,291,055	2.50 Rec 75→70
Previous Day	4290.9	20,283,480	
Daily	3.6	7,575	
94 Well #3	2238.8	20,093,220	1.37
Previous Day	2235.1	20,086,490	
Daily	3.7	6730	
Daily Total Gal.		14305	
Distribution	16641 Iowa Ave		1.96

December 2013

Sunday

22	TIME 8:30pm	TANK % 94	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4298.2	20 298, 580	1.92
Previous Day	4294.5	20, 291, 055	
Daily	3.7	7 525	
	2242.4		
94 Well #3	2242.4	20 099 980	1.22
Previous Day	2238.8	20, 093, 220	
Daily	3.6	6 760	
Daily Total Gal.		14 285	
Distribution	16641 Iowa Ave		1.98

Monday

23	TIME 9:30pm	TANK % 80	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4304.9	20 312, 200	Pump Just started
Previous Day	4298.2	20, 298, 580	+2.50
Daily	6.7	13 620	Dec 70→65
94 Well #3	2248.8	20, 111, 365	1.33
Previous Day	2242.4	20, 099, 980	
Daily	6.4	11, 385	
Daily Total Gal.		25 005	
Distribution	16641 Iowa Ave		1.59

Tuesday

4316.4 Hrs at 3PM Tue
4304.9
9.5

water Leak inside school → toilets Running
+ Leak from water line digout MT Ave & 2nd St

24	TIME 7:50pm	TANK % 97	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4318.7	20, 338, 125	0.89
Previous Day	4304.9	20 312, 200	
Daily	13.8	25, 925	Inc 65-68
94 Well #3	2263.0	20 134, 340	0.86
Previous Day	2248.8	20, 111, 365	
Daily	14.2	22, 975	
Daily Total Gal.		48, 900	
Distribution	16641 Iowa Ave		0.58

December 2013

Wednesday

25	TIME 9:30pm	TANK % 90	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4322.3	20345415	1.16
Previous Day	4318.7	20,338,125	
Daily	3.6	7290	
94 Well #3	2266.5	20140815	4 2.50
Previous Day	2263.0	20,134,340	
Daily	3.5	6475	Poo 72-68
Daily Total Gal.		13765	
Distribution	16641 Iowa Ave		1.02

Thursday

26	TIME 10:45pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4326.8	20,354,750	1.07
Previous Day	4322.3	20,345,415	
Daily	4.5	9335	
94 Well #3	2271.0	20149110	1.30
Previous Day	2266.5	20,140,815	
Daily	4.5	8295	
Daily Total Gal.		17630	
Distribution	16641 Iowa Ave		1.09

Friday

27	TIME 9pm	TANK % 96	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4330.2	20361800	1.08
Previous Day	4326.8	20,354,750	
Daily	3.4	7050	
94 Well #3	2274.4	20155415	1.13
Previous Day	2271.0	20,149,110	
Daily	3.4	6305	
Daily Total Gal.		13355	
Distribution	16641 Iowa ave		1.09

December 2013

Saturday

28	TIME 10:20pm	TANK % 92	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4333.7	20 369 000	0.69
Previous Day	4330.2	20,361,800	
Daily	3.5	7200	
94 Well #3	2277.8	20 161 830	1.73
Previous Day	2274.4	20 155, 415	
Daily	3.4	6 415	
Daily Total Gal.		13 615	
Distribution	16641 Iowa Av		1.41

Sunday

29	TIME 10:10pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4338.3	20 378,590	0.91
Previous Day	4333.7	20,369,000	
Daily	4.6	9 590	
94 Well #3	2282.5	20,170 400	2.16
Previous Day	2277.8	20,161,830	
Daily	4.7	8 570	
Daily Total Gal.		18 160	
Distribution	16641 Iowa Ave		1.19

Monday

30	TIME 10:10 pm	TANK % 95	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4341.7	20 385 640	0.96
Previous Day	4338.3	20,378,590	
Daily	3.4	7,050	
94 Well #3	2285.8	20,176,685	1.65
Previous Day	2282.5	20,170,400	
Daily	3.3	6 285	
Daily Total Gal.		13335	
Distribution	16641 Iowa Av		1.20

December 2013

Tuesday

31	TIME 10PM	TANK % 93	
	Hours	Gallons	Chlorine ppm
74 WELL #2	4345.1	20,392,660	0.65
Previous Day	4341.7	20,385,640	
Daily	3.4	7,020	
94 Well #3	2289.2	20,183,060	1.66
Previous Day	2285.8	20,176,685	
Daily	3.4	6375	
Daily Total Gal.		13,395	
Distribution	16641 Jim Agee		0.98

APPENDIX I

Existing Water Supply Well Information

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site on a topographic map
View field visits for this site
View water quality for this site
View scanned well log (6/27/2012 2:11:40 PM)

Site Name: CITY OF BROADVIEW
GWIC Id: 15974

Section 1: Well Owner(s)

1) CITY OF BROADVIEW (MAIL)

BROADVIEW MT 59015 [03/01/1974]

Section 2: Location

Township	Range	Section	Quarter Sections
04N	23E	16	SW¼ SW¼ SW¼ NW¼

County	Geocode
YELLOWSTONE	

Latitude	Longitude	Geomethod	Datum
46.0957	108.8833	MAP	NAD27

Ground Surface Altitude	Method	Datum	Date
3960			

Measuring Point Altitude	Method	Datum	Date Applies
3960			9/7/1997

Addition	Block	Lot

Section 3: Proposed Use of Water

PUBLIC WATER SUPPLY (1)

Section 4: Type of Work

Drilling Method: FORWARD ROTARY
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Friday, March 01, 1974

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	1100	11.75

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1	1003	8				28 LB STEEL
997	1100	6				19 LB STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
1035	1075	6		1/8	SLOTS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	1004	CEMENT AND NEOPRENE	

Section 7: Well Test Data

Total Depth: 1100
Static Water Level: 534
Water Temperature:

Pump Test *

Depth pump set for test _ feet.
30 gpm pump rate with _ feet of drawdown after 24 hours of pumping.
Time of recovery _ hours.
Recovery water level _ feet.
Pumping water level 714 feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

NATURAL GAMMA LOG IN FILE. 8 INCH STEEL CASING SEALED CAP SUBMERSIBLE PUMP WELL FEEDS WATER TANK FOR CITY OF BROADVIEW CAN ISOLATE WELL FROM TREATMENT AND PUMP FROM PIPE NOTE CHEM DIFFERENCE BETWEEN THIS WELL AND (M15969) AND SIMILARITY TO 1242 FEET CITY WELL

Section 9: Well Log

Geologic Source

211EGLE - EAGLE SANDSTONE

From	To	Description
0	2	BROWN TOPSOIL
2	20	RED ROCK, STRINGERS OF CLAY
20	40	DARK SHALE, STRINGERS OF SANDSTONE AND COAL
40	70	GRAY SANDSTONE
70	80	DARK GRAY SHALE AND ROCK
80	90	GRAY SANDSTONE
90	120	GRAY ROCK
120	140	GRAY SHALE AND ROCK
140	150	GRAY SHALE AND COAL
150	170	CLAY
170	190	SANDSTONE
190	209	GRAY SANDSTONE
209	210	HARD ROCK
210	230	GRAY SHALE, STRINGERS OF ROCK
230	260	GRAY CLAY, STRINGERS OF ROCK

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:	
Company:	
License No:	WWC-154
Date Completed:	3/1/1974

Site Name: CITY OF BROADVIEW
GWIC Id: 15974
Additional Lithology Records

From	To	Description
260	290	SAND AND ROCK
290	330	CLAY AND ROCK
330	350	GRAY ROCK
350	400	GRAY ROCK, STRINGERS OF WHITE CLAY AND BLACK SHALE
400	430	BLACK SHALE, STRINGERS OF ROCK TO CLAY
430	510	SHALE ROCK, GRAY
510	777	GRAY SHALE ROCK, STRINGERS SANDSTONE
777	800	RED ROCK, STRINGERS OF SHALE
800	810	SHALE AND YELLOW ROCK
810	840	SANDSTONE WITH GAS
840	850	SHALE AND STRINGERS SANDSTONE
850	910	GRAY SANDROCK
910	930	BLUE HARD SHALE
930	940	BLUE SHALE, STRINGERS OF YELLOW ROCK
940	1000	GRAY SANDSTONE
1000	1010	BROWN CLAY
1010	1075	LIGHT GRAY SANDSTONE
1075	1100	BLACK SHALE

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site on a topographic map
View scanned well log (6/4/2010 11:34:23 AM)

Site Name: TOWN OF BROADVIEW
GWIC Id: 161632

Section 1: Well Owner(s)
1) TOWN OF BROADVIEW (MAIL)
PO BOX 54
BROADVIEW MT 59015 [07/14/1995]

Section 2: Location

Township	Range	Section	Quarter Sections
04N	23E	16	NW¼ NW¼ SE¼

County	Geocode
YELLOWSTONE	

Latitude	Longitude	Geomethod	Datum
46.09968	108.88207	NAV-GPS	NAD83

Ground Surface Altitude	Method	Datum	Date
3745			4/23/2004

Addition	Block	Lot

Section 3: Proposed Use of Water
PUBLIC WATER SUPPLY (1)

Section 4: Type of Work
Drilling Method: ROTARY
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Friday, July 14, 1995

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	1075	12.25
1075	1250	7.875

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
0	1075	8	0.25		WELDED	STEEL
1050	1130	5	0.25		WELDED	STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
1070	1075	5			SCREEN-CONTINUOUS-STAINLESS
1130	1250	5		50	SCREEN-CONTINUOUS-STAINLESS

Section 7: Well Test Data

Total Depth: 1250
Static Water Level: 320
Water Temperature:

Pump Test *

Depth pump set for test 1000 feet.
15 gpm pump rate with _ feet of drawdown after 24 hours of pumping.
Time of recovery 48 hours.
Recovery water level 320 feet.
Pumping water level 1000 feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log
Geologic Source
211EGLE - EAGLE SANDSTONE

From	To	Description
0	21	GRAY SANDY SHALE
21	40	HARD GRAY SANDSTONE
40	83	DARK GRAY SANDY SHALE
83	89	DARK BROWN CARBONATED SHALE
89	94	TAN SILTSTONE HARD
94	114	GRAY SHALE
114	154	GRAY SANDSTONE AND SHALE
154	159	TAN SILSTONE HARD
159	190	HARD FINE GRAIN SANDSTONE
190	202	HARD BLACK SHALE COALISH
202	306	LIGHT GRAY SANDSTONE & SHALE
306	317	BLACK SHALE COALISH
317	364	GRAY SANDSTONE HARD
364	390	GRAY SHALE
390	480	GRAY SANDY SHALE

Driller Certification
All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name: MARK SMITH
Company: DEBUFF DRILLING
License No: WWD-33

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	1075	CEMENT	
1050	1250	6-9 SILICA	

Date Completed: 7/14/1995

Site Name: TOWN OF BROADVIEW
GWIC Id: 161632
Additional Lithology Records

From	To	Description
480	550	HARD GRAY SHALE
550	740	HARD GRAY SHALE WITH SEVERAL SOFT SHALE LAYERS
740	860	HARD GRAY SHALE AND GARY SANDSTONE
860	938	SOFT GRAY SHALE
938	1050	GRAY SANDY SHALE WITH LAYERS OF WHITE CLAY
1050	1080	HARD DARK GRAY SHALE
1080	1090	GRAY SANDSTONE
1090	1240	GRAY GREEN SANDSTONE
1240	1250	GRAY SHALE

MONTANA WELL LOG REPORT

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Other Options

Return to menu
Plot this site on a topographic map
View hydrograph for this site
View scanned well log (8/2/2013 1:49:58 PM)
View scanned aquifer test (3/25/2014 11:24:41 AM)

Site Name: TOWN OF BROADVIEW * WELL #4
GWIC Id: 274244

Section 1: Well Owner(s)

1) TOWN OF BROADVIEW (MAIL)
BOX115
BROADVIEW MT 59015 [02/15/2013]

Section 2: Location

Township	Range	Section	Quarter Sections
04N	23E	21	NW¼ NW¼

County	Geocode
YELLOWSTONE	

Latitude	Longitude	Geomethod	Datum
46.089041666667	105.880925	NAV-GPS	WGS84

Ground Surface Altitude	Method	Datum	Date

Addition	Block	Lot

Section 3: Proposed Use of Water

PUBLIC WATER SUPPLY (1)

Section 4: Type of Work

Drilling Method:
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Friday, February 15, 2013

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	810	12.25
810	1090	8.75

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
0	810	8			THREADED	STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
810	1090	8			OPEN HOLE

Annular Space (Seal/Grout/Packer)

There are no annular space records assigned to this well.

Section 7: Well Test Data

Total Depth: 1090
Static Water Level: 207
Water Temperature:

Pump Test *

Depth pump set for test 800 feet.
20 gpm pump rate with 7.5 feet of drawdown after 30 hours of pumping.
Time of recovery 24 hours.
Recovery water level 230 feet.
Pumping water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

Unassigned

From	To	Description
0	12	CLAY, YELLOW, SANDY
12	14	LIGNITE
14	17	CLAYSTONE, GRAY
17	21	CEMENTED SANDSTONE, GRAY
21	85	SANDSTONE, MEDIUM TO FINE, GREENISH GRAY
85	105	SHALE, GRAY
105	108	CEMENTED SANDSTONE, GRAY
108	120	CLAYSTONE, GRAY, SILTY
120	200	SANDSTONE, GRAY, CLAYEY
200	258	SHALE, GRAY
258	300	SHALE, SILTY, BLACK
300	395	SANDSTONE, GRAY, CLAYEY
395	420	SHALE, GRAYISH BLACK
420	440	SHALE, GRAY, SILTY
440	540	SHALE, GRAY, HARD

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name: LEO GROSSMAN
Company: AGRI INDUSTRIES INC
License No: WWC-537

Date Completed:	2/15/2013

Site Name: TOWN OF BROADVIEW
GWIC Id: 274244
Additional Lithology Records

From	To	Description
540	560	SHALE, GRAY, SILTY TO SANDY
560	640	SHALE, GRAY, HARD
640	680	SHALE, GRAY, SILTY, SOFT
680	765	SHALE, GRAY
765	790	CEMENTED SANDSTONE, GRAY
790	865	SANDSTONE, GRAY SILTY, FINE
865	870	CEMENTED SANDSTONE, GRAY
870	920	SANDSTONE, FINE, GRAY
920	940	SANDSTONE, FINE, GRAY, CLAYEY
940	988	SANDSTONE, FINE, GRAY
988	991	CEMENTED SANDSTONE, GRAY
991	1060	SANDSTONE, FINE, GRAY, SILTY
1060	1090	SHALE, BLACK

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site on a topographic map
View hydrograph for this site
View scanned well log (8/2/2013 1:40:36 PM)
View scanned aquifer test (3/25/2014 12:15:01 PM)

Site Name: TOWN OF BROADVIEW * WELL #5
GWIC Id: 274249

Section 1: Well Owner(s)
1) TOWN OF BROADVIEW (MAIL)
BOX 115
BROADVIEW MT 59015 [02/15/2013]

Section 2: Location

Township	Range	Section	Quarter Sections
04N	23E	21	SW¼ SW¼

County	Geocode
YELLOWSTONE	

Latitude	Longitude	Geomethod	Datum
46.074494444444	108.882375	NAV-GPS	WGS84

Ground Surface Altitude	Method	Datum	Date

Addition	Block	Lot

Section 3: Proposed Use of Water
PUBLIC WATER SUPPLY (1)

Section 4: Type of Work
Drilling Method:
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Friday, February 15, 2013

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	762	12.25
762	1050	9.75

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
0	762	8			THREADED	STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
762	1050	8			OPEN HOLE

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	762	CEMENT	Y

Section 7: Well Test Data

Total Depth: 1050
Static Water Level: 190
Water Temperature:

Pump Test *

Depth pump set for test 740 feet.
24 gpm pump rate with 579 feet of drawdown after 30 hours of pumping.
Time of recovery 24 hours.
Recovery water level 215 feet.
Pumping water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log
Geologic Source
Unassigned

From	To	Description
0	1	TOPSOIL, YELLOW, SANDY
1	31	SANDSTONE, YELLOW, SILTY
31	42	CLAYSTONE, GRAY, SILTY
42	58	SANDSTONE, FINE, SILTY, GRAY
58	78	CLAYSTONE, GRAY
78	79	CEMENTED SANDSTONE
79	88	CLAYSOTNE, GRAY, SILTY, SHALEY
88	91	CEMENTED SANDSTONE
91	113	CLASTONE, GRAY, SILTY
113	114	CEMENTED SANDSTONE
114	121	CLAYSOTNE, GRAY, SILTY
121	122	CEMENTED SANDSTONE
122	132	CLAYSTONE, GRAY, SILTY
132	152	SANDSTONE, FINE, GRAY
152	154	CEMENTED SANDSTONE

Driller Certification
All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name: LEO GROSSMAN
Company: AGRI INDUSTRIES INC
License No: WWC-537

Date Completed:	2/15/2013

Site Name: TOWN OF BROADVIEW
GWIC Id: 274249
Additional Lithology Records

From	To	Description
154	170	SANDSTONE, GRAY, FINE
170	194	SANDSTONE, FINE, CLAYEY, GRAY
194	262	SHALE, GRAY
262	263	CEMENTED SHALE, HARD
263	340	SHALE, BLACKISH, HARD
340	358	SHALE, SILTY, GRAY
358	359	CEMENTED SANDSTONE
359	390	SANDSTONE, GRAY, SILTY, CLAYEY
390	414	SHALE, SILTY, GRAY
414	416	SHALE, GRAY, HARD
416	570	SHALE, GRAYISH BLACK
570	605	SHALE, GRAY, SILTY
605	607	CEMENTED SANDSTONE
607	684	SHALE, SILTY, GRAYISH BLACK
684	686	SHALE, HARD
686	750	SHALE, SILTY, GRAYISH BLACK
750	760	SHALE, HARD, BLACK
760	804	SHALE, SILTY TO SANDY BLACKISH
804	890	SANDSTONE, FINE, SILT, GRAY
890	940	SANDSTONE, FINE, SILTY, BLACKISH
940	980	SANDSTONE, FINE, GRAY
980	1050	SHALE, BLACKISH GRAY SILTY

APPENDIX J

Water System Financials

Funds 5210-5210

Account Object Fund	Opening Balance	Change	Closing Balance
100000			
101000 Cash			
5210 WATER FUND	40,444.80	29,127.18	69,571.98
Account Total:	**40,444.80**	**29,127.18**	**69,571.98**
102300 RESTRICTED CASH			
5210 WATER FUND	18,420.00	0.00	18,420.00
Account Total:	**18,420.00**	**0.00**	**18,420.00**
Account Group Total:	**58,864.80**	**29,127.18**	**87,991.98**
120000			
122000 Accounts Receivable			
5210 WATER FUND	2,033.38 CR	4,359.00 CR	6,392.38 CR
Account Total:	**2,033.38 CR**	**4,359.00 CR**	**6,392.38 CR**
Account Group Total:	**2,033.38 CR**	**4,359.00**	**6,392.38 CR**
180000 CAPITAL ASSETS			
184000 Improve-Other Bldg			
5210 WATER FUND	605,824.27	0.00	605,824.27
Account Total:	**605,824.27**	**0.00**	**605,824.27**
184100 Allow for Depreciation			
5210 WATER FUND	229,219.84 CR	15,145.60 CR	244,365.44 CR
Account Total:	**229,219.84 CR**	**15,145.60 CR**	**244,365.44 CR**
Account Group Total:	**376,604.43**	**15,145.60**	**361,458.83**
200000			
202100 Accounts Payable			
5210 WATER FUND	466.30	466.30 DR	0.00
Account Total:	**466.30**	**466.30 DR**	**0.00**
Account Group Total:	**466.30**	**466.30**	**0.00**
230000			
231200 Loans Payable - DNRC			
5210 WATER FUND	106,000.00	10,000.00 DR	96,000.00
Account Total:	**106,000.00**	**10,000.00 DR**	**96,000.00**
Account Group Total:	**106,000.00**	**10,000.00**	**96,000.00**
270000			

Funds 5210-5210

Account Object Fund	Opening Balance	Change	Closing Balance
272000 Unreserved Retained Earnings			
5210 WATER FUND	326,969.55	0.00	326,969.55
Account Total:	**326,969.55**	**0.00**	**326,969.55**
Account Group Total:	**326,969.55**	**0.00**	**326,969.55**
340000			
343022 Unmetered Water Sales			
5210 WATER FUND	0.00	53,250.00	53,250.00
Account Total:	**0.00**	**53,250.00**	**53,250.00**
Account Group Total:	**0.00**	**53,250.00**	**53,250.00**
370000			
371010 Investment Interest			
5210 WATER FUND	0.00	725.12	725.12
Account Total:	**0.00**	**725.12**	**725.12**
Account Group Total:	**0.00**	**725.12**	**725.12**
430000			
430500 Water Utilities			
220 Operating Supplies			
5210 WATER FUND	0.00	46.44	46.44
230 Repair & Maintenance Supplies			
5210 WATER FUND	0.00	222.00	222.00
Account Total:	**0.00**	**268.44**	**268.44**
430510 Public Works			
100 Salary & Wages			
5210 WATER FUND	0.00	3,174.00	3,174.00
220 Operating Supplies			
5210 WATER FUND	0.00	4,456.86	4,456.86
300 Purchased Services			
5210 WATER FUND	0.00	51.60	51.60
330 Pub, Sub, & Dues			
5210 WATER FUND	0.00	125.00	125.00
Account Total:	**0.00**	**7,807.46**	**7,807.46**
430520 Water Facilities			
230 Repair & Maintenance Supplies			
5210 WATER FUND	0.00	795.23	795.23
380 Training			
5210 WATER FUND	0.00	30.00	30.00
Account Total:	**0.00**	**825.23**	**825.23**

Funds 5210-5210

Account Object Fund	Opening Balance	Change	Closing Balance
430530 Source of Supply & Pump			
345 Pump Electricity			
5210 WATER FUND	0.00	896.29	896.29
830 Depreciation			
5210 WATER FUND	0.00	15,145.60	15,145.60
Account Total:	**0.00**	**16,041.89**	**16,041.89**
430540 Public Works			
300 Purchased Services			
5210 WATER FUND	0.00	4,803.22	4,803.22
Account Total:	**0.00**	**4,803.22**	**4,803.22**
Account Group Total:	**0.00**	**29,746.24**	**29,746.24**
490000			
490200 Loan Payment			
610 Interest			
5210 WATER FUND	0.00	4,140.00	4,140.00
Account Total:	**0.00**	**4,140.00**	**4,140.00**
Account Group Total:	**0.00**	**4,140.00**	**4,140.00**
Grand Total:	**0.00**	**0.00**	**0.00**

APPENDIX K

Uniform Environmental Checklist

Montana Department of Commerce
Treasure State Endowment Program
Environmental Assessment

Water System Improvments
[Name of Project]

Broadview, Montana
[Location]

Proposed action: The Town of Broadview is proposing to construct improvements to its water system. The proposed project would include constructing a new buried concrete water storage tank approximately 4,700 lineal feet west of town, and the installation of a new transmission main from the new tank to town.

A. Environmental Checklist:

UNIFORM ENVIRONMENTAL CHECKLIST

As the engineer that prepared the preliminary engineering report, I, Joel Pilcher,
(print name of engineer)
have reviewed the information presented in this checklist and believe that it accurately identifies the environmental resources in the area and the potential impacts that the project could have on those resources. In addition, the required state and federal agencies were provided with the required information about the project and requested to provide comments on the proposed public facility project. Their comments have been incorporated into and attached to the Preliminary Engineering Report.

Engineer's Signature: Joel Pilcher **Date:** 9/19/14

Key Letter: **N** – No Impact Anticipated **B** – Potentially Beneficial **A** – Potentially Adverse **P** – Approval/ Permits Required **M** – Mitigation Required

PHYSICAL ENVIRONMENT	
Key N	1. **Soil Suitability, Topographic and/or Geologic Constraints (e.g., soil slump, steep slopes, subsidence, seismic activity)** *Comments and Source of Information*: Soils in the area are suitable for buried water lines and structures. Topography is appropriate for pipeline installation and construction of the water storage tank. -Great West Engineering -NRCS

Key Letter: **N** – No Impact Anticipated **B** – Potentially Beneficial **A** – Potentially Adverse **P** – Approval/ Permits Required **M** – Mitigation Required

Key	
A	**2. Hazardous Facilities (e.g., power lines, EPA hazardous waste sites, acceptable distance from explosive and flammable hazards including chemical/petrochemical storage tanks, underground fuel storage tanks, and related facilities such as natural gas storage facilities & propane storage tanks)** *Comments and Source of Information*: The Montana DEQ files of active and inactive LUST sites were obtained and reviewed. There are listed sites within the town but no sites within the area of proposed improvements. DEQ records will be reviewed again during the design phase for improvements. Underground utility locates will be requested from U-Dig during preliminary design and also prior to actual construction activities. Design of improvements will be completed to avoid conflicts. -Great West Engineering -Montana DEQ
Key N	**3. Effects of Project on Surrounding Air Quality or Any Kind of Effects of Existing Air Quality on Project (e.g., dust, odors, emissions)** *Comments and Source of Information*: The only impacts on air quality may be temporary dust due to construction activity. Reasonable efforts will be made during construction to control dust and minimize the temporary impacts. -Great West Engineering
Key N	**4. Groundwater Resources & Aquifers (e.g., quantity, quality, distribution, depth to groundwater, sole source aquifers)** *Comments and Source of Information*: This project will have no impact on groundwater resources. -Great West Engineering
Key A	**5. Surface Water/Water Quality, Quantity & Distribution (e.g., streams, lakes, storm runoff, irrigation systems, canals)** *Comments and Source of Information*: Surface water resources in the area of the improvements are limited to Gooseneck Creek and Sand Creek. Generally, project improvements will not occur in close proximity to surface waters. In areas of surface water crossings, the water main will be installed under the existing county road; thereby eliminating any surface water impacts that would otherwise be caused by a surface water crossing. No impacts to surface water will occur as a result of proposed water system improvements. - Great West Engineering

Key Letter: **N** – No Impact Anticipated **B** – Potentially Beneficial **A** – Potentially Adverse **P** – Approval/ Permits Required **M** – Mitigation Required

Key	
N	6. **Floodplains & Floodplain Management (Identify any floodplains within one mile of the boundary of the project.)** *Comments and Source of Information*: Based on a review of the FEMA FIRM maps, it was determined that the project area is located in *Zone D*. Flood hazards are undetermined and floodplains have not been mapped for areas in *Zone D*. There are no known areas in or around the vicinity of Town or the project area that are believed to pose a significant flooding hazard. -Great West Engineering -FEMA
Key N	7. **Wetlands Protection (Identify any wetlands within one mile of the boundary of the project.)** *Comments and Source of Information*: Wetlands are limited to riparian areas of existing streams. In areas of stream/wetland crossings, the water main will be installed under the existing county road; thereby eliminating any impact to a stream or wetland that would otherwise be caused by a stream/wetland crossing. No impacts to wetlands will occur as a result of proposed water system improvements. -Great West Engineering
Key A	8. **Agricultural Lands, Production, & Farmland Protection (e.g., grazing, forestry, cropland, prime or unique agricultural lands) (Identify any prime or important farm ground or forest lands within one mile of the boundary of the project.)** *Comments and Source of Information*: The landscape between the proposed tank site and Town consists of cropland and rangeland. Some of these lands may be categorized as prime or important farm ground. The transmission main will be installed at the edges of fields currently used as cropland or within existing roads and right of way. Minimal long-term impacts are anticipated. All disturbed areas will be returned to existing conditions. -Great West Engineering -NRCS
Key N	9. **Vegetation & Wildlife Species & Habitats, Including Fish (e.g., terrestrial, avian and aquatic life and habitats)** *Comments and Source of Information*: Limited, temporary impacts to vegetation are anticipated. No impacts to habitat are anticipated. Areas in which vegetation is disturbed will be reseeded with native grass mixtures. -Great West Engineering

Key Letter: **N** – No Impact Anticipated **B** – Potentially Beneficial **A** – Potentially Adverse **P** – Approval/ Permits Required **M** – Mitigation Required

Key	Item
N	**10. Unique, Endangered, Fragile, or Limited Environmental Resources, Including Endangered Species (e.g., plants, fish or wildlife)** *Comments and Source of Information*: The Natural Heritage Program was contacted regarding listings in the planning area. Proposed improvements will have no impact on unique, endangered, fragile or limited environmental resources. -Great West Engineering
N	**11. Unique Natural Features (e.g., geologic features)** *Comments and Source of Information*: No known unique natural features will be impacted by the proposed project. -Great West Engineering
N	**12. Access to, and Quality of, Recreational & Wilderness Activities, Public Lands and Waterways (including Federally Designated Wild & Scenic Rivers), and Public Open Space** *Comments and Source of Information*: Access to and quality of recreational and wilderness activities, public lands and water ways, and public open space are not anticipated to be impacted by this project. -Great West Engineering
HUMAN POPULATION	
A	**1. Visual Quality – Coherence, Diversity, Compatibility of Use and Scale, Aesthetics** *Comments and Source of Information*: The only potential impact to visual quality presented by the proposed project is related to the new storage tank. Depending on final elevation of the top of the tank, which will be determined during design, the tank may be visible from surrounding areas. The proposed location of the new tank is approximately 1 mile from town. -Great West Engineering
A	**2. Nuisances (e.g., glare, fumes)** *Comments and Source of Information*: Temporary nuisances such as noise and exhaust fumes may occur during construction. Efforts will be made to minimize nuisances and address specific problems as they occur. No permanent adverse impacts are anticipated. -Great West Engineering

Key Letter: N – No Impact **B** – Potentially Beneficial **A** – Potentially Adverse
P – Approval/Permits Required **M** – Mitigation Required

Key A	**3. Noise -- suitable separation between noise sensitive activities (such as residential areas) and major noise sources (aircraft, highways & railroads)** *Comments and Source of Information*: Nearby residences may be temporarily affected by noise from construction activity; however, no long term impacts are anticipated. -Great West Engineering
Key N	**4. Historic Properties, Cultural, and Archaeological Resources** *Comments and Source of Information*: There are no known cultural properties that will be impacted by the proposed project. Correspondence from the State Historic Preservation Office states that there is a low likelihood that cultural properties will be impacted and they feel that a recommendation for a cultural resource inventory is unwarranted at this time. -Great West Engineering -SHPO
Key B	**5. Changes in Demographic (population) Characteristics (e.g., quantity, distribution, density)** *Comments and Source of Information*: The implementation of a new reliable water system will make the community a more desirable place to live. -Great West Engineering
Key N	**6. Environmental Justice – (Does the project avoid placing lower income households in areas where environmental degradation has occurred, such as adjacent to brownfield sites?)** *Comments and Source of Information*: This project will not force low income households into environmentally degraded areas. -Great West Engineering
Key N	**7. General Housing Conditions - Quality, Quantity, Affordability** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key N	**8. Displacement or Relocation of Businesses or Residents** *Comments and Source of Information*: Not applicable to this project. -Great West Engineering

Key B	9. **Public Health and Safety** *Comments and Source of Information*: Providing a water system to adequately suppress a fire will increase public health and safety. -Great West Engineering
Key N	10. **Lead Based Paint and/or Asbestos** *Comments and Source of Information*: There is no known lead based paint or asbestos that will be encountered on this project. -Great West Engineering
Key B	11. **Local Employment & Income Patterns - Quantity and Distribution of Employment, Economic Impact** *Comments and Source of Information:* An updated water system will make Broadview a more desirable location for businesses. The proposed project will result in significant direct capital expenditures in the local economy. During construction, work crews would strengthen the economy by spending money on food, lodging, and recreation. Depending on the Contractor's workforce, the Contractor may look to hire local help for various construction positions. The induced impacts would have a positive impact on the local economy of Broadview, and Yellowstone County. -Great West Engineering
Key B	12. **Local & State Tax Base & Revenues** *Comments and Source of Information*: An updated water system will enable commercial and industrial growth to occur. -Great West Engineering
Key B	13. **Educational Facilities - Schools, Colleges, Universities** *Comments and Source of Information*: Updating the water system will improve fire flows near the school, decreasing the likelihood of major damage to the school and preventing fatalities of its students and staff. -Great West Engineering
Key N	14. **Commercial and Industrial Facilities - Production & Activity, Growth or Decline** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key N	15. **Health Care – Medical Services** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering

Key Letter: **N** – No Impact Anticipated **B** – Potentially Beneficial **A** – Potentially Adverse **P** – Approval/ Permits Required **M** – Mitigation Required

Key N	**16. Social Services – Governmental Services (e.g., demand on)** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key N	**17. Social Structures & Mores (Standards of Social Conduct/Social Conventions)** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key N	**18. Land Use Compatibility (e.g., growth, land use change, development activity, adjacent land uses and potential conflicts)** *Comments and Source of Information*: The land use at the proposed new tank site will change; however, no conflicts with the landowner are anticipated and no other adverse impacts are expected. -Great West Engineering
Key N	**19. Energy Resources - Consumption and Conservation** *Comments and Source of Information*: No significant impacts are anticipated. -Great West Engineering
Key N	**20. Solid Waste Management** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key N	**21. Wastewater Treatment - Sewage System** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key N	**22. Storm Water – Surface Drainage** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering

Key Letter: **N** – No Impact Anticipated **B** – Potentially Beneficial **A** – Potentially Adverse **P** – Approval/ Permits Required **M** – Mitigation Required

Key	Item
Key **B**	**23. Community Water Supply** *Comments and Source of Information*: The proposed project will improve the overall reliability and fire protection offered by the existing water system. -Great West Engineering
Key **N**	**24. Public Safety – Police** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key **B**	**25. Fire Protection – Hazards** *Comments and Source of Information*: Fire flow, and therefore fire fighting capability of the community, throughout the planning area will be improved by the propose project. -Great West Engineering
Key **N**	**26. Emergency Medical Services** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key **N**	**27. Parks, Playgrounds, & Open Space** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key **N**	**28. Cultural Facilities, Cultural Uniqueness & Diversity** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering
Key **N**	**29. Transportation Networks and Traffic Flow Conflicts (e.g., rail; auto including local traffic; airport runway clear zones - avoidance of incompatible land use in airport runway clear zones)** *Comments and Source of Information*: No impacts are anticipated. -Great West Engineering

Key N	**30. Consistency with Local Ordinances, Resolutions, or Plans (e.g., conformance with local comprehensive plans, zoning, or capital improvement plans)** *Comments and Source of Information*: All applicable local, state, and federal rules and regulations will be complied with during the project. -Great West Engineering
Key N	**31. Is There a Regulatory Action on Private Property Rights as a Result of this Project? (consider options that reduce, minimize, or eliminate the regulation of private property rights.)** *Comments and Source of Information*: The project will not result in regulatory action on private property rights. -Great West Engineering

APPENDIX L

Town Council Meeting Presentations

TOWN OF BROADVIEW

Preliminary Engineering Report Update

Council Meeting

February 11, 2014

Presented by:

GreatWest
engineering

HISTORIC POPULATION DATA

Historic and projected populations for Yellowstone County and the Town of Broadview are shown in Table 1. Historically, Yellowstone County experienced an increase in population from the 1970 census to the 2010 census. The Town itself saw an increase in population since the 1990s to current. From 2000 to 2010, the population grew from 150 to 192, a 28.0% growth over ten years.

A Community Profile of Broadview completed by the Yellowstone County Planning Division in the mid 2000's projected a yearly growth rate in Broadview of 1.25% per year. This would have placed the 2010 population at 170. Therefore it appears that Broadview is growing faster than previously estimated. A population increase of 2.5% annually will be assumed for the 20 year planning period (year 2034) to allow for additional growth in the community. This correlates to a design year population of 258, or an additional 66 residents over the 2010 census population of 192.

Table 1 Population Data

Table 1 Population Data				
	Yellowstone County		Town of Broadview	
Year	Population	Total Period Growth	Population	Total Period Growth
1960	79,016	-	160	-
1970	87,367	10.6%	123	-23.1%
1980	108,035	23.7%	120	-2.4%
1990	113,419	5.0%	133	10.8%
2000	129,352	14.1%	150	12.8%
2010	147,972	14.3%	192	28.0%
2034*	---	—	258	34.4%

*20-year Design Population for Broadview Water System

WATER USAGE

TOWN OF BROADVIEW SYSTEM-WIDE YEARLY WATER FLOWS (Gal)					
	2011	**2012**	**2013**	**Average**	**Per Capita Use/Day[1]**
Yearly Usage	**6,575,798**	**5,385,260**	**5,465,703**	**5,808,920**	**83**

(1) Based on 192 residents

TOWN OF BROADVIEW CURRENT AND PROJECTED FUTURE WATER DEMANDS					
		2014[(1)]		2034[(2)]	
DEMAND (gpcd)		DEMAND (gpd)	DEMAND (gpm)	DEMAND (gpd)	DEMAND (gpm)
Average Day	83	15,900	11	21,400	15
Maximum Day	125	24,000	17	32,300	22
Peak Hourly[(3)]	N/A	N/A	34	N/A	44

(1) Based on Equivalent Population of 192
(2) Based on Equivalent Population of 258
(3) Based on a Peaking Factor of 2

Water Supply

Water Supply Requirements

Maximum Day Flow = 22 gpm

DEQ requires maximum day with largest well out of service

Existing supply

Well #2 – 8 gpm
Well #3 – 24 gpm
Well #4 – 15 gpm
Well #5 – 20 gpm

Total = 67 gpm

With largest well out of service (Well #3), total supply = 43 gpm

Therefore water supply should be sufficient through the planning period

WATER STORAGE

Storage Tank Sizing

DEQ standards state *"the minimum allowable storage must be equal to the average daily demand for a 24-hour period plus fire flow demand where fire flow protection is provided."*

Average Day Demand	21,400 gallons

Minimum Fire Flow	1,000 gpm
Minimum Fire Flow Duration	120 minutes
Minimum Fire Flow Volume	120,000 gallons

Minimum Fire Flow Storage Tank Volume	**141,400 gallons**

Recommended tank size 150,000 gallons

TABLE 7-1 OPINION OF PROBABLE COST TOWN OF BROADVIEW ALTERNATIVE ST-1 150,000 GALLON BURIED PRESTRESSED CONCRETE STORAGE TANK					
#	BID ITEM	QTY	UNITS	UNIT PRICE [1]	TOTAL
1	150,000 Gal. Buried Concrete Storage Tank	1	LS	$ 375,000.00	$ 375,000
2	Site Work & Excavation	1	LS	$ 50,000.00	$ 50,000
3	Site Piping	1	LS	$ 10,000.00	$ 10,000
4	Level Transmitting Manhole	1	LS	$ 10,000.00	$ 10,000
5	Telemetry System	1	LS	$ 15,000.00	$ 15,000
6	10" PVC Transmission Main	3,200	LF	$ 40.00	$ 128,000
7	Fittings	6	EA	$ 1,000.00	$ 6,000
8	Valves	2	EA	$ 2,500.00	$ 5,000
9	Connect to Existing Water Main	1	EA	$ 2,000.00	$ 2,000
10	Fire Hydrants	2	EA	$ 4,000.00	$ 8,000
11	Blow-off Hydrants	4	LF	$ 1,200.00	$ 4,800
12	Access Road	1	LS	$ 5,000.00	$ 5,000
13	Fencing	400	LF	$ 25.00	$ 10,000
14	Tank Site Electrical	1	LS	$ 10,000.00	$ 10,000
	Direct Construction Subtotal				**$ 639,000**
	Mobilization		10.0%		$ 64,000
	Traffic Control		0.5%		$ 3,000
	Contingency		10%		$ 64,000
	Construction Subtotal				**$ 770,000**
	2016 Construction Cost [2]		3.15%		$ 819,000
	Right-of-Way & Permits				$ 2,500
	Geotechnical Investigation				$ 10,000
	Engineering		20%		$ 154,000
	Legal & Administrative		5%		$ 39,000
	TOTAL				**$ 1,024,500**

[1] Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.

[2] The ENR 20 year average Construction Cost Index is +3.15%, so capital costs are projected to an anticipated construction date in 2016 using a 3.15% inflation rate.

TABLE 7-2
OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS
TOWN OF BROADVIEW

ALTERNATIVE ST-1
150,000 GALLON BURIED PRESTRESSED CONCRETE STORAGE TANK

#	ITEM	QTY	UNITS	UNIT PRICE	TOTAL
1	Labor	65	HR	$ 25.00	$ 1,625.00
2	Spare Parts/Repair/Maintenance	1	LS	$ 500.00	$ 500.00
3	Administration/Office Supplies	1	LS	$ 250.00	$ 250.00
4	Training	1	LS	$ 250.00	$ 250.00
5	Vehicle Operation and Maintenance	1	LS	$ 250.00	$ 250.00
6	Tank Cleaning	1	LS	$ 1,000.00	$ 1,000.00
7	Patching and Renovating Concrete	1	LS	$ 150.00	$ 150.00
8	Reserve	1	LS	$ 2,000.00	$ 2,000.00
	TOTAL				**$ 6,000.00**

TABLE 7-3 OPINION OF PROBABLE COST TOWN OF BROADVIEW ALTERNATIVE ST-2 150,000 GALLON GLASS LINED BOLTED STEEL STORAGE TANK					
#	**BID ITEM**	**QTY**	**UNITS**	**UNIT PRICE [1]**	**TOTAL**
1	150,000 Gal. Glass Lined Steel Storage Tank and Foundation	1	LS	$ 270,000.00	$ 270,000
2	Site Work & Excavation	1	LS	$ 40,000.00	$ 40,000
3	Site Piping	1	LS	$ 10,000.00	$ 10,000
4	Level Transmitting Manhole	1	LS	$ 10,000.00	$ 10,000
5	Telemetry System	1	LS	$ 15,000.00	$ 15,000
6	10" PVC Transmission Main	3,200	LF	$ 40.00	$ 128,000
7	Fittings	6	EA	$ 1,000.00	$ 6,000
8	Valves	2	EA	$ 2,500.00	$ 5,000
9	Connect to Existing Water Main	1	EA	$ 2,000.00	$ 2,000
10	Fire Hydrants	2	EA	$ 4,000.00	$ 8,000
11	Blow-off Hydrants	4	LF	$ 1,200.00	$ 4,800
12	Access Road	1	LS	$ 5,000.00	$ 5,000
13	Fencing	400	LF	$ 25.00	$ 10,000
14	Tank Site Electrical	1	LS	$ 10,000.00	$ 10,000
	Direct Construction Subtotal				**$ 524,000**
	Mobilization		10.0%		$ 52,000
	Traffic Control		0.5%		$ 3,000
	Contingency		10%		$ 52,000
	Construction Subtotal				**$ 631,000**
	2016 Construction Cost [2]		3.15%		$ 671,000
	Right-of-Way & Permits				$ 2,500
	Geotechnical Investigation				$ 5,000
	Engineering		20%		$ 126,000
	Legal & Administrative		5%		$ 32,000
	TOTAL				**$ 836,500**

[1] Estimated unit costs are based upon estimates from suppliers and bid tabs for similar projects throughout Montana.

[2] The ENR 20 year average Construction Cost Index is +3.15%, so capital costs are projected to an anticipated construction date in 2016 using a 3.15% inflation rate.

TABLE 7-4 OPINION OF PROBABLE ANNUAL OPERATION & MAINTENANCE COSTS TOWN OF BROADVIEW ALTERNATIVE ST-2 150,000 GALLON GLASS-LINED STEEL TANK					
#	ITEM	QTY	UNITS	UNIT PRICE	TOTAL
1	Labor	65	HR	$ 25.00	$ 1,625.00
2	Spare Parts/Repair/Maintenance	1	LS	$ 500.00	$ 500.00
3	Administration/Office Supplies	1	LS	$ 250.00	$ 250.00
4	Training	1	LS	$ 250.00	$ 250.00
5	Vehicle Operation and Maintenance	1	LS	$ 250.00	$ 250.00
6	Tank Cleaning	1	LS	$ 1,000.00	$ 1,000.00
7	Replace Cathodic Protection	1	LS	$ 300.00	$ 300.00
8	Reserve	1	LS	$ 2,000.00	$ 2,000.00
	TOTAL				**$ 6,200.00**

TABLE 7-7
STORAGE ALTERNATIVES
PRESENT WORTH ANALYSIS

ITEM	ALTERNATIVE ST-1	ALTERNATIVE ST-2
Capital Costs	$1,024,500	$836,500
Annual O&M Costs	$6,000	$6,200
20-Year Salvage Value	$411,000	$265,000
Present Worth of Salvage Value	$217,600	$140,300
Present Worth of Annual O&M Cost	$87,300	$90,200
Present Worth Cost	**$894,200**	**$786,400**

TOWN OF BROADVIEW
FIRE FLOW STORAGE ALTERNATIVES
COMPARATIVE RANKING TABLE

Ranking Criteria	Alternative #1 Concrete Tank	Alternative #2 Steel Tank
Cost Effectiveness	-	+
Environment	0	0
Operation and Maintenance	+	0
Service Life	+	0
Total	**+1**	**+1**

GreatWest engineering

TOWN OF BROADVIEW, MONTANA
PRELIMINARY ENGINEERING REPORT
ALTERNATIVE ST-1 NEW BURIED CONCRETE TANK

FIGURE 5-1

GreatWest engineering

TOWN OF BROADVIEW, MONTANA
PRELIMINARY ENGINEERING REPORT
ALTERNATIVE ST-2 NEW ON-GRADE STEEL TANK

FIGURE 5-2

DISTRIBUTION SYSTEM

Distribution system appears to be in good shape. No recommended improvements.

TOWN OF BROADVIEW
TARGET RATE ANALYSIS

2010 American Community Survey Median Household Income (MHI) = $52,500

Department of Commerce Eligibility Criteria

Water	1.4% of MHI
Sewer	0.9% of MHI
Combined Rate	2.3% of MHI

Broadview Combined Target Rate = $100.63

Current Residential Rates

Water	$52.75/month
Sewer	$ 5.00/month
Combined	$57.75/month

A rate increase of $42.88/month would be needed to be TSEP and CDBG grant eligible, unless it can be shown through an income survey that the MHI is actually lower

2000 Census Mean Household Income (MHI) = $29,500

Broadview Combined Target Rate (2000 Census) = $56.55

FUNDING OPTIONS

Table 10.1.2
TOWN OF BROADVIEW
FUNDING OPTIONS FOR
POTENTIAL PROJECT - 2010 Target Rate (100.63)

ITEM	SCENARIO #1 DNRC w/SRF Loan (3.0% / 20 yrs) and Loan Forgiveness	SCENARIO #2 SRF Loan (3.0% / 20 yrs) and Loan Forgiveness	SCENARIO #3 SRF Loan (3.0% / 20 yrs) no Loan Forgiveness	SCENARIO #4
New Storage Tank	$836,500	$836,500	$836,500	
Rounded Total	**$837,000**	**$837,000**	**$837,000**	**$0**
DNRC Grant	$125,000			
SRF Loan Forgiveness	$356,000	$418,500		
SRF Loan (20 Years)	$356,000	$418,500	$837,000	
Total Project Funds	**$837,000**	**$837,000**	**$837,000**	
SRF Bond Reserve (1 year payment)	$23,923	$28,123	$56,246	
Total Loan Amount	**$379,923**	**$446,623**	**$893,246**	
Annual Loan Payment	$25,540	$30,020	$60,030	
Total Loan Payments Over Life of Loan	$510,800	$600,400	$1,200,600	
Total Interest Paid Over Life of Loan	**$130,877**	**$153,777**	**$307,354**	
Annual Loan Coverage	$6,385	$7,505	$15,008	
TOTAL ANNUAL CAPITAL DEBT SERVICE COST	**$31,925**	**$37,525**	**$75,038**	
User Capital Cost/Month	***$28.61***	***$33.62***	***$67.24***	
Current Annual O&M [1]	$44,450	$44,450	$44,450	
Current Annual Debt Service	$14,120	$14,120	$14,120	
Additional O&M Due To Project	$300	$300	$300	
TOTAL ANNUAL O&M COSTS	**$58,870**	**$58,870**	**$58,870**	
User O&M Cost/Month	***$52.75***	***$52.75***	***$52.75***	
USER COST/MONTH FOR PROJECT [2]	**$81.36**	**$86.38**	**$119.99**	
Existing Average User Cost/Month/EDU	$52.75	$52.75	$52.75	
COST/MONTH INCREASE/EDU	**$28.61**	**$33.63**	**$67.24**	

[1] Based on 2011 actual annual expenses for water system.
[2] Table is based on an estimated 93 EDU's

Table 10.1.2
TOWN OF BROADVIEW
FUNDING OPTIONS FOR
POTENTIAL PROJECT - 2000 Target Rate (56.54)

ITEM	SCENARIO #1 TSEP and DNRC w/SRF Loan (3.0% / 20 yrs) and Loan Forgiveness	SCENARIO #2 TSEP and DNRC w/SRF Loan (3.0% / 20 yrs)	SCENARIO #3 TSEP, DNRC and CDBG	SCENARIO #4
New Storage Tank	$836,500	$836,500	$836,500	
Rounded Total	**$837,000**	**$837,000**	**$837,000**	
DNRC Grant	$125,000	$125,000	$125,000	
SRF Loan Forgiveness	$146,750			
CDBG Grant			$293,500	
TSEP Grant	$418,500	$418,500	$418,500	
SRF Loan (20 Years)	$146,750	$293,500		
Total Project Funds	**$837,000**	**$837,000**	**$837,000**	
SRF Bond Reserve (1 year payment)	$9,862	$19,723	$0	
Total Loan Amount	**$156,612**	**$313,223**	**$0**	
Annual Loan Payment	$10,530	$21,050	$0	
Total Loan Payments Over Life of Loan	$210,600	$421,000	$0	
Total Interest Paid Over Life of Loan	**$53,988**	**$107,777**	**$0**	
Annual Loan Coverage	$2,633	$5,263	$0	
TOTAL ANNUAL CAPITAL DEBT SERVICE COST	**$13,163**	**$26,313**	**$0**	
User Capital Cost/Month	***$11.79***	***$23.58***	***$0.00***	
Current Annual O&M [1]	$44,450	$44,450	$44,450	
Current Annual Debt Service	$14,120	$14,120	$14,120	
Additional O&M Due To Project	$300	$300	$300	
TOTAL ANNUAL O&M COSTS	**$58,870**	**$58,870**	**$58,870**	
User O&M Cost/Month	***$52.75***	***$52.75***	***$52.75***	
USER COST/MONTH FOR PROJECT [2]	**$64.55**	**$76.33**	**$52.75**	
Existing Average User Cost/Month/EDU	$52.75	$52.75	$52.75	
COST/MONTH INCREASE/EDU	**$11.80**	**$23.58**	**$0.00**	

[1] Based on 2011 actual annual expenses for water system.
[2] Table is based on an estimated 93 EDU's

Table 10.1.2
TOWN OF BROADVIEW
FUNDING OPTIONS FOR
POTENTIAL PROJECT - MHI $40,015 (76.70)

ITEM	SCENARIO #1 **DNRC and Coal Board w/SRF Loan (3.0% / 30 yrs) and Loan Forgiveness**	SCENARIO #2 **DNRC and Coal Board w/RD Loan (3.75% / 40 yrs) and Grant**	SCENARIO #3 **DNRC and Coal Board w/SRF Loan (3.0% / 30 yrs) and Loan Forgiveness**	SCENARIO #4 **DNRC and Coal Board w/RD Loan (3.75% / 40 yrs) and Grant**
New Storage Tank (On-grade Steel)	$834,500	$834,500		
New Storage Tank (Concrete)			$1,115,500	$1,115,500
Rounded Total	**$835,000**	**$835,000**	**$1,116,000**	**$1,116,000**
DNRC Grant	$125,000	$125,000	$125,000	$125,000
SRF Loan Forgiveness	$305,000		$445,500	
Coal Board Grant	$100,000	$100,000	$100,000	$100,000
RD Grant		$250,000		$335,000
SRF Loan (30 Years)	$305,000		$445,500	
RD Loan (40 years)		$360,000		$556,000
Total Project Funds	**$835,000**	**$835,000**	**$1,116,000**	**$1,116,000**
SRF Bond Reserve (1 year payment)	$15,555	$0	$22,721	$0
Total Loan Amount	**$320,555**	**$360,000**	**$468,221**	**$556,000**
Annual Loan Payment	$16,350	$17,540	$23,880	$27,080
Total Loan Payments Over Life of Loan	$490,500	$701,600	$716,400	$1,083,200
Total Interest Paid Over Life of Loan	**$169,945**	**$341,600**	**$248,180**	**$527,200**
Annual Loan Coverage	$4,088	$4,385	$5,970	$6,770
TOTAL ANNUAL CAPITAL DEBT SERVICE COST	**$20,438**	**$21,925**	**$29,850**	**$33,850**
User Capital Cost/Month	***$18.31***	***$19.65***	***$26.75***	***$30.33***
Current Annual O&M [1]	$44,750	$44,750	$44,750	$44,750
Current Annual Debt Service	$14,120	$14,120	$14,120	$14,120
Additional O&M Due To Project	$300	$300	$300	$300
TOTAL ANNUAL O&M COSTS	**$59,170**	**$59,170**	**$59,170**	**$59,170**
User O&M Cost/Month	***$53.02***	***$53.02***	***$53.02***	***$53.02***
USER COST/MONTH FOR PROJECT [2]	**$71.33**	**$72.67**	**$79.77**	**$83.35**
Existing Average User Cost/Month/EDU	$52.75	$52.75	$52.75	$52.75
COST/MONTH INCREASE/EDU	**$18.58**	**$19.92**	**$27.02**	**$30.60**

[1] Based on 2011 actual annual expenses for water system.
[2] Table is based on an estimated 93 EDU's

SUMMARY OF RATE INCREASE FOR PROJECT BASED ON MHI

Estimated monthly user cost for project without income survey	\$25 -\$34/month
Estimated monthly user cost for project with MHI at \$40,000	\$19 -\$25/month
Estimated monthly user cost for project with MHI at \$35,000	\$10 -\$17/month

TOWN OF BROADVIEW

Preliminary Engineering Report Update

Council Meeting

March 27, 2014

Presented by:

GreatWest engineering

TABLE 7-7 STORAGE ALTERNATIVES PRESENT WORTH ANALYSIS		
ITEM	ALTERNATIVE ST-1 CONCRETE TANK	ALTERNATIVE ST-2 STEEL TANK
Capital Costs	$1,115,500	$834,500
Annual O&M Costs	$6,000	$6,200
20-Year Salvage Value	$447,000	$265,000
Present Worth of Salvage Value	$236,600	$140,300
Present Worth of Annual O&M Cost	$87,300	$90,200
Present Worth Cost	**$966,200**	**$784,400**

TOWN OF BROADVIEW STORAGE ALTERNATIVES COMPARATIVE RANKING TABLE		
Ranking Criteria	**Alternative #1 Concrete Tank**	**Alternative #2 Steel Tank**
Cost Effectiveness	-	+
Environment	0	0
Operation and Maintenance	+	0
Service Life	+	0
Total	**+1**	**+1**

TOWN OF BROADVIEW
TARGET RATE ANALYSIS

Median Household Income (MHI) Based on Income Survey to Date = $40,884

Department of Commerce Eligibility Criteria

Water	1.4% of MHI
Sewer	0.9% of MHI
Combined Rate	2.3% of MHI

Broadview Combined Target Rate = $78.36

Current Combined Rate $57/month

A rate increase of $21.36/month would be needed to be TSEP and CDBG grant eligible

FUNDING OPTIONS

STEEL TANK - $834,500

Best Case Scenario

DNRC Grant	$125,000
Coal Board Grant	$100,000
SRF Loan Forgiveness	$305,000
SRF Loan (3%-30 yrs)	$305,000

Monthly Rate Increase $18.58/month

CONCRETE TANK - $1,115,500

Best Case Scenario

DNRC Grant	$125,000
TSEP Grant	$465,000
SRF Loan Forgiveness	$263,000
SRF Loan (3%-20 yrs)	$263,000

Monthly Rate Increase $21.41/month

APPENDIX M

Water Quality

Inter-Mountain Labs — Your Environmental Monitoring Partner

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

CLIENT: Western Groundwater Services
6595 Bear Claw Lane
Bozeman, MT 59715

Date Reported: 12/12/2012
Report ID: S1210535001

Work Order: S1210535
Collection Date: 10/27/2012 11:00:00 AM
Date Received: 10/31/2012 8:55:00 AM
Sampler: MC
Matrix: Water

Project: Broadview #4
Lab ID: S1210535-001
Client Sample ID: BVW#4
COC: 148694

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
pH	9.1	0.1		s.u.	11/01/2012 2227 KV	SM 4500 H B
Electrical Conductivity	3080	5		µmhos/cm	11/01/2012 2227 KV	SM 2510B
Total Dissolved Solids (180)	2160	10		mg/L	11/01/2012 1515 JCG	SM 2540
Alkalinity, Total (As CaCO3)	418	5		mg/L	11/01/2012 2227 KV	SM 2320B
Hardness, Calcium/Magnesium (As CaCO3)	7	1		mg/L	11/08/2012 947 SL	SM 2340B
Nitrogen, Nitrate (as N)	ND	0.05		mg/L	11/13/2012 000 CJM	EPA 353.2
Nitrogen, Nitrite (as N)	ND	0.05		mg/L	10/31/2012 1623 AMB	EPA 353.2
Silica as SiO2	11	1		mg/L	11/01/2012 1511 DG	EPA 200 7
Anions						
Alkalinity, Bicarbonate as HCO3	398	5		mg/L	11/01/2012 2227 KV	SM 2320B
Alkalinity, Carbonate as CO3	55	5		mg/L	11/01/2012 2227 KV	SM 2320B
Alkalinity, Hydroxide as OH	ND	5		mg/L	11/01/2012 2227 KV	SM 2320B
Chloride	48	1		mg/L	11/01/2012 940 AM	EPA 300.0
Fluoride	0.9	0.1		mg/L	11/01/2012 2227 KV	SM 4500FC
Nitrogen, Nitrate-Nitrite (as N)	ND	0.05		mg/L	11/01/2012 1042 AMB	EPA 353.2
Sulfate	1010	1		mg/L	11/01/2012 940 AM	EPA 300.0
Cations						
Calcium	3	1		mg/L	11/01/2012 1511 DG	EPA 200.7
Magnesium	ND	1		mg/L	11/01/2012 1511 DG	EPA 200.7
Potassium	2	1		mg/L	11/01/2012 1511 DG	EPA 200.7
Sodium	787	1		mg/L	11/01/2012 1511 DG	EPA 200.7
Radiochemistry (SDWA)						
Gross Alpha	4.5 ± 2.9	4		pCi/L	12/05/2012 1639 SH	SM 7110 B
Gross Beta	ND	9		pCi/L	12/05/2012 1639 SH	SM 7110 B
Radium 226	ND	0.2		pCi/L	11/26/2012 1506 SH	SM 7500 RA_B
Radium 228	ND	1		pCi/L	11/30/2012 1639 SH	RA-05
Total Metals						
Iron	1.20	0.03		mg/L	11/01/2012 1704 BK	EPA 200.7
Manganese	0.02	0.01		mg/L	11/01/2012 1704 BK	EPA 200.7

These results apply only to the samples tested. RL - Reporting Limit

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
C	Calculated Value	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	M	Value exceeds Monthly Ave or MCL
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits		

Reviewed by: Connie J Mattson

Connie Mattson, Project Manager

Inter-Mountain Labs

Your Environmental Monitoring Partner

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

CLIENT: Western Groundwater Services
6595 Bear Claw Lane
Bozeman, MT 59715

Date Reported: 12/12/2012
Report ID: S1210535001

Project: Broadview #4
Lab ID: S1210535-001
Client Sample ID: BVW#4
COC: 148694

Work Order: S1210535
Collection Date: 10/27/2012 11:00:00 AM
Date Received: 10/31/2012 8:55:00 AM
Sampler: MC
Matrix: Water

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Total Recoverable Metals						
Antimony	ND	0.005		mg/L	11/01/2012 1751 MS	EPA 200.8
Arsenic	ND	0.005		mg/L	11/01/2012 1751 MS	EPA 200.8
Barium	ND	0.5		mg/L	11/01/2012 1751 MS	EPA 200.8
Beryllium	ND	0.01		mg/L	11/01/2012 1758 BK	EPA 200.7
Cadmium	ND	0.002		mg/L	11/01/2012 1751 MS	EPA 200.8
Chromium	ND	0.01		mg/L	11/01/2012 1758 BK	EPA 200.7
Mercury	ND	0.001		mg/L	11/02/2012 1153 CS	EPA 245.1
Nickel	ND	0.01		mg/L	11/01/2012 1758 BK	EPA 200.7
Selenium	ND	0.005		mg/L	11/01/2012 1751 MS	EPA 200.8
Sodium	825	0.5		mg/L	11/01/2012 1758 BK	EPA 200.7
Thallium	ND	0.001		mg/L	11/01/2012 1751 MS	EPA 200.8

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
C	Calculated Value	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	M	Value exceeds Monthly Ave or MCL
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits		

Reviewed by: Connie J Mattson

Connie Mattson, Project Manager

Inter-Mountain Laboratories, Inc
555 Absaraka Street, Sheridan, Wyoming 82801
(307) 674-7506

Sample Analysis Report

CLIENT: Western Groundwater Services
6595 Bear Claw Ln
Bozeman, MT 59715

Date Reported: 11/8/2012
Report ID: O1211001001

Project:
Lab ID: O1211001-001
Client Sample ID: BVW #4
Matrix: Water

Work Order: O1211001
Collection Date: 10/27/2012 11:00:00 AM
Date Received: 10/31/2012 8:55:00 AM
COC: 148694

524.2 SDWA-Volatile Compounds in Drinking Water — Prep Date: 11/7/2012

Analyses	Result	RL	Limits	Qual	Units	Date Analyzed/Init	
1,1,1,2-Tetrachloroethane	ND	1.0			µg/L	11/07/2012	SK
1,1,1-Trichloroethane	ND	0.50			µg/L	11/07/2012	SK
1,1,2,2-Tetrachloroethane	ND	1.0			µg/L	11/07/2012	SK
1,1,2-Trichloroethane	ND	0.50			µg/L	11/07/2012	SK
1,1-Dichloroethane	ND	1.0			µg/L	11/07/2012	SK
1,1-Dichloroethene	ND	0.50			µg/L	11/07/2012	SK
1,1-Dichloropropene	ND	1.0			µg/L	11/07/2012	SK
1,2,3-Trichloropropane	ND	1.0			µg/L	11/07/2012	SK
1,2,4-Trichlorobenzene	ND	0.50			µg/L	11/07/2012	SK
1,2-Dichlorobenzene	ND	0.50			µg/L	11/07/2012	SK
1,2-Dichloroethane	ND	0.50			µg/L	11/07/2012	SK
1,2-Dichloropropane	ND	0.50			µg/L	11/07/2012	SK
1,3-Dichlorobenzene	ND	1.0			µg/L	11/07/2012	SK
1,3-Dichloropropane	ND	1.0			µg/L	11/07/2012	SK
1,4-Dichlorobenzene	ND	0.50			µg/L	11/07/2012	SK
2,2-Dichloropropane	ND	1.0			µg/L	11/07/2012	SK
2-Chlorotoluene	ND	1.0			µg/L	11/07/2012	SK
4-Chlorotoluene	ND	1.0			µg/L	11/07/2012	SK
Benzene	ND	0.50			µg/L	11/07/2012	SK
Bromobenzene	ND	1.0			µg/L	11/07/2012	SK
Bromomethane	ND	1.0			µg/L	11/07/2012	SK
Carbon tetrachloride	ND	0.50			µg/L	11/07/2012	SK
Chlorobenzene	ND	0.50			µg/L	11/07/2012	SK
Chloroethane	ND	1.0			µg/L	11/07/2012	SK
Chloromethane	ND	1.0			µg/L	11/07/2012	SK
cis-1,2-Dichloroethene	ND	0.50			µg/L	11/07/2012	SK
cis-1,3-Dichloropropene	ND	1.0			µg/L	11/07/2012	SK
Ethylbenzene	ND	0.50			µg/L	11/07/2012	SK
m,p-Xylenes	ND	0.50			µg/L	11/07/2012	SK
Methylene chloride	ND	2.0			µg/L	11/07/2012	SK
o-Xylene	ND	0.50			µg/L	11/07/2012	SK
Styrene	ND	0.50			µg/L	11/07/2012	SK
Tetrachloroethene	ND	0.50			µg/L	11/07/2012	SK
Toluene	4.7	0.50			µg/L	11/07/2012	SK

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Diluted out of recovery limit	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Effect
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Reviewed by: Lisa Balstad

Lisa Balstad, Project Manager

Inter-Mountain Laboratories, Inc
555 Absaraka Street, Sheridan, Wyoming 82801
(307) 674-7506

Sample Analysis Report

CLIENT: Western Groundwater Services
6595 Bear Claw Ln
Bozeman, MT 59715

Date Reported: 11/8/2012
Report ID: O1211001001

Project:
Lab ID: O1211001-001
Client Sample ID: BVW #4
Matrix: Water

Work Order: O1211001
Collection Date: 10/27/2012 11:00:00 AM
Date Received: 10/31/2012 8:55:00 AM
COC: 148694

Analyses	Result	RL	Limits	Qual	Units	Date Analyzed/Init	
524.2 SDWA-Volatile Compounds in Drinking Water						**Prep Date: 11/7/2012**	
trans-1,2-Dichloroethene	ND	0.50			µg/L	11/07/2012	SK
trans-1,3-Dichloropropene	ND	1.0			µg/L	11/07/2012	SK
Trichloroethene	ND	0.50			µg/L	11/07/2012	SK
Vinyl chloride	ND	0.50			µg/L	11/07/2012	SK
Bromodichloromethane	ND	1.0			µg/L	11/07/2012	SK
Bromoform	ND	1.0			µg/L	11/07/2012	SK
Chloroform	ND	1.0			µg/L	11/07/2012	SK
Dibromochloromethane	ND	1.0			µg/L	11/07/2012	SK
Total Trihalomethanes	ND	1.0			µg/L	11/07/2012	SK
Surr: 1,2-Dichloroethane-d4	100		70-130		%REC	11/07/2012	SK
Surr: 4-Bromofluorobenzene	85.4		70-130		%REC	11/07/2012	SK

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Diluted out of recovery limit	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Effect
ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

Reviewed by: Lisa Balstad
Lisa Balstad, Project Manager

Inter-Mountain Labs — Your Environmental Monitoring Partner

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

CLIENT: Western Groundwater Services
6595 Bear Claw Lane
Bozeman, MT 59715

Date Reported: 2/15/2013
Report ID: S1301205001

Project: Broadview #5
Lab ID: S1301205-001
Client Sample ID: BVW #5
COC: 147715

Work Order: S1301205
Collection Date: 1/15/2013 12:00:00 PM
Date Received: 1/17/2013 8:50:00 AM
Sampler: MC
Matrix: Water

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
General Parameters						
pH	8.9	0.1		s.u.	01/18/2013 1717 KV	SM 4500 H B
Electrical Conductivity	3450	5		µmhos/cm	01/18/2013 1717 KV	SM 2510B
Total Dissolved Solids (180)	2270	10		mg/L	01/17/2013 1334 JCG	SM 2540
Alkalinity, Total (As CaCO3)	395	5		mg/L	01/25/2013 1018 KV	SM 2320B
Hardness, Calcium/Magnesium (As CaCO3)	5	1		mg/L	01/30/2013 1359 CJM	SM 2340B
Nitrogen, Nitrate (as N)	ND	0.05		mg/L	01/30/2013 000 CJM	EPA 353.2
Nitrogen, Nitrite (as N)	ND	0.05		mg/L	01/17/2013 1234 RH	EPA 353.2
Silica as SiO2	10	1		mg/L	01/18/2013 1243 DG	EPA 200.7
Anions						
Alkalinity, Bicarbonate as HCO3	399	5		mg/L	01/25/2013 1018 KV	SM 2320B
Alkalinity, Carbonate as CO3	40	5		mg/L	01/25/2013 1018 KV	SM 2320B
Alkalinity, Hydroxide as OH	ND	5		mg/L	01/25/2013 1018 KV	SM 2320B
Chloride	58	1		mg/L	01/24/2013 1127 AMB	EPA 300.0
Fluoride	1.1	0.1		mg/L	01/18/2013 1717 KV	SM 4500FC
Nitrogen, Nitrate-Nitrite (as N)	ND	0.05		mg/L	01/25/2013 1508 RH	EPA 353.2
Sulfate	1180	1		mg/L	01/24/2013 1127 AMB	EPA 300.0
Cations						
Calcium	2	1		mg/L	01/24/2013 1155 DG	EPA 200.7
Magnesium	ND	1		mg/L	01/24/2013 1155 DG	EPA 200.7
Potassium	2	1		mg/L	01/24/2013 1155 DG	EPA 200.7
Sodium	810	1		mg/L	01/24/2013 1155 DG	EPA 200.7
Radiochemistry (SDWA)						
Gross Alpha	ND	4		pCi/L	02/10/2013 1805 SH	SM 7110 B
Gross Beta	ND	7		pCi/L	02/10/2013 1805 SH	SM 7110 B
Radium 226	ND	0.2		pCi/L	02/08/2013 1404 SH	SM 7500 RA_B
Radium 228	ND	1		pCi/L	02/08/2013 1710 SH	RA-05
Total Metals						
Iron	1.31	0.03		mg/L	01/21/2013 1501 DG	EPA 200.7
Manganese	0.04	0.01		mg/L	01/21/2013 1501 DG	EPA 200.7

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- C Calculated Value
- H Holding times for preparation or analysis exceeded
- L Analyzed by a contract laboratory
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- M Value exceeds Monthly Ave or MCL
- O Outside the Range of Dilutions

Reviewed by: [signature]
Lacey Ketron, Water Lab Supervisor

Inter-Mountain Labs
Your Environmental Monitoring Partner
1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Sample Analysis Report

CLIENT: Western Groundwater Services
6595 Bear Claw Lane
Bozeman, MT 59715

Date Reported: 2/15/2013
Report ID: S1301205001

Work Order: S1301205
Collection Date: 1/15/2013 12:00:00 PM
Date Received: 1/17/2013 8:50:00 AM
Sampler: MC
Matrix: Water

Project: Broadview #5
Lab ID: S1301205-001
Client Sample ID: BVW #5
COC: 147715

Analyses	Result	RL	Qual	Units	Date Analyzed/Init	Method
Total Recoverable Metals						
Antimony	ND	0.005		mg/L	01/21/2013 1830 MS	EPA 200.8
Arsenic	ND	0.005		mg/L	01/21/2013 1830 MS	EPA 200.8
Barium	ND	0.5		mg/L	01/21/2013 1830 MS	EPA 200.8
Beryllium	ND	0.01		mg/L	01/21/2013 1501 DG	EPA 200.7
Cadmium	ND	0.002		mg/L	01/21/2013 1830 MS	EPA 200.8
Chromium	ND	0.01		mg/L	01/21/2013 1501 DG	EPA 200.7
Mercury	ND	0.001		mg/L	01/18/2013 1201 CS	EPA 245.1
Nickel	ND	0.01		mg/L	01/21/2013 1501 DG	EPA 200.7
Selenium	ND	0.005		mg/L	01/21/2013 1830 MS	EPA 200.8
Sodium	895	0.5		mg/L	01/21/2013 1501 DG	EPA 200.7
Thallium	ND	0.001		mg/L	01/21/2013 1830 MS	EPA 200.8

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
C	Calculated Value	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by a contract laboratory	M	Value exceeds Monthly Ave or MCL
ND	Not Detected at the Reporting Limit	O	Outside the Range of Dilutions
S	Spike Recovery outside accepted recovery limits		

Reviewed by:
Lacey Ketron, Water Lab Supervisor

INTER-MOUNTAIN LABS

Inter-Mountain Laboratories,
555 Absaraka Street, Sheridan, Wyoming 82
(307) 674-7

Sample Analysis Report

CLIENT: Western Groundwater Services LLC
6595 Bear Claw Ln
Bozeman, MT 59715

Date Reported: 1/30/2013

Report ID: O1301009001

Project: Broadview #5
Lab ID: O1301009-001
Client Sample ID: BVW#5
Matrix: Water

Work Order: O1301009
Collection Date: 1/15/2013 12:00:00 PM
Date Received: 1/17/2013 8:50:00 AM
COC: 147715

Analyses	Result	RL	Limits	Qual	Units	Date Analyzed/Init	
524.2 SDWA-Volatile Compounds in Drinking Water						**Prep Date: 1/23/2013**	
1,1,1,2-Tetrachloroethane	ND	1.0			µg/L	01/23/2013	SK
1,1,1-Trichloroethane	ND	0.50			µg/L	01/23/2013	SK
1,1,2,2-Tetrachloroethane	ND	1.0			µg/L	01/23/2013	SK
1,1,2-Trichloroethane	ND	0.50			µg/L	01/23/2013	SK
1,1-Dichloroethane	ND	1.0			µg/L	01/23/2013	SK
1,1-Dichloroethene	ND	0.50			µg/L	01/23/2013	SK
1,1-Dichloropropene	ND	1.0			µg/L	01/23/2013	SK
1,2,3-Trichloropropane	ND	1.0			µg/L	01/23/2013	SK
1,2,4-Trichlorobenzene	ND	0.50			µg/L	01/23/2013	SK
1,2-Dichlorobenzene	ND	0.50			µg/L	01/23/2013	SK
1,2-Dichloroethane	ND	0.50			µg/L	01/23/2013	SK
1,2-Dichloropropane	ND	0.50			µg/L	01/23/2013	SK
1,3-Dichlorobenzene	ND	1.0			µg/L	01/23/2013	SK
1,3-Dichloropropane	ND	1.0			µg/L	01/23/2013	SK
1,4-Dichlorobenzene	ND	0.50			µg/L	01/23/2013	SK
2,2-Dichloropropane	ND	1.0			µg/L	01/23/2013	SK
2-Chlorotoluene	ND	1.0			µg/L	01/23/2013	SK
4-Chlorotoluene	ND	1.0			µg/L	01/23/2013	SK
Benzene	ND	0.50			µg/L	01/23/2013	SK
Bromobenzene	ND	1.0			µg/L	01/23/2013	SK
Bromomethane	ND	1.0			µg/L	01/23/2013	SK
Carbon tetrachloride	ND	0.50			µg/L	01/23/2013	SK
Chlorobenzene	ND	0.50			µg/L	01/23/2013	SK
Chloroethane	ND	1.0			µg/L	01/23/2013	SK
Chloromethane	ND	1.0			µg/L	01/23/2013	SK
cis-1,2-Dichloroethene	ND	0.50			µg/L	01/23/2013	SK
cis-1,3-Dichloropropene	ND	1.0			µg/L	01/23/2013	SK
Ethylbenzene	ND	0.50			µg/L	01/23/2013	SK
m,p-Xylenes	ND	0.50			µg/L	01/23/2013	SK
Methylene chloride	ND	2.0			µg/L	01/23/2013	SK
o-Xylene	ND	0.50			µg/L	01/23/2013	SK
Styrene	ND	0.50			µg/L	01/23/2013	SK
Tetrachloroethene	ND	0.50			µg/L	01/23/2013	SK
Toluene	1.5	0.50			µg/L	01/23/2013	SK

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:

* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
D Diluted out of recovery limit	E Value above quantitation range
H Holding times for preparation or analysis exceeded	M Matrix Effect
ND Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

Reviewed by: Lisa Balstad
Lisa Balstad, Project Manager

Inter-Mountain Laboratories, Inc
555 Absaraka Street, Sheridan, Wyoming 82801
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Sample Analysis Report

CLIENT: Western Groundwater Services LLC
6595 Bear Claw Ln
Bozeman, MT 59715

Date Reported: 1/30/2013
Report ID: O1301009001

Project: Broadview #5
Lab ID: O1301009-001
Client Sample ID: BVW#5
Matrix: Water

Work Order: O1301009
Collection Date: 1/15/2013 12:00:00 PM
Date Received: 1/17/2013 8:50:00 AM
COC: 147715

Analyses	Result	RL	Limits	Qual	Units	Date Analyzed/Init	
524.2 SDWA-Volatile Compounds in Drinking Water						**Prep Date: 1/23/2013**	
trans-1,2-Dichloroethene	ND	0.50			µg/L	01/23/2013	SK
trans-1,3-Dichloropropene	ND	1.0			µg/L	01/23/2013	SK
Trichloroethene	ND	0.50			µg/L	01/23/2013	SK
Vinyl chloride	ND	0.50			µg/L	01/23/2013	SK
Bromodichloromethane	ND	1.0			µg/L	01/23/2013	SK
Bromoform	ND	1.0			µg/L	01/23/2013	SK
Chloroform	ND	1.0			µg/L	01/23/2013	SK
Dibromochloromethane	ND	1.0			µg/L	01/23/2013	SK
Total Trihalomethanes	ND	1.0			µg/L	01/23/2013	SK
Surr: 1,2-Dichloroethane-d4	122		70-130		%REC	01/23/2013	SK
Surr: 4-Bromofluorobenzene	98.7		70-130		%REC	01/23/2013	SK

These results apply only to the samples tested. **RL - Reporting Limit**

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- D Diluted out of recovery limit
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- M Matrix Effect
- S Spike Recovery outside accepted recovery limits

Reviewed by: Lisa Balstad
Lisa Balstad, Project Manager