



STATE OF ALASKA  
ALASKA CLEAN/DRINKING WATER FUND  
GREEN PROJECT ASSESSMENT FORM

Division of Water  
MG&L

JUN 07 2012

Received

As applicable under the EPA annual capitalization grants provided to the Alaska Clean Water Fund (ACWF) and Alaska Drinking Water Fund (ADWF) loan programs, a portion of funds appropriated shall be for projects to address green infrastructure, water or energy efficiency improvements or other environmentally innovative activities." To meet this condition under the federal grant for administering these funds, this assessment form is provided to document this eligibility or what is termed a "Categorical" or "Business Case" justification, which will be reviewed by DEC for provisional compliance. For more information on green infrastructure development, please review the following EPA web site:

[http://cfpub.epa.gov/npdes/home.cfm?program\\_id=298](http://cfpub.epa.gov/npdes/home.cfm?program_id=298)

For those projects requiring a "Business Case," Part 2 will require completion to qualify a "traditional project" as green; justification is broken down into two parts, technical and financial. The technical part should use information from a variety of sources such as maintenance or operation records, engineering studies, project plans or other applicable documentation to identify problems (including any data on water and/or energy inefficiencies) in the existing facility, and that clarifies the technical benefits from the project in water and/or energy efficiency terms. Financial justification needs to show estimated savings to a project based on the technical benefits, and demonstrate that the green component of the project provides a substantial savings and environmental benefit.

For more information and assistance in completing this assessment form, please contact the Municipal Matching Grants & Loans program in Anchorage at 907-269-7673, or in Juneau at 907-465-5300.

GENERAL INFORMATION

Name of Community CITY OF PETERSBURG

Address P.O. Box 329  
PETERSBURG AK 99833

Contact Name KARL HAUERMAN Title PUBLIC WORKS DIRECTOR Telephone (907) 772-4430

PROJECT INFORMATION

ADWF # 685251

Project Name PETERSBURG WATER UPGRADES Location PETERSBURG

Project Type:        New Construction X Upgrades

       Stormwater Infrastructure

       Energy Efficiency Project

X Water Efficiency Project

       Innovative Environmental Project

Green Project Description: REPLACEMENT OF AGING AND FAILING ASBESTOS CEMENT WATER MAINS WILL DECREASE EXISTING WATER LOSS AND PREVENT FUTURE WATER LOSSES. UNMETERED WATER LOSS REPRESENTS AN UNRECOVERED COST TO PRODUCE SAFE WATER PLACES UNDOE FINANCIAL PRESSURE ON THE UTILITY AND THE RATEPAYERS.

## PART 1 – GREEN PROJECT CATEGORY & COSTS

Identify the most appropriate “Green” Clean Water or Drinking Water category project type. Note, any selection with (BC) at the end will require a Business Case demonstration.

**ENERGY EFFICIENCY** – the use of improved technologies and practices to reduce the energy consumption of water quality projects.

\_\_\_\_\_ Wastewater/water utility energy audits      \_\_\_\_\_ Clean power for public owned facilities  
\_\_\_\_\_ Leak detection equipment      \_\_\_\_\_ Retrofits/upgrades to pumps & treatment processes (BC)  
\_\_\_\_\_ Replace/rehabilitation of distribution (BC)      \_\_\_\_\_ Other: \_\_\_\_\_ (BC)

**WATER EFFICIENCY** – the use of improved technologies and practices to deliver equal or better services with less water.

\_\_\_\_\_ Water meters      \_\_\_\_\_ Fixture Retrofit      \_\_\_\_\_ Landscape/Irrigation  
\_\_\_\_\_ Graywater or other water recycling      ☒ Replace/rehabilitation of distribution (BC)  
\_\_\_\_\_ Leak detection equipment      \_\_\_\_\_ OTHER: \_\_\_\_\_ (BC)

**GREEN INFRASTRUCTURE** – Practices that manage and treat stormwater and that maintain and restore natural hydrology by infiltrating, evapotranspiring and capturing and using stormwater.

\_\_\_\_\_ Green Streets      \_\_\_\_\_ Water harvesting and reuse  
\_\_\_\_\_ Porous pavement, bioretention, trees, green roofs, water gardens, constructed wetlands  
\_\_\_\_\_ Hydromodification for riparian buffers, floodplains, and wetlands  
\_\_\_\_\_ Downspout disconnection to remove stormwater from combined sewers and storm sewers  
\_\_\_\_\_ OTHER: \_\_\_\_\_ (BC)

**ENVIRONMENTALLY INNOVATIVE PROJECTS** – Demonstrate new/innovative approaches to managing water resources in a more sustainable way. This may include projects that achieve pollution prevention or pollutant removal with reduced costs and projects that foster adaptation of water protection programs and practices to climate change.

\_\_\_\_\_ Wetland restoration      \_\_\_\_\_ Decentralized wastewater treatment solutions  
\_\_\_\_\_ Water reuse      \_\_\_\_\_ Green stormwater infrastructure      \_\_\_\_\_ Water balance approaches  
\_\_\_\_\_ Adaptation to climate change      \_\_\_\_\_ Integrated water resource management  
\_\_\_\_\_ OTHER: \_\_\_\_\_ (BC)

## PROJECT & GREEN COMPONENT COSTS

|  | <u>TOTAL<br/>PROJECT COSTS</u> | <u>TOTAL "GREEN"<br/>COMPONENT COSTS</u> |
|--|--------------------------------|--|
| Administration                               | \$ _____                       | \$ _____                                 |
| Legal  | \$ _____                       | \$ _____                                 |
| Preliminary Studies/Reports                  | \$ _____                       | \$ _____                                 |
| Engineering Design                           | \$ <u>62,833</u>               | \$ _____                                 |
| Inspection/Surveying/Construction Management | \$ <u>20,000</u>               | \$ _____                                 |
| Construction                                 | \$ <u>695,505</u>              | \$ <u>695,505</u>                        |
| Equipment                                    | \$ _____                       | \$ _____                                 |
| Contingencies                                | \$ <u>50,000</u>               | \$ _____                                 |
| Other _____                                  | \$ _____                       | \$ _____                                 |
| Total Costs                                  | \$ <u>828,338</u>              | \$ <u>695,505</u>                        |

## **PART 2 – PROJECT "BUSINESS CASE" TECHNICAL/FINANCIAL ASSESSMENT**

### TECHNICAL ANALYSIS OF BENEFITS\*

In addition to this form, a supporting technical and financial analysis is required to verify energy and water saving efficiencies for any green component of the project. For green infrastructure and innovative environmental type projects, the analysis should include any applicable efficiency and environmental benefits. For assisting MGL in evaluating "Business Case" assessments of water main, meter, and pump facility replacement type projects, the attached form titled "ADWF - Water/Energy Efficiency Determination - Water Main Replacement/Meter/Pump Facility" is required to be completed. Once the form is complete along with any supporting documentation, please submit documentation to the MGL program for review and concurrence. Note, only water/energy efficiencies that achieve a 20% or greater increase in efficiency will categorically qualify as a Green project.

### CERTIFICATION STATEMENT:

I certify the above information is current and accurate.

KARL HALERMAN  
Name

PUBLIC WORKS DIRECTOR  
Title

Karl Halerman  
Signature

6/3/12  
Date

Submit Completed Form to:

Alaska Department of Environmental Conservation  
Municipal Matching Grants & Loans  
555 Cordova Street  
Anchorage, AK 99501-2617

**ADWF - Water/Energy Efficiency Determination  
Water Main Replacement/Meter/Pump Facility**

**General Information**

|                       |   |
|-----------------------|---|
| Community/System Name | CITY OF PETERSBURG WATER SYSTEM #130148 |
| Project Name          | PETERSBURG WATER UPGRADES               |
| Estimate Total Cost   | \$828,338                               |

**Water Main Replacement**

|   |  |   |
|---|--|---|
| 1 | Percent loss within the distribution system?   | FY 2011 = 23.3%   |
| 2 | Water main material & C-values of pipe to be replaced?   | TRANSITE (ASBESTOS CEMENT)  |
| 3 | Water main age?  | APPROXIMATELY 30-40 YEARS.  |
| 4 | Approximately what pipe length is to be replaced and what percentage of total distribution mains will the project replace?                         | 2788' TO BE REPLACED.<br>APPROXIMATELY 2% OF THE SYSTEM   |
| 5 | Number of breaks recorded in past twelve months for the area to be replaced? (based on O&M records)  | ONE BREAK IN PROJECT AREA IN LAST YEAR.<br>ONE BREAK NEAR PROJECT AREA.<br>ONE BREAK IN 2008 IN PROJECT AREA.           |
| 6 | Estimated water lost due to breaks and leaks   | BREAKS SINCE 2008 = 1,850,000 gal<br>LEAKS ANNUALLY = 48 MG IN FY 2011  |
| 7 | Primary reason for breaks?   | SETTLING IN AND AROUND TRANSITE WATER MAINS.  |
| 8 | How much of an impact on distribution system water loss is this project expected to have?  | WILL MITIGATE POTENTIALS FOR BREAKS SUBSTANTIALLY.<br>SHOULD ELIMINATE ALMOST 1 MILLION GALLONS OF WATER LOSS PER YEAR. |
| 9 | Are there other efficiencies to be gained by the replacement? (i.e. reduced head and therefore less energy loss in an upstream pump station, etc.) | PERHAPS HIGHER FIRE FLOWS IN SUBJECT AREA.  |

**Meter Installation/Replacement**

|    |  |  |
|----|--|--|
| 10 | Is meter installation/replacement part of this project?  |  |
| 11 | Reason for replacement?                                  |  |
| 12 | If so, estimated cost of meter installation/replacement? |  |



**Pump Facilities**

|    |  |  |
|----|--|--|
| 13 | Are pumps or pumping facilities part of the project?   |  |
| 14 | Age of existing pumps or pumping facilities?   |  |
| 15 | Existing pump/motor efficiency rating, if known?   |  |
| 16 | New pump/motor efficiency rating.  |  |
| 17 | List the manufacture, make, and model of key components (motors, pumps, etc.)  |  |
| 18 | Document that the energy efficiency specifications for the proposed equipment demonstrate substantial savings over other currently available equipment |  |

**Information Provided by:**

|  |   |
|--|---|
| Name and Title of persons providing above information? | KARL HAUERMAN, Public Works Director                  |
| Affiliation?   | SYSTEM MANAGER  |
| Address (both mailing & location if different)?        | P.O. Box 329<br>303 S. 2nd St.<br>PETERSBURG AK 99833 |
| Contact Phone Number?                                  | 907-772-4430  |
| E-Mail Address   | ppwdir@ci.petersburg.ak.us                            |

## **Green Project Business Case**

### **City of Petersburg Water Upgrades Project**

#### **Business Case Summary**

The City of Petersburg's Water Upgrades Project is being constructed concurrently with the City's Sewer Upgrades Project. The Water Upgrades Project is focusing on replacement of aging transite (asbestos cement) water mains in the community. Past utility construction practices of the City did not employ proper pipe foundation installation practices in every case and this fact in combination with general street construction practices that essentially "floated" a layer of rock on top of water saturated peat bog (muskeg) have resulted in water mains that are susceptible to settlement, cracking and failure. Furthermore, materials utilized for many of Petersburg's original water system extensions, such as transite, are not resilient enough to withstand the differential settling and or lateral forces that are being placed upon them in light of poor pipeline construction methods.

The conditions described above are seen in many of Petersburg's older water mains. As a result of pipe installation techniques of the past, as well as growth of the community and increased traffic on streets that are not well supported, settling of road prisms and shifting of water mains continue until failure. Failures come in dramatic breaks which waste hundreds of thousands of gallons of treated water, but they also come in the form of small leaks which add up to be a much more significant amount of water loss on an annual basis.

Water loss is tracked on a monthly basis by comparisons of treatment plant output metering and customer meter readings throughout the City's system. In FY 2011, the system saw a water loss percentage of 21.2% overall – a loss of treated water equaling 49 million gallons. FY 2012 is not complete, but the average monthly loss is at 20.2% so far. Water breaks since 2008 have resulted in the loss of approximately 1,650,000 gallons of water and disruptions of service for many customers.

It is for the above stated reasons that the City has taken on the task of identifying and replacing all sections of aged transite water main pipe – as is the goal of this project. Current construction methods include standards for sub-excavation to competent soils beneath water mains with compacted rock and approved bedding. Pipe runs originally located outside of the existing road prism are relocated to within the road to provide for more stable conditions of the utility. Pipe materials are specified as properly rated ductile iron or SDR 11 HDPE pipe for mains and service pipes to each property owner along the project limits.

#### **Technical Information and Support of Green Project Status**

Since 2008 there have been five (5) significant water breaks in Petersburg. These breaks have resulted in approximately 1,650,000 gallons of lost water. Below is a chart of the breaks which indicates the amount of water loss per break, the average output of the treatment plant on the month of the break and the percentage of the daily output attributed to the break.

| Date     | Description             | Water Lost (gal) | Applicable<br>Mo. Avg (gal/day) | Loss vs.daily avg.<br>(percent) |
|----------|-------------------------|------------------|---------------------------------|---------------------------------|
| 12/23/08 | Gauffin Street*         | 500,000          | 497,000                         | 100%                            |
| 7/4/10   | 10 <sup>th</sup> Street | 500,000          | 986,000                         | 50%                             |
| 1/12/11  | Aaslaug Street*         | 150,000          | 483,000                         | 31%                             |
| 11/18/11 | Birch Street            | 200,000          | 440,000                         | 45%                             |
| 12/28/11 | Second Street*          | 300,000          | 399,000                         | 75%                             |

\*Within project work area or in the near vicinity of the project.

This chart serves to show that the amounts of water loss during break events places immediate stress on the water treatment facility and causes anywhere from 31 – 100% increase in treatment plant output to stabilize water levels in the community's storage tank.

A goal of the water utility is to reduce losses throughout the distribution system to a maximum of 10% of plant output. Replacement of aged and leaking transite pipe serves to meet this goal. FY2011 losses of 21% equal 49 million gallons. If Petersburg's goal is achieved, the volume of losses would have equaled 23 million gallons – a reduction of 26 million gallons of production at the treatment plant – for a year of equal flow to 2011.

Petersburg's cost to produce water is not insignificant. Due to a high amount of color and dissolved contaminants in the community's raw water reservoirs, the treatment process that we employ to eliminate color and turbidity and provide filtered and disinfected water to Petersburg is substantial. The City uses a Polyaluminum Chloride coagulant mixed in a slow controlled fashion to bring together the contaminants as floc. The flocculated water is then directed through two inclined plate settlers which efficiently allow the floc to settle on the plates within the basin which facilitates its removal. "Settled" water is then directed to six filters which use sand and anthracite to filter the remaining turbidity and contaminants from the water. Post filter additions utilize chlorine for disinfection, soda ash for pH adjustment and corrosion control and sodium fluoride for dental health. In comparison to ground water sources or glacial lake sources, Petersburg's treatment process is complicated and costly.

#### **Financial Information in Support of Green Project Status**

Costs to produce water in Petersburg are calculated by dividing the expenses of the utility by the amount of production. The following calculations have been made using the latest full fiscal year's data.

#### **Cost of Petersburg Water**

FY2011 Utility Operating Expenses = Total Op Exp – depreciation = \$1,403,398 - \$759,964 = \$643,434

FY2011 Treatment Plant total production = 231 million gallons

Cost of treated water =  $\$643,434 / 231,000,000 = \$0.0028$  per gallon or  $\$2.78$  per 1000 gallons  
Using this cost, we can put some numbers to the breakage losses and total losses of the system.

#### Breakage Losses

Losses since 2008 = 1,650,000 gallons

Cost =  $(1,650,000 \times \$2.78) / 1000 = \$4,587$  for water main breakages since 2008

#### System wide losses

FY2011 Non-metered losses = 49 million gallons

Cost =  $(49,000,000 \times \$2.78) / 1000 = \$136,220$  in lost water value

Maximum Water Loss goal (10%) using FY2011 production = 26 million gallons

Cost =  $(26,000,000 \times \$2.78) / 1000 = \$72,280$  in lost water value

**Savings to utility if water loss goal is achieved = \$63,940**

This financial information clearly shows the positive impacts to the utility and the ratepayers when breakage losses and system wide losses are reduced. Replacing aging infrastructure is a very effective way to mitigate both main breakage possibilities and system wide losses due to minor failures and leakage.

Completed by: Karl Hagerman, Public Works Director

#### Attachments

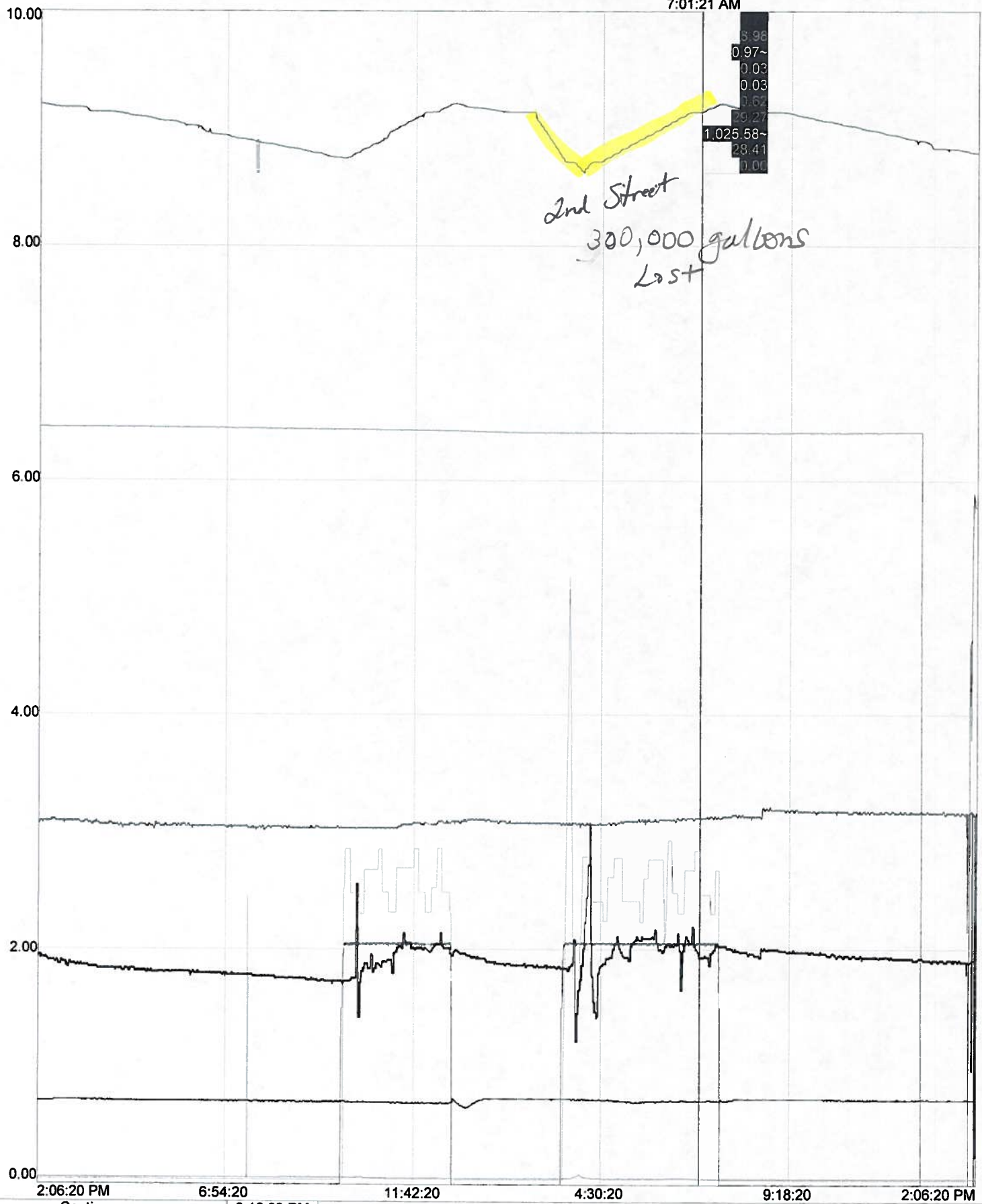
Water Utility - Storage Tank level records and Treatment Plant flow records for 5 breaks – 10 sheets

Water Utility – Water Loss report Summary – FY 2008 - 2011 and FY 2012 (partial) – 1 sheet

Water Utility – FY2013 Proposed Budget – Includes actual expenses for FY2011 – 2 sheets



7:01:21 AM



| Caption                        | Units    |
|--------------------------------|----------|
| AIT-1-1 RAW WATER TURBIDITY    | 0.99NTU  |
| AIT-5-7 pH TANK                | 8.44pH   |
| AIT-5-8 TANK CHLORINE          | 0.68mg/l |
| AIT-5-9 TURBIDITY TANK         | 0.03NTU  |
| AIT-6-2 TURBIDITY DISTRIBUTION | 0.03NTU  |
| AIT-6-4 CHLORINE DISTRIBUTION  | 0.63mg/l |
| LIT-6-1 TANK LEVEL             | 28.52ft  |
| RAW WATER COMBINED FLOW        | 0.00gpm  |

**Petersburg Water Treatment Facility  
December 2011**

| Date    | Influent<br>Total<br>Mgd | Plant<br>Use<br>MG | Water<br>Distrib.<br>MG | Plant<br>Turb.<br>NTU | Distrib.<br>Turb.<br>NTU | R.W.<br>Temp<br>°F | R.W.<br>Color | R.W.<br>Turb. | R.W.<br>Ph | R.W.<br>Alk.<br>mg/L | Pre.<br>Filter<br>Color | Pre.<br>Filter<br>Turb. | T.W.<br>Color |
|---------|--------------------------|--------------------|-------------------------|-----------------------|--------------------------|--------------------|---------------|---------------|------------|----------------------|-------------------------|-------------------------|---------------|
| 1       | 0.634                    | 0.118              | 0.516                   | 0.03                  | 0.04                     | 38.7               | 81.0          | 0.5           | 6.10       | 3.9                  | 0.0                     | 0.2                     | 0.0           |
| 2       | 0.607                    | 0.122              | 0.485                   | 0.04                  | 0.03                     | 38.7               | 84.0          | 0.5           | 6.00       | 4.3                  | 0.0                     | 0.2                     | 0.0           |
| 3       | 0.446                    | 0.041              | 0.405                   | 0.03                  | 0.08                     | 38.7               | 71.0          | 0.5           | 6.00       | 4.8                  | 0.0                     | 0.2                     | 0.0           |
| 4       | 0.370                    | 0.010              | 0.360                   | 0.02                  | 0.04                     | 38.7               | 78.0          | 0.6           | 6.00       | 7.5                  | 0.0                     | 0.2                     | 0.0           |
| 5       | 0.486                    | 0.074              | 0.412                   | 0.03                  | 0.03                     | 38.7               | 83.0          | 0.5           | 6.00       | 4.1                  | 0.0                     | 0.2                     | 0.0           |
| 6       | 0.598                    | 0.164              | 0.434                   | 0.03                  | 0.04                     | 38.7               | 109.0         | 0.9           | 6.00       | 4.7                  | 0.0                     | 0.2                     | 0.0           |
| 7       | 0.402                    | 0.042              | 0.360                   | 0.03                  | 0.04                     | 38.5               | 83.0          | 0.6           | 6.10       | 4.3                  | 0.0                     | 0.2                     | 0.0           |
| 8       | 0.486                    | 0.030              | 0.456                   | 0.03                  | 0.04                     | 38.3               | 81.0          | 0.5           | 6.20       | 4.7                  | 0.0                     | 0.2                     | 0.0           |
| 9       | 0.542                    | 0.152              | 0.390                   | 0.03                  | 0.03                     | 38.3               | 79.0          | 0.5           | 6.10       | 4.6                  | 0.0                     | 0.2                     | 0.0           |
| 10      | 0.542                    | 0.070              | 0.472                   | 0.02                  | 0.05                     | 38.1               | 76.0          | 0.5           | 6.20       | 5.7                  | 0.0                     | 0.1                     | 0.0           |
| 11      | 0.356                    | 0.022              | 0.334                   | 0.02                  | 0.05                     | 38.1               | 76.0          | 0.6           | 6.20       | 5.7                  | 0.0                     | 0.1                     | 0.0           |
| 12      | 0.379                    | 0.024              | 0.355                   | 0.03                  | 0.02                     | 38.1               | 83.0          | 0.5           | 6.20       | 5.1                  | 0.0                     | 0.2                     | 0.0           |
| 13      | 0.575                    | 0.174              | 0.401                   | 0.03                  | 0.03                     | 38.1               | 79.0          | 0.5           | 6.20       | 5.1                  | 0.0                     | 0.2                     | 0.0           |
| 14      | 0.377                    | 0.042              | 0.335                   | 0.03                  | 0.03                     | 38.1               | 88.0          | 0.5           | 6.10       | 4.9                  | 0.0                     | 0.1                     | 0.0           |
| 15      | 0.415                    | 0.042              | 0.373                   | 0.03                  | 0.03                     | 37.9               | 87.0          | 0.5           | 6.20       | 4.9                  | 0.0                     | 0.2                     | 0.0           |
| 16      | 0.564                    | 0.170              | 0.394                   | 0.04                  | 0.03                     | 37.9               | 89.0          | 0.5           | 6.20       | 4.9                  | 0.0                     | 0.2                     | 0.0           |
| 17      | 0.451                    | 0.049              | 0.402                   | 0.03                  | 0.03                     | 37.9               | 83.0          | 0.5           | 6.20       | 6.5                  | 0.0                     | 0.1                     | 0.0           |
| 18      | 0.355                    | 0.023              | 0.332                   | 0.03                  | 0.03                     | 37.9               | 84.0          | 0.5           | 6.20       | 3.8                  | 0.0                     | 0.2                     | 0.0           |
| 19      | 0.441                    | 0.055              | 0.386                   | 0.03                  | 0.02                     | 37.9               | 80.0          | 0.5           | 6.10       | 4.9                  | 0.0                     | 0.2                     | 0.0           |
| 20      | 0.610                    | 0.210              | 0.400                   | 0.03                  | 0.03                     | 37.8               | 82.0          | 0.6           | 6.20       | 5.4                  | 0.0                     | 0.2                     | 0.0           |
| 21      | 0.409                    | 0.044              | 0.365                   | 0.03                  | 0.04                     | 37.8               | 84.0          | 0.5           | 6.20       | 5.3                  | 0.0                     | 0.2                     | 0.0           |
| 22      | 0.410                    | 0.025              | 0.385                   | 0.03                  | 0.03                     | 37.6               | 90.0          | 0.6           | 6.20       | 5.2                  | 0.0                     | 0.2                     | 0.0           |
| 23      | 0.558                    | 0.166              | 0.392                   | 0.03                  | 0.03                     | 37.4               | 83.0          | 0.6           | 6.20       | 5.6                  | 0.0                     | 0.2                     | 0.0           |
| 24      | 0.450                    | 0.032              | 0.418                   | 0.02                  | 0.03                     | 37.6               | 162.0         | 2.9           | 6.00       | 7.0                  | 0.0                     | 0.2                     | 0.0           |
| 25      | 0.393                    | 0.037              | 0.356                   | 0.03                  | 0.04                     | HOLIDAY            |               |               |            |                      |                         |                         |               |
| 26      | 0.361                    | 0.024              | 0.337                   | 0.03                  | 0.04                     | 37.2               | 86.0          | 0.9           | 6.20       | 8.1                  | 0.0                     | 0.2                     | 0.0           |
| 27      | 0.560                    | 0.188              | 0.372                   | 0.03                  | 0.03                     | 36.9               | 82.0          | 0.8           | 6.20       | 5.9                  | 0.0                     | 0.2                     | 0.0           |
| 28      | 0.484                    | 0.055              | 0.429                   | 0.03                  | 0.04                     | 36.7               | 80.0          | 0.7           | 6.20       | 5.5                  | 0.0                     | 0.2                     | 0.0           |
| 29      | 0.641                    | 0.040              | 0.601                   | 0.03                  | 0.03                     | 36.7               | 72.0          | 0.7           | 6.20       | 5.2                  | 0.0                     | 0.2                     | 0.0           |
| 30      | 0.306                    | 0.020              | 0.286                   | 0.03                  | 0.03                     | 36.5               | 85.0          | 0.7           | 6.20       | 5.3                  | 0.0                     | 0.2                     | 0.0           |
| 31      | 0.603                    | 0.184              | 0.419                   | 0.04                  | 0.03                     | 36.3               | 77.0          | 0.7           | 6.20       | 5.4                  | 0.0                     | 0.2                     | 0.0           |
| TOTAL   | 14.811                   | 2.449              | 12.362                  |                       |                          |                    |               |               |            |                      |                         |                         |               |
| AVERAGE | 0.478                    | 0.079              | 0.399                   | 0.03                  | 0.04                     | 37.9               | 85.2          | 0.7           | 6.14       | 5.3                  | 0.0                     | 0.2                     | 0.0           |
| MAXIMUM | 0.641                    | 0.210              | 0.601                   | 0.04                  | 0.08                     | 38.7               | 162.0         | 2.9           | 6.20       | 8.1                  | 0.0                     | 0.2                     | 0.0           |
| MINIMUM | 0.306                    | 0.010              | 0.286                   | 0.02                  | 0.02                     | 36.3               | 71.0          | 0.5           | 6.00       | 3.8                  | 0.0                     | 0.1                     | 0.0           |

NOTES:

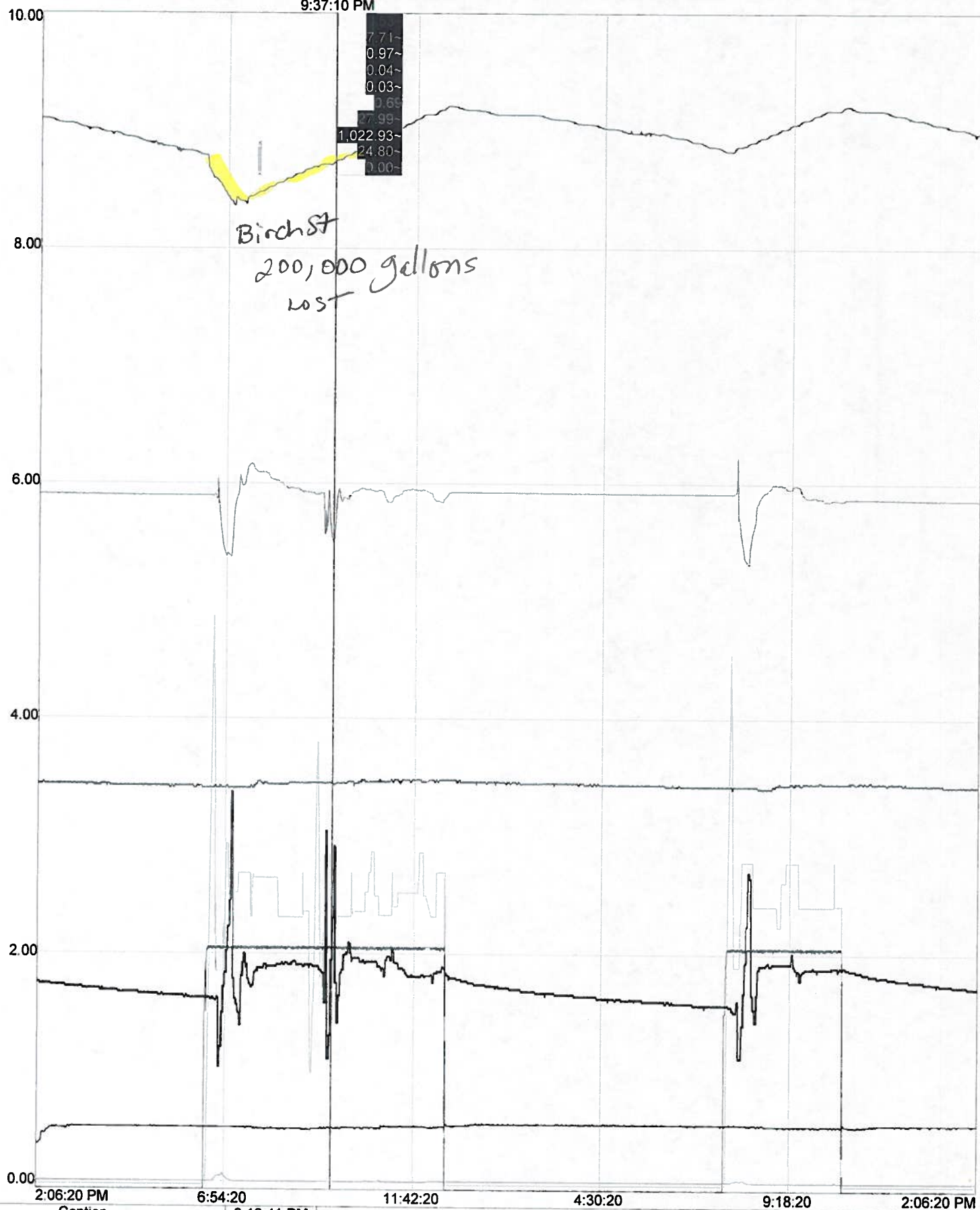
Total Use from Cabin Creek was 14.811 Million Gallons

12/21 - 12/27 + 12/30 + 12/31 370 AG

12/28 59,000 +

12/29 231,000 +

9:37:10 PM



2:06:20 PM

6:54:20

11:42:20

4:30:20

9:18:20

2:06:20 PM

Caption

3:19:41 PM

Units

|                                |          |
|--------------------------------|----------|
| AIT-1-1 RAW WATER TURBIDITY    | 1.00NTU  |
| AIT-5-7 pH TANK                | 8.44pH   |
| AIT-5-8 TANK CHLORINE          | 0.68mg/l |
| AIT-5-9 TURBIDITY TANK         | 0.03NTU  |
| AIT-6-2 TURBIDITY DISTRIBUTION | 0.03NTU  |
| AIT-6-4 CHLORINE DISTRIBUTION  | 0.63mg/l |
| LIT-6-1 TANK LEVEL             | 28.48ft  |
| RAW WATER COMBINED FLOW        | 0.00gpm  |

**Petersburg Water Treatment Facility  
November 2011**

| Date    | Influent<br>Total<br>Mgd | Plant<br>Use<br>MG | Water<br>Distrib.<br>MG | Plant<br>Turb.<br>NTU | Distrib.<br>Turb.<br>NTU | R.W.<br>Temp<br>°F | R.W.<br>Color | R.W.<br>Turb. | R.W.<br>Ph | R.W.<br>Alk.<br>mg/L | Pre.<br>Filter<br>Color | Pre.<br>Filter<br>Turb. | T.W.<br>Color |
|---------|--------------------------|--------------------|-------------------------|-----------------------|--------------------------|--------------------|---------------|---------------|------------|----------------------|-------------------------|-------------------------|---------------|
| 1       | 0.559                    | 0.180              | 0.379                   | 0.03                  | 0.04                     | 44.4               | 89.0          | 1.2           | 6.10       | 2.2                  | 1.0                     | 0.3                     | 0.0           |
| 2       | 0.401                    | 0.043              | 0.358                   | 0.03                  | 0.03                     | 44.8               | 90.0          | 1.1           | 6.20       | 3.0                  |                         |                         | 0.0           |
| 3       | 0.886                    | 0.517              | 0.369                   | 0.03                  | 0.03                     | 44.6               | 85.0          | 0.6           | 6.20       | 2.5                  | 12.0                    | 0.5                     | 0.0           |
| 4       | 0.767                    | 0.201              | 0.566                   | 0.04                  | 0.06                     | 45.3               | 75.0          | 0.6           | 6.10       | 2.3                  | 1.0                     | 0.3                     | 0.0           |
| 5       | 0.452                    | 0.041              | 0.411                   | 0.02                  | 0.04                     | 46.4               | 67.0          | 0.6           | 6.00       | 3.1                  | 0.0                     | 0.3                     | 0.0           |
| 6       | 0.607                    | 0.155              | 0.452                   | 0.02                  | 0.03                     | 46.8               | 68.0          | 0.6           | 6.10       | 3.5                  | 0.0                     | 0.3                     | 0.0           |
| 7       | 0.444                    | 0.043              | 0.401                   | 0.03                  | 0.03                     | 48.6               | 81.0          | 0.6           | 6.00       | 2.5                  | 2.0                     | 0.2                     | 0.0           |
| 8       | 0.533                    | 0.120              | 0.413                   | 0.04                  | 0.06                     | 40.6               | 76.0          | 0.6           | 6.00       | 2.2                  | 1.0                     | 0.3                     | 0.0           |
| 9       | 0.583                    | 0.111              | 0.472                   | 0.04                  | 0.04                     | 40.6               | 71.0          | 0.6           | 6.00       | 2.4                  | 0.0                     | 0.2                     | 0.0           |
| 10      | 0.438                    | 0.018              | 0.420                   | 0.04                  | 0.04                     | 40.8               | 72.0          | 0.6           | 5.90       | 2.4                  | 2.0                     | 0.3                     | 0.0           |
| 11      | 0.741                    | 0.222              | 0.519                   | 0.02                  | 0.03                     | 40.5               | 69.0          | 0.5           | 6.50       | 6.2                  | 0.0                     | 0.2                     | 0.0           |
| 12      | 0.411                    | 0.011              | 0.400                   | 0.02                  | 0.03                     | 40.5               | 71.0          | 0.5           | 6.10       | 3.3                  | 0.0                     | 0.2                     | 0.0           |
| 13      | 0.659                    | 0.053              | 0.606                   | 0.03                  | 0.03                     | 40.5               | 66.0          | 0.5           | 6.00       | 5.0                  | 0.0                     | 0.2                     | 0.0           |
| 14      | 0.405                    | 0.021              | 0.384                   | 0.03                  | 0.04                     | 40.5               | 74.0          | 0.5           | 6.00       | 3.9                  | 0.0                     | 0.2                     | 0.0           |
| 15      | 0.733                    | 0.148              | 0.585                   | 0.03                  | 0.04                     | 40.5               | 74.0          | 0.5           | 6.00       | 3.8                  | 0.0                     | 0.2                     | 0.0           |
| 16      | 0.541                    | 0.042              | 0.499                   | 0.03                  | 0.03                     | 40.1               | 76.0          | 0.5           | 6.00       | 3.9                  | 1.0                     | 0.2                     | 0.0           |
| 17      | 0.530                    | 0.085              | 0.445                   | 0.03                  | 0.03                     | 40.1               | 74.0          | 0.5           | 6.00       | 3.2                  | 0.0                     | 0.2                     | 0.0           |
| 18      | 0.498                    | 0.104              | 0.394                   | 0.04                  | 0.04                     | 39.9               | 76.0          | 0.4           | 6.00       | 3.8                  | 0.0                     | 0.2                     | 0.0           |
| 19      | 0.651                    | 0.153              | 0.498 *                 | 0.04                  | 0.04                     | 39.6               | 71.0          | 0.5           | 6.10       | 5.8                  | 0.0                     | 0.2                     | 0.0           |
| 20      | 0.653                    | 0.067              | 0.586                   | 0.04                  | 0.03                     | 39.9               | 75.0          | 0.6           | 6.80       | 13.5                 | 0.0                     | 0.3                     | 0.0           |
| 21      | 0.402                    | 0.027              | 0.375                   | 0.04                  | 0.04                     | 39.6               | 72.0          | 0.5           | 5.80       | 3.9                  | 0.0                     | 0.2                     | 0.0           |
| 22      | 0.591                    | 0.177              | 0.414                   | 0.03                  | 0.04                     | 39.6               | 79.0          | 0.5           | 5.80       | 4.0                  | 0.0                     | 0.2                     | 0.0           |
| 23      | 0.557                    | 0.051              | 0.506                   | 0.03                  | 0.04                     | 39.6               | 75.0          | 0.5           | 5.80       | 3.8                  | 0.0                     | 0.2                     | 0.0           |
| 24      | 0.313                    | 0.008              | 0.305                   | 0.03                  | 0.04                     | 38.1               |               | 0.8           |            |                      |                         | 0.3                     |               |
| 25      | 0.519                    | 0.023              | 0.496                   | 0.03                  | 0.04                     | 37.2               | 112.0         | 0.8           | 6.00       | 3.7                  | 2.0                     | 0.3                     | 0.0           |
| 26      | 0.566                    | 0.163              | 0.403                   | 0.05                  | 0.05                     | 37.2               | 110.0         | 0.9           | 6.10       | 5.9                  | 0.0                     | 0.3                     | 0.0           |
| 27      | 0.337                    | 0.001              | 0.336                   | 0.05                  | 0.05                     | 37.2               | 104.0         | 0.8           | 5.90       | 3.8                  | 0.0                     | 0.2                     | 0.0           |
| 28      | 0.507                    | 0.031              | 0.476                   | 0.04                  | 0.04                     | 37.2               | 110.0         | 0.8           | 5.80       | 3.2                  | 0.0                     | 0.3                     | 0.0           |
| 29      | 0.632                    | 0.085              | 0.547                   | 0.04                  | 0.04                     | 36.9               | 104.0         | 0.8           | 6.00       | 3.2                  | 0.0                     | 0.3                     | 0.0           |
| 30      | 0.788                    | 0.169              | 0.619                   | 0.04                  | 0.04                     | 36.9               | 74.0          | 0.6           | 6.00       | 4.0                  | 0.0                     | 0.2                     | 0.0           |
| 31      |                          |                    | 0.000                   |                       |                          |                    |               |               |            |                      |                         |                         |               |
| TOTAL   | 16.704                   | 3.070              | 13.634                  |                       |                          |                    |               |               |            |                      |                         |                         |               |
| AVERAGE | 0.557                    | 0.102              | 0.440                   | 0.03                  | 0.04                     | 40.8               | 80.7          | 0.6           | 6.04       | 3.9                  | 0.8                     | 0.2                     | 0.0           |
| MAXIMUM | 0.886                    | 0.517              | 0.619                   | 0.05                  | 0.06                     | 48.6               | 112.0         | 1.2           | 6.80       | 13.5                 | 12.0                    | 0.5                     | 0.0           |
| MINIMUM | 0.313                    | 0.001              | 0.000                   | 0.02                  | 0.03                     | 36.9               | 66.0          | 0.4           | 5.80       | 2.2                  | 0.0                     | 0.2                     | 0.0           |

NOTES:

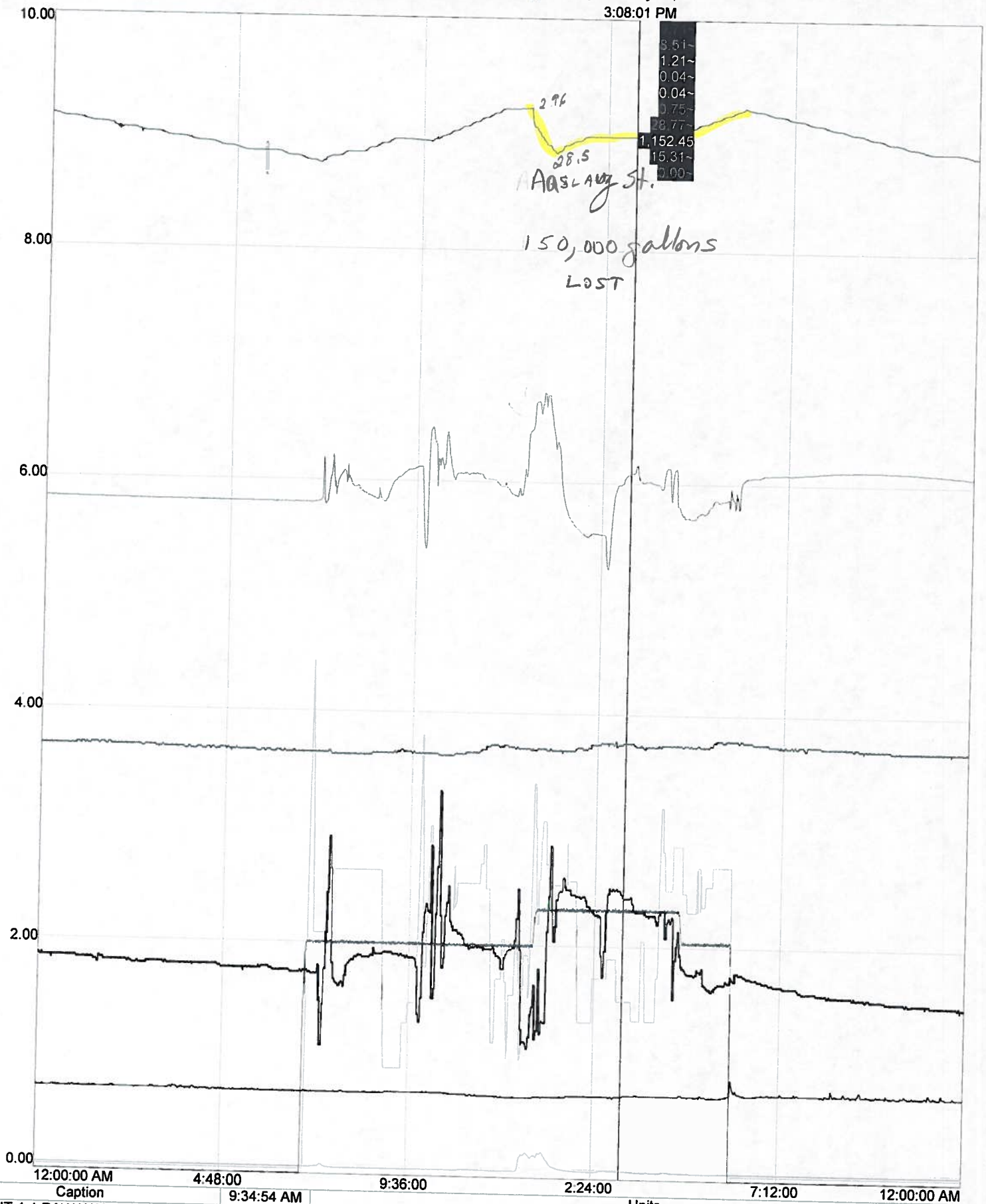
\* LOSS BASED ON

Total Use from Cabin Creek 16.704 Million Gallons

TANK DROP DUE TO  
ERRATIC Water distribution  
Numbers.



3:08:01 PM



| Caption                        | 9:34:54 AM | Units |
|--------------------------------|------------|-------|
| AIT-1-1 RAW WATER TURBIDITY    | 0.94       | NTU   |
| AIT-5-7 pH TANK                | 8.33       | pH    |
| AIT-5-8 TANK CHLORINE          | 0.80       | mg/l  |
| AIT-5-9 TURBIDITY TANK         | 0.02       | NTU   |
| AIT-6-2 TURBIDITY DISTRIBUTION | 0.03       | NTU   |
| AIT-6-4 CHLORINE DISTRIBUTION  | 0.62       | mg/l  |
| LIT-6-1 TANK LEVEL             | 28.22      | R     |
| RAW WATER COMBINED FLOW        | 0.45       | gpm   |

Petersburg Water Treatment Facility  
January 2011

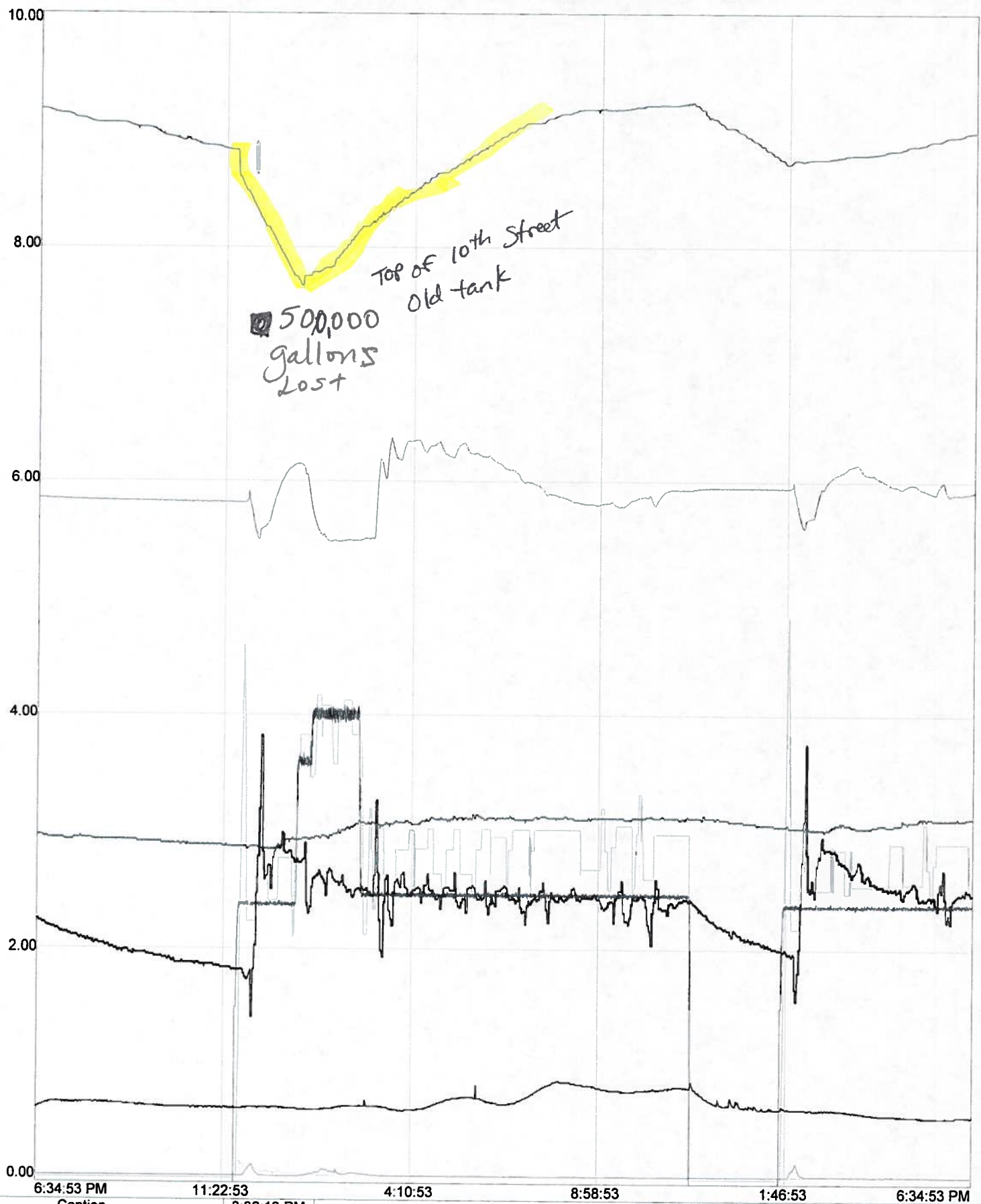
| Date    | Influent<br>Total<br>Mgd | Plant<br>Use<br>MG | Water<br>Distrib.<br>MG | Plant<br>Turb.<br>NTU | Distrib.<br>Turb.<br>NTU | R.W.<br>Temp<br>°F | R.W.<br>Color | R.W.<br>Turb. | R.W.<br>Ph | R.W.<br>Alk.<br>mg/L | Pre.<br>Filter<br>Color | Pre.<br>Filter<br>Turb. | T.W.<br>Color |
|---------|--------------------------|--------------------|-------------------------|-----------------------|--------------------------|--------------------|---------------|---------------|------------|----------------------|-------------------------|-------------------------|---------------|
| 1       | 0.540                    | 0.052              | 0.488                   | 0.03                  | 0.03                     | 37.9               |               | 0.6           |            |                      |                         |                         |               |
| 2       | 0.552                    | 0.040              | 0.512                   | 0.03                  | 0.03                     | 37.9               | 69.0          | 0.6           | 6.10       | 4.7                  | 1.0                     | 0.2                     |               |
| 3       | 0.396                    | 0.023              | 0.373                   | 0.03                  | 0.03                     | 37.8               | 79.0          | 0.6           | 6.10       | 4.8                  | 1.0                     | 0.3                     | 0.0           |
| 4       | 0.586                    | 0.177              | 0.409                   | 0.03                  | 0.04                     | 37.8               | 84.0          | 0.5           | 6.10       | 4.8                  | 0.0                     | 0.2                     | 0.0           |
| 5       | 0.420                    | 0.044              | 0.376                   | 0.03                  | 0.03                     | 37.6               | 94.0          | 0.8           | 6.10       | 5.8                  | 4.0                     | 0.3                     | 0.0           |
| 6       | 0.454                    | 0.031              | 0.423                   | 0.03                  | 0.03                     | 37.4               | 76.0          | 0.8           | 6.00       | 4.8                  | 1.0                     | 0.2                     | 0.0           |
| 7       | 0.619                    | 0.181              | 0.438                   | 0.03                  | 0.04                     | 37.4               | 90.0          | 1.8           | 6.10       | 5.7                  | 3.0                     | 0.2                     | 0.0           |
| 8       | 0.472                    | 0.046              | 0.426                   | 0.03                  | 0.03                     | 37.0               | 73.0          | 0.7           | 6.20       | 5.9                  | 3.0                     | 0.3                     | 0.0           |
| 9       | 0.449                    | 0.028              | 0.421                   | 0.03                  | 0.03                     | 36.9               | 72.0          | 0.8           | 6.20       | 5.6                  | 2.0                     | 0.2                     | 0.0           |
| 10      | 0.473                    | 0.028              | 0.445                   | 0.03                  | 0.03                     | 36.9               | 74.0          | 0.8           | 6.00       | 5.7                  | 1.0                     | 0.3                     | 0.0           |
| 11      | 0.661                    | 0.188              | 0.473                   | 0.03                  | 0.04                     | 36.7               | 78.0          | 0.7           | 6.00       | 5.5                  | 0.0                     | 0.2                     | 0.0           |
| 12      | 0.627                    | 0.051              | 0.576                   | 0.03                  | 0.03                     | 36.5               | 76.0          | 0.7           | 6.00       | 5.8                  | 3.0                     | 0.3                     | 0.0           |
| 13      | 0.514                    | 0.031              | 0.483                   | 0.03                  | 0.03                     | 36.3               | 78.0          | 0.7           | 6.10       | 5.6                  | 3.0                     | 0.2                     | 0.0           |
| 14      | 0.807                    | 0.194              | 0.613                   | 0.03                  | 0.03                     | 36.1               | 72.0          | 0.7           | 6.10       | 6.0                  | 2.0                     | 0.3                     | 0.0           |
| 15      | 0.428                    | 0.044              | 0.384                   | 0.03                  | 0.03                     | 36.1               | 69.0          | 0.7           | 6.10       | 5.5                  | 2.0                     | 0.3                     | 0.0           |
| 16      | 0.559                    | 0.027              | 0.532                   | 0.03                  | 0.04                     | 36.1               | 62.0          | 0.7           | 6.20       | 4.8                  | 0.0                     | 0.3                     | 0.0           |
| 17      | 1.135                    | 0.076              | 1.059                   | 0.03                  | 0.03                     | 36.1               |               | 0.7           |            |                      |                         | 0.3                     |               |
| 18      | 1.350                    | 0.073              | 1.277                   | 0.03                  | 0.03                     | 35.2               | 68.0          | 0.7           | 6.10       | 5.7                  | 1.0                     | 0.3                     | 0.0           |
| 19      | 0.570                    | 0.182              | 0.388                   | 0.03                  | 0.04                     | 35.6               | 71.0          | 0.7           | 6.10       | 6.2                  | 1.0                     | 0.2                     | 0.0           |
| 20      | 0.364                    | 0.039              | 0.325                   | 0.03                  | 0.03                     | 35.8               | 70.0          | 0.7           | 6.10       | 6.5                  | 0.0                     | 0.3                     | 0.0           |
| 21      | 0.503                    | 0.053              | 0.450                   | 0.03                  | 0.04                     | 35.8               | 73.0          | 0.7           | 6.10       | 6.1                  | 1.0                     | 0.3                     | 0.0           |
| 22      | 0.733                    | 0.181              | 0.552                   | 0.03                  | 0.03                     | 35.8               | 69.0          | 0.7           | 0.62       | 6.4                  | 3.0                     | 0.3                     | 0.0           |
| 23      | 0.434                    | 0.020              | 0.414                   | 0.03                  | 0.03                     | 35.6               | 87.0          | 0.7           | 6.10       | 6.7                  | 1.0                     | 0.3                     | 0.0           |
| 24      | 0.337                    | 0.026              | 0.311                   | 0.03                  | 0.03                     | 35.6               | 79.0          | 1.3           | 6.10       | 6.1                  | 1.0                     | 0.3                     | 0.0           |
| 25      | 0.663                    | 0.204              | 0.459                   | 0.03                  | 0.04                     | 35.1               | 77.0          | 0.7           | 6.20       | 5.8                  | 1.0                     | 0.3                     | 0.0           |
| 26      | 0.344                    | 0.034              | 0.310                   | 0.03                  | 0.03                     | 35.1               | 74.0          | 0.6           | 6.20       | 6.0                  | 4.0                     | 0.3                     | 0.0           |
| 27      | 0.429                    | 0.026              | 0.403                   | 0.03                  | 0.03                     | 35.1               | 84.0          | 0.9           | 6.10       | 6.4                  | 2.0                     | 0.2                     | 0.0           |
| 28      | 0.637                    | 0.150              | 0.487                   | 0.03                  | 0.03                     | 34.9               | 83.0          | 0.7           | 6.10       | 5.1                  | 3.0                     | 0.2                     | 0.0           |
| 29      | 0.439                    | 0.022              | 0.417                   | 0.03                  | 0.03                     | 34.9               | 52.0          | 0.6           | 6.30       | 5.2                  | 0.0                     | 0.3                     | 0.0           |
| 30      | 0.403                    | 0.051              | 0.352                   | 0.03                  | 0.03                     | 39.4               | 76.0          | 0.5           | 6.30       | 4.8                  | 1.0                     | 0.3                     | 0.0           |
| 31      | 0.414                    | 0.023              | 0.391                   | 0.03                  | 0.03                     | 34.9               | 78.0          | 0.6           | 6.10       | 4.3                  | 1.0                     | 0.2                     | 0.0           |
| TOTAL   | 17.312                   | 2.345              | 14.967                  |                       |                          |                    |               |               |            |                      |                         |                         |               |
| AVERAGE | 0.558                    | 0.076              | 0.483                   | 0.03                  | 0.03                     | 36.4               | 75.4          | 0.7           | 5.93       | 5.6                  | 1.6                     | 0.3                     | 0.0           |
| MAXIMUM | 1.350                    | 0.204              | 1.277                   | 0.03                  | 0.04                     | 39.4               | 94.0          | 1.8           | 6.30       | 6.7                  | 4.0                     | 0.3                     | 0.0           |
| MINIMUM | 0.337                    | 0.020              | 0.310                   | 0.03                  | 0.03                     | 34.9               | 52.0          | 0.5           | 0.62       | 4.3                  | 0.0                     | 0.2                     | 0.0           |

NOTES:

1/14 + .160

Total Use from Cabin Creek 17.312 Million Gallons





| Caption                        | 3:36:13 PM | Units |
|--------------------------------|------------|-------|
| AIT-1-1 RAW WATER TURBIDITY    | 0.99NTU    |       |
| AIT-5-7 pH TANK                | 8.44pH     |       |
| AIT-5-8 TANK CHLORINE          | 0.68mg/l   |       |
| AIT-5-9 TURBIDITY TANK         | 0.03NTU    |       |
| AIT-6-2 TURBIDITY DISTRIBUTION | 0.03NTU    |       |
| AIT-6-4 CHLORINE DISTRIBUTION  | 0.63mg/l   |       |
| LIT-6-1 TANK LEVEL             | 28.30ft    |       |
| RAW WATER COMBINED FLOW        | 0.00gpm    |       |

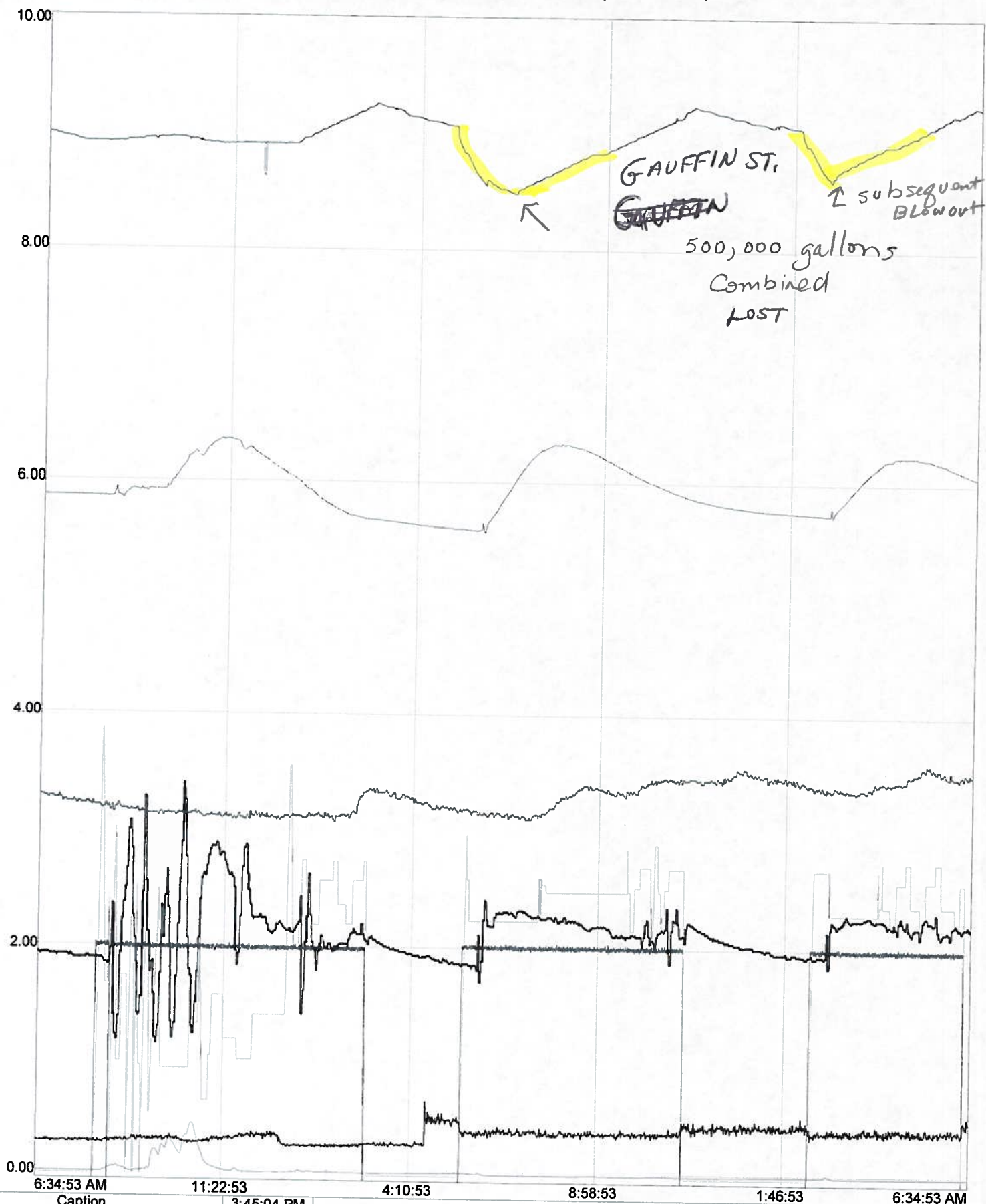
Petersburg Water Treatment Facility  
July 2010

| Date    | Influent<br>Total<br>Mgd | Plant<br>Use<br>MG | Water<br>Distrib.<br>MG | Plant<br>Turb.<br>NTU | Distrib.<br>Turb.<br>NTU | R.W.<br>Temp<br>°F | R.W.<br>Color | R.W.<br>Turb. | R.W.<br>Ph | R.W.<br>Alk.<br>mg/L | Pre.<br>Filter<br>Color | Pre.<br>Filter<br>Turb. | T.W.<br>Color |
|---------|--------------------------|--------------------|-------------------------|-----------------------|--------------------------|--------------------|---------------|---------------|------------|----------------------|-------------------------|-------------------------|---------------|
| 1       | 0.665                    | 0.070              | 0.595                   | 0.03                  | 0.03                     | 47.7               | 87.0          | 0.6           | 5.70       | 4.9                  | 2.0                     | 0.2                     | 0.0           |
| 2       | 1.264                    | 0.227              | 1.037                   | 0.03                  | 0.03                     | 47.8               | 88.0          | 0.7           | 6.20       | 5.0                  | 5.0                     | 0.2                     | 0.0           |
| 3       | 1.127                    | 0.088              | 1.039                   | 0.03                  | 0.03                     | 47.8               | 82.0          | 0.7           | 6.20       | 5.1                  | 3.0                     | 0.2                     | 0.0           |
| 4       | 0.966                    | 0.199              | 0.767                   | 0.03                  | 0.03                     | 48.2               |               | 0.6           |            |                      |                         | 0.2                     | 0.0           |
| 5       | 1.349                    | 0.087              | 1.262                   | 0.03                  | 0.03                     | 48.0               | 98.0          | 0.8           | 6.20       | 6.5                  | 1.0                     | 0.2                     | 0.0           |
| 6       | 0.819                    | 0.057              | 0.762                   | 0.03                  | 0.03                     | 48.2               | 98.0          | 0.6           | 6.10       | 5.0                  | 6.0                     | 0.2                     | 0.0           |
| 7       | 1.101                    | 0.235              | 0.866                   | 0.03                  | 0.03                     | 48.2               | 101.0         | 0.6           | 6.10       | 4.8                  | 5.0                     | 0.2                     | 0.0           |
| 8       | 1.083                    | 0.072              | 1.011                   | 0.03                  | 0.03                     | 48.2               | 90.0          | 0.6           | 6.10       | 4.3                  | 3.0                     | 0.2                     | 0.0           |
| 9       | 1.211                    | 0.274              | 0.937                   | 0.04                  | 0.04                     | 48.6               | 101.0         | 0.6           | 6.00       | 4.2                  | 6.0                     | 0.2                     | 0.0           |
| 10      | 0.997                    | 0.077              | 0.920                   | 0.04                  | 0.04                     | 48.6               | 106.0         | 0.6           | 6.10       | 4.9                  | 8.0                     | 0.2                     | 0.0           |
| 11      | 1.199                    | 0.228              | 0.971                   | 0.04                  | 0.04                     | 48.7               | 100.0         | 0.5           | 6.20       | 4.1                  | 5.0                     | 0.2                     | 0.0           |
| 12      | 0.676                    | 0.064              | 0.612                   | 0.04                  | 0.04                     | 48.7               | 112.0         | 0.6           | 6.00       | 4.0                  | 3.0                     | 0.2                     | 0.0           |
| 13      | 1.131                    | 0.214              | 0.917                   | 0.04                  | 0.04                     | 48.9               | 112.0         | 0.5           | 6.00       | 4.0                  | 6.0                     | 0.2                     | 0.0           |
| 14      | 0.965                    | 0.087              | 0.878                   | 0.04                  | 0.04                     | 48.9               | 110.0         | 0.5           | 6.00       | 4.0                  | 9.0                     | 0.2                     | 0.0           |
| 15      | 1.312                    | 0.228              | 1.084                   | 0.04                  | 0.04                     | 48.9               | 111.0         | 0.5           | 6.00       | 3.9                  | 4.0                     | 0.2                     | 0.0           |
| 16      | 0.892                    | 0.071              | 0.821                   | 0.03                  | 0.03                     | 48.9               | 108.0         | 0.5           | 6.20       | 4.7                  | 7.0                     | 0.2                     | 0.0           |
| 17      | 1.684                    | 0.239              | 1.445                   | 0.03                  | 0.04                     | 48.9               | 109.0         | 0.5           | 6.20       | 4.3                  | 9.0                     | 0.2                     | 0.0           |
| 18      | 1.109                    | 0.091              | 1.018                   | 0.03                  | 0.03                     | 48.9               | 105.0         | 0.6           | 6.00       | 4.2                  | 6.0                     | 0.2                     | 0.0           |
| 19      | 0.975                    | 0.210              | 0.765                   | 0.03                  | 0.03                     | 48.9               | 112.0         | 0.5           | 6.00       | 4.4                  | 8.0                     | 0.2                     | 0.0           |
| 20      | 1.136                    | 0.092              | 1.044                   | 0.03                  | 0.03                     | 49.1               | 108.0         | 0.5           | 6.00       | 4.5                  | 4.0                     | 0.2                     | 0.0           |
| 21      | 1.140                    | 0.218              | 0.922                   | 0.04                  | 0.04                     | 49.1               | 109.0         | 0.5           | 6.00       | 4.4                  | 5.0                     | 0.2                     | 0.0           |
| 22      | 1.113                    | 0.088              | 1.025                   | 0.03                  | 0.03                     | 49.3               | 109.0         | 0.5           | 6.00       | 4.8                  | 4.0                     | 0.2                     | 0.0           |
| 23      | 1.069                    | 0.210              | 0.859                   | 0.03                  | 0.03                     | 49.3               | 115.0         | 0.6           | 6.00       | 4.7                  | 6.0                     | 0.2                     | 0.0           |
| 24      | 0.965                    | 0.073              | 0.892                   | 0.03                  | 0.03                     | 49.5               | 124.0         | 0.7           | 5.90       | 4.7                  | 5.0                     | 0.2                     | 0.0           |
| 25      | 1.340                    | 0.222              | 1.118                   | 0.04                  | 0.04                     | 49.6               | 113.0         | 0.8           | 6.00       | 4.6                  | 4.0                     | 0.2                     | 0.0           |
| 26      | 0.984                    | 0.088              | 0.896                   | 0.03                  | 0.03                     | 50.0               | 123.0         | 1.0           | 6.00       | 3.9                  | 8.0                     | 0.2                     | 0.0           |
| 27      | 1.451                    | 0.080              | 1.371                   | 0.04                  | 0.04                     | 50.0               | 136.0         | 0.9           | 5.90       | 3.8                  | 15.0                    | 0.2                     | 2.0           |
| 28      | 1.348                    | 0.082              | 1.266                   | 0.04                  | 0.04                     | 50.1               | 134.0         | 1.1           | 5.90       | 4.9                  | 9.0                     | 0.2                     | 0.0           |
| 29      | 1.234                    | 0.238              | 0.996                   | 0.04                  | 0.04                     | 50.2               | 134.0         | 0.8           | 5.90       | 4.3                  | 5.0                     | 0.2                     | 0.0           |
| 30      | 1.093                    | 0.097              | 0.996                   | 0.04                  | 0.04                     | 50.2               | 132.0         | 0.8           | 6.00       | 4.8                  | 9.0                     | 0.2                     | 0.0           |
| 31      | 1.726                    | 0.240              | 1.486                   | 0.04                  | 0.04                     | 50.3               | 125.0         | 0.8           | 6.00       | 3.7                  | 7.0                     | 0.2                     | 0.0           |
| TOTAL   | 35.124                   | 4.546              | 30.578                  |                       |                          |                    |               |               |            |                      |                         |                         |               |
| AVERAGE | 1.133                    | 0.147              | 0.986                   | 0.03                  | 0.03                     | 49.0               | 109.7         | 0.6           | 6.03       | 4.5                  | 5.9                     | 0.2                     | 0.1           |
| MAXIMUM | 1.726                    | 0.274              | 1.486                   | 0.04                  | 0.04                     | 50.3               | 136.0         | 1.1           | 6.20       | 6.5                  | 15.0                    | 0.2                     | 2.0           |
| MINIMUM | 0.665                    | 0.057              | 0.595                   | 0.03                  | 0.03                     | 47.7               | 82.0          | 0.5           | 5.70       | 3.7                  | 1.0                     | 0.2                     | 0.0           |

NOTES:

Total Use from Cabin Creek 35.124 Million Gallons

4/5 + .500



| Caption                        | 3:45:04 PM | Units |
|--------------------------------|------------|-------|
| AIT-1-1 RAW WATER TURBIDITY    | 1.00       | NTU   |
| AIT-5-7 pH TANK                | 8.44       | pH    |
| AIT-5-8 TANK CHLORINE          | 0.67       | mg/l  |
| AIT-5-9 TURBIDITY TANK         | 0.03       | NTU   |
| AIT-6-2 TURBIDITY DISTRIBUTION | 0.03       | NTU   |
| AIT-6-4 CHLORINE DISTRIBUTION  | 0.63       | mg/l  |
| LIT-6-1 TANK LEVEL             | 28.26      | ft    |
| RAW WATER COMBINED FLOW        | 0.90       | gpm   |

Petersburg Water Treatment Facility  
December 2008

| Date    | Influent<br>Total<br>Mgd | Plant<br>Use<br>MG | Water<br>Distrib.<br>MG | Plant<br>Turb.<br>NTU | Distrib.<br>Turb.<br>NTU | R.W.<br>Temp<br>°F | R.W.<br>Color | R.W.<br>Turb. | R.W.<br>Ph | R.W.<br>Alk.<br>mg/L | Pre.<br>Filter<br>Color | Pre.<br>Filter<br>Turb. | T.W.<br>Color |
|---------|--------------------------|--------------------|-------------------------|-----------------------|--------------------------|--------------------|---------------|---------------|------------|----------------------|-------------------------|-------------------------|---------------|
| 1       | 0.435                    | 0.007              | 0.428                   | 0.03                  | 0.03                     | 37.2               | 58.0          | 0.3           | 5.60       | 1.4                  | 7.0                     | 0.2                     | 0.0           |
| 2       | 0.537                    | 0.044              | 0.493                   | 0.03                  | 0.03                     | 36.9               | 63.0          | 0.3           | 5.40       | 1.1                  | 9.0                     | 0.2                     | 1.0           |
| 3       | 0.671                    | 0.169              | 0.502                   | 0.03                  | 0.04                     | 36.9               | 72.0          | 0.3           | 5.40       | 0.9                  | 9.0                     | 0.2                     | 0.0           |
| 4       | 0.420                    | 0.028              | 0.392                   | 0.03                  | 0.04                     | 36.7               | 54.0          | 0.3           | 5.50       | 1.2                  | 9.0                     | 0.3                     | 1.0           |
| 5       | 0.380                    | 0.038              | 0.342                   | 0.03                  | 0.04                     | 36.7               | 67.0          | 0.3           | 5.50       | 1.3                  | 8.0                     | 0.2                     | 1.0           |
| 6       | 0.581                    | 0.161              | 0.420                   | 0.03                  | 0.04                     | 37.9               | 52.0          | 0.3           | 5.50       | 1.2                  | 7.0                     | 0.3                     | 0.0           |
| 7       | 0.333                    | 0.019              | 0.314                   | 0.03                  | 0.04                     | 35.8               | 61.0          | 0.3           | 5.50       | 1.5                  | 6.0                     | 0.2                     | 0.0           |
| 8       | 0.387                    | 0.006              | 0.381                   | 0.03                  | 0.04                     | 36.1               | 63.0          | 0.3           | 5.50       | 1.3                  | 8.0                     | 0.2                     | 1.0           |
| 9       | 0.785                    | 0.045              | 0.740                   | 0.03                  | 0.04                     | 36.0               | 69.0          | 0.4           | 5.50       | 1.1                  | 9.0                     | 0.2                     | 1.0           |
| 10      | 0.549                    | 0.166              | 0.383                   | 0.03                  | 0.04                     | 35.2               | 57.0          | 0.3           | 5.50       | 1.1                  | 8.0                     | 0.2                     | 0.0           |
| 11      | 0.442                    | 0.022              | 0.420                   | 0.03                  | 0.04                     | 35.4               | 75.0          | 0.3           | 5.30       | 0.7                  | 6.0                     | 0.2                     | 0.0           |
| 12      | 0.426                    | 0.075              | 0.351                   | 0.03                  | 0.04                     | 35.6               | 68.0          | 0.3           | 5.40       | 1.2                  | 8.0                     | 0.2                     | 1.0           |
| 13      | 0.574                    | 0.182              | 0.392                   | 0.03                  | 0.04                     | 36.5               | 65.0          | 0.3           | 5.50       | 1.4                  | 7.0                     | 0.2                     | 0.0           |
| 14      | 0.382                    | 0.046              | 0.336                   | 0.03                  | 0.04                     | 36.5               | 66.0          | 0.3           | 5.50       | 1.5                  | 7.0                     | 0.3                     | 0.0           |
| 15      | 0.424                    | 0.005              | 0.419                   | 0.03                  | 0.04                     | 35.2               | 71.0          | 0.3           | 5.50       | 1.4                  | 9.0                     | 0.2                     | 1.0           |
| 16      | 0.664                    | 0.061              | 0.603                   | 0.03                  | 0.04                     | 35.6               | 59.0          | 0.2           | 5.60       | 1.6                  | 9.0                     | 0.2                     | 1.0           |
| 17      | 0.918                    | 0.185              | 0.733                   | 0.03                  | 0.04                     | 34.3               | 58.0          | 0.3           | 5.60       | 1.8                  | 9.0                     | 0.3                     | 1.0           |
| 18      | 0.844                    | 0.225              | 0.619                   | 0.03                  | 0.04                     | 34.3               | 57.0          | 0.2           | 5.60       | 1.5                  | 9.0                     | 0.2                     | 1.0           |
| 19      | 0.422                    | 0.037              | 0.385                   | 0.03                  | 0.04                     | 34.2               | 57.0          | 0.2           | 5.80       | 1.8                  | 8.0                     | 0.2                     | 1.0           |
| 20      | 0.670                    | 0.171              | 0.499                   | 0.03                  | 0.04                     | 34.5               | 57.0          | 0.2           | 5.40       | 1.7                  | 9.0                     | 0.2                     | 1.0           |
| 21      | 0.368                    | 0.017              | 0.351                   | 0.03                  | 0.05                     | 35.1               | 54.0          | 0.2           | 5.50       | 2.0                  | 8.0                     | 0.2                     | 1.0           |
| 22      | 0.384                    | 0.018              | 0.366                   | 0.03                  | 0.05                     | 34.0               | 56.0          | 0.2           | 5.60       | 2.1                  | 9.0                     | 0.2                     | 1.0           |
| 23      | 0.679                    | 0.041              | 0.638                   | 0.03                  | 0.04                     | 34.0               | 56.0          | 0.3           | 5.60       | 2.1                  | 9.0                     | 0.3                     | 1.0           |
| 24      | 0.981                    | 0.204              | 0.777                   | 0.03                  | 0.04                     | 33.8               | 57.0          | 0.3           | 5.60       | 2.2                  | 8.0                     | 0.3                     | 1.0           |
| 25      | 0.445                    | 0.040              | 0.405                   | 0.03                  | 0.03                     | 34.2               |               | 0.3           |            |                      |                         | 0.3                     |               |
| 26      | 0.523                    | 0.029              | 0.494                   | 0.03                  | 0.04                     | 34.0               | 57.0          | 0.5           | 5.70       | 3.1                  | 8.0                     | 0.2                     | 1.0           |
| 27      | 0.715                    | 0.201              | 0.514                   | 0.03                  | 0.04                     | 35.1               | 56.0          | 0.5           | 5.60       | 2.5                  | 8.0                     | 0.2                     | 1.0           |
| 28      | 0.741                    | 0.037              | 0.704                   | 0.03                  | 0.04                     | 33.8               | 54.0          | 0.6           | 5.60       | 2.3                  | 7.0                     | 0.2                     | 1.0           |
| 29      | 0.715                    | 0.013              | 0.702                   | 0.03                  | 0.03                     | 34.0               | 56.0          | 0.5           | 5.60       | 2.5                  | 9.0                     | 0.2                     | 1.0           |
| 30      | 0.790                    | 0.089              | 0.701                   | 0.03                  | 0.12                     | 33.8               | 54.0          | 0.4           | 5.80       | 2.6                  | 9.0                     | 0.3                     | 1.0           |
| 31      | 0.813                    | 0.195              | 0.618                   | 0.03                  | 0.11                     | 33.6               | 52.0          | 0.5           | 5.60       | 2.9                  | 7.0                     | 0.2                     | 1.0           |
| TOTAL   | 17.998                   | 2.576              | 15.422                  |                       |                          |                    |               |               |            |                      |                         |                         |               |
| AVERAGE | 0.581                    | 0.083              | 0.497                   | 0.03                  | 0.04                     | 35.3               | 60.0          | 0.3           | 5.54       | 1.7                  | 8.1                     | 0.2                     | 0.7           |
| MAXIMUM | 0.981                    | 0.225              | 0.777                   | 0.03                  | 0.12                     | 37.9               | 75.0          | 0.6           | 5.80       | 3.1                  | 9.0                     | 0.3                     | 1.0           |
| MINIMUM | 0.333                    | 0.005              | 0.314                   | 0.03                  | 0.03                     | 33.6               | 52.0          | 0.2           | 5.30       | 0.7                  | 6.0                     | 0.2                     | 0.0           |

NOTES:

Total Use from City Creek 17.998 Million Gallons

12/23 = +.238

12/24 = +.377

.615 +/-

Petersburg Water Utility  
Water Loss Report Summary

| Fiscal Year    | Avg Monthly Metered | Total Annual Metered | Avg Monthly Production | Total Annual Production | Annual Water Loss | % Loss |
|----------------|---------------------|----------------------|------------------------|-------------------------|-------------------|--------|
| 2008           | 18.2                | 217.8                | 23.7                   | 283.8                   | 66.0              | 23.3%  |
| 2009           | 15.8                | 190.0                | 21.3                   | 255.0                   | 65.0              | 25.5%  |
| 2010           | 16.6                | 198.8                | 20.4                   | 244.5                   | 45.7              | 18.7%  |
| 2011           | 15.2                | 182.4                | 19.3                   | 231.5                   | 49.1              | 21.2%  |
| 2012 (partial) | 15.9                | 190.7                | 19.9                   | 239.0                   | 48.3              | 20.2%  |

\*All Metered and Production numbers represent Millions of Gallons



City of Petersburg, Alaska  
Water Fund - 420

| 420<br>Account<br>Number             | Description                            | FY 08/09<br>Actual | FY 09/10<br>Actual | FY 10/11<br>Actual | FY 11/12<br>Approved<br>Budget | FY 12/13<br>Revised<br>Proposed Budget |
|--------------------------------------|--|--------------------|--------------------|--------------------|--------------------------------|--|
| <b>Revenues &amp; Other Sources</b>  |  |                    |                    |                    |                                |  |
| <b>Operating Revenues:</b>           |  |                    |                    |                    |                                |  |
| 000 407100                           | Residential Sales                      | 495,465            | 493,872            | 493,822            | 495,000                        | 495,000                                |
| 000 407110                           | Commercial Sales                       | 375,138            | 381,696            | 357,803            | 360,000                        | 360,000                                |
| 000 407220                           | Water Delivery                         | 11,623             | 9,566              | 18,595             | 9,000                          | 9,000                                  |
| 000 407170                           | Charges For Services                   | 5,777              | 4,490              | 6,649              | 6,000                          | 6,000                                  |
|                                      | <b>Subtotal</b>                        | <b>888,003</b>     | <b>889,624</b>     | <b>876,869</b>     | <b>870,000</b>                 | <b>870,000</b>                         |
| <b>Nonoperating Revenues:</b>        |  |                    |                    |                    |                                |  |
| 000 410100                           | Investment Income                      | -                  | -                  | 1,734              | 2,500                          | 1,500                                  |
| 000 402275                           | State PERS Relief                      | 11,213             | 6,888              | 12,835             | 7,000                          | 13,000                                 |
|                                      | <b>Subtotal</b>                        | <b>11,213</b>      | <b>6,888</b>       | <b>14,568</b>      | <b>9,500</b>                   | <b>14,500</b>                          |
| <b>Interfund Transfers:</b>          |  |                    |                    |                    |                                |  |
| 000 402240                           | Interfund Trans-Economic Fund          | 165,000            | 165,000            | 165,000            | 165,000                        | 165,000                                |
|                                      | <b>Subtotal</b>                        | <b>165,000</b>     | <b>165,000</b>     | <b>165,000</b>     | <b>165,000</b>                 | <b>165,000</b>                         |
|                                      | <b>Total Revenue and Other Sources</b> | <b>1,064,216</b>   | <b>1,061,511</b>   | <b>1,056,437</b>   | <b>1,044,500</b>               | <b>1,049,500</b>                       |
| <b>Expenditures &amp; Other Uses</b> |  |                    |                    |                    |                                |  |
| <b>Operating Expenses</b>            |  |                    |                    |                    |                                |  |
| <b>Payroll Expense:</b>              |  |                    |                    |                    |                                |  |
| 000 500110                           | Regular Pay                            | 148,223            | 165,576            | 171,412            | 170,456                        | 172,343                                |
| 000 500120                           | Overtime Pay                           | 8,325              | 9,357              | 12,650             | 10,204                         | 12,693                                 |
| 000 500200                           | Benefits                               | 69,167             | 50,148             | 99,378             | 93,936                         | 94,567                                 |
|                                      | <b>Subtotal</b>                        | <b>225,716</b>     | <b>225,082</b>     | <b>283,440</b>     | <b>274,596</b>                 | <b>279,603</b>                         |
| <b>Supplies:</b>                     |  |                    |                    |                    |                                |  |
| 000 501320                           | Operating Supplies                     | 7,484              | 7,384              | 7,622              | 7,850                          | 7,055                                  |
| 000 501321                           | Supplies - Plant                       | 98,228             | 81,762             | 95,712             | 107,709                        | 107,630                                |
| 000 501330                           | Maintenance Supplies                   | 5,077              | 6,331              | 13,806             | 16,777                         | 17,147                                 |
| 000 501321                           | Maint. Supp. Plant                     | -                  | -                  | -                  | -                              | -                                      |
| 000 501340                           | Small Tools/Equipment                  | 4,508              | 2,330              | 4,981              | 5,844                          | 5,546                                  |
| 000 501350                           | Meters/Inventory                       | 10,826             | 5,252              | 4,901              | 8,481                          | 8,077                                  |
|                                      | <b>Subtotal</b>                        | <b>126,123</b>     | <b>103,059</b>     | <b>127,023</b>     | <b>146,861</b>                 | <b>145,455</b>                         |
| <b>Services &amp; Charges:</b>       |  |                    |                    |                    |                                |  |
| 000 501410                           | Professional Services                  | 35,170             | 50,215             | 29,307             | 74,053                         | 53,043                                 |
| 000 501420                           | Communication                          | 3,524              | 3,120              | 3,070              | 3,000                          | 3,450                                  |
| 000 501430                           | Travel & Training                      | 2,147              | 4,782              | 3,654              | 7,050                          | 5,700                                  |
| 000 501440                           | Adver/Printing                         | 639                | -                  | 80                 | 500                            | 750                                    |
| 000 501451                           | Vehicle Replacement                    | 23,099             | 18,604             | 18,603             | 16,699                         | 16,699                                 |
| 000 501464                           | Vehicle Insurance                      | 436                | 450                | 450                | 450                            | 255                                    |
| 000 501462                           | Liability Insurance                    | 3,248              | 2,846              | 2,030              | 3,130                          | 2,335                                  |
| 000 501463                           | Property Insurance                     | 9,029              | 7,419              | 6,739              | 8,160                          | 7,750                                  |
| 000 501470                           | Utilities                              | 77,050             | 72,482             | 78,752             | 75,000                         | 75,000                                 |
| 000 501480                           | Repairs & Maintenance                  | 2,514              | 2,994              | 6,039              | 5,500                          | 4,500                                  |
| 000 501491                           | Overhead Charges                       | 33,924             | 30,697             | 34,088             | 35,142                         | 69,682                                 |



City of Petersburg, Alaska  
Water Fund - 420

| 420<br>Account<br>Number                         | Description   | FY 08/09<br>Actual | FY 09/10<br>Actual | FY 10/11<br>Actual | FY 11/12<br>Approved<br>Budget | FY 12/13<br>Revised<br>Proposed Budget |
|--|---|--------------------|--------------------|--------------------|--------------------------------|--|
| 000 501449                                       | Motor Pool Charges - O&M  | 5,126              | 3,957              | 6,907              | 6,541                          | 5,877                                  |
| 000 501498                                       | Credit Card Fees  | 3,296              | 3,616              | 4,261              | 4,000                          | 4,000                                  |
| 000 501474                                       | Loss on Asset   | 1,541              | -                  | -                  | -                              | -                                      |
| 000 501499                                       | Bad Debt  | -                  | -                  | 1,836              | -                              | -                                      |
| 000 502000                                       | Depreciation  | 561,270            | 759,964            | 797,119            | 760,000                        | 798,000                                |
|  | <b>Subtotal</b>   | <b>762,011</b>     | <b>961,144</b>     | <b>992,936</b>     | <b>999,225</b>                 | <b>1,047,040</b>                       |
|  | <b>Total Operating Expense</b>  | <b>1,113,850</b>   | <b>1,289,284</b>   | <b>1,403,398</b>   | <b>1,420,482</b>               | <b>1,472,098</b>                       |
| <b>Other Uses</b>                                |   |                    |                    |                    |                                |  |
| 000 500210                                       | State PERS Relief   | -                  | 6,888              | 12,835             | 7,000                          | 13,000                                 |
|  | <b>Subtotal</b>   | <b>-</b>           | <b>6,888</b>       | <b>12,835</b>      | <b>7,000</b>                   | <b>13,000</b>                          |
| <b>Capital Outlays</b>                           |   |                    |                    |                    |                                |  |
| 000 506519                                       | Machinery & Equipment   | -                  | -                  | 3,230              | -                              | -                                      |
| 000 506521                                       | Water Mains   | -                  | -                  | -                  | -                              | -                                      |
| 425 506517                                       | Cabin Creek   | -                  | -                  | -                  | -                              | -                                      |
| 000 501960                                       | Transfer Out Water/Sewer Project  | -                  | 33,513             | -                  | -                              | -                                      |
| 000 501960                                       | Transfer Out Cabin Creek  | -                  | 294,361            | -                  | -                              | -                                      |
|  | <b>Subtotal</b>   | <b>-</b>           | <b>327,874</b>     | <b>3,230</b>       | <b>-</b>                       | <b>-</b>                               |
| <b>Debt Service</b>                              |   |                    |                    |                    |                                |  |
| 425 508100                                       | Principal Cabin Creek - ADEC  | 94,766             | 94,766             | 94,766             | 94,766                         | 94,766                                 |
| 425 508110                                       | Interest Cabin Creek - ADEC   | 17,105             | 15,636             | 14,215             | 12,793                         | 11,372                                 |
| 426 508100                                       | Principal Scow Bay - ADEC   | 93,034             | 96,395             | 97,838             | 99,305                         | 100,795                                |
| 426 508110                                       | Interest Scow Bay - ADEC  | 32,439             | 25,928             | 24,482             | 23,015                         | 21,525                                 |
| 000 508100                                       | Water Plant Upgrade Loan  | -                  | 56,980             | 57,834             | 58,702                         | 59,582                                 |
| 000 508110                                       | Water Plant Upgrade Loan  | -                  | 33,696             | 9,325              | 18,041                         | 17,161                                 |
|  | <b>Subtotal</b>   | <b>237,344</b>     | <b>323,401</b>     | <b>298,460</b>     | <b>306,622</b>                 | <b>305,201</b>                         |
|  | <b>Total Other Uses</b>   | <b>237,344</b>     | <b>658,162</b>     | <b>314,524</b>     | <b>313,622</b>                 | <b>318,201</b>                         |
|  | <b>Total Expenditures &amp; Other Uses</b>  | <b>1,351,194</b>   | <b>1,947,447</b>   | <b>1,717,923</b>   | <b>1,734,104</b>               | <b>1,790,300</b>                       |
|  | <b>Excess (deficiency) of revenues and other sources over expenditures and other uses</b> | <b>(286,979)</b>   | <b>(885,936)</b>   | <b>(661,486)</b>   | <b>(689,604)</b>               | <b>(740,800)</b>                       |
| <b>Cash &amp; Investments, Beginning of year</b> |   | <b>(375,054)</b>   | <b>(95,862)</b>    | <b>102,334</b>     | <b>195,200</b>                 | <b>0</b>                               |
| Operating Cash Flows                             |   | 331,258            | 352,490            | 268,840            |                                |  |
| Non-Operating Cash Flows                         |   | (331,258)          | (250,156)          | (175,974)          |                                |  |
| Due to other funds                               |   | 279,172            | 95,882             | -                  |                                |  |
| Increase/Decrease in Cash                        |   | 279,172            | 198,216            | 92,866             |                                |  |
| Restricted Cash                                  |   |                    |                    |                    |                                |  |
| <b>Cash &amp; Investments, End of year</b>       |   | <b>(95,882)</b>    | <b>102,334</b>     | <b>195,200</b>     |                                |  |