Baseline and Annual Reporting Requirements
(updated June 2013)

Partnership Organizations:
The Partnership for Safe Water is a self-evaluation program designed to assist in the optimization of distribution system performance. The program uses the “Self-Assessment Guide for Distribution System Optimization” (available from the Partnership) as the basis for the self-assessment (Phase III) portion of the program.

The program consists of four (4) phases:

**Phase I** is a commitment by the utility management to participate in the program at least through Phase III.

**Phase II** is baseline and annual data collection and reporting. Baseline disinfectant residual results are submitted (computer files using Partnership supplied software) for one year of system performance. This data can be from the most recent 12-month period just ended or forward for 12 months beginning upon enrollment in the Partnership. *Data reporting of disinfectant residual is required every year for all systems regardless of the Phase that has been achieved.*

**Phase III** is a comprehensive self-assessment evaluation following the “Self-Assessment Guide for Distribution System Optimization”. A completion report is submitted and reviewed by a team of Partnership-trained utility peers. Satisfactory reports result in the system receiving the Directors Award from the Partnership.

**Phase IV** is optional and includes a rigorous assessment to determine conformance with Partnership performance goals. A team of utility peers reviews the system data and determines if optimized performance has been achieved. There are two award levels for achieving Phase IV performance goals: *Presidents* and *Excellence.*

The Presidents Award recognizes achieving specific performance goals for disinfectant residual, pressure, and main break frequency. The requirements for this award are under development.

The Excellence in Distribution System Operation Award recognizes the achievement of fully optimized system operations. The requirements for this award are under development.

Direct all inquiries to:

Partnership Program Coordinator  
AWWA  
6666 W. Quincy Ave.  
Denver, CO 80235  
303-347-6169  
partnership@awwa.org
Baseline Report Requirements

The baseline report shall be submitted for each distribution system. Disinfectant residual data from the just completed 12 month period or the next 12 months starting upon enrollment in the Partnership is used for baseline comparison. This data is reviewed by Partnership staff and is used to provide overall program trends that are presented in the Partnership annual report to participating utilities.

☐ **Cover Letter:** A short note that identifies this as the “baseline report” and identifies the utility and distribution system, contact person, telephone number, and e-mail address. Additional information may be included as communication to the Partnership.

☐ **Statement of Regulatory Compliance:** State in the cover letter that this system has not received a Notice of Violation during the reporting period. If the system received a Notice of Violation, send a copy and explain the circumstances.

☐ **Disinfectant Residual Performance Assessment Data Collection Spreadsheets** (copies of the computer files from the Partnership supplied software): Submit twelve months of disinfectant residual data for the time period prior to joining the Partnership or for the 12 months immediately after joining. Use of the Partnership supplied software (EXCEL®) is required.
Annual Report Requirements

All systems must submit an annual disinfectant residual data (annual report) report every year regardless of the Phase or award status. The report should be submitted by June 30 of each year and cover the system performance for the one-year period ending May 31 (other reporting periods are acceptable but contact the Partnership for approval prior to data submission). Award-winning systems have additional reporting requirements. Data from these reports are used to develop program trends that are included in the Partnership’s annual data summary report to participating utilities.

To be a member in “good standing” with the Partnership for Safe Water, systems must be in compliance with all applicable regulations. Annual reports must include a statement confirming that the system has not received a notice of violation since the last report.

Requirements for All Systems

☐ **Cover Letter**: A short note (see baseline report cover letter example below) that identifies this as the “annual report” and identifies the utility, contact person, telephone number, and e-mail address. Additional information may be included as communication to the Partnership.

☐ **Statement of Regulatory Compliance**: The report must contain a statement that the system has not received a Notice of Violation since submission of the last annual report. If the system received a Notice of Violation, send a copy and explain the circumstances.

☐ **Disinfectant Residual Performance Assessment Data Collection Spreadsheet** (copies of the computer files from the Partnership supplied software): Submit twelve months of disinfectant residual data for the time period prior to joining the Partnership or for the 12 months immediately after joining. Use of the Partnership supplied software (EXCEL®) is required.

Additional Requirements for Award-winning Systems

In addition to the items listed in “Requirements for All Systems” above, Phase III Directors Award systems are required to submit the following:

☐ **Disinfectant Residual Performance Assessment Data Collection Spreadsheet** (copies of the computer files from the Partnership supplied software): Submit twelve months of disinfectant residual data for the reporting period only (baseline data is not required for annual submissions). Use of the Partnership supplied software (EXCEL®) is required.

☐ **Pressure Performance Assessment Data Collection Spreadsheet** (copies of the computer files from the Partnership supplied software): Submit twelve months of pressure monitoring data for the reporting period. Use of the Partnership supplied software (EXCEL®) is required.

☐ **Main Breaks and Leaks Data Collection Spreadsheet** (copies of the computer files from the Partnership supplied software): Submit twelve months of main break/leak data for the reporting period. Use of the Partnership supplied software (EXCEL®) is required.
Narrative Report: Outline the activities undertaken or continuing for the distribution system(s) during the year along with a schedule/action implementation plan for the coming year. The report must include a review of distribution system performance (disinfectant residual, pressure, main breaks) as compared to the previous year. Examples of the minimum report requirement and the preferred report format are included on the following pages.

Directors Award systems considering pursuing Phase IV are recommended to use the Preferred Format for annual reporting. The Preferred Format documents progress on optimization and the status of Performance Limiting Factors that will be required for the Phase IV application.

Preferred Format Description

This report should consist of short narratives, which provide the status of ALL performance limiting factors (PLFs) identified during the Phase III process. These include limiting factors, which were identified by the PEAC peer review committee AND by the water system itself. Discuss each PLF individually (see next paragraph for details). The PLFs should be organized in priority order, starting with the most important first.

You may find it helpful to begin by addressing PLFs, which were designated as “Areas for Improvement” during the Phase III process, followed by the items designated “Good Faith Effort”. If any progress has been made on “Areas of Strength” items, you may also want to include them.

Discussion on EACH performance limiting factor should:

- **List the Performance Limiting Factor (PLF)** – one or two sentences are sufficient.
- **Briefly explain Prior Status** – PLF status at time of Phase III report submittal OR previous yearly narrative (whichever is most recent).
- **Provide a thorough update on the Current Status** – progress made within the past year. This section should contain the most detailed information. Be sure to include both the Activities Performed as well as Benefits Gained via implementing these activities (e.g. improved performance, greater understanding of plant operations). The Individuals Involved in the process should also be credited. Note that only activities performed within the past year should be included. If no new activities have been performed, write “Same as previous year”
- **Briefly explain Future Plans** – list future plans & activities for addressing the PLF and provide a time estimate for beginning and/or completing. An orderly progression should occur within the above three bulleted categories. More specifically, items that are in the Current Status section for this year (e.g. 2013) should appear in the Prior Status section for the next year (e.g. 2014). More importantly, some items from the Future Plans section for this year (e.g. 2013) should be implemented throughout the following year and appear in the next Current Status section (e.g. 2014). In this respect, your yearly short narrative can become extremely valuable in that it acts as a yardstick to measure progress completed and a tool to plan future activities. This is the ultimate intent of the Partnership program’s requirement that members provide this yearly report.
Additional Suggestions:
Narratives should include any progress made, which has improved/could potentially improve performance of the water system. If, within the past year, new PLF’s have been discovered, their status should also be included in the yearly narrative. This type of item should be listed as “New PLF”. Follow the previously discussed format - provide a separate section for each new PLF and address all of the above bulleted items. From year to year, follow the same outline format and update each existing PLF section. As necessary, expand the outline to include additional sections for new PLFs. Ultimately, after dedicating significant time/effort, you will determine that a PLF has been sufficiently remedied and should no longer be classified as such. At that time, you should include a narrative, in the Current Status section, that provides your reasoning. As always, be sure to include yearly data AND explain any significant performance deviations throughout the past calendar year.
June 30, 20xx

Partnership Coordinator  
AWWA  
6666 W. Quincy Ave.  
Denver, CO 80235

Dear Partnership Coordinator,

Please accept this Baseline Report (or Annual Report) for the Midville Water Department, City Water Distribution system. The report covers the period June 1, 20xx- May 31, 20xx. Attached to this e-mail please find the disinfectant residual performance assessment data collection spreadsheet files for this period (note: Phase III systems also reference and send spreadsheets for Pressure and Main Breaks and a Narrative Report).

Please note that our distribution system has not received any Notice of Violation during the past year and has maintained compliance with all applicable regulations.

Please contact me if you have any questions.

Sincerely,

J. Doe  
System Supervisor  
Midville Water Department  
Midville, KS 11111  
555-555-5555  
jdoes@midville.org
Additional Annual Report Requirement
For Directors Award Distribution Systems

Example Narrative Report *(minimum acceptable)*

Narrative Report
Midville Water Department
City Water Distribution System

This report is part of the requirements for renewal of Partnership for Safe Water Directors Award for the distribution system optimization program. Please note that the distribution system has not received any Notice of Violation for any drinking water distribution system regulation during the past year.

Activities to Improve Distribution System Operation June 1, 2012- May 31, 2013

The following items were accomplished during the last year to address the performance limiting factors found in the Partnership for Safe Water self-assessment or are other items that have been identified that could improve performance of the city’s distribution system.

- Team evaluated distribution system sampling locations and added an additional 12 sites to the disinfectant residual sampling plan. These sites included locations most likely to experience low flow and high water age. Three training sessions were held with distribution system field staff to implement the sampling changes and review sampling and analysis techniques for total chlorine using portable colorimeters, including sampling procedures from storage tanks. This improvement helps to address a performance limiting factor noted as an Area for Improvement in our system's Phase III completion.
- As a continuation of the distribution system’s ongoing main replacement project, 5 miles of mains were replaced in the oldest areas of the system. This improvement should help to reduce future main break numbers, as the greatest concentration of main breaks is in the oldest part of the system.
- Staff continued to evaluate the feasibility of implementing a unidirectional flushing program in Pressure Zone 700. A recommendation regarding implementation is expecting during the next reporting period.
- After budget restrictions were lifted last year, a new licensed, Class D distribution system operator was hired to replace an operator who had retired, resulting in full staffing. All staff attended hydrant and valve maintenance training and participated in an Emergency Response tabletop exercise held during the past year.
- Standard operating procedures for the distribution system were reviewed and revised to improve their specificity. They have been used in the process of training our new operator and more consistent operation, from all distribution system staff, has resulted.

Distribution System Optimization Activities Scheduled for Next Year

- Continuation of the ongoing main replacement program. An additional 5 miles of mains are scheduled to be replaced during the next year. These mains are located in older areas of the systems and replacement should help to reduce the number of main breaks.
- Online analyzer evaluation – staff will be investigating the feasibility of online analyzer use (chlorine, pH) in selected areas of the distribution system from an economic, labor, and water quality perspective. If the use of online analyzers is determined to be beneficial and economically feasible, we will begin a one-year pilot program to test use of a chlorine analyzer and a pH analyzer.
- We plan to install additional pressure monitors at low pressure sites in Pressure Zone 700.
The hydraulic model is due to be verified and adjusted during the next year. During this time, we will work with a consultant to evaluate the feasibility and cost of adding water age to the hydraulic model.

**Distribution System Performance Review**

The current year distribution performance spreadsheets indicate that the goals of the Partnership have not yet been fully achieved. However, results have improved since the last reporting period.

Our utility uses chloramine as a distribution system residual disinfectant. We do not practice a “free chlorine burn” as is common in some areas of the state. Total chlorine residuals met Partnership goals, with 97.2% of measurements within the optimized range for total chlorine. The average annual entry point total chlorine concentration was 2.31 mg/L, compared with 2.27 mg/L in the previous year. The minimum total chlorine concentration was 0.20 mg/L, compared with a minimum of 0.14 mg/L measured during the previous reporting period. The low residuals continue to occur in Pressure Zone 700, where we are evaluating implementation of a unidirectional flushing program.

Recorded pressures were slightly outside of Partnership goals with 98.2% of measurements meeting the minimum acceptable pressure target of 20 psi. 100% of measurements were below the maximum acceptable pressure of 100 psi and all measurements were within the maximum variance allowed for a pressure zone. We are installing additional pressure sensors during the next reporting period.

Main break numbers continue to decrease, with this year’s average at 13 breaks per 100 miles of pipe. This is reduced from last year’s average of 15 breaks per 100 miles of pipe. The ongoing main replacement program should help to improve performance in future years, as the majority of breaks are located in the oldest areas of the system.

Our goal is to achieve all Partnership Distribution System Optimization Program targets (chlorine, pressure, and main breaks) on an annual basis and to improve distribution system performance from year to year. We are hopeful that the improvements noted above will allow us to achieve this goal. We are also committed to work towards the Presidents Award level of performance in the future.

Please accept this report and the enclosed data for renewal of our Phase III Directors Award.

Contact me if you have any questions.

Sincerely,

J. Doe
Midville Water Department
Midville, KS 11111
555-555-5555
jdoe@midville.org
Example Narrative Report (preferred format)

STATUS OF EFFORTS TO IMPROVE DISTRIBUTION SYSTEM PERFORMANCE AS MEASURED BY Partnership PARAMETERS

CITY DISTRIBUTION SYSTEM

Area of Strength

A. Provided Accurate and Complete Performance Benchmark Values (for required factors)

B. Convincing/Understandable Description of Changes Planned/Progress Made

C. Priority Setting Capability

D. Reasonable Prioritization of Performance Limiting Factors

Demonstrated Good Faith Effort

E. Acceptance of Partnership Optimization Goals by Staff at all Levels – Administrative

PLF: Administration: – Involvement of All Staff

PRIOR STATUS: Policies and operational procedures for achieving Partnership objectives have been in place, including targets for total chlorine residual, pressure, and main breaks. However, upon completing surveys and interviews, it was found that distribution system operations staff had an adequate but varied knowledge of the Partnership. Although goals were in place, more aggressive response actions were not included in distribution system policies. Strategic response plans must be developed and the Partnership goals and related actions must be better communicated to staff at all levels of the organization.

CURRENT STATUS: Our utility has strengthened and implemented procedures, policies, and response actions, which has resulted in improved system performance compared to Partnership goals. Response procedures are in place and SOPs have been improved for situations such as loss of disinfectant residual, total coliform positive samples, and a loss of line pressure in the system.

All distribution system field employees attend weekly “toolbox talks” which are short, focused meetings covering a variety of topics related to the Partnership, including disinfectant testing, safety, emergency response, water quality topics, current and future regulations, hydrant and valve maintenance, pump maintenance, cross connections and backflow prevention, main break response, the importance of accurate and reliable data, Partnership reporting, special research studies, future plans.

The Partnership goals have been incorporated into the City Water Department’s strategic plan. A Distribution System Integrity Communication Trigger spreadsheet and policy has been developed to identify water quality and hydraulic values that prompt internal communication. For example this spreadsheet indicates the steps that occur when a low disinfectant residual is reported in any area of the distribution system. The communication trigger spreadsheet has become part of the Distribution System Training Program for field staff during 2012.
FUTURE PLANS: This PLF is considered complete.

F. Accurately Addressed Performance Compared to Partnership Optimization Goals - Performance

PLF: Sampling Plan
PRIOR STATUS: Although the Phase III self-assessment report provided an assessment of performance based on available data, the data collected was not as representative as it could be in order to accurately assess overall distribution system performance. The utility must make an effort to determine the additional data and sampling sites that are required to provide sufficient data to accurately evaluate the information with respect to Partnership optimization goals.

CURRENT/FUTURE STATUS: A project was undertaken to use data from the existing hydraulic model to identify additional disinfectant residual sampling sites in areas of high water age that have historically been likely to have low total chlorine residual concentrations. A total of 12 sampling sites were added to the distribution system sampling plan. Distribution system field staff was provided with training (three separate sessions) conducted by water quality lab personnel and management to discuss the importance of the additional sampling as well as review proper sampling and analysis techniques. The additional data collected has helped to identify distribution system sites at risk of losing chlorine residuals and allows staff to respond more quickly to water quality events. The use of online chlorine analyzers is also being evaluated for use at high water age sites. Secondary to disinfectant residual, the use of additional pressure sensors was evaluated, and additional pressure sensors are due to be installed at low pressure sites during FY2013. This PLF is expected to be completed during FY2014.

G. Involvement of All Parties in the Partnership Process – Administrative

PLF: Data Completeness/Accuracy/Recording
PRIOR STATUS: The ability of the utility to manage distribution system performance is only as good as its ability to collect accurate and reliable data from the distribution system. Although continuous monitors are able to provide a portion of this information, the system is also reliant on operational and field staff to provide information through the city’s data management software. This software was implemented during FY2012 and training was provided to staff in the use of the software. However, it has become evident that data necessary for evaluation and future action planning has not always been entered in the database accurately or in a timely fashion. Follow up action is planned to make operations and field staff aware of the importance of the information and the impact it has on distribution system performance as well as to provide follow up training in use of the system.

CURRENT STATUS: During FY2012 a number of steps were taken to improve the quality of data entered into the city’s data management software. These steps included providing training to field staff in the importance of the data and the processes that are dependent on the data entered by them. This became the topic of a number of “toolbox talks”, another training/discussion that was implemented to increase awareness of Partnership goals and priorities among field staff.

It was also determined that additional training was required in use of the software program itself. All staff required to input data received 4 hours of training specific to software use.
A three-month incentive program was also utilized to encourage use of the software and help it to become a habit automatic to the staff. Although a monetary incentive was not available to the utility, staff who utilized the software according to requirements for their positions received a free lunch.

These steps have increased use of the software to an estimated 94% of optimal levels as well as increased knowledge of Partnership principles among field staff based in informal management surveys and interviews. Management plans to continue to work to increase Partnership participation within the organization.

FUTURE PLANS: This PLF is considered complete at this time.

H. Documentation/Demonstration of Addressing Complacency - Administration

PLF: Redundancy
PRIOR STATUS: A number of monitoring systems and some distribution system components (valves, in particular) do not have backups readily available. City Water Department should formally identify critical areas and develop a plan to remedy them. All critical parameters should be monitored continuously and alarmed.

CURRENT STATUS: Of the systems identified, by the assessment team, that required redundancy, the installation of a backup level sensor at the Hillside Tank and backup chlorine analyzer at the chlorine/ammonia booster point were recommended. The utility is working on its asset management system to verify maintenance status of all critical valves and spare parts so that repairs to such valves can be expedited.

The backup level sensor was installed at the Hillside Tank during 2012. The backup chlorine analyzer has been added to the next year’s budget and will be installed at the time when the budget becomes available, which is expected to occur during the 2013-2014 reporting period. Modifications continue to be made to the city’s asset management system, such that all valves are accurately represented and spare parts are procured where necessary. These improvements are expected to provide the level of redundancy required to ensure performance.

FUTURE PLANS: This PLF is expected to be completed during the 2013-2014 reporting year. However, as new instrumentation and equipment is installed, redundancy will continue to be a consideration in the design, procurement, and installation process.

I. Commitment to Resources (Staffing, Training, Funding) – Administrative

PLF: Administration: – Operations Staffing Levels
PRIOR STATUS: At the time of the Phase III self-assessment report completion, the Distribution Department was lacking one certified distribution system operator due to retirement. Budget restrictions prohibited the department from hiring a replacement operator at that time, causing difficulties in coverage at certain times (ie vacations). A certified distribution system operator is preferred to fill the open position, as it has been demonstrated that certified staff have historically higher skill levels than those without or not pursuing distribution system certification.

CURRENT STATUS: Budget restrictions were lifted in 2013, allowing the utility to hire a Class D certified distribution system operator. This operator also has Class D water treatment certification. Since the operator has joined the staff, scheduling issues have eased, improving staff morale. Many of the new SOPs and procedures developed in this
utility’s process of assessing and optimizing distribution system performance have been used in the training process for our new staff member. This has had the unexpected consequence of improving the consistency of everyone’s performance as well as helping our new operator to get up to speed more quickly.

FUTURE PLANS: This PLF is considered complete from the aspect of backfilling the required distribution system operator position. However, future plans include working with management and city staff to prioritize positions within the water department so that hiring practices are less likely to be impacted during times of budgetary challenges. The utility staff will continue to encourage the recruitment of certified staff to fill distribution system positions.

J. Training/Communications Capability – Operations

PLF: Training Programs
PRIOR STATUS: Our self-assessment indicated a general weakness in the availability of training available to staff. This includes several types of training including trades training, cross training, safety training, emergency response training, and field operations training. Trades training include general craft training and more specific equipment training. The utility has worked over the past few years to increase the quality of training available to employees as well as the number of training hours per employee as a general average.

CURRENT STATUS: Utility management has created a distribution system training program for field staff that was initiated in FY2011. The core modules include sessions on water quality, hydraulics, cross connection and backflow, maintenance, emergency response, and security, and most sessions involve a hands-on or interactive component (for example, emergency response tabletop exercise). Additional information about distribution system regulations, the Partnership for Safe Water, potable water storage and conveyance and the department’s distribution system water quality monitoring program are included to augment the core technical material presented in incorporated by way of weekly “toolbox talks”. Distribution system technical and management staff act as the instructors for the various training program modules. Occasionally, a vendor representative is brought in to cover items specific to a particular piece of equipment. The utility has applied for training credits from the state and is proud to offer field staff training units for the core classes attended.

Staff may apply to take college courses (reimbursement available from the city in some cases) that will assist them with doing their day to day job. Online training is also available to staff through sources such as AWWA. The utility will invite staff to attend quarterly webinars that are sponsored through various organizations.

FUTURE PLANS: This PLF has been completed. As an added benefit, all certified staff has obtained more than the minimum number of training hours required for license renewal through this program.

K. Development of Action Plans to Improve Performance for at least the Highest Ranking Performance Limiting Factors - Overall

PLF: Action Plan Improvement
PRIOR STATUS: At the time of Phase III report submission, the utility’s action plan was determined to fall into the Good Faith Effort category. Working toward Phase IV in the Partnership requires moving this to an Area of Strength. The utility has worked to revise
the previous action plan to develop one that is more specific in terms of activities, assigned staff, expected outcomes, budget, and timelines.

CURRENT STATUS: The Partnership team had a series of meetings during FY2012 with the goal of revising the Action Implementation plan that was developed as a part of the Phase III self-assessment process. The goal of the team was to add to the action plan to make it more specific. This process included better defining the action activities and expected outcomes, assigning staff as “owners” of specific action items, budgetary expectations, and timelines for long and short term action items. The timelines provided intermediary steps and goals for some of the actions that are expected to take longer to implement. Although the overall plan and action items did not change, the utility staff has better defined all aspects of the plan. This plan has been presented to senior management and to operations staff. The action plan will continue to be revisited (and revised, if necessary) on a regular basis. We are happy to have a more detailed plan in place, as it will aid this utility in working toward Phase IV distribution system status.

FUTURE PLANS: This PLF is considered complete, although regular review and modification of the Action Plan is planned.

L. Understand/Explain Performance Deviations - Performance

PLF: Pressure Monitoring Points
PRIOR STATUS: Continuous pressure monitors are installed in the distribution system; however the locations of these sensors are not optimized to include high and low pressure locations in each pressure zone. The limited pressure data makes it difficult to capture all pressure fluctuations, also making it difficult to identify the cause of deviations. Without this level of information, it is also challenging to implement plans to prevent future occurrences.

CURRENT/FUTURE STATUS: The procurement and installation of additional pressure monitoring equipment has been budgeted for FY2013, with installation of the additional sensors expected during the next 6-12 months. The additional sensors will allow us to monitor at high and low pressure sites within each pressure zone as well as add sensors in critical locations. The data from these sensors is expected to help us to identify pressure fluctuations/deviations when they occur, which will aid in root cause analysis and the development of plans to prevent future pressure disturbances. The impact this will have on the pressure data submitted for next year’s annual report is unknown at this time. Next year’s annual report will compare this year’s pressure data with the pressure data collected using a greater number of sensors during the 2013-2014 reporting period.

M. System Modifications Based on Performance Needs – Design

PLF: Asset Management Program
PRIOR STATUS: The city utilizes an asset management program for the management of distribution system components and a separate software program to track maintenance issues. Information from these programs is reviewed regularly as part of the planning and budgeting process, so that future improvements can be properly planned for and implemented. The self-assessment process identified gaps in asset management data as well as data entered into the maintenance software program. Plans were set in place to fill these gaps, which will benefit overall performance in terms of both maintenance and having better information available for future planning.

CURRENT STATUS: A training and incentive program was implemented to encourage field staff to utilize the software program as required for routine data entry. This has
been successful and has resulted in a demonstrated 94% compliance with required program use. The training will be ongoing to keep staff engaged in using the program. Gaps in the asset management data have been identified and a project to address them is scheduled for FY2013.

FUTURE PLANS: A detailed review of the asset management system is planned for FY2013. This review will continue to identify data gaps after which a project team will be assigned to identify actions to rectify and fill appropriate gaps. It is expected that this will greatly improve the quality of the data in the system, improving the planning and budgeting process for future years.

PLF: Hydraulic Model
PRIOR STATUS: A hydraulic model exists for the system. Operators and field staff have limited access to the model, with most of the modeling tasks being performed by the city engineer or our consultant. The model has not been calibrated for several years and is due to be calibrated during the next reporting period. Water quality information has not been incorporated into the current hydraulic model, although the value of this is recognized by the utility. Currently, the hydraulic model provides information about flow through the distribution system and water age.

CURRENT STATUS: A team is evaluating the possibility of incorporating water quality data into the hydraulic model. This team will prepare a cost/benefit analysis to aid management in determining if this is a direction the distribution department would like to move in during the future. The additional data, provided that its accuracy is verified, will help the utility make more informed decisions.

FUTURE STATUS: Calibration/verification of the hydraulic model is planned to take place during 2013. The assessment of incorporating water quality data is also scheduled to be completed during 2013. The results of the assessment will determine what the utility will plan for future modifications to the hydraulic model. The hydraulic model is an important tool for modeling and decision making.

N. Documented Application of Operational Control Skills – Operations

PLF: Water Quality Monitoring
PRIOR STATUS: Limited number of disinfectant residual sampling sites provides a limited amount of data for decision making. The vast majority of samples are grab samples for total chlorine. Additional sampling for nitrification related water quality parameters would provide valuable information that would aid decision making and response. Selected sites may be suitable for online water quality monitoring and use of these monitors (in particular chlorine and pH) should be evaluated by utility staff.

CURRENT STATUS: As described in previous sections of this report, 12 additional disinfectant residual sampling sites were added during 2012. Field staff was provided with training that covered sampling and analysis techniques. The added disinfectant residual data has proved helpful in responding to low residual water quality events and preventing problems from worsening.

FUTURE STATUS: An evaluation of the use of online analyzers at selected sites is underway. The evaluation team will be assessing the benefits of installing permanent chlorine and/or pH monitors at selected, high-risk, sites in the distribution system and comparing this with the labor and expenses that are involved. If online monitors are installed, the intention is to eventually connect these sensors with the SCADA system, so that, for example, a low residual measurement can trigger an alarm or prompt
automatic flushing to begin. Recommendations from the team are expected during 2013. If a positive recommendation is received, a pilot installation will be placed, and use of the pilot analyzer will run for 6-12 months to further determine the suitability of the instrumentation selected. Additional testing for nitrification related parameters is planned to be added to the existing sampling plan during 2013. Field staff will receive refresher training in how to perform testing for these parameters as well as the related follow up actions.