



## Partnership Phase III Self-Assessment Much More Than a Turbidity Goal

by Ed Chescattie

The Partnership for Safe Water, a voluntary optimization program for surface water utilities, is usually recognized for its < 0.1 ntu finished water optimization goal. But the Partnership is about much more than simply meeting a turbidity goal. Unless you've successfully worked through Phase III of this program, you're not likely to realize the numerous benefits the Partnership's self-assessment process has to offer.

Plant operators are an integral part of troubleshooting and optimization; their input is critical in the Phase III self-assessment process.

This unique process can benefit both operational and administrative staff within a water utility. Improved communication between administration and operations is a primary benefit realized by Pennsylvania Partners that have achieved Phase III status.

As a Program Effectiveness Assessment Committee member and the project manager for Pennsylvania's Partnership program, I've had the opportunity to interact with approximately 15 water utilities as they worked through the Phase III self-assessment process. Partnership membership in this state is diverse; utilities of various sizes and operational complexity participate, each with their own approach to working through the Phase III process successfully.

and understanding?" It's been my experience that the answer is always "Yes," because even the strongest chain has a weakest link.

In water treatment, the weakest link could be a particular unit process that doesn't operate quite as efficiently or reliably as it should. Or the weakest link could be the operator with the least amount of experience. Eventually, the weakest link can result in compromised water quality. Therefore, the fact that a utility is already doing a good job doesn't ensure that this level of operation will be maintained 24/7/365. By improving communication and commitment to optimization at all levels, the Partnership can help strengthen the weak links, thereby increasing the likelihood that optimization will be maintained for years to come.

*Ed Chescattie is a water treatment program specialist with the Pennsylvania Department of Environmental Protection. With 115 participating utilities, or Partners, Pennsylvania accounts for almost 30 percent of the total US membership in the Partnership for Safe Water. Forty-two Pennsylvania utilities have successfully achieved Phase III status. The Pennsylvania DEP is the only state regulatory agency to enter into an agreement with the local AWWA section to promote membership in the Partnership. To find out more about the Partnership, visit <[www.awwa.org/science/partnership/InfoCenter/](http://www.awwa.org/science/partnership/InfoCenter/)>.*

### Improved Communication

Because the Partnership focuses on optimizing operations, improved communication will result in greater understanding of everyone concerning the importance of optimization. Oftentimes I hear utility staff say, "We're already doing a good job at producing high-quality water. Why do we need to join the Partnership?" If you've asked this question, ask yourself another: "Could our water utility benefit from improved communication

### Importance of Everyone's Involvement

The correct way to work through the self-assessment process is to encourage input from all parties involved in operation and administration of the water treatment facility, which, in itself, will foster better communication among staff. Although one person acts as the lead in compiling the information and writing the report, numerous individuals must participate for the process and subsequent improvement plans to be successful.

To better understand why, consider the operator with the least amount of experience, who, because of unfamiliarity with utility processes, may be considered the weakest

operational link. By participating in the self-assessment process, the inexperienced operator will gain valuable knowledge that can help him or her to become a more reliable operator. The next time the operator must make a critical process control decision, the operator will be more likely to make the correct decision, thereby maintaining optimal finished water quality. The end result: this potential weakest link is strengthened and optimization is consistently achieved. If this operator were left out of the Phase III process, a potential weakest link remains.

### **Administrative Involvement**

Improving communication between operational and administrative staff is also very important. Consider the weakest link example of a particular unit process that doesn't operate quite as efficiently or reliably as it should. Operators may be aware

of this problem, but would need administrative involvement to address the issue. Often, operators are apprehensive about expressing their concerns to management. If administrators are unaware of the problem, then it continues to be a weakest link.

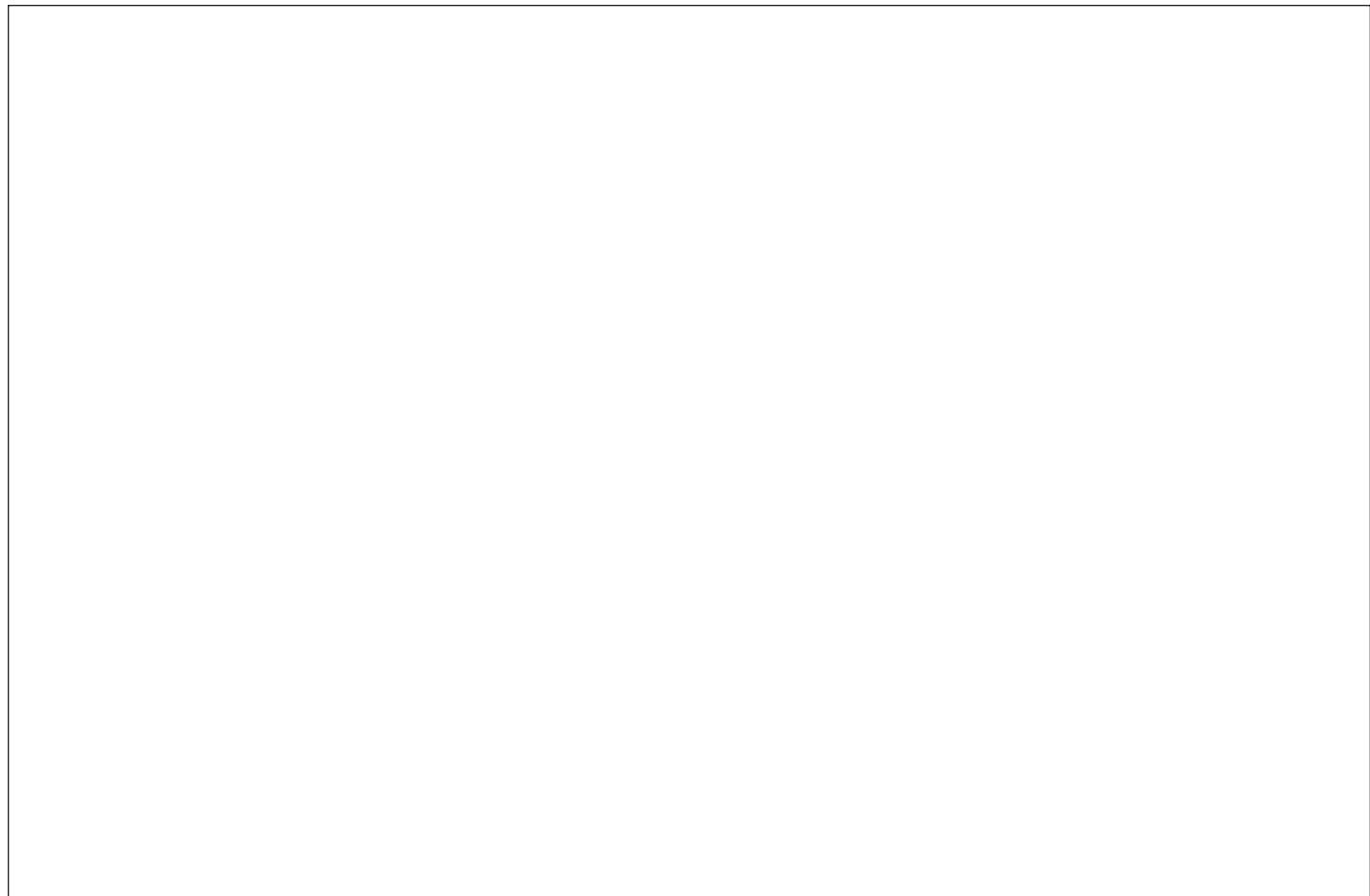
The Partnership provides a platform for operators to express concerns to administrative staff. For example, some operators have found it fruitful to request administrative support for needed improvements by explaining, "We need to work on this in order to meet a performance goal outlined by the Partnership for Safe Water, which is a nationally recognized optimization program." In turn, administrators have found that the Partnership helps them to better understand and prioritize the operational needs of their water treatment facilities. When conducting the self-assessment, the administrative

staff should answer the questions in Chapter 6, titled Administration, of the AWWA's *Self-Assessment Guide for Surface Water Treatment Plant Optimization*, which provides a detailed discussion of the self-assessment process.

### **Suggestions for Involving Operational Staff**

So, what is the best way to involve all operators in the Phase III process? The best results occur when a structured approach is taken. One person should be designated the Partnership coordinator, to be responsible for collecting and compiling information that will be used to write the Phase III report. Generally, someone in a management or supervisory position (e.g., the operations supervisor) acts as the coordinator. The success of the self-assessment lies with how the

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coordinator goes about gathering this information. The Partnership coordinator needs to find a way to encourage all individuals to participate in the Phase III process. One of the most successful approaches is to schedule routine meetings to discuss the Phase III self-assessment.

At these meetings, the coordinator should start by explaining the overall goals and purpose of the Partnership. Next, review examples of Phase III reports so everyone understands what the end product is that they are working toward. Two report examples are posted on the AWWA Partnership website, <[www.awwa.org/science/partnership/InfoCenter/](http://www.awwa.org/science/partnership/InfoCenter/)>. In combination with the AWWA *Self-Assessment Guide*, the examples provide solid guidelines for producing a successful final product.

During subsequent meetings, the coordinator should present an overview of a chapter in the *Self-Assessment Guide* and then ask others to answer the corresponding questions contained within that chapter. Chapters address each aspect of the utility that must be evaluated during the self-assessment, including current performance levels, major unit processes, process and plant design, operations, and administration. The latter aspect includes staffing levels, policies, and funding required to support an optimized plant. The example reports provide insight as to how other water systems successfully answered the self-assessment guide questions.

It's best to work through one chapter of the guide at a time, in chronological order. All meeting participants should be encouraged to brainstorm answers to the *Self-Assessment Guide's* questions. These meetings are a key opportunity for operators to express their concerns about what is limiting plant performance.

Expect participants to have reservations at first. The coordinator needs to encourage open and honest interaction, while keeping discussion organized and focused on the questions contained in the guide.

Meetings are the preferred approach because they allow for synergistic discussion and information sharing. However, opportunities should be offered for input from timid operators or operators who are unable to attend meetings because of scheduling or other conflicts. Some Partnership coordinators have had success with providing computer access for anonymous comments from operators who can type in answers to questions from the *Self-Assessment Guide* in privacy and at a convenient time.

If the Partnership coordinator and the self-assessment process are successful, the majority of water utility staff will understand the primary purpose for participation in the Partnership and the importance of optimization. Most important, the staff should have actively participated in the self-assessment process by providing input concerning performance-limiting factors. Remember, the more individuals actively involved in the self-assessment process, the greater the commitment to optimization.

### Reviewing Monthly Turbidity Trends

A great way to start your monthly self-assessment meetings is by reviewing the monthly turbidity trends developed by entering your data into the Partnership software program. Careful review of the raw, settled, and finished water turbidity trends can reveal periods of poor performance. Investigating these periods focuses your self-assessment and encourages meaningful discussion. Focus on operational events that may have resulted in turbidity spikes. Be careful not to place blame on a particular operator; rather, encourage all operators to make efforts to prevent

## Phase III Assessment Parameters

### Performance

- ▶ Meet optimization goals
- ▶ Demonstrated improvement
- ▶ Understand/explain performance deviations

### Administrative

- ▶ Acceptance of optimization goals
- ▶ Involvement of all parties in the Partnership process
- ▶ Documentation/demonstration of addressing complacency
- ▶ Commitment to resources (staffing, funding)

### Operations

- ▶ Documented application of process control skills
- ▶ Priority setting capability
- ▶ Training/communications capability

### Design

- ▶ System modifications based on performance needs

### Overall

- ▶ Development of action plans to improve performance
- ▶ Attempt to provide an informative/complete package
- ▶ Convincing/understandable description of changes/progress

**Each utility is rated on these parameters by four reviewers before they can be awarded Phase III Partnership status.**

similar events from resulting in turbidity spikes in the future.

Review of the previous month's turbidity data will foster meaningful discussions. The more recent the data, the better operators will be able to recall events that may have resulted

in poor performance. When routinely logged and consistently reviewed, the monthly turbidity data can be used as a tool to prevent water quality problems. Unfortunately, many utilities enter data and never review the graphical trends, or enter several months' worth of data at once. If done in this way, data entry becomes "busy work" with no real benefits.

### **Writing the Report**

If you're a Partnership member and have been in Phase II for a while, your biggest challenge is probably getting started on writing the Phase III report. In fact, writing the report is by far the most common stumbling block for Pennsylvania Partners. Don't make the mistake of viewing this report as something you sit down and write on your own, using creativity. My advice: approach the report like a research paper, compiled by a team of individuals. If you've

reviewed your turbidity data and held regular meetings to work through the questions in the *Self-Assessment Guide*, you should have already collected most of the information you need. Compile and organize the individual input you've gathered and you may be surprised at how quickly you can write your Phase III report.

Having reviewed many Phase III reports, I've noticed a common mistake is the author's attempt to convince the readers that filter plant performance is already optimized. The reality is that *all* filter plants, regardless of age, capacity, or design, have performance-limiting factors that can prevent optimization. The self-assessment report gives you an opportunity to tell everyone about all the great things you're doing at your filter plant. However, the primary purpose of the self-assessment is to provide a structured approach to identifying performance-limiting

factors and developing action plans to improve these factors. Therefore, for this report to be complete, it must include all limiting factors that have affected, are affecting, or may affect (in the future) filter plant operation and performance.

When writing the Phase III report, do *not* explain how everything works perfectly at your filter plant. Instead, focus your report on everything that's been done to achieve the current level of performance and your plans to further improve performance. Keep this in mind, and your Phase III report should not only receive a high score, it should also result in improved filter plant performance and water quality.

The Partnership's Phase III program is an invaluable tool for staying ahead of more stringent regulations; it provides a structured approach to formulating positive action plans that address factors limiting optimal performance.

