Program Report to the Governor

"The Effectiveness of Indiana's Capacity Development Strategy for New/Existing Public Water Systems"

September 2017

Prepared by:

Indiana Department of Environmental Management
Office of Water Quality
Drinking Water Branch

Background

The 1996 Amendments to the Safe Drinking Water Act emphasized the prevention of contamination of water supplies and encouraged the proper management of public water systems to ensure the delivery of safe drinking water to all citizens. The Amendments required states to develop and implement a strategy that assists public water systems in acquiring and maintaining water system capacity. Water system capacity is the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Water system capacity has three components: technical, managerial, and financial. Proficiency in all three areas is necessary for a system to have adequate "capacity." The process of assisting systems to acquire and maintain adequate technical, managerial, and financial capacity is called capacity development. The goal of the Indiana Department of Environmental Management's (IDEM) capacity development efforts is ensuring that public water systems in Indiana will maintain high compliance rates and consistently provide safe and adequate drinking water to their customers.

Introduction

IDEM submitted the initial "Capacity Development Strategy for Existing Public Water Systems" to EPA on July 28, 2000. IDEM utilized the experience and expertise of stakeholders both within and outside the agency to develop this strategy. Those involved in drafting Indiana's strategy for existing public water systems (PWSs) included representatives from public water supplies, law firms, contractors, consulting firms, U.S. EPA, drinking water associations, IDEM, and other state agencies. Indiana's strategy involves a variety of activities and tools designed to enhance the technical, managerial, and financial capacity of Indiana's PWSs. U. S. EPA approved IDEM's strategy for existing systems on September 14, 2000.

IDEM, with input from stakeholders both within and outside the agency, developed rules found at (327 IAC 8-3.6) that govern the development of new community and nontransient noncommunity public water supplies in Indiana. As of September 9, 1999, all new community or new nontransient noncommunity PWSs in Indiana must submit a water system management plan to IDEM that demonstrates the technical, managerial, and financial capacity of the proposed system. IDEM must approve the water system management plan prior to the submission of a construction permit application by the proposed system. If IDEM receives a construction permit application before the water system management plan is approved, the application is returned to the proposed system. No construction may begin until the water system management plan is approved.

In accordance with federal requirements, IDEM has submitted reports to the Governor regarding the effectiveness of the Capacity Development Strategy for Existing Public Water Systems in 2002, 2005, 2008, 2011, and 2014. Meeting this and related requirements under federal rules avoids a withholding of up to 20% of the Drinking Water State Revolving Fund (DWSRF) capitalization grant. This 2017 report is

submitted to fulfill requirements and avoid any withholding of the Drinking Water State Revolving Fund (DWSRF) allotment for Federal Fiscal Year 2018. This document serves to fulfill the reporting requirement for Indiana's Capacity Development Report to the Governor on the effectiveness of Indiana's strategy for new/existing public water systems.

Objectives

IDEM's objective in implementing the strategy is to ensure safe drinking water for the citizens of Indiana by improving the overall compliance rates for existing PWSs. Over the last three years, IDEM has successfully implemented many activities and developed several tools to assist public water supplies in attaining technical, managerial, and financial capacity.

Current Activities to Enhance Water System Capacity

Staff

The job of ensuring compliance and capacity development extends over all five sections of the IDEM, Office of Water Quality, Drinking Water Branch which has about fifty staff total. The Drinking Water Compliance Assistance Program (DWCAP) has three staff members specifically designated as capacity development program staff. These DWCAP staff members are directly involved in assisting public water systems in reaching compliance and maintaining technical, financial and managerial capacity. The staff works as a team with all sections of the Branch to determine the best approach on how to help public water systems achieve and maintain high rates of compliance.

DWCAP staff has been instrumental in assisting systems with technical, financial, and managerial matters. The DWCAP staff developed, maintained and/or utilized the following approaches to help systems:

- Fact sheets;
- Financial evaluations for water rate analysis;
- Town board training materials;
- On-site evaluations of systems;
- Operator training materials;
- Mentoring programs;
- A job bank for operators and systems in need of an operator;
- Training assistance for certified operators;
- Asset management and budgeting for short term and long term infrastructure replacement goals;
- Contaminant treatment and removal assistance;
- Lead and Copper control program assistance;
- Assistance preparing: public water system operation plans, business plans, policies and procedures;
- Assistance identifying potential funding sources for utility capital improvement projects;

- Assisting new systems with understanding and complying with Drinking Water Rules;
- Training for Facility Specific Operators; and
- Providing Check-Up Program for Small Systems (CUPSS) training.

Implementation of Strategy

As part of the implementation of Indiana's Capacity Development Strategy for Existing Public Water Systems, IDEM has improved mechanisms to screen, categorize, and prioritize systems in order to focus assistance efforts on systems in most need. As IDEM continues to provide assistance to public water supplies, staff is continually exploring new tools that will further enhance the ability to identify and assist systems in need. The activities and tools listed below were developed or enhanced to improve IDEM's ability to provide technical, managerial and financial assistance to systems in Indiana. A more detailed description of these items is included in the following section.

- Screening, categorizing and prioritizing Systems;
- Compliance assistance tools;
- On-site technical, financial, managerial assistance;
- Self-Assessment Manual;
- Small System Technical Assistance Workshops/Facility Specific Operator Trainings
- Water and Wastewater Task Force
- Small System Lab Assistance Program;
- Operator Certification Rule;
- Updated Operator Certification Database;
- Updated Capacity Development Database;
- Check-Up Program for Small Systems (CUPSS); and
- Standard monitoring framework.

Progress - Improving Existing System Capacity

Screening, Categorizing, and Prioritizing Systems

IDEM has fully integrated the U.S. EPA federal Enforcement Response Policy (ERP) and Enforcement Tracking Tool (ETT) along with other tools. The implementation of the ERP/ETT tool is intended to increase the protection of public health by improving the effectiveness of the program by identifying and returning to compliance those public water systems with health violations. IDEM utilizes a combination of ERP/ETT, Safe Drinking Water Information System (SDWIS-(the federal reporting database) data, inspections, capacity development activities and operator certification data to track the status of all active PWSs. Active PWSs are evaluated and divided into two categories, "pending" indicating that further action(s) is required or "closed" indicating that a PWS is in compliance. The status of systems is updated quarterly and the information is used to target systems for compliance assistance.

With the use of the ERG/ETT tool and the Safe Drinking Water Information System (SDWIS) data the DWCAP and Branch staff has worked with systems over the last three years to reduce the number of violations at systems. Violations are divided into four types: maximum contaminant level (MCL), treatment technique, monitoring and reporting (M&R) and Consumer Confidence Report. The first type of violation deals with all contaminant violations. The second type of violation includes other non-health related violations such as a treatment technique violations or the failure to provide adequate treatment. The third type of violation deals with failure to collect and/or report sample results for the all contaminants. Finally, the fourth type of violation applies only to community public water systems and is for failure to provide to their consumers a Consumer Confidence Report. Violations for the last three years, 2014-2016, are summarized in Appendix A. Over the past three years, by providing assistance to systems, there is a decrease in the total number violations for community systems and nontransient noncommunity (NTNC) systems.

With the inception of the 2016 Revised Total Coliform Rule (RTCR) which changed how violations are determined, there was a decrease in non-compliance for MCL violations, but an increase of treatment technique and M&R violations for transient noncommunity (TNC) systems. The RTCR which went into effect April 1, 2016, has had a large impact on compliance rates for all systems, but more so at non-community systems. The numbers of total coliform violations and systems in violation are increasing. Violations often trigger increased monitoring for systems. This increased monitoring often leads to more violations and confusion for the systems. More responsibility is being placed on the systems to find and fix problems in their water system. To help reduce confusion and help systems understand their responsibility, there has been an intensification in outreach and educational efforts to help systems come into compliance with the new rule requirements.

Helping systems cope with the new rule requirements has put a pressure on IDEM to provide more technical assistance. The rule requires assessments of the PWS's distribution system once a positive bacteria sample or violation has occurred. Each of these assessments is reviewed by DWCAP staff for compliance and understanding. DWCAP staff follows up on omissions and/or errors in the assessments. To date there have been 464 Level 1 assessments and 101 Level 2 assessments triggered as a result of the 2016 rule. Level 1 assessments are triggered by Level 2 assessments are triggered by continuing positive samples or multiple Level 1 triggers. An assessment is done when sampling results for total coliform show that the systems may be vulnerable to contamination, the PWS must perform a Level 1 or Level 2 assessment. Level 1 assessments may be performed by a representative of the water system. However, Level 2 assessments must be done by IDEM staff or a certified operator who has been trained by IDEM to complete the Level 2 assessment. These assessments have proven to be time consuming and have put additional strain on an already small staff. To help relieve some strain, IDEM developed a Level 2 assessment on line training module and provided training in face-to-face sessions around the state. To date IDEM has trained 232 operators who are now qualified to perform Level 2 assessments.

To prepare systems for the new rule requirements, IDEM conducted workshops around the state independently and in conjunction with the professional associations including American Water Works Association (AWWA), Indiana Rural Water Association (IRWA), Alliance of Indiana Rural Water (AIRW) and Rural Community Assistance Program (RCAP). IDEM also sent letters and reminders about the new requirements. For example, IDEM worked with seasonal systems in the year before the rule went into effect because their seasonal start-up dates were after the effective date of the rule. Lack of understanding of the rule could likely have caused system violations for failure to complete start-up procedures as required by the rule. In 2015, IDEM asked that these systems to complete start-up procedures as they would have to do when the rule went into effect. This review of their procedures allowed them an opportunity to be compliant in 2016 at the onset of the rule. IDEM currently has 399 seasonal systems that they continue to work with to improve compliance rates.

As time goes by, a better picture will be drawn of how the 2016 rule will impact systems for the long term. IDEM will continue to assist systems in the implementation of the RTCR. This assistance will continue to be time and labor intensive for IDEM's Drinking Water Branch.

Compliance Assistance

Compliance assistance tools utilized by the IDEM Drinking Water Branch (DWB) have been effective in promoting compliance at PWSs. A sample of the tools used to provide assistance include:

- Courtesy reminder letters for key compliance activities (sent prior to the end of a compliance period);
- Reminder letters for missing information (sent immediately following the end of a compliance period);
- Noncompliance letters that allow a return to compliance with no penalty;
- Courtesy phone calls to systems reminding them of applicable requirements;
- On-site assistance by Field Inspection staff or DWCAP staff;
- Monitoring Waiver Program – a review of the likelihood of contaminant occurrence - this program allows a reduction in testing where appropriate, saving the system monitoring costs;
- Educational materials and reminders of new rule requirements; and
- Seminars and workshops done in cooperation with various water associations such as American Water Works Association (AWWA), Indiana Rural Water Association (IRWA) and the Alliance of Indiana Rural Water.

Individualized Assistance

Coordination and assistance between IDEM, other technical assistance providers and public water systems is critical to reducing current violations and also in identifying and addressing new violations as quickly as possible. IDEM tracks information available

from databases and communications from public water systems to determine if a system has returned to compliance, needs additional assistance, or whether violations have been addressed through an administrative order. Over the last three years, DWCAP staff provided assistance to 2,034 systems. The assistance consisted of 6,270 occurrences of assisting with technical capacity issues, 6,197 managerial capacity issues and 1,567 financial capacity issues. Many assistance opportunities involve more than one area of capacity development. Assistance is tailored to solve the particular obstacle preventing the system from attaining capacity. For instance, a system that is without a certified operator is given a list of operators located within the county and also surrounding counties making the search for an operator easier. In addition, the operator certification staff maintains a list of operators interested in finding employment. Any operator interested is placed on the list and the list provided on request. If a system has trouble with required reports, the DWCAP staff may help them fill out the report, help them understand the report, and review to ensure the report contains required information. Other problems are more complex and require working and coordinating the efforts of other IDEM program staff, consultants, the system operator, the system's management and the system's owners. The DWCAP staff may draw on expertise from other Drinking Water Branch sections, outside professional associations, or other state agencies. For more complex issues, capacity building may be a long-term project that requires continuing efforts from all involved parties.

Assistance Success Stories

Lead and Copper

IDEM currently has 1,365 public water systems that are required to comply with the Lead and Copper Rule (LCR). Out of the 1,365 systems, there were 51 monitoring & reporting (M&R) violations and two treatment technique violations in 2016. In 2017, so far, there have been nine M&R violations. IDEM's goal is to reduce the number of monitoring violations by sending systems multiple reminders via email and phone and by providing clear instructions on how to properly collect the lead and copper samples.

Most of the lead and copper violations are from systems failing to submit their lead consumer notice and certification form. IDEM requires all systems to submit a copy of their lead consumer notice for all results exceeding the lead or copper action level (AL). IDEM also recommends that systems deliver the lead consumer notice to their customer by the close of next business day when results exceed action level.

There are currently five systems that have an active lead exceedance. At the beginning of 2017 there were ten systems with a lead exceedance, but ten was reduced to five systems by working with the systems on corrosion control treatment and proper sampling procedures.

If a system exceeds the lead AL, they are required to distribute the public education (PE) within 60 days from the end of the monitoring period. Out of concern that this was too long, IDEM now requires systems to distribute the PE to customers within 30 days

from the lead exceedance letter date. This gets the information to the consumers quickly so they may employ precautionary, exposure reduction actions on their own.

Greentown

Greentown (PWSID 5234006) exceeded the lead AL of 15 ppb in September 2015. Their calculated 90th percentile for lead was 110 ppb for the 2015 monitoring period. IDEM instructed Greentown to notify their customers immediately by distributing lead consumer notices and public education. IDEM also required Greentown to collect water quality parameter samples and perform a corrosion control treatment study. Based on the water quality parameter results, IDEM informed Greentown that the appropriate corrective action was to install orthophosphate treatment (a corrosion inhibitor). IDEM quickly approved the construction permit for feeding orthophosphate, which allowed treatment to be installed on February 10th, 2016. Greentown was required to collect 20 lead and copper follow up samples in between January 1st – June 30th, 2016 to ensure the orthophosphate treatment was effective. IDEM reviewed the proper sampling procedures with Greentown's operator and made sure samples were collected from the same locations that originally exceeded the lead AL in 2015. Greentown collected 20 lead and copper follow up samples on June 22, 2016 and June 26, 2016, and the calculated 90th percentile for lead was reduced to 2.1 ppb. Another round of 20 follow up samples was collected in August 2016 and the 90th percentile remained at 2.1 ppb. These results prove that the corrosion control treatment is working. This lead exceedance was addressed quickly and appropriately, ensuring the safety of Greentown's water.

During the time of the lead exceedance in Greentown described above, Eastern Howard County Schools (a customer of Greentown) contacted IDEM because they were concerned about possible elevated lead levels in the schools' drinking water. In response, IDEM staff collected samples in Eastern Howard County Schools and evaluated the following parameters, orthophosphate, lead, and copper. IDEM reviewed the samples and informed school officials of the results immediately. It was concluded that the lead and copper sample results were below ALs and the school was receiving an adequate amount of orthophosphate in their buildings. These sample results helped ensure Eastern Howard County Schools and the Greentown water department that the lead levels in drinking water met IDEM regulations.

Elkhart County Schools

In 2016 Elkhart Schools requested IDEM collect lead drinking water samples at six school buildings. IDEM collected 455 drinking water samples at the six Elkhart school buildings on August 10, 2016. The drinking water samples were tested for lead, copper, total phosphate, and orthophosphate. IDEM staff reviewed the results and identified the drinking water outlets that exceeded the lead AL. A remediation plan, which outlined corrective actions for the schools was sent to Elkhart Schools. The schools replaced water coolers, drinking water fountains, and faucets that where lead results above the AL were found. Fountains that were rarely used were taken out of service. Needed

replacement parts were required to be lead-free and NSF certified and provided information about NSF/ANSI 61 certification for all products purchased for the school's drinking water system.

Indiana Finance Authority (IFA) State Revolving Funds (SRF) School Lead Testing Program

IDEM is currently working with IFA/SRF staff on a lead sampling program for public schools that are connected to public water systems. A letter was sent to all the school superintendents to explain the program and allow them to sign up for testing of all schools in their districts. The number of eligible schools is approximately 1,700. As of September 27, 2017, 814 schools had signed up for the IFA/SRF lead sampling program. Sampling started the week of May 22nd, 2017.

IDEM is providing guidance to IFA/SRF and contractors about lead sampling in schools. There are specific sampling protocols to follow when testing for lead in drinking water. It is critical for IDEM to educate IFA staff, sample collectors, and school officials about the possible sources of lead in drinking water in schools.

IDEM has contributed the following to help IFA with the school lead testing program.

- An educational video about sampling for lead in drinking water in schools. This video shows how to develop a sampling plan, proper sampling procedures, and review lead drinking water results. https://idem.adobeconnect.com/lead-dw/
- Fact Sheet on the Lead and Copper Rule. http://www.in.gov/idem/files/factsheet_owq_pws_lead_copper.pdf
- Fact Sheet that reviews follow-up steps for schools with lead and/or copper sampling results above the AL. This fact sheet includes a letter template for school officials to send to their school community when they have lead results over the AL. http://www.in.gov/idem/files/factsheet_owq_dw_gw_lead_copper.pdf
- A webpage dedicated to providing resources on drinking water and lead. http://www.in.gov/idem/6968.htm
- Assistance with reviewing the first few rounds of drinking water results, to ensure IFA staff feel comfortable reviewing results on their own.
- Review of proposed remediation steps for schools when lead results are above the action level.
- Input on developing a reporting tool for schools to utilize. IDEM helped make sure all required fields are captured in this database.

IFA expects to finish this lead sampling program in schools before the 2017-2018 academic year ends. IDEM will continue to offer assistance and guidance to IFA in any way possible to help make this sampling project a success.

East Chicago Compliance Verification Sampling Project

In East Chicago residents became highly concerned about lead in their drinking water. Because there is an active Superfund cleanup site in East Chicago where lead is a

known soil contaminant, community activists, coalitions, lawyers, environmental groups, and the media were raising questions about the potential for lead contamination in East Chicago's drinking water. The questions led to some of the residents to lose trust in their water utility and they wanted to know if their water was safe to drink.

In response to these concerns, Indiana House Bill 1344 was signed by Governor Holcomb on April 20, 2017. The bill required IDEM to conduct testing of East Chicago's water supply to determine whether it is in compliance with the national primary drinking water regulations for lead. As a result, IDEM staff collected compliance verification samples during April and May of 2017 in order to confirm the 2016 lead results reported by the City of East Chicago (PWSID IN5245012).

IDEM staff worked with the water department and developed a sampling plan to collect lead drinking water samples from multiple homes across the city and a local school. An IDEM team was formed to collect compliance verification samples and, additionally, samples for homeowners that made special requests. This IDEM team collected over 150 drinking water samples for lead, copper, and orthophosphate in the city of East Chicago.

This sampling project was a success. Staff worked tirelessly and were dedicated to helping the residents. Sampling for lead in drinking water requires a lot of coordination with homeowners, because residents cannot use the water for at least six hours prior to sampling and the sample must be collected from inside the home. Staff had to work with each homeowner to schedule a sampling time that worked for them. In some cases, IDEM staff had to meet homeowners face-to-face to schedule a sampling time. Staff also had to be meticulous on coordinating sampling times with the laboratory that analyzed these samples due to the short holding time limit for these types of samples. It was critical for staff to carefully plan and strategically coordinate sampling appointments with multiple residents. Due to these sampling time constraints, staff had to get up very early in the morning to travel to timely collect samples to accommodate homeowners' daily schedules. There were multiple times when staff left the Indianapolis area between 3:00 and 4:00 a.m., in order to arrive on time at a home or school in East Chicago and then rush back to Indianapolis to drop off the samples at the laboratory on time. This is one of the many examples that shows the dedication of IDEM staff who display the highest standards of integrity and commitment.

When staff visited homes, they took time to get to know each resident and listen to any problems or concerns that they wanted to share with IDEM. Each homeowner was given a detailed explanation on the type of sampling done in their home and how the sample collection process worked. Staff made follow up calls with the homeowners to make sure that they understood what their drinking water results meant and let them know IDEM was available for any future follow up questions. Staff did an excellent job communicating the results with homeowners by calling them directly and sending a follow up letter. IDEM staff wanted to make sure homeowners felt confident about the sampling results. This team saw an opportunity to show the residents how much IDEM

cares about protecting public health and they accomplished this through their hard work and commitment.

Overall, this unique sampling event was a success. One of the many positive results was a restored confidence for some residents in their drinking water. The work provided data that proves the East Chicago's corrosion control treatment is effective and that there is not a widespread problem with lead in the city's drinking water.

The 2017 East Chicago lead and copper compliance verification sampling project report is available at the following link.
http://in.gov/myihcda/files/2017%20East%20Chicago%20Lead%20and%20Copper%20Compliance%20Verification%20Sampling.pdf

Disinfection By-products

IDEM has been actively working with systems that have disinfection-by-product (DBP) maximum contaminant level (MCL) issues, especially wholesale and purchase water systems. DBPs are cancer causing compounds that are formed when disinfectants, such as chlorine, react, with naturally present compounds in the water. When the dose and residual are higher than needed, more disinfection-by-products are formed. In 2015 it was necessary to issue 114 DBP MCL violations. This was reduced to 89 DBP MCL violations in 2016, and IDEM expects this number to be significantly lower in 2017. The majority of DBP MCL violations are coming from surface water systems and the systems which purchase water from wholesalers. IDEM has emphasized the importance of wholesale water systems working with their customers in order to correct any DBP MCL issues. For example, IDEM identified a surface water system in southern Indiana that sold water to multiple systems, and all were having DBP MCL issues. IDEM and the systems, working together, determined that the wholesale surface water system could reduce their chlorine contact time significantly which resulted in resolving their DBP MCL issue. Systems have also had success with installing tank mixers and performing routine flushing to help reduce their DBP levels.

To further assist systems, IDEM monitors DBP levels. If we see an upward trend in the levels we contact the systems requesting them to perform an operational evaluation of their levels before they exceed the MCL. The Operational Evaluation Levels (OELs) help us anticipate (and mitigate) future DBP MCL issues by monitoring the levels between compliance sampling events. The OELs, are calculated independently of the MCLs and are used for predictive purposes. This information allows systems to observe trends and make treatment/distribution system changes before MCLs are exceeded. This assistance appears to be working. In 2017 we have already received six (6) construction permit applications for the installation of tank mixers to help keep DBP levels down.

Nitrate

North Vermillion Elementary School (PWSID IN2830824)

IDEM requires public water systems (PWSs) to monitor for nitrate annually. Found during routine testing, North Vermillion Elementary School reported high nitrate levels in their drinking water. IDEM made sure school officials were aware of this issue, and instructed them to notify the school community. The highest nitrate level reported was at 14 mg/L (ppm). The maximum contaminant level (MCL) for nitrate is 10 mg/L (ppm). Nitrate is a regulated contaminant because excess levels can cause methemoglobinemia or "blue baby" syndrome. When high nitrates are present they create a condition which interferes with the body's ability to carry sufficient oxygen to the individual body cells causing the veins and skin to appear blue. Infants below six months are particularly susceptible to water containing nitrate in excess of the MCL and could become seriously ill and, if untreated, may die. Due to the high nitrate levels at North Vermillion Elementary School, the school used bottled water for cooking and drinking. In order to expedite a corrective action plan, North Vermillion Elementary School entered into an agreed order with IDEM in 2016 to find and implement a plan to eliminate high nitrate levels from their water source or find an adequate alternate source.

After working with IDEM on a corrective action plan, it was decided that the elementary school would start a water main construction project connecting to the City of Cayuga water source (PWSID IN5283002). IDEM and the Rural Community Assistance Program (RCAP) oversaw this project to ensure the connection to Cayuga water went smoothly and was in place before students returned to school in August 2017. IDEM made sure Cayuga's water met drinking water standards before the water was fully connected to the school. The construction project was completed in July 2017 and the school was completely connected to Cayuga prior to students returning. This project made it possible for students to drink water with no worry about nitrate levels. North Vermillion Elementary School is now able to use their water for drinking and cooking.

Self-Assessment Manual

IDEM developed a self-assessment manual designed to assist existing PWSs in obtaining a clearer picture of their technical, managerial and financial needs. The manual may be found at http://in.gov/idem/cleanwater/2446.htm The self-assessments are not only intended to help the systems get a clearer picture of their needs, but are also used by the IDEM DWCAP and the Indiana Finance Authority, State Revolving Fund staff as they help systems determine tools that can be used to maintain and/or achieve water system capacity. The majority of comments received from operators that have completed the assessment indicate that it is a useful tool in revealing technical, managerial, and/or financial deficiencies in their systems. IDEM continues to encourage systems to use this tool to help them assess and plan.

IDEM Small System Technical Assistance/Facility Specific Operator Training

The DWCAP staff developed materials for and conducts small system technical assistance workshops. These workshops are primarily aimed at community and nontransient noncommunity PWS's where a certified operator is required. The workshops include information regarding the Safe Drinking Water Act, Indiana's public water supply regulations, sampling methods, monitoring requirements, operation and maintenance issues, and other topics of system specific importance. IDEM has found these workshops to be a good way to help educate any new facility specific operator (FSO) on what is required of them as a certified operator. When possible IDEM conducts on-site training at the system. This allows us to train the FSO on the specifics of their particular system.

Water and Wastewater Task Force

Representatives from IDEM, the Indiana Utility Regulatory Commission, and the Indiana Office of the Utility Consumer Counselor meet on a quarterly basis to discuss issues with public water systems that may overlap the agencies' jurisdictions. The meetings have proven helpful to bring attention to public water systems that may be having problems. The meetings also improve communication between the agencies allowing an increased focus on solutions to address problems at water systems.

Small System Laboratory Assistance Program

Historically, addressing monitoring deficiencies at small systems has taken up a significant portion of IDEM's compliance and enforcement resources. In the past, noncompliance rates for failure to collect the required water samples and reporting the information to IDEM were approximately 40-45% for small systems. IDEM and the Indiana State Department of Health lab partnered to provide the required bacteriological and nitrate analysis free of charge to Government and nonprofit public water systems serving a population of 100 or less. This is a voluntary program with approximately 790 systems participating in the program. The Small System Laboratory Assistance Program has been very successful. The noncompliance rates for sampling-related violations for small systems have dropped significantly since the launch of this program in 2002. More importantly information about the quality of the drinking water served by these systems is now available. The DWCAP staff is working closely with remaining noncompliant small systems to reduce the noncompliance rates to even lower levels.

Operator Certification Rule

Indiana's revised operator certification rule became effective in December, 2000. In accordance with federal requirements, the new rule required all community and nontransient noncommunity public water supplies to be under the direct supervision of a certified operator in responsible charge (CORC). The greatest impact of the rule in Indiana was the added requirement for all nontransient noncommunity systems and all community water systems serving less than 100 persons to have a CORC of the water system. Federal requirements also required states to develop peer reviewed operator certification tests or purchase these tests from an accredited source. At the time of the

effective date of the rule, IDEM did not have the resources to develop its own test and chose to purchase tests. However, as time passed IDEM could see that a test more specific to Indiana systems and operators would be beneficial. Therefore, IDEM undertook the task of creating its own tests. With many systems being hit with a higher number of retirements and added regulations, they are having trouble finding and retaining operators. The test failure rate in Indiana and across the nation is high. IDEM wants to ensure that it is offering fair exams that adequately test the skills needed to successfully operate a PWS. A stakeholder workgroup was convened. In April of 2016 IDEM launched the new test and test procedures. A contract between IDEM and Ivy Tech allows examinees to test at any one of Ivy Tech's 25test centers state-wide. Indiana Administrative Code requires IDEM to offer the exam at least annually. Previously IDEM was offering the test twice a year. Now examinees can take the test when they meet the requirements and are approved by IDEM to test. Ivy Tech provides IDEM with a weekly report of results for the previous week. Ivy Tech provides a quarterly statistical report on exam scores and a report of questions applicants missed. The quarterly reports are reviewed by IDEM and the stakeholder workgroup. Questions with a high miss rate are reviewed to ensure the question is relevant and accurate. Changes to the test are made if necessary. One of the advantages to IDEM owning the test is that it now has the ability to make changes as needed without additional cost or lag time. The members of the stakeholder workgroup have agreed to continue work on the testing program and to provide guidance and review of the operator certification program to ensure that IDEM is doing all it can to properly educate and assist operators.

Water System Management Plans

Over this reporting period, DWCAP staff reviewed and/or approved ten water system management plans for new drinking water systems. Nine of these plans were approved. The remaining system, JStar Farms, submitted a water system management plan but, to date, does not meet the minimum population threshold to qualify as a public water system as additional automation of the egg facility has kept their employee population down. These water system management plans demonstrate and help ensure that these new systems have adequate technical, managerial and financial capacity to meet all the requirements of the Safe Drinking Water Act and serve water that is safe in quality and adequate in quantity.

Check-Up Program for Small Systems (CUPSS)

In January of 2007 the DWCAP staff embarked on a cooperative effort with U.S. EPA, several states, the National Rural Water Association, the Rural Community Assistance Partnership, and Environmental Finance Centers to develop a new asset management tool for use by public water systems. CUPSS is a simple, easy to use asset management program that helps small systems manage and finance existing and future drinking water infrastructure. One of the major problems facing small public water systems is the lack of managerial and financial capacity. CUPSS is a software program with a user friendly interface and tutorial provided to systems on CD. CUPSS was designed for a small public water system serving less than 3,300 consumers. CUPSS

integrates preventive maintenance, asset management, and full-cost pricing activities. Indiana was one of the lead states in this effort.

DWCAP staff use CUPPS to actively work with systems to place a greater emphasis on asset management. This product not only provides an important asset management tool, but also helps with planning and preventive maintenance as well as providing information to help with the setting of rates for these small systems.

Standard Monitoring Framework

A common need expressed by systems is a compliance sampling schedule. In the past IDEM mailed to each community and nontransient noncommunity public water supply an individualized standard monitoring framework (SMF). The problem was that any change in the framework due to additional treatment or possibly a detection of a contaminant changed the schedule. The public water systems are notified by mail of any changes to sample schedules. However if the system did not add this to their schedule they sometimes fell behind on monitoring and reporting as required. IDEM has now made the information that was previously found in these standard monitoring frameworks available online on our Drinking Water Watch website. This allows any system or consumer to look up monitoring requirements and sampling results at any time. Consumers and systems have up-to-date information available 24/7. The Drinking Water Watch is available at https://myweb.in.gov/IDEM/DWW/

Challenges to Capacity Development

There are challenges to making the Capacity Development Strategy for Existing Public Water Systems as effective as possible. There are approximately 4,043 PWSs in Indiana and over 50% of these systems are serving less than 100 people. Because the federal rules promulgated under the Safe Drinking Water Act continue to place additional requirements on the systems, especially small systems, there is a need to provide additional resources specifically targeted towards helping those systems. The sheer number of systems that could benefit from assistance exceeds IDEM's ability to provide the level of needed assistance to all systems, and is a daily prioritization challenge.

Efficacy of Capacity Development Strategy

IDEM believes its capacity development efforts have been effective in improving the technical, managerial and financial capacity of public water systems in Indiana. The positive feedback received from water suppliers on the outreach site visits, workshops, self-assessment manual, workbooks etc. indicates that IDEM is making a positive impact both in providing assistance and improving compliance. IDEM's partnership with the Indiana State Department of Health and working relationships with the Indiana Utility Regulatory Commission, and the Indiana Office of the Utility Consumer Counselor has reinforced its efforts in improving public water system capacity.

IDEM believes that the ongoing implementation of Indiana's Capacity Development Plan for Existing Public Water Supplies will further improve the compliance status of public water supplies in the future. The goal is to provide assistance to systems to prevent violations and ensure that the highest quality of water is delivered to consumers. This prevention approach will minimize the need for dedicating compliance and enforcement staff resources to returning systems to compliance. Through the efforts of this program, Indiana is laying a strong foundation of support for PWSs by helping them to improve their ability to provide safe water.

IDEM will make this report available through its website at http://www.in.gov/idem

Appendix A

Table 1: 2016

Table 2: 2015

Table 3: 2014

Key to Charts below

MCL=Maximum Contaminant Level Violation	**IOC**=Inorganic Chemicals (10-12 Chemicals)	**VOC**=Volatile Organic Compounds (21 Chemicals)	**NO3**=Nitrate
Pb/Cu=Lead and Copper	**SOC**=Synthetic Organic Compounds (27-30 Chemicals)	**TCR**=Total Coliform Rule	**Rads**=Radionuclides
DBP=Disinfection By-Products	**SWTR**=Surface Water Treatment Rule	**CCR**=Consumer Confidence Report	**TT**=Treatment Technique Violation
TNC=Transient Noncommunity	**NTNC**=Nontransient Noncommunity Water System	**CWS**=Community Water System	**PN**=Public Notice

Table 1. 2016 Violations Summary for Indiana Public Water Supplies									
		MCL		Treatment Technique		Monitoring & Reporting		Consumer Confidence Report	
		Violations	Systems In Violation	Violations	Systems in Violation	Violations	Systems In Violation	Violations	Systems in violation
CCR	CWS							106	93
Pb/Cu	CWS			1	1	33	31	**PN Violations**	
	NTNC			1	1	20	20		
SWTR	CWS			2	1	0	0	0	0
	NTNC			0	0	0	0	0	0
	TNC			0	0	0	0	0	0
VOC	CWS	3	1			21	1		
	NTNC	7	2			63	3		
IOC	CWS	5	2			32	19		
	NTNC	5	2			39	9		
	TNC	22	22			186	174		
SOC	CWS	0	0			231	10	**GWR Other Violations**	
	NTNC	0	0			60	5		
GWR	CWS			0	0	14	13	0	0
	NTNC			0	0	9	9	0	0
	TNC			0	0	111	101	0	0
TCR/ RTCR	CWS	6	5	3	3	42	28		
	NTNC	5	5	2	2	35	28		
	TNC	35	32	131	127	1052	682		
Rads	CWS	0	0	0		0	0		
DBP	**CWS**	67	22	0	0	118	63		
	NTNC	0	0	0	0	4	2		
	TNC	0	0	0	0	0	0		
Totals*	CWS	81	30	6	5	496	128	106	93
	NTNC	17	9	3	3	230	61	0	0
	TNC	57	53	131	127	1359	794	0	0

Total Number of Systems in Violation*	CWS	232
	NTNC	90
	TNC	967
	Total	1289

Total Number Of Violations	CWS	684
	NTNC	250
	TNC	1537
	Total	2471

* This number represents the total number of systems in violations for 2016. However, this number includes some systems with multiple violations across contaminant groups.

Table 2. 2015 Violations Summary for Indiana Public Water Supplies									
		MCL		Treatment Technique		Monitoring & Reporting		Consumer Confidence Report	
		Violations	Systems In Violation	Violations	Systems in Violation	Violations	Systems In Violation	Violations	Systems in violation
CCR	CWS							87	80
Pb/Cu	CWS			1	1	39	22	**PN Violations**	
	NTNC			0	0	23	16		
SWTR	CWS			1	1	0	0	0	0
	NTNC			0	0	0	0	0	0
	TNC			0	0	0	0	0	0
VOC	CWS	0	0			105	5		
	NTNC	2	1			420	18		
IOC	CWS	13	6			93	22		
	NTNC	12	5			83	15		
	TNC	21	21			258	240		
SOC	CWS	0	0			255	13	**GWR Other Violations**	
	NTNC	0	0			56	2		
GWR	CWS			0	0	14	9	0	0
	NTNC			0	0	8	7	0	0
	TNC			0	0	58	54	0	0
TCR	CWS	36	30			49	39		
	NTNC	34	29			46	36		
	TNC	272	244			755	557		
Rads	CWS	0	0			0	0		
DBP	CWS	86	28	0	0	93	43		
	NTNC	0	0	0	0	8	4		
	TNC	0	0	0	0	0	0		
Totals*	CWS	135	63	2	2	648	132	87	80
	NTNC	48	34	0	0	644	82	0	0
	TNC	293	264	0	0	1071	676	0	0

Total Number of Systems in Violation*		
	CWS	255
	NTNC	111
	TNC	839
	Total	1205

Total Number Of Violations		
	CWS	872
	NTNC	692
	TNC	1364
	Total	2928

* This number represents the total number of systems in violations for 2015. However, this number includes some systems with multiple violations across contaminant groups.

Table 3. 2014 Violations Summary for Indiana Public Water Supplies									
		MCL		Treatment Technique		Monitoring & Reporting		Consumer Confidence Report	
		Violations	Systems In Violation	Violations	Systems in Violation	Violations	Systems In Violation	Violations	Systems in violation
CCR	CWS							77	67
Pb/Cu	CWS			0	0	62	43	**PN Violations**	
	NTNC			0	0	51	35		
SWTR	CWS			6	4	1	1	0	0
	NTNC			0	0	0	0	0	0
	TNC			0	0	0	0	0	0
VOC	CWS	0	0			168	8	**GWR M&R Violations**	
	NTNC	5	2			189	6		
IOC	CWS	23	7			42	19	0	0
	NTNC	6	4			31	11	0	0
	TNC	21	20			185	176	0	0
SOC	CWS	0	0			61	4	**GWR TT Violations**	
	NTNC	0	0			85	3		
TCR	CWS	47	29			62	41	0	0
	NTNC	33	28			21	20	0	0
	TNC	231	191			613	470	0	0
Rads	CWS	0	0			0	0	**GWR Other Violations**	
DBP	CWS	25	20	0	0	184	91	0	0
	NTNC	0	0	0	0	26	13	0	0
	TNC	0	0	0	0	4	2	0	0
Totals*	CWS	95	56	6	4	580	187		
	NTNC	44	34	0	0	403	78		
	TNC	252	208	0	0	802	577		

Total Number of Systems in Violation*		
	CWS	274
	NTNC	107
	TNC	718
	Total	1099

Total Number Of Violations		
	CWS	758
	NTNC	447
	TNC	1054
	Total	2259

* This number represents the total number of systems in violations for 2014. However, this number includes some systems with multiple violations across contaminant groups