



FYI - Small Systems

Small Systems Committee
INDIANA SECTION AWWA

FYI - Small Systems

April, 2005

**AWWA SMALL SYSTEMS
COMMITTEE**

FYI

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Spring is finally here and things are a changin'!! We are so please to announce six new members have joined our Small Systems Committee and the folks who served last year have elected to stay on as well. Thank you to all of these individuals who are so committed to assisting small systems.

Please contact any of our Committee members for assistance with issues you are facing, to give input on this newsletter or other Committee activities, to submit events to include in FYI, or to share ideas on topics to cover either in this format or in a more formal workshop or conference setting.

This edition is jam-packed with all sorts of information. Please be sure to review the "Mark Your Calendars" section as some of the District Meeting dates have changed from our last printing. With all of the activities coming up in the next few months, we certainly hope to cross paths with you. If you see any of our Committee members out and about, please introduce yourself and let us know how we can better serve you!!

WHAT'S UP WHAT'S NEW - IDEM

I would like to introduce some of our new management staff to you. Of course, if at anytime you have any questions about staff, offices, or any general questions remember we are as close as you phone and computer.

Scott Nally has joined us as IDEM's **Assistant Commissioner of External Relations**. Scott will oversee the functions of the agency that concern external stakeholders including legislation, media, the agricultural community and environmental groups. In addition, the regional offices and the Office of Planning and Assessment will report to this Assistant Commissioner position.

Daniel Murray has accepted the position of **Assistant Commissioner of the Office of Pollution Prevention and Technical Assistance**.

Matthew Klein is the **Assistant Commissioner of the Office of Compliance and Enforcement**.

Bruce Palin is the **Assistant Commissioner of the Office of Land Quality**.

Sandra Flum has joined IDEM as the **Director of Communications and Intergovernmental Relations**. Sandra will oversee legislative services, Media and Communication Services (MACS), coordinate internal communications for the agency and serve as IDEM's contact with elected officials.

Niles Parker is joining IDEM's leadership team as the **Director of the Office of Planning and Assessment**.

Eric Levenhagen has come to IDEM as the **Legislative and Business Relations Liaison**.

We will continue to keep you informed as things move forward.

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FYI FROM THE SECTION CHAIR

It is good to be king, but even better being Chair of the Indiana Section. In this capacity I want to offer small systems in Indiana my assistance, both as Chair and as Director of the South Bend Water Works. I make myself and my company available to help in any way we can.

We are truly blessed to have quality people on our Small Systems Committee and serving as officers of the Indiana Section. These persons, and many others who have rallied around, have made us the success we are today.

We are in need of your input for the AWWA Annual Conference in February. Please get in touch with Stan Diamond with any ideas you may have.

I am looking forward to a productive year as the Section Chair. Please remember, my door is always open to you.

John Stancati
Chair
Indiana Section, AWWA

WHAT'S UP WHAT'S NEW - IDEM (Continued)

(Continued from page 1)

Contact us

Be aware that effective immediately, IDEM's email domain address is: @idem.in.gov. Email you send to us via the Internet will now need to be displayed as: staffloginid@idem.in.gov for instance my new address will be lmelvin@idem.in.gov for Mary Hollingsworth it will be mholling@idem.in.gov for Ruby Keslar rkeslar@idem.in.gov and so on.

Our mailing address has also changed slightly. We no longer use the P. O. Box. Please address all our mail to 100 North Senate Avenue, Indianapolis, Indiana 46204. To get mail directly to the Drinking Water Branch use the address of IDEM, Drinking Water Branch 66-34, 100 North Senate Avenue, Indianapolis, Indiana 46204. The mail code of 66-34 will direct the mail to us. The codes are to be used for remit (incoming mail) information. If you have permit applications, forms, letters and information that you need to send to us please use the mail code. However, if there is money involved then the mail code for the cashier's code should be used so the checks and money go there. Mail codes that may of use to you are:

65□42 Wastewater Permitting/Operations	65-43 SRF
65□44 Watershed Management	66-33 Groundwater (Drinking Water Branch)
66□34 Drinking Water Branch	50-10 Cashier's Office

Contact you

We would very much like to have **your** e-mail address. We will be happy to send information to you via e-mail and our Compliance Section can e-mail reminders to you if you prefer. It may be a much better and more effective way to reach you, but we need you to please provide us with your e-mail address. We are looking forward to a time when we can accept reports electronically. We are working on making electronic reporting a reality. Sorry, no time frames yet. However, the sooner we can start communicating electronically the better.

Information from Indiana Section AWWA

Water Operator Certification Exams will be offered by the Indiana Department of Environmental Management on May 5, 2005. To assist candidates in preparing for the exams, the AWWA - Indiana Section's Operator School and Education Committees, in cooperation with IDEM will hold a 1-day course on April 27th. Please refer to Page ___ for more details and registration information.

Continuing Education Requirements

I understand there is some confusion about the number of continuing education hours needed if you hold multiple certifications. I will try to clear things up. The rule states that all water treatment plant and water distribution system certified operators fulfil continuing education requirements during each three (3) year period following the issuance of the certification card and prior to having the certification card renewed. So you have from July 1 of the year the certification card is issued to June 30 three (3) years later to fulfill the requirements.

Each classification, whether plant or distribution, have specific contact hour requirements. If you hold two (2) certifications you may be given duplicated continuing education credit from a single approved continuing education course for each water treatment plant and water distribution certification to which the subject matter is applicable. You must obtain the greatest number of continu-

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NOMINATIONS SOUGHT (Continued)

(Continued from page 3)

voluntary service in a leadership capacity within IRWA and the Indiana Section AWWA. Serving as an officer in an Association is not a prerequisite.

A plaque and subsequently a pin will be presented at the Annual Conference of each Association. The Hoosier Water Awards Committee will coordinate the presentations.

The first **Hoosier Water Award** is presented to: **James R. Williams**

Kenneth J. Miller Water For People Founders' Award

Kenneth J. Miller Water For People Founders' Awards may be presented annually by Water For People/Water For People-Canada in honor of the untiring efforts of Kenneth J. Miller to help people of the world through Water For People.

The purpose of this award is to recognize volunteers for their outstanding service and leadership in the advancement of the Water For People mission.

Eligibility for the Award: any person who has provided exemplary service to Water For People through project facilitation, fund raising, education and/or raising the awareness of Water For People activities.

A visiting WFP representative or the visiting AWWA national officer will present the award and pin during the Awards Luncheon at the Annual Section Meeting.

The plaque will be presented at the WFP annual meeting in June.

The **2005 Kenneth J. Miller Water For People Founders' Award** is presented to: **John A. Hardwick**

Award of Merit

Purpose: The Award of Merit is an award of achievement to those outside the water industry, who have demonstrated outstanding service in support of the principles of the Indiana Section AWWA in providing better water for people. Any individual, group, or organization that has made a notable and outstanding contribution to the water industry is eligible.

Qualifications: The nominee cannot be employed in the water industry.

The Award of Merit recipient shall remain secret until **presentation**, normally at the noon Awards Luncheon at the Annual Section Meeting.

The **2005 Award of Merit** is presented to: **William D. McCarty, Retiring Chair of the IURC**

WHAT'S UP WHAT'S NEW - IDEM (Continued)

(Continued from page 2)

ing education contact hours required by the various certifications held within the same period of overlap in order to not be required to obtain continuing education for each certificate held. So if all your certifications are issued in the same year, you have the full three (3) years to obtain the continuing education contact hours and the hours may be counted for both as applicable. If they do not renew in the same year, you have the time they overlap to count the contact hours for all certificates held. If one renewal period is from July 1, 2002 to June 30, 2005 and another renewal period is from July 1, 2003 to June 30, 2006, you would have from July 1, 2003 through June 30, 2005 as overlap years to obtain continuing education hours that would count for both certifications.

Remember that a minimum of seventy percent (70%) of the required continuing education contact hours shall be obtained from the technical category of approved continuing education courses. No more than thirty percent (30) of the required continuing education contact hours shall be obtained from nontechnical subject matter of approved continuing education courses. Generally the course sponsor will submit the request for approval and will have the breakdown of technical and/or general hours approved.

If you have any questions, you can contact the operator certification staff by phone or e-mail. You may contact Phil Hiestand at 317/308-3284 or by e-mail at phiestan@idem.in.gov regarding continuing education contact hours.

"WHERE IS THE MONEY?"

By Chad Ducey, PE

We are all faced with financial issues in some form when it comes to operating a water or wastewater system. Each aspect that deals with one of these systems has to keep the financial side in mind as we think about the daily operations or a new project that we would like to undertake. Many times when we begin these discussions the question, "Where is the Money?", always seems to come up. This article is the first in a multiple part series to assist small towns and cities in understanding and gaining information on the finances involved with operating a water and/or wastewater system. There are multiple funding opportunities available for projects in water and wastewater systems and we are going to try to help you discover some of those in this series. There will be discussions of financing, rates, determining system needs, and how to prepare for growth among other topics.

I was given the task of writing this lead off article at my first Small Systems Committee meeting after a discussion of many of the topics we would like to cover that can be a valuable resource to the recipients of this newsletter. I have had exposure to all sides of this topic which by no means makes me an expert rather an organizer of all of the resources available to small systems to get their finances in order as well as explore the funding opportunities available to the system whether it is through rates, grants, loans, or other creative funding methods. We are going to try to touch on as many of these topics as we can, but inevitably we will miss an opportunity and someone will surely discover it. The purpose behind this series is to get everyone involved with a small system thinking about these topics and exploring various ways to make the finances of the system work. I have had experience in engineering and operations with a large utility operation and one of the smallest operations in the State so I am aware of how these challenges are different based on the size of the operation, but there are many issues that apply to almost every system no matter the size. Our goal throughout this series is to provide information to anyone who may be involved with one of these systems from an operator, town board member, engineer, or just a concerned citizen.

I know from my experience that finances can be one of the most challenging aspects of operating a system. It always seems that it is not too difficult to figure out what the system may need based on capacity or condition of the system. The ultimate challenge that most operations face is how we are going to pay for everything from the necessary operating expenses to this great big water tower that we need to build before our old one falls down. This becomes even more challenging when you throw the ever progressive regulations that these operations must meet and the continual improvements that need to be made just to keep up. You can also add security to that list since it has become a prominent issue for all systems out there in the last few years. These are all financial concerns that become a little more bearable with some research and planning.

A great starting point for every operation is to find out the current financial condition of the system. It is very difficult to plan ahead or know what to expect when the current situation is unknown or convoluted. It is very important to balance the books so that a starting point can be established. The rates for a system need to be evaluated as well. It is important to know if these rates are appropriate for the size of system and that they cover everything that is involved with operating the system. If the rates leave the system with a deficit, then they may need to be adjusted before any planning for further projects is considered. These rates also need to meet particular thresholds to be eligible for certain grants and loans that are available. You can have the greatest plan in the world, but if the funds don't cover the expenses then a long term goal is going to be difficult to reach. This can be accomplished with a financial advisor or by just sitting down with the people involved in running the system to determine if you are making ends meet. This also applies to the system itself. It is very important to know the current state of the system so that it can be determined what improvements need to be made and when those improvements should be made. I know a lot of this sounds elementary but if you don't know where you are starting from it is hard to envision where you are going to finish.

Once the current situation is assessed and established, it is very important to know what is ahead. I highly recommend that each system prioritize the planned improvements that need to be made. This will help gauge the need for each project and plan for the implementation and funding of each one. It allows everyone to have input on the projects on the list and also makes everyone aware of the urgency of each project. This may have already been accomplished if the system has a master plan or comprehensive study. It is still important to keep those plans and studies up-to-date on the current status of the system.

Now that the projects of need have been identified, it is time to go back to our original question, "Where is the Money?" There are several opportunities out there for funding projects. Information is becoming very accessible on many of these opportunities through the internet and different public access opportunities. Many of these organizations will assist in the planning of projects once they have been identified and the funding source determined. One of the articles in

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SYSTEM MAPPING - YOU CAN DO IT

Larry Schrock; Town of Topeka

I would like to share a few thoughts on mapping of your water system. I feel that is very important to have all valves and mains identified for location and size. If you have no maps or prints, you might ask the town council, town clerk or a retired water department employee if they know where one might be. If they do not know of a good map, ask about the engineering companies that have worked in your town to see if they have any maps or prints of your system. Most will be very helpful.

If you do not have a metal detector, get one. Buy a good one and learn how to use it because it will pay for itself.

Most (not all) water mains will have a valve at an intersection where two lines connect. If you have an intersection that does not, then start looking with the metal detector. If you can not find anything, ask the neighbors if they know of or can remember any valves that might be buried or paved over.

If you find or know of a valve that is not mapped, find two permanent objects – manhole, building foundation (not trees or poles) -- and measure from each one to the valve and record it. Five years from now when you forget where it is, and you may, you can go to the map and find it. This type of “do it yourself” mapping is the least expensive, but the most time consuming.

Our water system had a fairly good water main map, but not one of the residential shut-offs were recorded. It took about 5 years to complete, but we located all of them. Some days we got 1 or 2, some days we got 4 or 5, and some days we got none, but we kept at it until it was complete. I can not stress enough how important this map is to our department.

If you have a map or print that has a lot valves on it, take a copy to the field and verify their locations. Sunday morning at 3:00am is not the time to go valve hunting.

There are companies that can locate your valves and mains and put them on a map for you. If you chose this type of locate, I would suggest your employees help with this project to better learn and understand your system and to better serve your utility and your customers.

Our system has every valve and main that is known on a map. We also have all sanitary mains, storm water lines, and manhole structures on a map. I am sure we have missed some, but believe we have the vast majority of them. If you add new valves or mains to your system, be sure to add them to the map.

After you have your notes or updates put on paper, you might call the guidance counselor at the local high school to see if a drafting student may be able to make a new map or help correct your current one. Also there are companies available that can produce a new or updated map.

After you start this project, do not give up until you are satisfied that you have all or most of the valves and mains recorded – and keep this map updated as your system changes. It may take a long time to complete, but you will be surprised how useful this resource will be to you and your system.

CONSUMER CONFIDENCE REPORTS

As part of IDEM's continuous effort to assist small systems, the Drinking Water Branch of the Office of Water Quality has developed a computer program that takes and properly formats data that was previously submitted by the system to create a draft Consumer Confidence Report. The purpose of this draft CCR is to facilitate and expedite the preparation of your final 2005 CCR, which must be submitted to all your customers and to IDEM's Office of Water Quality no later than July 1st 2005. Remember you are still responsible for verifying the completeness and accuracy of the information provided before mailing out the final CCR to all your customers. The Certification Form, which must be submitted to IDEM not later than October 1st, 2005, and a CCR Checklist are available for your convenience. Both documents, the final CCR and the Certification Form, must be submitted to IDEM and postmarked not later than their corresponding due dates in order to avoid non-compliance. Please direct all questions and requests to either Mr. Peter Poon at (317)308-3328, or Mr. Mehul Sura at (317) 308-3303.

ANNUAL PERFORMANCE TESTING OF WELLS & PUMPS A PREVENTATIVE MAINTENANCE TOOL

By Steve Geschke - Peerless-Midwest, Inc.

While the valves, water mains, hydrants, etc., act as the “arteries” of your water system, and the filtration and treatment processes act as the “liver” of your water system, your wells and pumps are the “heart” of your water system. Without them, you have nothing to treat and nothing to distribute. As such, testing and servicing these components of your water system should be part of your overall system maintenance plan.

Tracking and documenting the performance and service history of your wells and pumps on an annual basis will go a long way to insure a long service life and efficient operation. When the well, pump, and motor performance are tested on an annual basis, trends in declining performance can be determined and addressed before they become an expensive catastrophic “emergency”. In addition, this proactive approach will maximize the service life of your equipment, will help manage repair costs, and will give you credibility with your town or water board. As it has been said, “an ounce of prevention is worth a pound of cure”.

Performance Testing of Wells

The performance of a well is typically reported as “specific capacity”. Specific capacity is defined as the well’s yield per unit of drawdown and is expressed as gallons per minute per foot of drawdown (gpm/ft.). For example: the water level in a well prior to pumping (known as “static water level”) is measured to be 10 feet below ground surface. The well is then pumped at a constant rate of 1000 gallons per minute for an unspecified length of time. The stabilized water level in the well during pumping (known as “pumping water level”) is measured to be 50 feet below ground surface. The difference between the pumping water level and the static water level in this case is 40 feet (known as “drawdown”). The quotient of 1000 gpm divided by 40 feet is 25.0 gpm/ft, the specific capacity.

Comparing the calculated specific capacity of a recently tested well to the original and historical specific capacity data can give valuable information that will help in understanding the performance characteristics of the well.

The implementation of a well performance test can be very simple or very complex depending on the well’s construction and the pump/piping configuration. Static water level and pumping water level measurements are obtained from

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“WHERE IS THE MONEY?” (Continued)

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this series will discuss many of the funding opportunities that are available to small systems. There are grants and loans available to assist small systems to make necessary improvements and meet or exceed the current regulations that govern these systems. It is important to know what is available so that a system can make the best decision on what is right for it and its customers. What may work for one, may not be the right answer for another system so it is wise to make these decisions after evaluating the system so everyone is aware of the improvements that are needed and how each of these improvements are going to be financed. There is a wealth of information available out there to systems that are trying to keep everything in running order and make the finances work as well. Whether is through the assistance of financial planners, engineers, outside resources, or just taking the initiative inside the system to make things happen, it is important be aware of what is out there and how to access it. This is what we will attempt to do in the next several issues of *FYI – Small Systems* so look for the next article in this series in the July issue.

It has been my pleasure to kick off this great series. I am looking forward to organizing the efforts of bringing you as many resources as we can pull together to help you deal with one of the most pressing issues of operating a water or wastewater system, finances. It may not encompass every opportunity available out there, but it should be a great guide to get you to start thinking about the current financial status of the system and get you to start thinking ahead about the projects that may be needed in the future. Our goal is to attempt to answer the age old question of “Where is the Money?”

"SOMETHING GOOD TO SAY CONCERNING LEAD/COPPER TESTING"

By: Jeff Heard, Tipton Municipal Utilities; and
Nick Stanley, Water Solutions Unlimited, Inc.

Have you ever heard anything good said about the lead/copper first draw sampling program? I doubt if you have. Tipton Municipal Utilities (TMU) doesn't like having to ask our homeowners to take first-draw samples every six months, or even three years; any more than other municipalities across the United States. The last thing we would have thought was that when we failed copper back in 1992, it would save us nearly \$30,000 per year? We actually have something very, very good to report about the lead and copper testing program.

This report will briefly discuss the following two aspects of our copper corrosion inhibitor program that we have administered for the past twelve years:

1. How we successfully initiated a corrosion inhibitor program to get us back into compliance with the lead/copper regulation.
2. How the corrosion inhibitor reduced copper pinhole leaks in the distribution system and saved TMU thousands of dollars of repairs each year.

The City of Tipton, Indiana is located approximately twenty miles north of Indianapolis. Our population is approximately 6,000 and we have 2,450 water services. The average water production is approximately one million gallons per day. Our treatment process consists of aeration, detention, followed by sand pressure filters. Our water superintendent is Tom Spay, who has worked in the water department for over 42 years.

Corrosion Control Program Brings Us Back into Compliance

In 1992 we began testing for lead and copper by taking forty, first draw samples from homeowner taps. We passed lead, but failed copper miserably. Figure 1 summarizes our test results:

Figure 1

Fall, 1992 Lead/Copper Results

	<u>Minimum</u>	<u>Maximum</u>	<u>90th Percentile</u>
Lead	<0.005mg/L	0.140mg/L	0.009mg/L
Copper	0.513mg/L	3.340mg/L	2.840mg/L

Obviously, we greatly exceeded the 1.3 mg/L action level. We decided not to delay initiating a corrosion control program. We contacted Water Solutions Unlimited, Inc. (WSU) of Franklin, Indiana and asked for their recommendations and assistance. Our consultant developed our Desktop Study and Optimal Corrosion Control Program (OCCP) for us. The OCCP and phosphate chemical feed permits were approved by the Indiana Department of Environmental Management (IDEM) in the spring of 1993.

Was the Water Corrosive?

Tipton Municipal Utilities' water is not corrosive. The Langelier Saturation Index (LSI) is +0.53 and is actually scale producing. The Ryznar Index is 6.58. Failing copper or lead was the last thing that we thought would happen to us. Figure 2 shows the typical water quality parameters for our system.

Figure 2

Water Quality Parameters

pH	7.64
Temperature	13 C
Total Alkalinity as CaCO3	339 mg/L
Calcium as Ca	79.8
Conductivity	570 umhos

Water Solutions Unlimited recommended using corrosion coupon tests along with first-draw sampling to monitor our progress. While we were waiting for the chemical feed permit to be approved by IDEM, we began using the corrosion coupons to develop a baseline of data on the corrosivity of the finished water before chemical treatment was started. After initiating the feed of the

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"SOMETHING GOOD TO SAY CONCERNING LEAD/COPPER TESTING" (Continued)

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corrosion inhibitors we continued to monitor using the corrosion coupons and first-draw samples. We tried two or three different corrosion inhibitor blends over an eighteen-month period. The coupon data helped us "zero-in" on which inhibitor-blend to use and the optimum feed rate that should be fed. Figure 3 shows a sampling of the coupon results over the past twelve years. Corrosion rates have decreased from 8.37 mils per year in March of 1993, to 3.18 mils per year in April of 2004. Some results have been as low as 0.99 mils per year in the past year.

Figure 3

Copper Corrosion Coupon Results

March 25, 1993 – May 18, 1993	8.37 mils per year (No Treatment)
February 11, 2004 – April 13, 2004	3.18 mils per year (Phosphate)
June 9, 2003 – August 13, 2003	0.99 mils per year (Phosphate)

Tipton Municipal Utilities initially passed their first round of tests in June of 1996. We have been on reduced monitoring for several years. Our last lead/copper test results are shown in Figure 4.

Figure 4

August, 2002 Lead/Copper Results

Lead

<u>Minimum</u>	<u>Maximum</u>	<u>90th Percentile</u>
<0.001mg/L	0.041mg/L	0.009mg/L

Copper

0.260mg/L	1.000mg/L	0.860mg/L
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Our 90th percentile test result has been reduced from 2.84 mg/L to 0.86 mg/L, a reduction of 70%. All results are less than the 1.3 mg/L action level and we can sleep comfortably the night before we test for lead and copper in the future.

But That's Only Part of This Story!

Prior to testing for lead and copper in 1992, Tipton Municipal Utilities experienced an average of 23 to 25 pinhole leak service work orders a year. Please see Figure 5. Typically, we would get calls from homeowners telling us that water was "bubbling-up" in a yard or street. Ninety percent of the time the leak occurred at the flare fitting where the copper pipe connects to the corporation-stop where the service line is connected to the water main.

Figure 5

Yearly History of Pinhole Leak Repairs

<u>Year</u>	<u>Number of Repairs</u>
1991	23
1992	25
1993	20
August 9, 1993 Started Corrosion Inhibitor	
1994	14
1995	10
June, 1996 Passed Pb/Cu Testing, to be in Compliance	
1996	10
1997	10
1998	10
1999	11
2000	10
Reduced Chlorine, went to Chloramination	
2001	4
2002	5
2003	5
2004	4

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WATER FOR PEOPLE

Here is a chance for the Hoosier Water Industry to come to the aid of "Water For People." Both Kiwanis International and Rotary could be looking at internationally supporting "Water For People" in 2007 and beyond. Kiwanis International's headquarters is located in Indianapolis and our Indiana "Water For People" Committee and our Hoosier Water Industry can play an important role in forging that partnership. We want to start with Indiana, and then spread the word in other Midwest states. If you are a member of Kiwanis or Rotary in your community, please fill in the information below and forward to:

Steve Hadley, Indiana WFP Committee
 c/o Water Solutions Unlimited
 P.O. Box 347
 Franklin, IN 46131

or fax to: 317-736-4322

or e-mail to: shadley@water-group.com. Thank You

Name: _____
 Municipality or Company _____
 Address(Business or Home) _____

 Kiwanis or Rotary Club & City _____
 Telephone(Home or Business or Cell) _____
 E-Mail Address _____

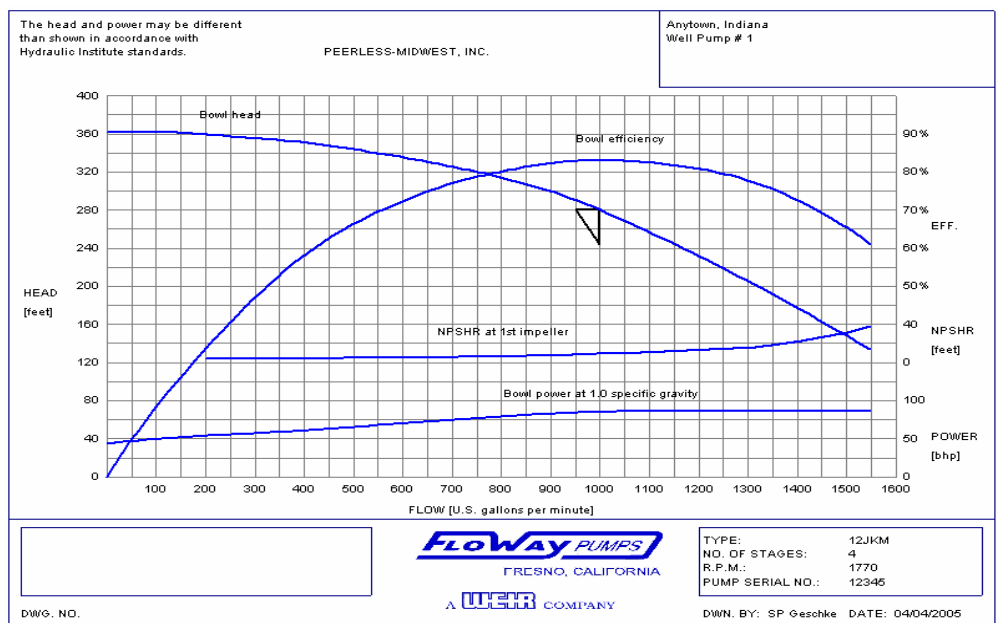
ANNUAL PERFORMANCE TESTING OF WELLS & PUMPS A PREVENTATIVE MAINTENANCE TOOL (Continued)

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either an airline (if installed when the pump was set) or from an electronic water level probe (if there is a place to insert it into the well). Electronic water level probes are more accurate, however airline measurements are acceptable. Flow rates are measured with the in-line water meter, or the discharge piping can be temporarily equipped with a circular orifice weir and piezometer tube to measure flow rate. Ideally, the circular orifice weir is located downstream from the meter so that the flow rate measured from the orifice can be used to compare to the flow rate measured by the meter. What's important is to be consistent and use the same method each time the wells is performance tested.

Performance Testing of Pumps

The performance of a pump is typically reported as "total dynamic head". Total dynamic head is defined as the amount of pressure (reported in feet) produced by a pump at a specified flow rate. All pumps have a rated capacity of a defined amount of total dynamic head at a defined flow rate. A pump performance curve shows the amount of total dynamic head a pump is capable of producing at various flow rates.



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ANNUAL PERFORMANCE TESTING OF WELLS & PUMPS A PREVENTATIVE MAINTENANCE TOOL (Continued)

(Continued from page 10)

For example: a pump rated for 280 feet of total dynamic head at 1000 gallons per minute is pumped at a constant rate of 1000 gallons per minute for an unspecified length of time. The stabilized water level in the well during pumping is measured to be 50 feet below ground surface and the pressure measured at the discharge is 95 pounds. The discharge pressure is first converted to feet by multiplying by 2.31 feet/pound = 219 feet. Then, because the pump had to lift the water 50 feet from the pumping level to the discharge, 50 feet is added to the measured discharge head resulting in a total dynamic head value of 269 feet at 1000 gallon per minute. Since the pump in this example was operated at the same flow rate as it's rated capacity, it is easy to see that the pump is performing 11 feet off (280' rated minus 269' tested) it's rated capacity. However, sometimes it is not possible to run the pump at its rated flow rate. When that is the case, the total dynamic head calculated at the non rated flow rate is plotted on the performance curve and a ratio is set up to project what the total dynamic head would be at the rated flow rate.

In addition to performance testing the well and pump, the pump should be serviced by changing the stuffing box packing, greasing the stuffing box and motor (when applicable), and changing the electric motor oil.

Comparing the pump performance/maintenance data and well capacity information helps to form a predictive emi-nence schedule as well as a preventative maintenance program.

So, your well is off capacity to an unacceptable level. Pump performance test indicates that the pump is in good work-ing order. You determine the well is in need of cleaning. The historical information can determine which method is best suited for this particular well. It can also indicate that it's time for other solutions or options to solve an on going problem. Different cleaning alternatives can be investigated and a better understanding of the problem may lead to a longer term solution that saves time and money. Investigating water quality problems and biofouling issues can go a long way in understanding efficient methods for better performance of your wells. It also needs to be said that prob-lems with pumping equipment can be better understood by recognizing issues associated with running equipment off of the intended design conditions. Pumps that are run close to or outside of the design curve will have a shortened life and require higher maintenance. Problems like these can only be understood with documenting good information. Pump and well testing on an annual basis can help you understand the dynamic environment of your wells and pumps. Information gives everyone the basis to understand problems and allows you to make decisions that can save time and money.

Don't neglect the "heart" of your water system. Remember "an ounce of prevention is worth a pound of cure".

IDEM Revising Operator Certification Regulations Easing Burden on Small Systems

IDEM is in the process of revising Drinking Water Operator Certification requirements to make things easier for small public water systems. A workgroup meeting was held on April 22, 2005. Items discussed for revision include allow-ing site specific operators (similar to a grandparented operator – this is generally intended to be someone who is at the facility on a regular basis) at some of the small simple systems, reducing the required number of daily site visit requirements, allowing certified WT operators of any classification to operate a small DSS system, and other topics were discussed. To get copies of draft rule language sent to you once developed or for questions, comments, or sug-gestions, please contact Mary Hollingsworth at (317) 308-3331 (mholling@idem.in.gov) or Stacy Jones at (317) 308-3292 (sjones@idem.in.gov).

"SOMETHING GOOD TO SAY CONCERNING LEAD/COPPER TESTING" (Continued)

(Continued from page 9)

The average cost to repair each leak was estimated to be \$1,580. This included having three men for two full days of work; and parts, equipment and material to return the site to normal conditions. Since being on the corrosion control program, we have reduced the number of leaks to an average of five per year. Tipton still has over 900 flared corporation stops in their system. Figure 6 outlines the costs.

Figure 6

Cost Per Leak Calculation

3 men X 16 hours X \$22.50 per hour =	\$1,080.00
Parts, equipment, and material	<u>500.00</u>
Average Total Cost	\$1,580.00

The cost of the corrosion inhibitor chemical is \$6,000.00. If you add in yearly additional operational costs to feed the chemical of \$800 and chemical feed equipment amortized over three years of \$550, you come up with a total yearly cost of the corrosion control program of \$7,350.00. Figure 7 shows those costs.

Figure 7

Yearly Corrosion Control Program Costs

Cost of chemical	\$6,000.00
Operational Costs	800.00
Equipment amortized over three years	<u>550.00</u>
Yearly Total Costs	\$7,350.00

Up until the end of the year 2000, the corrosion program reduced our average number of leaks by 15 per year. This equals a yearly savings of **\$23,700.00** per year. If we subtract the cost of the corrosion inhibitor program we got a yearly savings of **\$16,350.00**.

Tipton Switches to Chloramination

During the year of 2001, Water Solutions Unlimited also recommended that we go to chloramination for our disinfection program, due to the 1.0 mg/L of ammonia as NH₃-N in the water coming from our groundwater aquifer. In the past we were feeding 10-12 mg/L of chlorine in an attempt to carry a free chlorine residual in the distribution system. Going to chloramines cut our chlorine feed rate by 6 mg/L. We pay \$0.30 per pound for gas chlorine. This reduced our chlorine costs by **\$5,479.00** per year. *At the same time we also reduced the number of pinhole copper leaks from 10 per year to 5 per year. This saved us an additional \$7,900.00.* **Figure 8 shows our total, overall savings per year to be \$29,729.00.**

Figure 8

Final Yearly Savings

Yearly Savings as of 2000	\$16,350.00
Chlorine Savings	5,479.00
Pinhole Leak Reduction savings (10 to 5)	<u>7,900.00</u>
Final Yearly Cost Savings	\$29,729.00

TIPTON HAS SAVED OVER \$200,000 SINCE 1994!

Conclusion

Don't get us wrong. We don't like intruding upon our homeowners to sample for lead and copper. But, it's not very often that we are able to save our municipality this much money each year, and have valuable manpower available for other important projects. We probably would never have looked at using a chemical additive to solve our copper pinhole leak problem, if it hadn't been for us failing lead and copper. Knowing what we know now, we would gladly recommend that utilities use corrosion inhibitors and corrosion coupon monitoring to solve copper corrosion problems. If natural ammonia exists in the aquifer, then use it and disinfect with chloramines.



INDIANA SECTION American Water Works Association

March 21, 2005

FROM: American Water Works Association - IN Section
TO: Water Operator Certification Exam Candidates
RE: Invitation To Attend A 1-Day Course On April 27th To Prepare For Operator Certification Exams

Water Operator Certification Exams will be offered by the Indiana Department of Environmental Management on May 5, 2005. To assist candidates in preparing for the exams, the AWWA - Indiana Section's Operator School and Education Committees, in cooperation with IDEM will hold a 1-day course on April 27th. The course will be divided into three sections, water distribution, water treatment and math. The morning session will be from 9 a.m. to 12 noon. The afternoon session will be from 1 p.m. to 5 p.m. Lunch is on your own. **Registration is \$35.** The course will cover a wide range of subject matter, with time to solve problems and ask questions. **Please bring a pad, pencil, and calculator.**

The course will be held at: IDEM-Conference Room C, 2525 N. Shadeland Avenue, Indianapolis, IN 46219. Directions: From I465E take the I70W exit to North Shadeland Avenue, IDEM is on the east side of N. Shadeland Ave., one block north of I-70. Additional directions are available at <http://www.in.gov/idem/maps/shadeland.pdf>. To sign up in advance for this 1-day course please complete the attached registration and mail it with your check to the address listed below. **Make checks payable to AWWA-IN Section. You will not receive a registration confirmation prior to the course. Walk-in registration may be available if space permits.**

Questions about the course registration should be directed to Vicky Zehr at 260-427-1303. Questions about IDEM's water operator certification exams should be directed to Ruby Keslar at 317-308-3305.

REGISTRATION

APRIL 27TH, 1-DAY COURSE TO PREPARE FOR IDEM'S
WATER OPERATOR CERTIFICATION EXAMINATION

NAME: _____

ADDRESS: _____

_____, IN _____ ZIP

PHONE NUMBER: () _____ - _____

MAIL THIS REGISTRATION & YOUR \$35 CHECK TO THE FOLLOWING ADDRESS:

AWWA-IN Section,
Attn: Vicky Zehr C/O
Three Rivers Filtration Plant
1100 Griswold Ave
Fort Wayne, IN. 46805

MARK YOUR CALENDARS!! (Continued)

(Continued from page 16)

May 26, 2005 – Indiana Section AWWA – Northeast District Meeting in Marion. Contact: John Mugford at 260-982-2993 or at jmugford46962@mchsi.com

Late May 2005 -- Operator Certification Renewal Notices Mailed

June 1, 2005 – Proper Usage of Locating Equipment Workshop in Elberfeld, Indiana -- Indiana Rural Water Association – Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

June 2, 2005 – Proper Usage of Locating Equipment Workshop in Salem, Indiana -- Indiana Rural Water Association – Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

June 8, 2005 -- Final Adoption Hearing on Construction Permit Rule Changes at 1:30 pm Indiana Government Center South; 402 West Washington Street; Indianapolis, IN 46204

June 14, 2005 – Automatic Read Meters Workshop at Stucker Fork Utility in Austin, Indiana -- Indiana Rural Water Association – Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

June 21, 2005 – Case Study of Shipshewana Improvements Workshop (water plant, wastewater plant, new town center) in Shipshewana, Indiana -- Indiana Rural Water Association – Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

June 30, 2005 -- Last Day to Collect 2nd Quarter or January 1 to June 30 samples

June 30, 2005 -- Make sure you have CEUs if your Certification expires this year

July 1, 2005 -- Drinking Water Fee Billing (2/3 of Full Fee)

July 1, 2005 – Consumer Confidence Reports due to utility customers and IDEM no later than today. The certification to IDEM stating that the CCR report has been distributed to the customers and that the information is correct and consistent with the compliance monitoring data previously submitted to the Commissioner can be submitted along with the CCR, but this certification is definitely to be submitted no later than three (3) months after the July 1 deadline – October 1, 2005.

Mid July 2005 – IDEM Mailing of Drinking Water Operator Exam Application for November Exam

July 27, 2005 – Indiana Section AWWA – Water For People Golf Outing – Eagle Creek Golf Course; Indianapolis, Indiana. Contact: Dan Hood at 800-255-1521 or danhood@mesimpson.com

July and August 2005 -- Collection of Annual Total Trihalomethane (TTHM) and Haloacetic Acid (HAA5) samples at systems that disinfect and are required to collect annual samples

August 31, 2005 – Indiana Section AWWA – Southwest District Meeting in Princeton. Contact: Darrel Heisler at 812-853-3356 or at dheisler@amwater.com

September 8, 2005 – Indiana Section AWWA -- Central District Meeting in Danville. Contact: Dan Hilton at 317-996-2816 or at dhilton@ccrtc.com

September 9, 2005 – Indiana Section AWWA – Southeast District Meeting in Seymour. Contact: Roger Maynard at 812-282-1512 or at maynard@amwater.com

September 15, 2005 – Indiana Section AWWA – Northeast District Meeting in Auburn. Contact: John Mugford at 260-982-2993 or at jmugford46962@mchsi.com

September 19, 2005 -- Drinking Water Operator Certification Exam Applications must be Postmarked by Today

September 26 – 30, 2005 – Indiana Association of Cities and Towns. Contact: Matt Greller at 317-237-6200.

September 30, 2005 -- Last Day to Collect 3rd Quarter Samples and Annual Lead and Copper Samples

October 1, 2005 – If not already submitted to IDEM, certification is due stating that the CCR Report was distributed to customers by the July 1 deadline and that the CCR information is correct and consistent with the compliance monitoring data previously submitted to the Commissioner.

October 14, 2005 – Indiana Section AWWA – Northwest District Meeting in Logansport. Contact: Michael Simpson at 800-255-1521 or at michael@mesimpson.com

October 25-27, 2005 – Fall Conference – Alliance of Indiana Rural Water – West Lafayette, Indiana. Contact: Sherri Winters at 888-937-4992

November 3, 2005 -- Drinking Water Operator Certification Exam

November 14 – 16, 2005 – Indiana Water Environment Association Annual Conference. Contact: Gary Price at 317-685-0009.

December 5 – 7, 2005 – Indiana Rural Water Association -- Water Institute – Holiday Inn; Columbus, Indiana. Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

December 31, 2005 -- Last Day to Collect 4th Quarter or July 1 to December 31 samples

January 1, 2006 -- Drinking Water Fee Billing (Full Fee)

January 1, 2006 -- Deadline for Public Water Supply Systems to meet the new arsenic standard of 10 parts per billion. Contact: IDEM's Drinking Water Branch at (800) 451-6027, or see arsenic information on EPA's Safewater Web site at <http://www.epa.gov/safewater/arsenic.html>

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DRINKING WATER BRANCH

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April 2005



Mailing Address:

IDEM, Drinking Water Branch 66-34
 100 North Senate Avenue
 Indianapolis, IN 46206-6015

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 Mitt Denney MDENNEY 308-3324
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Special Projects

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Fax Numbers

Compliance Fax 308-3340
 Inspection Fax 308-3339
 Ground Water Fax 308-3339
 Permit Section Fax 308-3339
 Conference K 308-3043

All phone numbers are area code 317 unless otherwise indicated. To email employees at IDEM, take their user ID (located between their name & phone number) followed by @idem.in.gov

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**American Water
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www.awwa.org

**EPA Drinking
Water Hotline:**
www.epa.gov/OGWDW



MARK YOUR CALENDARS!!

To add dates to this section,
contact any Small Systems
Committee Member.

April 27, 2005 -- Indiana Section AWWA -- Water Operator Certification Exam Preparation Workshop -- IDEM Offices on Shadeland Avenue in Indianapolis. Contact: Vickie Zehr at 260-427-1303 for questions concerning the workshop. Contact: Ruby Keslar at 317-308-3305 for questions concerning IDEM's water operator certification exam.

May 3, 2005 - Sewage Lift Station Workshop in Auburn, Indiana -- Indiana Rural Water Association -- Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

May 4, 2005 - Indiana Section AWWA -- Southwest District Meeting in Jasper. Contact: Darrel Heisler at 812-853-3356 or at dheisler@amwater.com

May 5, 2005 - Water Works Operator Certification Examination. Application submission deadline is March 21, 2005.

May 5, 2005 - Pipe Rehabilitation Workshop in Madison, Indiana -- Indiana Rural Water Association -- Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

May 10, 2005 -- Proper Usage of Locating Equipment Workshop in New Haven, Indiana -- Indiana Rural Water Association -- Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

May 11, 2005 - Proper Usage of Locating Equipment Workshop in Crown Point, Indiana -- Indiana Rural Water Association -- Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

May 12-13, 2005 -- Arsenic Training Workshop in South Bend, Indiana -- U.S. Environmental Protection Agency -- Contact: www.epa.gov/safewater/arsenic.html or Jennifer Moller at 202-564-3891 or at moller.jennifer@epa.gov

May 13, 2005 - Indiana Section AWWA -- Southeast District Meeting in Edinburg. Contact: Roger Maynard at 812-282-1512 or at maynard@amwater.com

May 17, 2005 - Do It Yourself Manhole Repair Workshop in North Manchester, Indiana -- Indiana Rural Water Association -- Contact: Odetta Cadwell at 317-402-7349; MaryJane Miller at 812-988-6631; or visit the IRWA website at www.indianaruralwater.org

May 19, 2005 - Indiana Section AWWA -- Central District Meeting -- Eagle Creek Golf Course; Indianapolis, Indiana. Contact: Dan Hilton at 317-996-2816 or at dhilton@ccrtc.com

May 20, 2005 -- Indiana Section AWWA -- Northwest District Meeting in Mishawaka. Contact: Michael Simpson at 800-255-1521 or at michael@mesimpson.com

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Please visit AWWA's website (www.awwa.org) for additional information regarding continuing education and professional development offerings. Materials and instruction are available through a variety of media, from traditional seminars to online courses, teleconferences, and webcasts.