

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF MONROE COUNTY)
WATER DISTRICT FOR RATE ADJUSTMENT) CASE NO. 2017-00070
PURSUANT TO 807 KAR 5:076)

NOTICE OF FILING

Notice is given to all parties that the following materials have been filed into the record of this proceeding:

- The digital video recording of the evidentiary hearing conducted on October 25, 2017 in this proceeding;
- Certification of the accuracy and correctness of the digital video recording;
- All exhibits introduced at the evidentiary hearing conducted on October 25, 2017 in this proceeding;
- A written log listing, *inter alia*, the date and time of where each witness' testimony begins and ends on the digital video recording of the evidentiary hearing conducted on October 25, 2017.

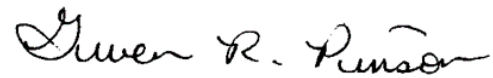
A copy of this Notice, the certification of the digital video record, hearing log, and exhibits have been electronically served upon all persons listed at the end of this Notice.

Parties desiring to view the digital video recording of the hearing may do so at

https://psc.ky.gov/av_broadcast/2017-00070/2017-00070_25Oct17_Inter.aspx.

Parties wishing an annotated digital video recording may submit a written request by electronic mail to pscfilings@ky.gov. A minimal fee will be assessed for a copy of this recording.

Done at Frankfort, Kentucky, this 31st day of October 2017.

A handwritten signature in black ink that reads "Gwen R. Pinson". The signature is written in a cursive style with a large initial 'G' and a long, sweeping underline.

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Executive Director
Public Service Commission of Kentucky

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COMMONWEALTH OF KENTUCKY
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In the Matter of:

ELECTRONIC APPLICATION OF MONROE) CASE NO.
COUNTY WATER DISTRICT FOR RATE) 2017-00070
ADJUSTMENT PURSUANT TO 807 KAR 5:076)

CERTIFICATE

I, Pamela Hughes, hereby certify that:

1. The attached DVD contains a digital recording of the Hearing conducted in the above-styled proceeding on October 25, 2017. Hearing Log, Witness List and Exhibit List are included with the recording on October 25, 2017.
2. I am responsible for the preparation of the digital recording.
3. The digital recording accurately and correctly depicts the Hearing of October 25, 2017.
5. The "Hearing Log" attached to this Certificate accurately and correctly states the events that occurred at the Hearing of October 25, 2017, and the time at which each occurred.

Signed this 30th day of October, 2017.



Pamela Hughes, Notary Public
State at Large
My Commission Expires: April 22, 2019



Judge: Bob Cicero; Talina Mathews; Michael Schmitt
Witness: Jason Green; Melinda Melton; Ariel Turmnbull
Clerk: Pam Hughes

Date:	Type:	Location:	Department:
10/25/2017	Alternative Rate Adjustment	Hearing Room 1	Hearing Room 1 (HR 1)

Event Time	Log Event
8:34:40 AM	Session Started
8:34:42 AM	Session Paused
9:01:14 AM	Session Resumed
9:01:16 AM	Chairman Schmitt preliminary remarks and introductions of Commissioners Note: Hughes, Pam Vice Chairman Cicero and Comm. Mathews
9:01:41 AM	2017-00070 Monroe CO WD Note: Hughes, Pam Hearing commenced on 9-27 2017, continued today.
9:02:21 AM	Publication was filed
9:02:34 AM	Introductions Note: Hughes, Pam Atty Justin McNeil for Attorney General's office, Atty Brittany Koenig for PSC with Ariel Miller and Jason Green Note: Hughes, Pam Jerry Wuetcher atty for, Monroe CO WD along with Mary Ann Wimberly atty. One witness Melissa Melton, KY Community Action
9:03:54 AM	Additional filings made by Defendent
9:04:46 AM	Atty Wuetcher calls Witness Melton to the stand Note: Hughes, Pam Melissa Melton Ky Community Action Note: Hughes, Pam She is sworn in by the Chairman.
9:05:20 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Melissa Melton, ARCAP Community Action. Describes what ARCAP is. Technical assistance provider for 15 years, employed since 2003. Note: Hughes, Pam Duties- prepare and provide trainings to operators, utility commissioners and other staff. Onsite technical assistance and project development projects.
9:07:47 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Prior employment to ARCAP was with private engineering firm as a Grants writer and project administrator. Prior Lake Cumberland as community economic specialist. 2 years there.
9:09:08 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Educational background
9:09:21 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Regarding her Technical trainings, Licenses, certifications, etc.
9:10:41 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Regarding what led her to get her Class 3 certified distribution operator license.
9:12:21 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Regarding her Technical assistance to water systems, what is her major duties. Specific examples and tasks that have assisted water projects.
9:14:23 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam How many systems is she currently assisting. 26 systems currently. Not all regulated by the PSC, some municipal systems. 2005 with Monroe Co WD, water treatment plant since 2006.

	Note: Hughes, Pam	Involvement in that project and how she has assisted in the water treatment plant project.
9:17:31 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	She is at the districts offices and sites quite fequently. Interacts with all employees in every site visit in all capacities. Very familiar with Monroe CO WD operations, employees and job duties.
	Note: Hughes, Pam	Regarding the district complying with state and federal laws.
9:19:05 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	How many water systems currently in the Barren River development system. About 10.
	Note: Hughes, Pam	Employees recruitment and retention for Monroe Co WD currently, and other systems as well. What generally does she provide in this area. The DOW performs a sanitary survey of water systems, and produce personell policies and detailed job descriptions and pay scales. She has helped several utilities to produce these detailed reports. More actively involved in Monroe CO recruitment for operators as well as several others.
9:23:50 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	Regarding her specific duties to Monroe Co for recruitment for Water treatment operators.
	Note: Hughes, Pam	Monroe Co WD has no operating water treatment plant currently, hoping to go online as early as Jan. 2018.
9:25:37 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	How many operators will Monroe Co need once goes online. 3 operators.
	Note: Hughes, Pam	Efforts Witness Melton has made to recruit these operators. Responses recieved, only 4 to 5 resumes. Anyone selected as of yet, "No."
9:29:17 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	Regarding Tompkinsville also looking for water treatment operators and how many are they trying to recruit. They only have one licensend operator now as one has just quit. They need minimum of 3 operators there. Inside Monroe Co there is a need for at least 6 operators.
9:32:37 AM	Objection form Atty Koenig	
	Note: Hughes, Pam	Atty Wuetcher explains his line of questioning.
	Note: Hughes, Pam	Asks about relevance to Tompkinsville questioning.
9:33:52 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	Market for operator water treatment people. DCA and DOW has been telling them that there is a shortage. Having to compete harder to get these applicants.
	Note: Hughes, Pam	Compensation to these applicants. Current package has been favorable. Recent change in Commission policy to bear portion of health insurance premiums. Current policy is 100% of singleplan for Monroe Co. Regarding the impact if this changes.
9:37:04 AM	Atty Wuetcher_direct exam of Witness Melton	
	Note: Hughes, Pam	In her experience how do most water utilities cover health insurance for their employees or what they make employees contribute.
9:38:26 AM	Chairman statement about questioning being applicable to this case.	
	Note: Hughes, Pam	Chairman states they have heard a lot of this and asks him to move along.
	Note: Hughes, Pam	Atty Wuetcher explains the impact on recruitment for operators.

9:39:31 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam	Regarding how much does the labor shortage impact in the Barren River development area. Having to recruit from unskilled labor market.
9:41:25 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam	Regarding the Competition of other employers in the area is very competitive. Private contractors and other businesses.
9:42:24 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Federal wages up until the repeal by the Contractors. General laborers and pipelayers and heavy equipment operators wages and benefits and compare an exhibit. Construction firms in Monroe Co. Competitors and change in compensation would encourage people to leave and seek out other employment. Regarding the Survey for wages for employees by other contractors that Witness Melton did. 2015 wage scale in which Cleary Construction had worked on a project in Monroe Co.
9:46:25 AM	Monroe Exhibit 4 introduced Note: Hughes, Pam	MCWD current, 2015, and 2017 Hourly wage and benefits
9:46:56 AM	Chairman cross of Witness Melton Note: Hughes, Pam	Regarding her statement about State wages that was abolished versus Federal wage projects.
9:48:05 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	Hands out current Federal Wage Rate and explains. Page 2, laborer category. Explain the contractor total hourly pay Exhibit 4- Federal prevailing wage contract for current, 2015 and 2017. One is for Monroe Co WD and other is for Federal laborer.
9:53:18 AM	VC Cicero cross Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Regarding if Cleary Construction is the major contractor in Monroe Co. There are also two others. What amount of work does Cleary Construction work on in Monroe Co that is Federal work.
9:55:20 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Regarding how total pay was developed for the Monroe Co WD employees. Used filing made by Monroe County (Exhibit A to the AG's PHDR, page 1 of 5 and page 5). Result and conclusion reached by Witness Melton. Monroe is paying less than other private contractors. Not all hourly wages. Reduction in those benefits would be harder to recruit for jobs.
9:58:50 AM	Atty Wuetcher_direct exam of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Hands out copy of Comparison of Waster District Wages with State and National Water Industry Wages/Salaries Questions Witness concerning 2nd page. Reference to comparable positions. Positions listed on these pages and her position on how these reflect the job descriptions of the employees. KRWA comparable position.
10:03:21 AM	Chairman moves the Monroe Co handouts be submitted as exhibits 5 and 6	
10:04:06 AM	Atty McNeil cross of Witness Melton Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	How comparable are wages and how competitive are they. Regarding that Monroe Co WD has excellent record of employees retention and what has contributed to that rate, Have any employees of Monroe County WD in past 5 years not recieved annual raises.

10:07:36 AM Atty McNeil cross of Witness Melton
Note: Hughes, Pam Regarding the district being more competitive in retention of its employees.

10:08:31 AM Atty McNeil cross of Witness Melton
Note: Hughes, Pam Regarding if Witness was asked to make specific recommendations on wages and retention for Monroe Co WD.

10:09:53 AM Atty McNeil cross of Witness Melton
Note: Hughes, Pam Cost of Living increase and how comparable other utilities are.
Note: Hughes, Pam Regarding Monroe District verses other utilities concerning annual performance increases. One cost-of-living and one annual performance raise.

10:12:32 AM VC Cicero cross of Witness Melton
Note: Hughes, Pam How many other water utilities she is involved in give cost-of-living increase. Thinks maybe 50% of them but not asserting that number.

10:13:23 AM Atty McNeil cross of Witness Melton
Note: Hughes, Pam Do other systems give other bonuses

10:13:40 AM Atty McNeil cross of Witness Melton
Note: Hughes, Pam Written employee evaluations to get raises and does Monroe Co WD have one in place.
Note: Hughes, Pam Would she recommend to other utilities have a written policy for giving raises.

10:14:42 AM Atty McNeil cross of Witness Melton
Note: Hughes, Pam Regarding other water districts and if they try to look for unskilled applicants and try to train them to bring them up to operators. Workforce is getting to where they are getting ready for a lot of retirements and they are going to be short on operators.

10:18:32 AM Atty Koenig cross of Witness Melton
Note: Hughes, Pam Oct 2nd PHDR - Question 1, asks her to read this question. What were her participation and what level of participation that she was there at the board meetings. Relating to Water treatment plant.

10:21:34 AM Atty Koenig cross of Witness Melton
Note: Hughes, Pam Participation on this Rate case application. Has she been in alternative rate case filings in other districts.

10:22:09 AM Atty Koenig cross of Witness Melton
Note: Hughes, Pam Oct 2nd PHDR, question 5. She is not able to answer questions to this response.

10:23:16 AM Atty Koenig cross of Witness Melton
Note: Hughes, Pam Listed qualifications, Community Action of KY. Why in Monroe Co application depreciation across the board. Who recommended against number of years water lines were depreciated out. Financial or physical condition of the water lines.

10:25:14 AM Atty Koenig cross of Witness Melton
Note: Hughes, Pam Advised water co on financial decisions. Would she advise others to spend 44, 000 in fees over a 35,000 dispute in depreciation. She can't answer this question. Mr. billingsley most appropriate person

10:26:15 AM Atty Koenig cross of Witness Melton
Note: Hughes, Pam Advises Monroe Co because that county is considered a poorer county. ARCAP programs funded by federal agencies to provide assistance to communities for a number of factors. Does this include costs of passing this on to rate payers.
Note: Hughes, Pam 100% insurance benefits for singleplan, and what the change would do to attract employees. Commission is not telling WD's what they can let employees pay but only that it can't be paid through rates to customers.

10:29:07 AM	Atty Koenig cross of Witness Melton Note: Hughes, Pam	Regarding Monroe Co exhibit 4- comparison of construction company. Benefits per hour column. Witness explains this column. No insurance costs are factored in.
10:32:30 AM	Atty Koenig cross of Witness Melton Note: Hughes, Pam	Comparison between construction jobs and utility jobs and factors on what they pay employees because of the differences.
	Note: Hughes, Pam	Project to project basis?
10:34:30 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam	Who does she report to.... ARCAP state director. They also take directments from other agencies.
	Note: Hughes, Pam	How does priority get set to where she has to go.
10:36:49 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	How much of her time is dedicated to Monroe Co WD. Varies Did she actively participate in the rate case. In the non-reoccurring fees, asks her to be more specific. Different costs calculating tasks to arrive at these fees
10:39:10 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam	Monroe Co recieves her assistance because it is looked at as a poorer county. One way of looking at it. She has to look at criteria and other factors. Several different agencies enroll her in Monroe Co. Lower income county. Re-evaluate every year.
10:41:39 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam	Salaries and benefits are competitive with other contractors in the area. Reconcile this with this falling into a low income area.
10:43:59 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Other employers that Monroe Co competes against. Would she say that most others would pay 100% of health insurance benefits. WD's usuallly pay 100% benefits to their employees. Could bundle benefits and help to stay competitive and attract applicants. Speaks to Ms. Dupree's insurance plan.
10:50:04 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam	Do contractors pay health care benefits to their employees. Only has one contractor that emailed that to her. Does that one pay 100% of that premium. PHDR to what contractor this is.
10:51:10 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam	Participate in the Depreciation in any way? No
10:51:51 AM	Vice Chairman cross of Witness Melton Note: Hughes, Pam	Engineer reviewed all documents and gave his review as useful life to the mains. (Atty Wuetcher makes statement where engineer has sworn statement about what he has done)
	Note: Hughes, Pam	Worked for Engineering firm for a time. Usefull life expertise.
10:56:05 AM	Comm Mathews cross of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Chairman states her testimony is about wages and benefits Asset managemnt.
10:56:47 AM	Comm Mathew cross of Witness Melton Note: Hughes, Pam	Is it her belief that PSC would make district not pay health benefits to their employees.
10:58:22 AM	Comm Mathew cross of Witness Melton Note: Hughes, Pam	Has calculation of benefits portion on hourly basis. Net impact on hourly basis. Not made
10:59:13 AM	Comm Mathew cross of Witness Melton Note: Hughes, Pam	Regarding utilities that Witness works with and the raises they give. How much are typical raisies? Between 2 to 4%, varied.

11:00:07 AM	Comm Mathew cross of Witness Melton Note: Hughes, Pam	Competition with construction jobs, employees like to stay in their hometown.
11:00:43 AM	Comm Mathew cross of Witness Melton Note: Hughes, Pam	If Monroe Co pays 100% insurance, (other businesses in the county)
11:01:09 AM	Chairman cross of Witness Melton Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	Regarding if Contractors are union jobs. She doesn't know. Not an economist and testimony is limited to people that she has talked to and utilizing salaries available for Kentucky. Some contractors are in Southeast and in other states. They also incur living expenses to pay for hotels, etc. She is not aware how they are paid.
11:05:22 AM	Chairman cross of Witness Melton Note: Hughes, Pam	Does not work with Eastern Rockcastle
11:05:49 AM	Chairman cross of Witness Melton Note: Hughes, Pam	Regarding Chairman of Federal reserve Janet Yellman Inflation has been low over past several years. She has done research as to where DCA would have got some of their data. Federal statistics are a part of that.
11:07:01 AM	Chairman cross of Witness Melton Note: Hughes, Pam	Problems associated with hiring water treatment operators. Minimum number of 3 class 3 operators.
11:08:40 AM	Chairman cross of Witness Melton Note: Hughes, Pam	Monroe WD exhibit 6 - employees of Monroe CO WD appear to have been employed for substantial time. Stable employment.
11:10:47 AM	Atty Wuetcher re-direct of Witness Melton Note: Hughes, Pam	Exhibit 6 of Monroe Co WD. Wages on a 2080 year? 4th column, total adjusted pay and overtime pay comparison of base pay.
11:12:12 AM	Atty Wuetcher re-direct of Witness Melton Note: Hughes, Pam Note: Hughes, Pam	Column H retirement age of employees and they may be considering leaving and replacing these people. Not unskilled jobs that need to be filled. Does the district have a plan that they groom this new employee to become a system operator. No policy in place but Mr. Ross has 2 year testing to obtain license as operator.
11:15:28 AM	Atty Wuetcher re-direct of Witness Melton Note: Hughes, Pam	District manger's policy that he can develop new hires as a systems licensed operator.
11:16:23 AM	Atty Wuetcher re-direct of Witness Melton Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	District only has limited funds from its rates. Rate applications are during test-year. This is 100% for funds for employees healthcare, if falls short, then people will have to pay portion. Any disallowances made it would not require the WD to reduce benefits. Commission has issued Orders to other district that it expects it to require employees to pay part of their dental and medical benefits. (Nebo District Order). Does not participate in CERS. Monroe offers a contribution plan of some sort. Tompkinsville offers retirement plan and is more attractive to applicants.

11:21:23 AM Atty Wuetcher re-direct of Witness Melton
Note: Hughes, Pam Advice to members of Board of Commissioners, specifically the PHDR. She has never given advice to the Commissioners. Inquires by the board are just general questions concerning other salaries across the state and how Monroe compares. Never asked about benefits.

11:23:35 AM Atty Wuetcher re-direct of Witness Melton
Note: Hughes, Pam Monroe Exhibit 6- total amount of compensation a federal contractor has to give to his employee explanation.

11:25:22 AM Atty MCNeil recross of Witness Melton
Note: Hughes, Pam Does the DOW have any authority or only certain regulations over water treatment plants certifications and trainings.
Note: Hughes, Pam What regulation can she direct him to? She cant

11:27:41 AM Atty Koenig recross of Witness Melton
Note: Hughes, Pam Turnover rate between construction workers and utility workers.

11:28:24 AM Atty Koenig recross of Witness Melton
Note: Hughes, Pam Clarification of question- if Order is made that benefits have been disallowed as far as rate making purposes as to what is passed on to the customers.

11:29:51 AM VC recross of Witness Melton
Note: Hughes, Pam Retirement and being competitive. Tompkinsville in CERS. Concerning Tiers and defined contribution plan when new employee whether with KERS or CERS.

11:33:25 AM Break

11:33:35 AM Session Paused

12:28:59 PM Session Resumed

12:29:01 PM Atty Koenig states Witness Melton wasn't dismissed
Note: Hughes, Pam Chairman dismisses her

12:29:36 PM AttyKoenig calls Jason Green to the stand
Note: Hughes, Pam Sworn in by the Chairman
Note: Hughes, Pam Jason Green, PSC employee, 16 years. Job is Public Utility Rate analyst

12:30:58 PM Atty Koenig direct to Witness Green
Note: Hughes, Pam Regarding the Staff report in this case, he did a portion of this one.
Note: Hughes, Pam Education

12:31:47 PM Atty Koenig direct to Witness Green
Note: Hughes, Pam Brief overview after the Attorney General had questions. non-recurring charges and revise their calculations.
Note: Hughes, Pam Staff Report, non recurring charges... Page 11 change- line 3 typo, Monroe District instead of Marion District.

12:33:13 PM Atty Wuetcher cross of Witness Green
Note: Hughes, Pam New employee being hired and the impact on proposed charges.

12:34:14 PM Atty Wuetcher cross of Witness Green
Note: Hughes, Pam If Monroe District makes no objection to existing report they existing recommendations will be the same.

12:34:45 PM Atty MCNeil cross of Witness Green
Note: Hughes, Pam Nonrecurring charges explanation.

12:35:40 PM Atty MCNeil cross of Witness Green
Note: Hughes, Pam Did staff recommend gradual nonrecurring charges to utilities. Suggest 3 to 5 years
Note: Hughes, Pam Staff take in consideration the length of time since last increase in nonrecurring charges.

12:36:52 PM	VC Cicero Note: Hughes, Pam	Staff Report - supported it as it is initially written. Regarding benefits
12:38:01 PM	Atty Wuetcher re- cross of Witness Green Note: Hughes, Pam Note: Hughes, Pam	Add'l employees hired and changes and adjustments. Insurance section. Findings regarding revenue requirements. Insurance costs should be disallowed, that would require different calculations? Nonrecurring charges will not have impact because it would be relatively small.
12:40:05 PM	Witness Green is excused	
12:40:14 PM	Atty Koenig calls Witness Miller Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	Education Sworn in by the Chairman Ariel Miller, PSC employee of the Financial analysis department- 4 years employed, PUFA 2. General duties and responsibilities. Alternative rate filings, revenue requirements for these filings.
12:42:34 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam	Prior experience in Accounting.
12:42:57 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam	Educational courses or training through the Commission
12:43:15 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam Note: Hughes, Pam	This report was done by Jack Scott Lawless, she adopted after reviewing his findings. Staff report, she did not do this one but has done about 14.
12:44:09 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam Note: Hughes, Pam	How is this different from a general rate increase case. Overview of an alternative rate filing process.
12:45:11 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam	Why would a lower income utility file this type of rate case?
12:45:40 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam	Original application 13.2% increase in revenues. Staff report found revenue increase of 8.35% increase was warranted. How much Monroe proposed to increase typical customers bill. Staff Report, page 1. \$4.65 in original filing.
12:47:14 PM	Atty Koenig direct of Witness Miller Note: Hughes, Pam	In Monroe WD's rate increase they proposed change to depreciation practices to lower end of the NARUC change. Proposed 27 1/2 years. More of a financial decision and red flag to staff.
12:48:41 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	Adopted Mr. Lawless findings in its entirety. How does PSC staff go about reviewing an alternative rate filing case. Team assigned to the case when it comes in. Water and Sewer branch and a revenue person assigned. Someone from Legal assigned and prior to last years reorganization an engineer would have been assigned.
12:51:47 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Does the regulations state that staff has 30 days to file a staff report. Has an alternative rate case been entirely been done through data requests.
12:52:53 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Review process after the report is prepared. Report is submitted to Supervisor and Division Director, Legal division. Team reviews first. Regarding changes to the document.

	Note: Hughes, Pam	Records are inspected and officials are interviewed. Contact not limited to site inspection, sometimes they call to obtain more information.
	Note: Hughes, Pam	Who goes to the utility on the field review.
12:58:54 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	If report was flawed according to senior management would she feel she had to change it anyway.
1:00:16 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	When was Witness assigned to this case. After Mr. Lawless retired.
1:00:48 PM	objection to question by Atty koenig	
1:01:08 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Speak to Mr. Lawless before he left bout this case. Didn't assist Mr. lawless in preparing report.
1:01:43 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Mr Lawless left some notes and reviews in this case. Mr. Wuetcher wants these.
1:02:22 PM	Atty Koenig objects to work papers being sent out	
1:02:46 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Interviewed anyone from Monroe for this hearing, NO
	Note: Hughes, Pam	Did Witness Miller do onsite inspection of Monroe District in this case. No she did not. Were there other things she reviewed other filings in this case that she did look at. She has not interviewed anyone from the Distict.
1:05:12 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Affect on Monroe CO revenue requirement if a 50 year useful life was on its mains. Depreciation expense. Amount subject to check.
	Note: Hughes, Pam	Depreciation for water mains is based on a 62 year useful life. Amounts are subject to check. 2% of total amount of revenue. Recommending Monroe adhere to the 62.5 year useful life for rate making purposes. Regarding Useful life of utility recommended in prior case, is this ever revisited. Recommendations she has made to a Commission change, can't answer
1:10:55 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding Commission decision, it is likely to continue on with this recommendation in reviewing a case and useful life. Do they start over in each case or just go with most recent recommendation.
1:12:30 PM	Atty Koenig	
	Note: Hughes, Pam	Asks Wuetcher to clarify for case precedent or depreciation.
1:12:58 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	If Commission makes a finding in a case and a new case comes in, does she look at everything again or go by the pprior Commission decision.
1:16:32 PM	Chairman objects	
	Note: Hughes, Pam	Commissioners are not stuck with any decision and he doesn't think witness is quailified to answer.
1:17:16 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Concerning the 62 1/2 year useful life into the future. Finding going forward in new case.
	Note: Hughes, Pam	62 1/2 year useful life is inplace and the district has asked for a CPCN to construct new main. Refers to exhibit 30 of the application 2015-00305 subject to check. Difference in rate case and next ten years, 450,000 depreciation expense it will lose if a 62 1/2 years life is used.
	Note: Hughes, Pam	Difference between 62 1/2 year and 50 year useful life, for transmission and distribution.

1:22:47 PM	Atty Koenig objects Note: Hughes, Pam	Atty Wuetcher explains his position. Chairman does think it has relevance.
1:24:24 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Refers to the 62.5 useful life is used and all assets are there and ones to be added. Would District collect less money in a 10 year period.
1:25:50 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Regarding Legal fees over a \$35,000 issue. Conditional waiver related to revenue requirement. 62.5 useful life over the 50 year life
1:27:49 PM	Atty Koenig objects to this question Note: Hughes, Pam	States this is a Legal question and witness not able to answer.
1:28:25 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Referring to Commission ordered rates put in place and put in useful life for the 62.5 years. Refers to the rates Mr. Green recommended and the revenue requirements Mr. lawless recommended.
1:30:05 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam Note: Hughes, Pam	Questions her about her education. Courses of instruction taken. NARUC study was one week, logistics of rate case. Any depreciation studies, just one morning. Other trainings she has had.
1:32:53 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Refers to anyone conducting a depreciation study. She doesn't know.
1:33:16 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Based on engineers recommendations on useful life. Did engineer ever conduct other types of reviews. One rate case useful life of meters and had them give them the manual from the utility. Regarding if engineers ever spoke to the officials. Reviewed documents. Engineer would recommend and she would use them in her staff report as an attachment.
	Note: Hughes, Pam	11 reviews of water utility rate applications, NO she has done 20. She has done 11 Staff Reports.
1:37:04 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	Regarding in a few cases she prepared staff report a PSC engineer accepted a 50 year useful life. When PSC had engineers was it them that made recommendations in useful life. Yes. # reports she wrote was her opinion on reasonableness Regarding if she ever take or challenge engineer recommendations over their choice of deprecipal lives.
1:40:32 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Reasonableness of useful life in this case was not relied upon an engineer.
1:41:10 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam	Recommendation of 62.5 useful life was done by NARUC guide. Sited a 2012 Order in her Staff Report to support her statement
1:42:39 PM	Atty Koenig says can provide in PHDR	
1:42:53 PM	Atty Wuetcher cross of Witness Miller Note: Hughes, Pam Note: Hughes, Pam	Any section of chapter 278 refer to the NARUC guide. Does water regulation make to NARUC guide or in the Commission's general rules. Alternative Rate filing regulation. Not sure

	Note: Hughes, Pam	How far back PSC has relied on NARUC. Revised or updated since it was issued. Is it even republished or updated. She doesn't know. When Commission first became aware of this guide.
1:46:03 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding Depreciation expense or admisitrative proceeding about useful life to water utilities.
1:46:56 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Subject to check 15-65 15-308 16-435 cases where NARUC is in staff report.
	Note: Hughes, Pam	Staff report refers to NARUC guide.
1:48:37 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Report states NARUC study found mains are depreciated between ??? years. Asset materials, etc and other factors, are tese specifically mentioned in the NARUC guide.
	Note: Hughes, Pam	Asset groups constuction materials explanation.
1:50:33 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Refers to the NARUC guide, figure 1 on page 11. Table average service lives. One range.
	Note: Hughes, Pam	How do you access a condition of a line. Conversations with utility personell. What type of questions asked of utilities when interveiwing about the lines.
1:53:19 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Refers to other factors and what they are.
1:53:41 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Reviews that she has conducted have any other factors come into play.
1:54:36 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Staff Report - case no 2012-309 referenced. Page 26, 1st paragraph. Regarding if the statement of a 50 year useful life only used for mains with history of problems. Do you take into acount the type of material also.
1:58:47 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Does she know why Mr. Lawless put this case no. in the staff report.
	Note: Hughes, Pam	Did you prepare staff report in Nebo WD application. Did she use the same language in that report as in this one.
	Note: Hughes, Pam	In this report and Nebo report, its indicated the main decayed at a more rapid rate
2:01:13 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	2012-00309 July Order. Reference to a decaying main and why the Commission used a 50 year useful life.
2:02:11 PM	Break	
2:02:20 PM	Session Paused	
2:14:29 PM	Session Resumed	
2:14:32 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	In that case, useful life was between 20 and 40 years to its water transmission mains. It was out of NARUC range. Subject to check that the Staff report made no reference to decaying mains.
	Note: Hughes, Pam	Where in Order referenced the decaying pipe that led to the decaing pipe.
2:16:50 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Staff Report,page 26 - Midpoint to be used. Refers to the 2013-154 Commission Order.
	Note: Hughes, Pam	A particular PSC proceeding that Commission states a specific NARUC range should be used.

	Note: Hughes, Pam	Hands out Staff report filed in that case- attachment B. Engineering report signed by George Wakim. Asset classification for transmission mains. 40 to 50 years but staff recommended 62.5 years.
2:23:53 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	In other staff reports have there been midpoints used in the absence of evidence of useful life. Can't answer but doesn't believe there is any rule that they have to do that.
	Note: Hughes, Pam	Engineering staff found the useful life years to be reasonable. Since the engineer dept has been gone the Commission has used NARUC midpoint if no evidence by utility that line is decayed. Is this rule (midpoint) in absence of evidence used by the Commission.
2:27:32 PM	Atty Wuetcher wants PHDR	
	Note: Hughes, Pam	Commission staff finding about midpoint
2:28:06 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Do you look for evidence of useful life when doing a report on a utility. The alternative rate application doesn't require it.
	Note: Hughes, Pam	Is it the utilities responsibility to claim useful life in the application. How would utility know it has to present useful life of its assets.
2:32:28 PM	Chairman Schmitt statement and question to Witness Miller	
	Note: Hughes, Pam	Refers to rule or practice about what is done. Why did Mr. Lawless say that 62.5 years was better than a 50 year life. Utility stated mains had been properly installed, no major replacements and majority of main is almost 50 years already.
	Note: Hughes, Pam	Mr. Lawless's notes state all this.
2:36:33 PM	Chairman Schmitt	
	Note: Hughes, Pam	Tells Atty Wuetcher he can write a brief on this matter.
2:37:05 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Did Monroe Co present evidence to use a 50 year useful life. Page 30 first paragraph of Staff report.
2:39:02 PM	Chairman statement	
	Note: Hughes, Pam	Atty Wuetcher states he has other documents in other cases that support his point.
	Note: Hughes, Pam	Questions of useful life and depreciation is up to the Commission.
2:40:26 PM	Monroe exhibit 7	
	Note: Hughes, Pam	Attachment A - Staff Report, Case No. 2015-00065 Webster Co WD Engineering Division's Analysis of Asste Service Lives.
2:42:15 PM	Chairman Schmitt to Atty Wuetcher	
	Note: Hughes, Pam	Wants Atty Wuetcher to address in his brief how the Commission can solve this when there are no Engineers here.
	Note: Hughes, Pam	NARUC study, are you advocating for a rule that this has no value because of its age?
2:50:31 PM	Atty Koenig	
	Note: Hughes, Pam	States testimony that has already been given in this hearing and that he put the NARUC guide in his application.
2:53:48 PM	Chairman Schmitt remarks	
2:54:42 PM	Atty Wuetcher statement	
	Note: Hughes, Pam	Witness findings and in agreement.
2:56:28 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Wages and compensation in report. Reasonable. Proposed add'l adjustments, 2 % cost of living adjustment. Ms Dubree calculations and wage increase. Revised update to the AG PHDR that reflects changes to personell. Witness disagrees that if the laborer was to replace another worker and should not have an impact on the revenue requirement. In agreement with all other.

3:00:18 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam In report as far as salaries, comparison chart is revised, exhibit 6

3:02:23 PM VC Cicero statement
Note: Hughes, Pam States that on exhibit 6 the employees with an asterik shows for 2015 work hours but implies to 2017 employees.

3:04:16 PM Comm Mathews statement
Note: Hughes, Pam FN states that KRWA and KLC something different.

3:05:01 PM VC Cicero asks for breakdown of overtime.
Note: Hughes, Pam Exhibit A to AG PHDR contains overtime hours

3:06:12 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam If every utility required to submit ranges it would help commission
Note: Hughes, Pam Wage benefit information. Burden on the utility.
Note: Hughes, Pam Any discussion to collect this info for the PSC annual report.

3:07:39 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Staff Report, finds total compensation package was sufficient.

3:08:12 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Total compensation - how Mr. Lawless determined total compensation. Page 15 of Staff Report.

3:12:23 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Regarding the Commission using National average contribution rate
Note: Hughes, Pam Regarding utility using National Average employer contribution rate for insurance premiums. Referring to if they paid less than the National Average contribution.

3:14:45 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Tab 16 of material provided before the September hearing. National news release of March 2017. Table 1 of page 5. 35.28 per hour as time of study was done. Bureau of Labor uses a different measure for employee compensation costs.

3:17:49 PM Monroe Exhibit 8
Note: Hughes, Pam Employee Compensation Cost, 3 pages

3:19:00 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Comparison that this is reasonable for Monroe County WD
Note: Hughes, Pam Atty goes over exhibit 8 and total compensation costs.

3:23:06 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Staff Report used one or two utilities to compare total compensation. Regarding Special factors looked at to be fair.

3:24:33 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Did Mr. Lawless try to form this kind of analysis.
Note: Hughes, Pam Annual reports have employee wages and salaries. Separate for pensions.

3:27:01 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Is staff considering to form such a scale?

3:27:21 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam 2017-00253 Staff Report, North McLean Water. Page 5 of report. Reimbursements to employees to purchase single amount health plans. Proposed adjustments to salaries and wages, refers to fn on bottom of page. How was total compensation done in this staff report.

3:33:00 PM Atty Wuetcher cross of Witness Miller
Note: Hughes, Pam Regarding Monroe Co is a utility and a governmental entity. Subject to check. Why private industry category was used when there is a state and local government is issued.

	Note: Hughes, Pam	Health insurance premiums. Individual single health insurance coverage and source of that percentage (21% for single payer coverage)
	Note: Hughes, Pam	Tab 14, How the percentage is applied. Private industry workers. Table 10, what is the source of this document. Bureau of Labor website. Compare table 10 to table 3 and 4. Single coverage and family coverage.
3:42:30 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Page 3- employee benefits in US March 2016. Tab 14. Technical note
3:44:11 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding discussion with supervisors regarding appropriate set of data to apply this rule regarding health insurance premiums.
3:45:00 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding If any regulated utility has disallowance in any portion of its costs they have to compensate to get rid of that cost.
3:47:28 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding discussions to labor statistics to health insurance premiums that the Commission looked at. No other studies as alternatives.
3:49:24 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding Commission position of disallowance of health insurance expense.
3:51:03 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding the rule the Commission has set to employee health insurance being same as line loss
3:52:20 PM	Atty Wuetcher cross of Witness Miller	
	Note: Hughes, Pam	Regarding being state government employee and the insurance coverage. State govt makes a percentage of premiums.
3:53:58 PM	Monroe exhibit 9	
	Note: Hughes, Pam	LWCDHP - 7% LWPP - 16.3% Water Districts are being told it is less than reasonable for the employees to pay less than 29%.
	Note: Hughes, Pam	2018 Monthly premium and Contributions for state govt workers
3:59:14 PM	Break	
3:59:27 PM	Session Paused	
4:08:01 PM	Session Resumed	
4:08:07 PM	Chairman Schmitt moves exhibits 8 and 9 into the record.	
4:08:52 PM	Atty Koenig redirect to Witness Miller	
	Note: Hughes, Pam	Depreciation - did Mr. Lawless leave in his workpapers that he interviewed Mr. Ross. Staff report doesn't speak for the Commission. No statute saying the Commission has to use same useful life in all cases. No Standard practice to speak to utility personel. Engineers and contributions on depreciable life what did they use to guide their decisions-NARUC study.
4:12:09 PM	Hands out an exhibit from Monroe Co already in the record	
	Note: Hughes, Pam	Tab 6 of the application. Addt'l notes, letter c, depreciation. Did Monroe use NARUC guide to use their depreciation-yes. Monroe's response to Staff report handed out- WD criticizes the NARUC study guide saying it is 40 years old and outdated.
	Note: Hughes, Pam	An update to this guide, NO
4:16:21 PM	Atty Koenig redirect to Witness Miller	
	Note: Hughes, Pam	Difference in depreciation study and depreciation guide. Mr. Stigall referred to the depreciation schedule, but never did a study.
4:18:00 PM	Atty Koenig redirect to Witness Miller	
	Note: Hughes, Pam	Monroe CO's DR response, page 1. Revenue reduction

	Note: Hughes, Pam	Why do you look at the physical plant to determine the useful life years.
4:19:48 PM	Atty Koenig redirect to Witness Miller	
	Note: Hughes, Pam	Looking for evidence of useful life. Not required but asked questions at the onsite inspections.
	Note: Hughes, Pam	How a utility would know to present evidence of its useful life. Monroe Co did present its evidence.
4:21:42 PM	Atty Koenig redirect to Witness Miller	
	Note: Hughes, Pam	Monroe CO employees get 4 % raise annually
	Note: Hughes, Pam	Comparison of state employees benefits and % employers pay for health premiums. Deductibles change this %
4:23:10 PM	Atty McNeil cross of Witness Miller	
	Note: Hughes, Pam	Staff Report, comparing benefits and compensation. Why did Nolin RECC get used in this comparison. Witness does not know why Mr. Lawless used this utility.
4:24:40 PM	VC cross of Witness Miller	
	Note: Hughes, Pam	Why do we do depreciation from an accounting standpoint.
4:25:30 PM	VC cross of Witness Miller	
	Note: Hughes, Pam	Depreciation is Not a lost revenue just a timing issue and it would be recouped.
4:26:02 PM	VC cross of Witness Miller	
	Note: Hughes, Pam	NARUC study is 62.5 years after the 50 years. Lines were in ground in 1970 and the NARUC study published in 1979.
	Note: Hughes, Pam	Absence of any other evidence why the useful life changed and Monroe stated pipe was 50 years old and no plans to replace or repair it.
4:28:19 PM	VC statements to Atty Wuetchers questions	
	Note: Hughes, Pam	No retirement in compensation in one case so it was not adjusted. Utilities are one of the ones that do not charge their employees for health premiums.
	Note: Hughes, Pam	Commission's policies. Using the Bureau of Labor and Statistics because it makes it easier for everyone.
4:31:51 PM	VC Ciccero	
	Note: Hughes, Pam	25.86 was a national average
4:33:19 PM	Chairman Schmitt to Witness Miller	
	Note: Hughes, Pam	National Regulatory Research Institute, Water utilities July 2017. Page 6 of schedule of pipe material that claims useful life. PVC at 100 years. - The Utah State study uses 100 years, along with the Wisconsin Commission uses around 75 years on their pipes. These studies are dated 2014.
4:36:16 PM	Atty Wuetcher re-cross of Witness Miller	
	Note: Hughes, Pam	State govt had not had a raise in a number of years. Referring to Estill County case, they hadn't had a raise in 7 years.
	Note: Hughes, Pam	No written guidelines of field studies by the Commission.
4:38:12 PM	Atty Wuetcher re-cross of Witness Miller	
	Note: Hughes, Pam	Useful service life guides the Commission uses. Regarding the Rural Waste Water Publication also contains a depreciation guide and useful life for water systems.
	Note: Hughes, Pam	NARUC guide and 3 methods to follow.
	Note: Hughes, Pam	Page 9 of the NARUC guide. Last paragraph, first sentence. Engineering judgment methods. Can an accountant that has no engineering judgment make this judgment.
4:44:27 PM	Atty Wuetcher re-cross of Witness Miller	
	Note: Hughes, Pam	Referring the Wisconsin study. How many states use the NARUC guide? Not aware

4:45:02 PM	Atty Wuetcher re-cross of Witness Miller Note: Hughes, Pam	Alternative rate filing procedure- regulations that lets non-lawyers appear. Do you agree that the Commission staff encourages people use this and not use an attorney.
4:46:44 PM	Atty Wuetcher re-cross of Witness Miller Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	Experience of utility commissioners doing their own filings and not being aware of how this works in an alternative rate adjustment case. Refers to the Kenergy Order where the Commission guides what they want. Refers to Monroe Co provided this information upfront that this is what the Commission wanted when filing this type of case.
4:52:41 PM	Atty Koenig hands out Exhibits Note: Hughes, Pam	PSC exhibits 2 and 3
4:54:13 PM	Atty Koenig recross of Witness Miller Note: Hughes, Pam Note: Hughes, Pam Note: Hughes, Pam	PSC exhibit 3 - Small Utility Accounting Manual from Indiana Utility Regulatory Commission. Page 12 and 13. PSC exhibit 2 - Validation of the Long Life Of PVC Pipes These were some of the studies she used in comparison with the NARUC study. Staff Report 62.5 years is not out of bounds in comparison with other states.
4:57:39 PM	VC to Witness Miller Note: Hughes, Pam	Refers to page 12 of Small Utility Accounting Manual. Witness reads from this page.
4:58:51 PM	Chairman Schmitt statement Note: Hughes, Pam	Rural waste water study that Atty Wuetcher brought up was in 1974, page 246 shows useful life of 40 to 75 years.
5:01:52 PM	PHDR Note: Hughes, Pam Note: Hughes, Pam	Filed by Nov 3 by all parties. Responses filed by Nov 17th.
5:04:18 PM	Atty Wuetcher file a brief by Dec 1, 2017 Note: Hughes, Pam	Reply Dec 8th
5:06:48 PM	Witness Miller excused	
5:06:58 PM	Adjourned Note: Hughes, Pam	Unofficial, the Chairman comes back on the record
5:07:05 PM	Session Paused	
5:07:10 PM	Session Resumed	
5:07:18 PM	Chairman comes back on the record Note: Hughes, Pam	PSC exhibits 2 and 3 officially admitted into record
5:08:07 PM	Monroe Co exhibit 10, 11, 12 and 13 entered into the record Note: Hughes, Pam	These were not used during the cross of the Witnesses.
5:08:34 PM	Adjourned	
5:09:43 PM	Session Paused	
9:08:26 AM	Session Ended	



Judge: Bob Cicero; Talina Mathews; Michael Schmitt
Witness: Jason Green; Melinda Melton; Ariel Turmnbull
Clerk: Pam Hughes

Name:	Description:
Monroe Co WD Exhibit 04	Wages and benefits of Monroe Co WD - Current, 2015, and 2017
Monroe CO WD Exhibit 05	Current Federal Wage Rate in Monroe Co,
Monroe Co WD Exhibit 06	Comparison of Water District Wages with State and National Water Industry Wages/Salaries (14 pages)
Monroe CO WD Exhibit 07	Attachment A, Staff Report, Case No. 2015-00065- Webster County Water District Engineering Division's Analysis of Asset Service Lines.
Monroe CO WD Exhibit 08	Employee Compensation Cost (Prior to 2017 Hires- 2015 test-period)
Monroe Co WD Exhibit 09	State Government 2018 Monthly Premiums and Contributions for non-tobacco and tobacco users.
Monroe CO WD Exhibit 10	Rural Water Wastewater Systems O & M Guide
Monroe Co WD Exhibit 11	Kaiser Family Foundation and Health Research & Educational Trust, Employer Health Benefits, 2016 Annual Survey.
Monroe Co WD Exhibit 12	Executive Order, dated 11-18-16 Relating to the Reorganization of the Energy and Environmental Cabinet Public Service Commission.
Monroe Co WD Exhibit 13	U.S. EPA -Asset Management: Handbook for small water systems
PSC Exhibit 2	Validation of the Long Life of PVC Pipes - by Steven Folkman, Utah State University
PSC Exhibit 3	Small Utility Accounting Manual from the Indiana Utility Regulatory Commission, Water/Wastewater Divison

Proceedings of the 17th Plastic Pipes Conference
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VALIDATION OF THE LONG LIFE OF PVC PIPES

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ABSTRACT

Several analytical studies have estimated that PVC pipe can have a useful life of over 100 years. The earliest widespread use of PVC pipes was in Germany in the late 1930's. These early pipes lacked proper extrusion technology. Extrusion technology was greatly developed during the 1950's and 1960's. Use of PVC pipe in the USA started in the early 1960's. It was desired to try to validate the expected long life of PVC pipe. Recently, Utah State University conducted several tests on PVC pipes that had been in use between 20 and 49 years. The tests conducted include acetone immersion and burst pressure or hydrostatic integrity tests. The purpose of these tests was to examine if the pipe still met the quality control standards that were in place when they were manufactured. The results show that when the material has proper gelation, all of the quality control tests were successfully passed. This paper will also review these test results along with testing done by other researchers examining the long life expectancy of PVC pipe.

INTRODUCTION

In the United States and Canada, underground water infrastructure was installed during three main time periods because of the population growth in the 1800s, 1900–1945, and post 1945. Pipes made of iron constructed in each of these three eras will all start to fail at nearly the same time over the next couple of decades due to the corrosion of the iron pipes. Additionally, the life span of the materials used since the 1960's has changed. Grey cast iron pipes are no longer manufactured and the new ductile iron material has been made thinner to reduce costs, but as a result, the pipe life expectancy has become shorter with each new investment cycle (1). In 2013, the American Society of Civil Engineers issued a USA Infrastructure Report Card and gave an overall "D" grade to drinking water and wastewater infrastructure which included the piping infrastructure. In an update to the "Dawn of Replacement" (2), AWWA has published "Buried No Longer" which states "More than a million miles of pipes are nearing the end of its useful life and approaching the age at which it needs to be replaced" (3). These water pipe replacement costs combined with projected expansion costs will exceed \$1 trillion over the next couple of decades. The cost of underground pipe infrastructure is only 60% of the US water industry's total funding requirement. In addition, sewer and storm drain funding needs also drive up the cost burden on rate payers. Municipalities continue to struggle with balancing water service affordability against the rise in service interruptions and declining water quality. With the introduction of piping materials such as PVC, utilities were able to address the issue of iron pipe degradation due to corrosion.

Infrastructure asset management is an approach which can help utilities bring together the concepts, tools, and techniques to manage assets at an acceptable service level at the lowest life-cycle cost. Asset management practices applied to underground infrastructure help utilities understand the timing and costs associated with replacement activities. The knowledge gained from these efforts also helps in the development of effective pipe material selection through comparative financial analysis called "life cycle costing" as part of the replacement strategies and funding plans. Understanding the longevity of a pipe improves the ability for management to make better infrastructure investment decisions with improved affordability results for customers.

THE AFFORDABILITY ISSUE

Traditionally, there has been a lack of analysis which would combine both underground pipe performance and affordability. Existing practices tended to ignore the effect of environmental conditions on different pipe materials. Yet, every engineer understands how the complexity of underground infrastructure has increased along with the array of choices. The ability to change old habits and consider new materials requires additional analysis, and improved design and installation practices. This enhanced analysis of pipe design, selection and installation sets forth the longevity and life-cycle costs critically influencing water service affordability for the next 100-200 years.

There have been many studies on water main failures rates in the US, Canada, Australia, and Europe over the last three decades. These studies mainly compared the number of pipe breaks by general pipe type and by length. While these studies have been very helpful to the water industry, the new driver has been concerned with the ability to make underground pipe decisions to improve the repair and replacement costs in an effort to address the affordability of water services to customers. This new level of fiscal accountability and demand for transparent utility management back to their owners and stakeholders has increased the need of additional evidence to demonstrate the improved decision making. Dig-up reports and pipe performance and longevity studies form the next body of evidence needed to collaborate water main break surveys and studies.

The simple formula in a life cycle cost framework is essentially that "a pipe which has a long life at a low cost is the most affordable." Engineers are to make available every alternative which would answer the simple question of longevity and cost at each relevant point within the underground network providing service. A key issue in the life cycle cost framework is the expected life of a pipe. Clark, et al (4) presents an analysis of a single utility in Laramie, Wyoming that would indicate that initially the survival probability of a PVC pipe is much lower than for a ductile iron pipe. That conclusion is at odds with a survey by Folkman et. al. (5) of 188 utilities across the US and Canada showed that PVC pipe has the lowest overall failure rate when compared to cast iron, ductile iron, concrete, steel and asbestos cement pipes. One very important conclusion from Folkman et. al. is that failure rates vary widely between utilities and thus drawing conclusions from the results of one or a few utilities is not recommended.

The analysis of pipe breakage is incomplete without the assessment of why the pipe failed. This knowledge is then applied to the cost analysis of repairing and replacing the pipe. Once again, analysis would dictate that if a pipe is failing in less than 100 years then one or more of the following factors should be considered; a) the pipe has identified manufacturing defect, b) the recommended installation procedures were not followed, c) the design process did not correctly address the actual operating conditions, and/or d) the pipe material originally selected needs to be changed. The 2013 United States Conference of Mayor's report on Municipal Procurement (6) highlighted the importance of such procurement policies.

WATER MAIN BREAK STUDIES

Water main break studies over the last 30 years demonstrate the changing trends based on the use of various pipe types.

- In 1981 Kirby (7) published an early study of water main failure rates in England. Kirby noticed that first PVC installations in 1965 suffered from higher failure rates than cast iron pipes. Most of these failures were related to improper installation procedures. By 1979, the failure rates of PVC had dropped to well below that of cast iron due to improved pipe installation procedures.
- In 1981 Bjorklund (8) looked at water main failure rates in Sweden. He noted the improved performance of PVC pipes.
- In 2005 Burn, et. al. (9) conducted a small survey of water utilities in Australia, Canada, and US. Important observations include the low overall failure rate of PVC relative to other pipe materials. Variability in survey data indicated that early failures were very likely attributed to installation practices.
- As previously mentioned, the 2012 US Water Main Breaks Study by Folkman, et. al. (5) reported results of a survey of 188 utilities across the US and Canada. That survey demonstrated that PVC pipe has the lowest overall failure rate when compared to cast iron, ductile iron, concrete,

steel and asbestos cement pipes. Corrosion was indicated as the primary cause of failure. PVC currently represents about 23% of the total length of pipe installed in US water systems. PVC dominates the rural water systems and the sewer underground infrastructure. The report also found that 8.4% of water mains are described as beyond their useful life. The average age of failing water mains is 47 years.

THE DIG-UP REPORTS: EVIDENCE OF PERFORMANCE AND LONGEVITY

Dig-up reports have occurred globally, but mainly occurring in Australia, Europe, Canada and the United States. In these reports, the pipes were subjected to a range of mechanical tests in order to assess whether there had been any deterioration during their service. Dig-up reports are valuable because they show results from pipe installed by contractors and in use for decades. Laboratory testing has a difficult time simulating real world installation and operation conditions.

UNITED KINGDOM AND EUROPEAN STUDIES

In 1985, Lancashire (10) investigated whether the performance of PVC-U pipe is affected by time in service. Lancashire studied PVC water pipes exhumed after 4 to 16 years' service and concluded that ageing was not a significant factor influencing the performance of the pipes. Material quality, particularly good gelation and small size of inclusions, was found to have the overwhelming influence on performance. The pipes were 4 inch, Class C (operating pressure 9 bar) from a single manufacturer. They performed stress regression testing and concluded that initial pipe quality is the overriding influence in determining pipe performance. All of the pipes tested would be expected to exceed a 100 year life under normal operating conditions.

In 1996, Alferink et al (11) tested exhumed PVC pressure pipes ranging up to 37 years of age. It was concluded there was virtually no change in the mechanical properties of the pipes due to ageing. The report summarized results of testing a total of 19 pipe samples. The tensile tests showed that the material modulus does not decrease with pipe age. There did not appear to be any changes in tensile strength and impact strength with pipe age. Stress regression testing showed that PVC pipes after 35 years of service still were meeting CEN stress regression requirements. They concluded that "old PVC water pressure pipes still fulfill the most important functional requirements. Ductility and resistance to internal pressure have been virtually unaffected by ageing, and are still on the same level as for new pipes."

Hülsmann (12) in 2004 reported on tests of some of the first PVC pipes installed in Germany. One set of tests examined 15 pipe specimens were exhumed after being in use for 23 years. They ranged in diameter from 20-48 mm (0.787-1.890 in) and were subjected to long term hydrostatic pressure testing. The testing was completed at 60°C and then the Arrhenius equation was used to scale the results back to 20°C. The extrapolation of the stress regression data was taken out to 10⁶ hours (114 years). Hülsmann concluded that under realistic conditions in the Bitterfeld location and at 4-5 bar (58-83 psi) water pressure, it may be assumed that another 100 years of safe operation could be expected. An additional nine pipe specimens, 4 coming from a 32.5 mm (1.28 in) pipe and 5 coming from a 25.2 mm (1.0 in) pipe, were in operation as potable water pipes for 53 years at 4-5 bar (58-83 psi) operation pressure. The 9 samples were subjected to long term hydrostatic pressure test at 60°C. An extrapolation of the stress regression data was to 10⁶ hours (114 years). In conclusion, these pipes would last another 100 years of operation even at 7 bar (102 psi) and 60°C (140°F) operating conditions. If the temperature is between 20-40°C (68-104°F) and the operating pressure is doubled to 8-10 bar (116-145 psi), the pipe would easily operate for 100 years as a potable water pipe with a safety factor of 1.5.

The following year in 2005, Boersma and Breen (13) examined chemical and physical ageing of PVC pressure pipe. They defined chemical ageing by a change in the chemical structure of a polymer and physical ageing as a change in the physical structure. He notes that "Chemical ageing at 15°C seems not to have a significant influence on the quality of PVC water distribution pipes." Physical ageing was investigated by examining the free volume relaxation by measuring yield stress. Accelerated aging of PVC pipe at 60°C leads to an increase in yield stress and thus yield stress is an indication of the pipe age. However, measured yield strength of pipes in service up to 30 years does not show any trends indicating changes in yield strength with pipe age. He concluded that "Physical ageing at 15°C seems not

to have a significant influence on the quality of water distribution pipes." They also tested PVC pipes for craze initiation, stress regression, slow crack growth, and fatigue and concluded that the service life of high quality PVC should exceed 100 years.

In 2006, Breen (14) studied five excavated pressure pipe specimens produced between 1959 and 1997 with pipe diameters between 160 and 400 mm (6.3 and 15.7 inch). He performed chemical and physical ageing tests on the PVC along with tensile, craze initiation, burst test, slow crack growth, impact test, and fatigue measurements. He concluded that the "existing PVC tap water pipe systems in the Netherlands will operate for at least 100 years provided that the internal and external loads do not result in hoop stresses which will exceed 12.5 MPa and that no micro-crack and mechanical damages are present in the PVC pipes."

AUSTRALIAN TESTING SHOWS NO PIPE DEGRADATION AFTER 30 YEARS

The testing methodology used by Stahmer and Whittle (15) takes into consideration the field performance of the PVC pressure pipes as well as the actual testing based on the Australian Standards. The pipes which were exhumed in 1996 after 25 years of operation were subjected to the following tests:

- Resistance to flattening per Australian Standard AS 1462.2
- Resistance to impact per Australian Standard AS 1462.3
- The dispersion of the resin in the pipes was assessed on samples approximately 0.02 mm thick under low power magnification.
- Tensile properties of the PVC were determined on four pipe samples, using the average of five determinations for each.
- The fracture toughness of the pipes was determined using the notched C-ring method per Australian Standard Draft No. 2570.

It was reported that these PVC pressure pipes were installed in a variety of terrains including sandy soil and solid limestone. The performance was reported to have been satisfactory in all situations. In addition, the pipes in the system traverse both roads and rail lines. In neither instance was the pressure class of the pipe upgraded to accommodate the dynamic loads imposed by passing road traffic or trains. Nevertheless, no failures have been reported as a consequence of dynamic loading. The long-term performance of the system has been clearly dependent upon the initial pipe quality, handling and installation. Degradation of the PVC material has not occurred. For the four pipes tested, the tensile strength at yield and elongation-at-break were essentially the same. Moreover, the results are the same as expected for contemporary pipes tested at the time of manufacture. Thus it can be concluded there has been no degradation in the strength or elongation characteristics of the PVC during the service life of the pipes. The exhumed pipes have not suffered any loss of strength as a consequence of operating under pressure for almost 30 years.

These results imply there has been no deterioration in the fracture toughness during a service life approaching 30 years. A number of studies have been made of exhumed PVC pipes in order to test the premise that material degradation is neither occurring nor adversely affecting potential service life. The findings of the Australian pipe testing support the earlier works by Lancashire (10), Alferink et al (11) and Bauer (16).

Numerous studies on the fatigue failure characteristics of PVC pipe have been conducted. In 2005 Whittle and Teo (17) summarized previous research and conducted rotating beam experiments with notched PVC specimens and were able to match fatigue failure test results from pressure cycling PVC pipes. Their results show that an endurance limit exists in PVC-U pipes such that stress amplitudes less than 2.5 MPa (362 psi) would have negligible effect on the life of a pipe. This stress range is well below that expected in a typical municipal water system.

The Water Research Foundation funded a study published in 2005 titled "Long-Term Performance Predictions for PVC Pipes," Burn, et. al. (9). This report is a comprehensive review of methods to analyze the expected life of PVC pipe. They report that 100 years is a conservative estimate for a "properly designed and installed pipe." A survey was sent out to 44 water utilities in Australia, Canada, and the USA. Of the 44 participants, 17 water utilities provided detailed data. Fracture mechanics-based

models were produced to predict the conditions under which pipe failure will occur in service. These models were calibrated against failure rates recorded in several North American and Australian utilities.

NORTH AMERICAN STUDIES

Moser and Kellogg in 1994 (18) published a AWWARF funded survey of water utilities and performed impact and acetone immersion tests on 59 PVC pipe samples from 16 different utilities that were being installed in 1992. The samples provided came from ten different PVC pipe manufacturers. All of the samples passed the acetone immersion test and only four samples failed the impact tests. The survey results found some evidence of early PVC pipe failure but these problems usually occurred in the first year of operation and were usually attributed to improper pipe installation.

Moser and Folkman (19) reviewed previous studies of fatigue failure in PVC pipe and guidelines to prevent failures. They also conducted numerous pressure cycling tests of 6-inch PVC pipe and combined their results with previously reported data.

In 2013, EPCOR's Seargeant (20) reported on water main breaks in the system in Edmonton, Canada. The highly corrosive soil in Edmonton necessitated a transition from cast iron to asbestos cement pipes in 1966 and then to PVC starting in 1977. The transition to PVC has produced a dramatic reduction in water main break rates for the city. EPCOR also demonstrated that a PVC water main could be frozen in winter and not burst. This evidence is critically important for geographic areas facing climate change with severe winter conditions and freezing storms and flooding. Three PVC pipes were excavated and tested. One pipe had been in service for 17 years and the other two had been in service for 25 years. Quality control tests including quick burst, impact resistance, flattening, and acetone immersion were completed and the tests demonstrated the pipe met virtually all new pipe requirements.

RECENTLY COMPLETED DIG-UP TESTS

In 2013, Folkman and Barfuss (21) reported on quality control tests on PVC pipe that had been in use for a number of years. Subsequent to that effort, additional quality control tests of excavated PVC pipes were completed. The pipes tested are summarized in Table 1 and had been in continuous use for between 20 and 49 years. Note that samples #1, 4, and 6 were manufactured under an early commercial standards CS 256 or PS 22-70. The CS 256 and PS 22-70 standards were replaced with ASTM D2241 and the standards are nearly identical. The tests included pipe dimensions, acetone immersion, and pressure tests. The burst pressure test was used for samples that were manufactured to CS-256, PS 22-70, and ASTM D2241 standards. The hydrostatic integrity test was applied to sample #3 which was made to the AWWA C905 standard. Table 2 lists the specifications used for these quality control tests. Figure 1 is a photograph of Sample #3 prior to the hydrostatic integrity test.

Table 1. Description of PVC Pipe Tested at USU

Sample Number	Size (inches)	SDR	Usage	Standard	Year Installed	Year Excavated	Years of Service
1	4	21	Water Main	CS-256	1964	2012	49
2	4	21	Water Main	ASTM D2241	1987	2012	26
3	24	18	Forced Sewer	AWWA C905	1990's	2012	~20
4	2	26	Water Main	CS-256	1980's	2014	~42
5	4	26	Water Main	ASTM D2241	1980's	2014	~38
6	6	26	Water Main	PS 22-70	1980's	2014	~38
7	6	26	Water Main	ASTM D2241	1994	2014	20
8	6	26	Water Main	ASTM D2241	1979	2014	35

Table 2. Quality Control Test Specifications

Test	Test condition	Applicable Standards
Pipe Dimensions	6 specimens at 8 points	AWWA C905 & ASTM D2122
Acetone Immersion	8 samples	ASTM D2152
Burst Pressure	SDR 21, 630 psi in 60 s	CS-256, PS 22-70, ASTM D2241 &

	SDR 26, 510 psi in 60 s	D1599
Hydrostatic Integrity	SDR 18, 470 psi in 60 s	AWWA C905 & ASTM D1599

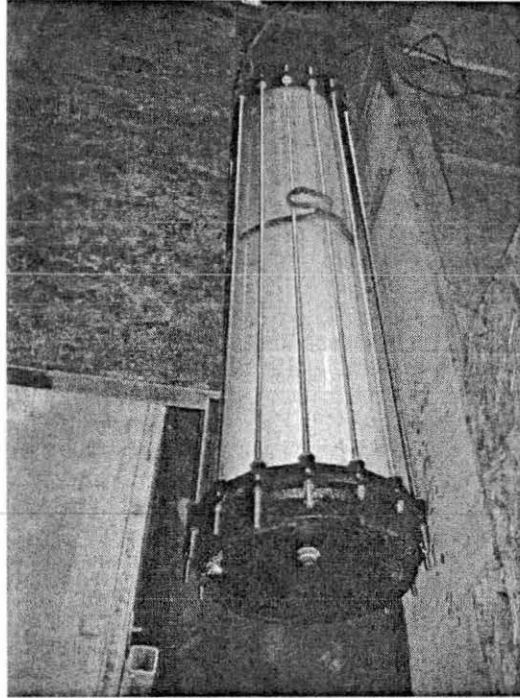


Figure 1. Photo of sample #3 prior to structural integrity testing.

The results of the testing is summarized in Table 3. As previously reported, during the 1970's a few manufacturers did have problems with their extrusion equipment and did not always obtain proper gelation as shown by the failures of samples 4 and 6 to pass the acetone test. The failure of sample 4 to pass the Burst Pressure test is attributed to improper gelation. Note that samples 4 and 6 were both manufactured under the early PS 22-70 standard. After passing the burst test, the samples were pressurized until failure. The failure pressure was consistently more than 20% higher than the specified burst test pressure called out in Table 2. Thus, where proper fusion of the PVC was obtained, there are no indications from these quality control tests that there has been any degradation in these PVC pipe specimens

Table 3. Results of Quality Control Tests

Sample	Pipe Dimensions	Acetone Test	Burst or Hydrostatic Integrity Test
1	Pass	Pass	Pass
2	Pass	Pass	Pass
3	Pass	Pass	Pass
4	Pass	Fail	Fail
5	Pass	Pass	Pass
6	Pass	Fail	Pass
7	Pass	Pass	Pass
8	Pass	Pass	Pass

It is significant to note that this was the second round of testing performed on sample #1. In 1987 Eckstein (22) reported that samples of this pipe was excavated in 1987 after 22 years of use and subjected to chemical extractant tests for water quality, stress regression tests per ASTM D1598 and D2837, acetone immersion testing per ASTM D2152, flattening tests per ASTM D2412, and impact resistance tests per ASTM D2444. All of these quality control tests were passed. The latest round of testing of sample #1 verifies that the ability of the 49 year-old pipe to perform its intended purpose has not changed. The pipe has the same water pressure capacity it had when it was first installed 49 years previously.

DIG-UP TEST RESULT SUMMARY

Accelerated ageing studies all indicate that PVC pressure pipe can be expected to provide reliable service for in excess of 100 years. Accelerated ageing tests provide the best estimates a laboratory can provide for longevity. Validation of PVC expected long term performance with exhumed samples provides additional confidence to the end user. With many installations of PVC pipe reaching 50 years with no indication of loss of capacity, this provides further validation of PVC pipe's long life.

Examples can be found of PVC pipe failures with very short life spans. When an early PVC failure occurs, it has been the experience of the author that there will be two possible causes. The failure could be due to a defective pipe usually caused by incomplete gelation of the PVC. Quality control tests by manufacturers on each lot of pipe should prevent this occurrence. The primary cause of early PVC pipe failure is improper installation procedures. Regardless of the pipe material chosen, a quality installation procedure will provide enhanced pipe life.

SEWER PIPE STUDIES

Bauer (16) tested PVC sewer pipe exhumed after 15 years of service and in 1990 reported on tests that no measurable degradation of the material occurred in this period. In particular it was reported that there was no embrittlement and no decrease in modulus or pipe stiffness.

Meerman (23) in 2008 conducted inspections of sewer pipe up to 25 years old. A number of pipes were recovered from their service sites and subjected to a range of visual, microscopic and other test to assess their condition. The tests included: visual and microscopic inspections, geometrical analysis and deformations, and surface roughness and degradation. He concluded that the existing PVC sewer pipe systems will operate for at least 100 years.

CONCLUSION AND RECOMMENDATIONS

Our water and sewer underground infrastructure is now in decline after decades of service. The signs of distress surface daily as water mains break, creating floods and sink holes. The loss of service is more than an inconvenience, causing significant social and economic disruptions at ever increasing costs. The downturn of the economy has also given rise to new issues on the affordability of water services when total price tag of regulatory issues and replacement costs are considered. These issues create a more complex environment for utility management, including an increased amount of public awareness and a greater demand for transparency and accountability. In an effort to provide solutions to these new utility business requirements, additional processes and tools are needed as part of the underground pipe infrastructure evaluation and selection process. Many utilities have fallen short in producing appropriate cost and life cycle comparison of pipe performance. When PVC pipes are included in life cycle costing with accurate expected life assumptions, utilities will see significant possible savings.

As previously mentioned, the average age of a failing water main is 47 years. This is unacceptable and unsustainable. Studies on the expected life of PVC pipe from researchers around the world consistently has confirmed a 100+ year benchmark for PVC pipes. These results are based on "dig-up" studies of pipe in use and installed by contractors. All pipe installations, regardless of the pipe material, require a quality installation. Attention to installation will pay dividends in terms of extended life.

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Small Utility Accounting Manual



Water/Wastewater Division

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Introduction

We recognize that many small utilities have limited resources and may rely on a board member, a recently elected clerk-treasurer, or the spouse of a developer with little accounting knowledge to be the responsible person for your utility's financial and accounting records. The IURC's Water/Wastewater Division developed this manual primarily to assist those individuals with limited accounting experience. However, utility accounting has some unique aspects to it that will be addressed. Thus, the content may benefit experienced bookkeepers as well.

Several topics discussed include commonly incurred accounting errors that have been identified in Annual Reports and rate case filings. We also explain double-entry and accrual accounting and describe the advantages over single-entry and cash basis accounting. Next, we provide some of the most commonly incurred transactions that can be easily made on an accrual basis to create or enhance the usability of your monthly financial statements and budgets. For a more detailed and thorough utility accounting guide, the NARUC Uniform System of Accounts (USoA) is a publication that all regulated utilities should possess. A more detailed discussion of the USoA is provided on the following page including information about how to obtain copies.

Toward the back of the manual, you will find a list of monthly financial/accounting duties. This list was prepared by the Indiana State Board of Accounts and is included in its Cities and Towns Manual. While this list was written for municipalities, many of the responsibilities listed also apply to not-for-profit and investor-owned utilities. You will also find a checklist that is recommended for use prior to the submission of your IURC Annual Report due on April 30th. Finally, you will find a collection of Indiana statutes from Title 8 and the administrative code that relate to accounting requirements for regulated utilities.

Also, take advantage of resources on the web that provide opportunities to learn at no cost. The content of this manual will not provide a complete understanding necessary to perform all accounting functions. For those who would like to take a more comprehensive approach to your utility's financial management, Rural Community Assistance Partnership (RCAP) has developed an excellent publication titled, "The Basics of Financial Management for Small-Community Utilities." This free guide provides an overview of financial management for small utilities, from developing a budget to collecting revenue. The guide also explains in simple, easy-to-understand terms how to read and interpret financial statements so more informed decisions can be made. This guide also provides sample financial-management policies, which are also available in Microsoft Word files, so you can adapt the policies to your utility. You will also find information about financial planning, budgeting and financial performance.

<http://www.rcap.org/finmgmtguide>

Small Utility Accounting Manual

Disclaimer: The Small Utility Accounting Manual (Manual) is provided as a public service by the Indiana Utility Regulatory Commission (IURC) for informational purposes only. The IURC is not responsible for the views, interpretations or recommendations made in this manual which was prepared by Commission staff. Distribution of the information does not constitute acceptance by the IURC. Every possible effort is made to keep the content accurate and current, but the user assumes the risk of verifying any materials used or relied on. Nothing supplied or identified herein should be interpreted as legal advice. The manual does not replace any laws or regulations and it does not represent a formal action or decision by the IURC. If the manual conflicts with any law or regulation, the law or regulation is the controlling authority.

Uniform System of Accounts (USoA)

The National Association of Regulatory Utility Commissioners (NARUC) developed the Uniform System of Accounts (USoA). The USoA prescribe accounting instructions and classifications to achieve uniform and consistent accounting records to allow regulators to fulfill their regulatory responsibilities. The IURC adopted the NARUC USoA pursuant to 170 IAC 6-2-2 for water utilities and 170 IAC 8-2-1 for wastewater utilities. Utilities may purchase the Uniform System of Accounts Manuals pertaining to their particular class for less than \$30. You can call (202)898-2200 or visit the website at www.NARUC.org. The manuals will be found in the 'Publications Store' under the 'About NARUC' option.

The USoA divides water and wastewater utilities into three classes, A, B and C, based upon the average amount of annual operating revenues for the last three consecutive years.

Utility Classifications

Class A: \$1,000,000 and more in revenues

Class B: \$200,000 to \$999,999 and

Class C: Less than \$200,000 in revenues

The double-entry accrual accounting system is required for all utilities regardless of class. Advantages of double-entry accrual accounting are the inclusion of assets and liabilities in the books of account, the ease of financial statement preparation without the necessity of analysis of supporting memoranda and documents, and a means of providing a better understanding of the financial status of the utility.

General Numbering System

Water Utilities

100-199 Assets and Other Debits
200-299 Equity, Liabilities and Other Credits
300-349 Water Plant Accounts
400-434 Income Accounts
435-439 Retained Earnings Accounts
460-489 Water Operating Revenue Accounts
600-699 Water Operation and Maintenance Exp.

Wastewater Utilities

100-199 Assets and Other Debits
200-299 Equity, Liabilities & Other Credits
350-389 Wastewater Plant Accounts
400-434 Income Accounts
435-439 Retained Earnings Accounts
521-549 Wastewater Oper. Revenue Accts.
700-799 Wastewater O&M Expenses

Double Entry Accounting

A double-entry accounting system tracks financial activity in which the debits and credits of each transaction equal zero. Double-entry accrual accounting also employs the principles of accrual basis accounting, most notably the matching principle.

The chief rule in double-entry accrual accounting, the matching principle, requires accountants to record transactions in the period the work took place regardless of when cash exchanged hands. Accountants create entries called accruals and deferrals to comply with this requirement.

The term “double entry” means that every transaction affects at least two accounts. For example, if a company borrows \$50,000 from its bank, the company’s Cash account increases, and the company’s Notes Payable account increases. Double entry also means that one of the accounts must have an amount entered as a debit, and one of the accounts must have an amount entered as a credit. For any given transaction, the debit amount must equal the credit amount. (To learn more about debits and credits, see the Explanation of Debits & Credits on the following page.)

Account

An account is a record in the general ledger that is used to collect and store similar information. Utilities present their annual accounts in two main parts: the Balance Sheet and the Income Statement (or Operating Statement).

Types of Accounts:

Assets are items of value an entity owns, such as cash, inventory, accounts receivables, buildings, plant, and office equipment. Liabilities are amounts owed to other entities. Equity or net assets is the amount of funds contributed by the owners plus the retained earnings or losses. Revenues are fees or service charges that are billed to customers for utility services rendered. Expenses are items that use a utility’s financial resources to operate the utility. Other Income or Expenses are items that are not directly related to providing services to the utility’s customers, for example, interest income, sale of assets and interest expense.

Chart of Accounts

A chart of accounts is a listing of the names of the accounts that a company has identified and made available for recording transactions in its general ledger. An IURC regulated utility has some flexibility to tailor the chart of accounts prescribed by the NARUC Uniform System of Accounts (see page 4) to best suit its needs. For instance, in addition to the prescribed accounts, clearing accounts and subdivisions of any account may be kept provided the integrity of the prescribed accounts is not impaired. Also, Class C utilities may maintain such additional accounts as are included in the USoA for Class A or Class B utilities. Within the chart of accounts, you will find that the accounts are typically listed in the following order:

Balance Sheet accounts	Assets Owner's (Stockholders') Equity Liabilities
Income Statement accounts	Operating Revenues Operating Expenses Non-operating Revenues and Gains Non-operating Expenses and Losses

Trial Balance

A trial balance is a list of all the General Ledger accounts contained in the ledger of a utility. This list contains the name and value of the ledger accounts, such as Cash, Inventory, Accounts Payable, etc. The value of the ledger will hold either a debit or a credit balance value. The name originates from the purpose of a trial balance which is to prove that the value of all the debit value balances equal the total of all the credit value balances. The Balance Sheet, Income Statement and other financial reports can then be produced using the ledger accounts listed on the trial balance.

Explanation of Debits & Credits:

A credit and debit are the two fundamental aspects of every financial transaction in the double-entry accounting system in which every debit transaction must have a corresponding credit transaction(s) and vice versa. Debits and credits form two opposite aspects of every financial transaction. A "Dr" (debit) means left side of a ledger account and "Cr" (credit) is the right side of a ledger account. Whether a debit increases or decreases an account depends on what kind of account it is.

Assets are debit accounts. This means that they are accounts that normally have a balance on the left side of the accounting equation. To increase, you debit the account. To decrease, you credit it.

Liabilities and equity are credit accounts. They normally have a balance on the right side of the equation. To increase, you credit them. To decrease, you debit them.

Small Utility Accounting Manual

Accounting is governed by the following equation:

$$\text{Assets} = \text{Liabilities} + \text{Equity} \quad (A = L + E)$$

If an asset account increases (through a debit), then one must also decrease (credit) another asset account, or increase (credit) a liability or equity account.

- An increase (+) to an asset account is a debit.
- An increase (+) to a liability account is a credit.
- A decrease (-) to an asset account is a credit.
- A decrease (-) to a liability account is a debit.

Balance Sheet Equation =

$$\text{Asset Accounts} = \text{Liability Accounts} + \text{Equity Accounts}$$

<u>Debit</u>	<u>Credit</u>	<u>Debit</u>	<u>Credit</u>	<u>Debit</u>	<u>Credit</u>
+	-	-	+	-	+

Summary table of standard increasing (+) and decreasing (-) attributes for the five accounting elements:

ACCOUNT TYPE DEBIT CREDIT

Asset	+	-
Liability	-	+
Equity	-	+
Revenue	-	+
Expense	+	-

Journal Entries

The journal entry is the act of recording financial transactions with the intent of increasing or decreasing account balances. A journal is considered the book of original entry, because it is where financial transactions are first recorded.

Journal entries answer the following three essential questions:

- a. What has happened?
- b. Which accounts are affected?
- c. Should the accounts be increased or decreased and by how much?

Sample journal entry:

	<u>Debit</u>	<u>Credit</u>
Acct. 601 Salaries Expense	\$10,000	
Acct. 131 Cash		\$10,000
To record payment of payroll for the month of June 2012.		

Accrual Accounting

Introduction

Accrual accounting is a system of accounting where revenues and expenses are recorded as they are earned and incurred. Accrual accounting has a number of advantages over cash basis accounting where revenues and expenses are recognized only when cash is received or paid. Accrual accounting matches revenue with expense providing a more accurate assessment of a utility's financial position. This allows management to measure performance using financial statements that better represent actual circumstances. With cash accounting, the financial statements may be showing favorable results while the utility is struggling because expenses are accruing, but not yet paid. For instance, debt service payments on bond issues are frequently paid on a semi-annual or annual basis. The interest expense associated with outstanding debt is not an expense that occurs only in the month when the debt payment is made, but instead occurs, or accrues, over each month. Accrual accounting records, or accrues, the interest expense in every month (even when debt payments are not made) providing a more accurate financial picture and matching revenues with expenses.

Properly matching revenues with expenses also allows a utility to better assess profit; if expenses are not properly accrued, monthly profits will be overstated until the cash payments for the expenses are made. When the cash payment is made, the monthly profit will be understated. The same concept applies to revenues as well. There was a time when many utilities billed customers on a bi-monthly or quarterly basis. If the monthly revenues are not accrued, the profit will be understated in months where customer bills are not prepared and overstated in months where customer bills have been prepared. We do not recommend utilities bill less frequently than on a monthly basis because it will adversely affect cash flow and reduces the price signal effect to consumers provided by the bill.

Accrual accounting will improve overall financial management including the enhanced use of budgets. Over the next several pages, we identify some of the more common and material transactions that benefit from accrual accounting and describe how the accounting entries might look. The transactions identified do not represent a complete list of transactions that could be accrued which would result in a more precise financial presentation. For instance, monthly accruals for unbilled revenues and payroll entries are not discussed. The intent here is to assist those with limited accounting knowledge to get started with accrual accounting and we believe the transactions identified are relatively simple to understand and/or will make a material difference to monthly financial statement results. Depending on your level of accounting knowledge, you may want to review the explanation of debits and credits in the Double Entry Accounting section.

Insurance Expense

While health insurance and other types of policies may be paid on a monthly basis, other policies are often paid quarterly, semi-annually and annually. These insurance policies do not provide coverage only for the month when the premium is paid so these costs need to be spread over time periods coverage is provided.

Example: XYZ Utility pays its liability insurance premium costing \$18,000 on April 1, 2014 and provides coverage for a 12-month time period.

In order to spread this cost-over an entire year, the payment will be posted to the Prepaid Insurance account on the Balance Sheet to be allocated to the Income Statement on a monthly basis. Thus, the initial transaction might look like this:

	<u>Debit</u>	<u>Credit</u>
Acct. 162 Prepaid Insurance	\$18,000	
Acct. 131 Cash		\$18,000
To record payment of annual liability insurance premium (April 2014 – March 2015).		

Each month, 1/12 of the amount paid or \$1,500 will be transferred to the Insurance Expense account.

	<u>Debit</u>	<u>Credit</u>
Acct. 757 Insurance Expense	\$1,500	
Acct. 162 Prepaid Insurance		\$1,500
To record monthly liability insurance expense.		

The T-account below shows the balance in the Prepaid Insurance account decreasing after the April journal entry has been made. In this example, the balance in the Prepaid Insurance account will reach zero after the twelfth monthly journal entry has been recorded.

Acct. 162 Prepaid Insurance	
\$18,000	\$1,500
\$16,500	

In this example, we only show one insurance policy where the premium paid is posted to the Prepaid Insurance account. However, in practice, all of the insurance premiums that cover more than one month would be posted to Prepaid Insurance and allocated to an Insurance Expense account on a monthly basis.

Other prepaid expenses, where the expense is paid for in advance, could be accounted for in the same manner such as maintenance agreements.

Property Taxes

In Indiana, property taxes are paid with two semi-annual payments in early May and November. However, these payments should be spread out evenly throughout the entire year for more accurate accounting records. Therefore, property taxes should be accrued on a monthly basis. The semi-annual payment can be divided by six months to calculate the monthly expense. Each month, the Property Tax Expense account is increased with a debit while the Accrued Property Tax account, a liability account, is increased with a credit for the same amount. When the actual semi-annual payment is made, no entries are made to Income Statement accounts, instead, the Accrued Property Tax account is decreased with a debit and the Cash account is decreased with a credit to reflect the amount of property tax paid. Thus, the accounting entries may appear as follows:

	<u>Debit</u>	<u>Credit</u>
Acct. 408 Property Tax Expense	\$300	
Acct. 236 Accrued Property Tax		\$300
To accrue monthly property taxes owed for six months.		

Acct. 236 Accrued Property Tax	\$1,800	
Acct. 131 Cash		\$1,800
To remit semi-annual property taxes of \$1,800 in May 2012.		

The T-account below shows the Accrued Property Tax account increasing each month as a corresponding debit entry is made to the Property Tax Expense account on the Income Statement (not shown), then after the May accrual and cash payment is made, the balance is a debit of \$300. We learned that this account is a liability account and typically has a credit balance. The \$300 debit balance, in this instance, essentially represents a one month prepayment of property taxes. After the June accrual is entered, the balance will be zero before increasing again.

A/C 236 Accrued Property Tax	
	\$300 Jan.
	300 Feb.
	300 Mar.
	300 Apr.
	300 May
\$1,800	
\$300	

Depreciation Expense and Accumulated Depreciation

In the “Common Accounting Errors” section, we discuss the proper accounting for asset purchases, such as backhoes and trucks, is to record the purchases as assets, rather than as an expense. Depreciation expense is a method of attributing the historical or original cost of an asset over its estimated useful life based on normal wear and tear. This process helps to normalize the cost of assets by spreading them over the useful lives of the assets. If assets were expensed in the month incurred, the monthly financial statements would not be accurate.

Depreciation refers to two very different but related concepts:

- a.) The decrease in value of assets. This affects values of businesses and entities.
- b.) The allocation of the cost of assets to periods in which the assets are used (depreciation with the matching principle). This affects net income.

Generally, cost is allocated as depreciation expense among the periods in which the asset is expected to be used. Depreciation expense is recognized by businesses for financial reporting and tax purposes. Depreciation is a non-cash expense. The purpose of depreciation expense in ratemaking for investor-owned utilities is to recover a utility’s original investment of the asset, not for the eventual replacement of the asset. Depreciation expense generally begins when the asset is placed in service. Several standard methods of computing depreciation expense exist, including straight line, fixed percentage, and declining balance methods. However, utilities typically use group asset or mass asset depreciation accounting.

Under the group concept, assets are placed in a group that is considered to have some average life. Every asset placed in the group is assumed to have the same life and be fully depreciated when retired (see asset retirement accounting p. 25). Under group depreciation, an asset continues to generate depreciation expense even if it is in service after the average life of its group, or an asset may be retired before the asset is fully depreciated. From time to time, a depreciation study is performed to evaluate the actual lives and salvage characteristics of the assets retired. If many assets have been retired prematurely, it will likely result in a higher depreciation rate because the depreciation reserves will be understated.

Only a handful of the IURC’s regulated water and wastewater utilities perform depreciation studies because the studies are expensive and require detailed plant and accounting records. Instead, the smaller utilities apply the “standard” composite depreciation rates developed by the IURC reflected in a memo dated December 28, 1987. A composite depreciation rate is a weighted average depreciation rate for all groups of assets and is applied to the utility’s gross plant to calculate depreciation expense. The composite depreciation rates from the memo follow:

- Complete Water System – 2.0%
- Purchase Water System – 1.7%
- Complete Wastewater System – 2.5%
- Purchase Treatment System – 2.2%

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In practice, many utilities use various depreciation rates based on the asset lives of the plant account group, which is a common error found on the utility Annual Report filings and in some rate case filings. For example, for office furniture, a depreciation rate of 5% may be used for an expected service life of 20 years or for a truck, a depreciation rate of 20% may be used based on a service life of five years. Neither of these rates is correct.

On the surface, it may seem illogical for a water utility to apply a 2% depreciation rate to vehicles and furniture knowing these assets will not last for 50 years ($2\% \times 50 \text{ years} = 100\%$). However, it is important to remember that the 2% composite rate is a combination of asset classes with various useful lives. For instance, transmission and distribution mains are depreciated over 75 years or 1.33%. Fire hydrants and water storage tanks are depreciated over 60 years, or 1.67%, while Transportation Equipment is depreciated over 7 years (14.29%) and Office Furniture and Equipment over 25 years (4%). When depreciation rates for each asset class is combined, a composite depreciation rate of 2% results. Thus, when applying the 2% rate to the Utility Plant in Service balance, Transportation Equipment is really being depreciated over 7 years.

To record monthly Depreciation Expense, subtract land costs from the total Utility Plant in Service balance, multiply the remaining balance by the appropriate composite depreciation rate listed on the previous page, then divide by 12 months. Thus, the accounting entry may appear as follows:

	<u>Debit</u>	<u>Credit</u>
Acct. 403 Depreciation Expense	\$1,417	
Acct. 108 Accumulated Depreciation		\$1,417
To record monthly depreciation expense.		

Calculation: Utility Plant(less land) x Depreciation rate= Depreciation Expense
 $\$1,000,000 \times 1.7\% = \$17,000/12 \text{ months} = \$1,417/\text{month}$

Accumulated Depreciation

While Depreciation Expense is recorded on the Income Statement, its impact is recorded in a separate contra account on the Balance Sheet called Accumulated Depreciation, under Utility Plant in Service. Showing Accumulated Depreciation separately on the Balance Sheet has the effect of preserving the historical cost of assets on the Balance Sheet. The T-account below is a representation of Accumulated Depreciation showing the effect of the monthly entry above.

<u>Accumulated Depreciation</u>	
	\$432,541
	1,417
	<u>\$433,958</u>

Effect of Depreciation:

Income Statement: Depreciation Expense reduces Net Income.

Balance Sheet: Accumulated Depreciation reduces the net carrying value of the asset.

Retained Earnings is affected by Net Income.

CIAC Amortization

The IURC is one of a handful of state commissions that permit utilities to recover Depreciation Expense related to CIAC property as a component of revenue requirements when establishing rates. This recovery is accomplished by depreciating the contributed asset, but not amortizing the CIAC. For investor-owned utilities, this option may increase cash flow in the short term, but may also result in lower future earnings and possibly a negative rate base in the long term. To demonstrate, let's assume that a utility receives contributed plant worth \$200,000. The journal entry to record the plant will be a debit to Utility Plant in Service with a corresponding credit to CIAC. Thus, the rate base effect of this transaction is zero (\$200,000 UPIS less \$200,000 CIAC). Let's assume this plant is depreciated over 40 years or 2.5%. After 15 years, the Accumulated Depreciation will be \$75,000 ($\$200,000 \times 2.5\% \times 15\text{yrs}$). The rate base of this portion of the utility's plant will be calculated as follows:

	<u>After 15 yrs.</u>	<u>After 40 yrs.</u>
Utility Plant in Service	\$200,000	\$200,000
Less: Accumulated Depreciation	<u>75,000</u>	<u>200,000</u>
Net UPIS	125,000	- 0 -
Less: CIAC	<u>200,000</u>	<u>200,000</u>
Total Rate Base	<u>(\$75,000)</u>	<u>(\$200,000)</u>

To the extent the utility's investor supplied plant exceeds \$75,000, the utility will have a positive rate base on which to earn a return. However, the investor supplied plant will be offset by the negative \$75,000 from the contributed property reducing rate base and the utility's earnings. If the utility's investor supplied plant is less than the negative \$75,000 from the contributed property, the utility will have a negative rate base. The practical effect of this result is to prevent an investor from earning a return on additional investments.

One way to avoid this situation is to amortize CIAC, a practice also accepted by the IURC. CIAC is amortized over the same time period that the associated utility plant in service is depreciated. This ensures that CIAC and utility plant are synchronized. Consistent with the accounting instructions in the Uniform System of Accounts, a debit is made to Account 272, Accumulated Amortization of CIAC with the concurrent credit made to account 403, Depreciation Expense. The effect of this entry will reduce depreciation expense associated with contributed property to zero. Thus, the Depreciation Expense revenue requirement will be lower in a rate case as well and cash flow will be reduced in the short term.

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An example of the entry to record depreciation expense on contributed property is shown below along with the CIAC amortization entry and a T-account showing the resulting depreciation expense.

	<u>Debit</u>	<u>Credit</u>
Acct. 403 Depreciation Expense	\$5,000	
Acct. 108 Accumulated Depreciation		\$5,000
To record annual depreciation expense.		

Acct. 272 Accumulated Amortization of CIAC	\$5,000	
Acct. 403 Depreciation Expense		\$5,000
To record annual amortization of CIAC.		

Depreciation Expense	
\$5,000	\$5,000
-0-	-0-

If the utility elects to amortize CIAC, the rate base of this portion of the utility's contributed plant will be calculated as follows:

	After 15 yrs.	After 40 yrs.
Utility Plant in Service	\$200,000	\$200,000
Less: Accumulated Depreciation	75,000	200,000
Net UPIS	125,000	-0-
Less: CIAC	\$200,000	\$200,000
Less: Accumulated Amort. CIAC	(75,000) 125,000	(200,000) -0-
Total Rate Base	-0-	-0-
 Rate Base from prior page (without CIAC Amort)	 (\$75,000)	 (\$200,000)

Interest Expense

As stated in the introduction (to the Accrual Accounting section), interest expense associated with outstanding debt is not an expense that occurs only in the month when the debt payment is made, but instead occurs, or accrues, over each month. Accrual accounting records, or accrues, the interest expense in every month (even when debt payments are not made) providing a more accurate financial picture and matching revenues with expenses.

Referencing the Schedule of Amortization for XYZ Utility’s \$1,000,000 bonds shown on page 18, the accounting entries may appear as follows:

	<u>Debit</u>	<u>Credit</u>
Acct. 427 Interest Expense	\$2,500	
Acct. 237 Accrued Interest		\$2,500
To record monthly interest expense (\$15,000/6 months = \$2,500).		

	<u>Debit</u>	<u>Credit</u>
Acct. 237 Accrued Interest	\$15,000	
Acct. 221 Bonds	5,000	
Acct. 131 Cash		\$20,000
To record semi-annual loan payment.		

The T-account below shows the Accrued Interest account increasing each month as a corresponding debit entry is made to the Interest Expense account on the Income Statement (not shown), then after the July 1st cash loan payment is made, the balance is - 0 -.

Accrued Interest Account	
	\$2,500 Jan
	2,500 Feb
	2,500 Mar
	2,500 Apr
	2,500 May
	2,500 June
Jul \$15,000	
- 0 -	

Common Accounting Errors

Asset Purchases

Common Error: Asset purchases such as backhoes, trucks, meter installations (including labor, materials, machinery and overhead) and other equipment are often times recorded as Material & Supplies or Miscellaneous Expense on the Income Statement.

Proper Accounting: Asset purchases having an expected service life of more than one year should be recorded as Utility Plant in Service on the Balance Sheet.

Example: XYZ Utility purchases a backhoe with cash on hand.

	<u>Debit</u>	<u>Credit</u>
Utility Plant in Service	\$60,000	
Cash		\$60,000
To record purchase of 2012 John Deere 310 backhoe.		

If the vendor financed the backhoe, the utility would credit a note payable account rather than the cash account. Also, let's assume that the utility did not use cash on hand, but instead, acquired a loan from a local bank. In this instance, the accounting entries might look like this:

	<u>Debit</u>	<u>Credit</u>
Cash	\$60,000	
Bonds		\$60,000
To record bank loan used to acquire 2012 John Deere 310 backhoe.		

Utility Plant in Service	\$60,000	
Cash		\$60,000
To record purchase of 2012 John Deere 310 backhoe.		

Remember, do not record the purchase of an asset in an expense account on the Income Statement! Doing so will overstate your expenses, understate your net operating income and understate the assets on your Balance Sheet.

	<u>Debit</u>	<u>Credit</u>
Miscellaneous Expense	\$60,000	
Cash		\$60,000
To record purchase of 2012 John Deere 310 backhoe.		

Loan Payments

Common Error: Entire loan payment is recorded as Interest Expense on the Income Statement.

Proper Accounting: A portion of the loan payment is properly recorded as Interest Expense on the Income Statement. However, a portion of the loan payment represents principal and should be recorded on the Balance Sheet as a reduction to the loan or liability.

Loan payments consist of two components: principal and interest, when recording loan payments, both components need to be accounted for separately. The interest expense portion should be recorded on the Income Statement, while the principal portion should be recorded on the Balance Sheet as an offset or reduction to the loan (or liability) for which the payment is made. Each portion of the loan payment, principal and interest, can be determined from the loan amortization schedules that should be included with the loan documents or may be calculated using the loan terms or by contacting the loan provider.

Example: Let's assume Utility XYZ borrowed \$1 million to fund infrastructure projects with an amortization schedule as outlined on page 18.

	<u>Debit</u>	<u>Credit</u>
Cash	\$1,000,000	
Bonds		\$1,000,000
To record cash proceeds and long-term debt from sale of bonds.		

	<u>Debit</u>	<u>Credit</u>
Interest Expense	\$15,000	
Bonds	5,000	
Cash		\$20,000
To record January 1, 2013 debt service payment.		

The T-account below shows that the \$1 million Bond balance has been reduced to \$995,000 after the first debt service payment has been made.

Bonds Account	
	\$1,000,000
\$5,000	\$995,000

Loan Payment Discussion Continues on Next Page

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Remember, do not record the entire loan payment as Interest Expense on the Income Statement! Doing so will overstate your expenses, understate your net operating income and overstate the liability on your Balance Sheet.



	<u>Debit</u>	<u>Credit</u>
	\$20,000	
		\$20,000

XYZ Utility
Schedule of Amortization of \$1,000,000 Principal Amount of Outstanding Waterworks Secured Bonds

Principal and Interest payable semiannually January 1st and July 1st

<u>Payment Date</u>	<u>Principal Balance</u>	<u>Principal Paid</u>	<u>Coupon Rate</u>	<u>Interest Paid</u>	<u>Total</u>	<u>Bond Year Total</u>
1/1/2013	\$1,000,000	\$5,000	3.00	\$15,000	\$ 20,000	\$ 39,925
7/1/2013	995,000	5,000	3.00	14,925	19,925	
1/1/2014	990,000	10,000	3.00	14,850	24,850	49,550
7/1/2014	980,000	10,000	3.00	14,700	24,700	
1/1/2015	970,000	10,000	3.00	14,550	24,550	48,950
7/1/2015	960,000	10,000	3.00	14,400	24,400	
1/1/2016	950,000	10,000	3.00	14,250	24,250	48,350
7/1/2016	940,000	10,000	3.00	14,100	24,100	
1/1/2017	930,000	10,000	3.00	13,950	23,950	47,750
7/1/2017	920,000	10,000	3.00	13,800	23,800	
1/1/2018	910,000	10,000	3.00	13,650	23,650	52,150
7/1/2018	900,000	15,000	3.00	13,500	28,500	
Years 2019 through 2024 are not displayed.						
1/1/2025	645,000	30,000	3.00	9,675	39,675	78,900
7/1/2025	615,000	30,000	3.00	9,225	39,225	
1/1/2026	585,000	35,000	3.00	8,775	43,775	87,025
7/1/2026	550,000	35,000	3.00	8,250	43,250	
1/1/2027	515,000	35,000	3.00	7,725	42,725	89,925
7/1/2027	480,000	40,000	3.00	7,200	47,200	
1/1/2028	440,000	40,000	3.00	6,600	46,600	92,600
7/1/2028	400,000	40,000	3.00	6,000	46,000	
1/1/2029	360,000	40,000	3.00	5,400	45,400	95,200
7/1/2029	320,000	45,000	3.00	4,800	49,800	
1/1/2030	275,000	45,000	3.00	4,125	49,125	97,575
7/1/2030	230,000	45,000	3.00	3,450	48,450	
1/1/2031	185,000	45,000	3.00	2,775	47,775	94,875
7/1/2031	140,000	45,000	3.00	2,100	47,100	
1/1/2032	95,000	45,000	3.00	1,425	46,425	97,175
7/1/2032	50,000	50,000	3.00	\$750	50,750	
Totals		<u>\$1,000,000</u>		<u>\$402,375</u>	<u>\$1,402,375</u>	<u>\$1,402,375</u>

Sales Tax Accounting

Common Error: Sales tax collected is recorded as revenue and the amount of sales tax submitted to the state is recorded as an expense on the Income Statement. Sometimes, one component of the transaction is recorded on the Income Statement.

Proper Accounting: Sales tax collected is recorded as a liability or a debt owed to the state on the Balance Sheet and the liability is reduced when the funds collected are remitted to the state. No entries should affect the Income Statement for sales tax collected on sales.

Sales taxes are pass-through remittances. The utility acts as an agent for state government by billing and collecting sales tax. The utility is performing a collection and remittance service for the government. Therefore, sales tax receipts are not revenues of the utility. Conversely, sales tax remittances or payments are not expenses of the utility. Sales tax receipts are ultimately remitted to the state. When a utility collects sales tax from its customers on behalf of the state, a liability is recorded on the balance sheet to reflect that the amount is owed to the state.

Example: XYZ Utility records revenue of \$30,000 for April service.

	<u>Debit</u>	<u>Credit</u>
Accounts Receivable	\$32,100	
Revenue		\$30,000
Sales Tax Payable		\$2,100
To record May billing revenue of \$30,000 and the related 7% sales tax.		

	<u>Debit</u>	<u>Credit</u>
Cash Collections	\$32,100	
Accounts Receivable		\$32,100
To record collection of May billing.		

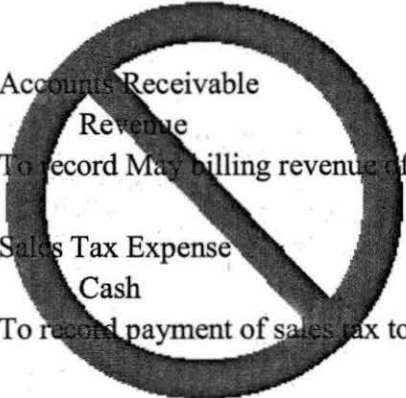
Sales Tax Payable	\$2,100	
Cash		\$2,100
To record payment of sales tax to state of Indiana.		

The T-account below shows a zero balance in the Sales Tax Payable account after the sales tax funds have been forwarded to the state.

Sales Tax Payable Account	
	\$2,100
\$2,100	
- 0 -	

Sales Tax Accounting (Continued)

Remember, do not include the sales tax component of the monthly billing as Revenue and the sales tax remittance to the state as Sales Tax Expense on the Income Statement! Doing so will overstate your revenues and expenses and may understate the liability on your Balance Sheet.



	<u>Debit</u>	<u>Credit</u>
Accounts Receivable	32,100	
Revenue		32,100
To record May billing revenue of \$30,000 and the related 7% sales tax.		
Sales Tax Expense	2,100	
Cash		2,100
To record payment of sales tax to state of Indiana.		

Contributions in Aid of Construction (CIAC)

Common Error: *Donations of plant or money, typically provided by a developer or new customer, are recorded as Revenue on the Income Statement.*

Proper Accounting: *Donations of plant or money should be recorded as Contributions in Aid of Construction on the Balance Sheet.*

Contributions in Aid of Construction (CIAC) are donations of plant, money or services provided to a utility at no cost. CIAC is a source of capital like debt or equity, thus, is a Balance Sheet account (Account 271). Such donations may come from developers, customers, governmental entities, or others to upgrade water and/or wastewater systems to accommodate new customers without burdening existing customers. Plant contributed to a utility increases Utility Plant in Service, but does not increase rate base of investor-owned utilities because CIAC is used as an offset to the plant. The practice of excluding CIAC from rate base also prevents customers from paying twice for the same assets – E.g., once from paying for a customer’s home and a second time through utility rates. System Development Charges and Tap Fees (see next discussion on Tap Fees) also represent donations of money or plant, and thus, should also be recorded as CIAC, not revenue. More specifically, a System Development Charge is a utility charge associated with developing system capacity to accommodate the extra demand placed on the system by new customers. For a related discussion about CIAC amortization, see the explanation provided in the Accrual Accounting section of this document.

Municipal utilities should maintain CIAC reporting for IURC reports and filings. With the passing of GASB 34, some municipal utilities’ Annual Reports reflect the removal of CIAC from the Balance Sheet and have charged it to Retained Earnings. Others have reported CIAC as operating revenue. Neither is correct for IURC reporting purposes. USoA should be followed and not GASB 34.

Example: XYZ Utility receives title from developer for mains, hydrants and other infrastructure within the Timber Ridge subdivision with a value of \$1,250,000 along with a \$1,500 System Development Charge for 10 homes.

	<u>Debit</u>	<u>Credit</u>
Utility Plant in Service	\$1,250,000	
Contributions in Aid of Construction		\$1,250,000
To record donation of mains, hydrants and other infrastructure in the Timber Ridge subdivision.		
Cash	15,000	
Contributions in Aid of Construction		15,000
To record collection of System Development Charge for Timber Ridge subdivision project (10 homes at \$1,500 each).		

Contributions in Aid of Construction (Continued)

Remember, in either situation above, do not credit Revenue, but instead credit CIAC as reflected. Failure to do so will overstate Revenues and understate CIAC.

	<u>Debit</u>	<u>Credit</u>
Utility Plant in Service	\$1,250,000	
Revenue		\$1,250,000
To record donation of mains, hydrants and other infrastructure in the Timber Ridge subdivision		
Cash	15,000	
Revenue		15,000
To record collection of System Development Charge for Timber Ridge subdivision project (10 homes at \$1,500 each).		

Tap or Connection Fees

Common Error: *The fees generated from Tap Fees are recorded as revenue and the cost components are expensed on the Income Statement or one portion of the transaction is recorded on the Income Statement but not the other.*

Proper Accounting: *The fees should be recorded as Contributions in Aid of Construction and the cost components should be recorded as Utility Plant in Service.*

Tap fees are designed to recover all or a portion of the cost of materials and labor of connecting a customer to the nearest water or sewer line. Tap fees are often times recorded as revenue and the associated costs expensed on the Income Statement. However, Tap Fees should be recorded as CIAC because the fees represent a donation of plant (see prior discussion on CIAC) since the Tap Fees pay for the cost of labor, equipment and materials necessary to connect a customer to its system. When a utility installs a new meter, all costs associated with its installation should be capitalized in the Utility Plant in Service account because a tap and meter installation is an asset having an expected service life of more than one year. These costs include labor, associated payroll taxes and benefits, equipment costs, meter, yoke, pit, lid, copper service line and other material costs.

The proper accounting will depend, in part, on each utility's operation and accounting practices. Many small utilities simply hire a contractor to perform all taps where the contractor supplies all of the labor, equipment and materials. This practice is the easiest to account for and sample journal entries are shown in the first example below.

Example: XYZ Utility receives a \$1,600 payment to connect a new customer to its system at 101 W. Market Street and incurs the equivalent cost to perform the tap and install the meter.

	<u>Debit</u>	<u>Credit</u>
Cash	\$1,600	
Contributions in Aid of Construction		\$1,600
To record Tap Fee payment for new connection at 101 W. Market Street.		
Utility Plant in Service	\$1,600	
Cash		\$1,600
To record payment to Todd Excavating for tap and meter installation at 101 W. Market Street.		

Tap Fee Discussion Continues on Next Page

Tap Fees (Continued)

For utilities that use their own labor, equipment and purchase all of the materials at the time each tap is made, the transactions might look like the following entries:

	<u>Debit</u>	<u>Credit</u>
Cash	\$1,600	
Contributions in Aid of Construction		\$1,600
To record Tap Fee payment for new connection at 101 W. Market Street.		

	<u>Debit</u>	<u>Credit</u>
Utility Plant in Service	\$1,600	
Wages and Salaries Expense		\$400
Payroll Tax Expense		30
Health Insurance Expense		25
Pension Expense		40
Cash		1,105
To record crew tap and meter install at 101 W. Market Street and \$1,105 payment to Pete's Plumbing Supply for meter, yoke, pit, lid, copper line and other material.		

For utilities that use their own labor, equipment and purchase the tap and meter installation materials in advance of each tap, and record the material purchases in Inventory (an asset account on the Balance Sheet), the transactions might look like the following entries:

	<u>Debit</u>	<u>Credit</u>
Inventory	\$11,050	
Cash		\$11,050
To record purchase of 10 meters, yokes, pits and lids and 200' of copper service line from Pete's Plumbing Supply.		

	<u>Debit</u>	<u>Credit</u>
Cash	\$1,600	
Contributions in Aid of Construction		\$1,600
To record Tap Fee payment for new connection at 101 W. Market Street.		

	<u>Debit</u>	<u>Credit</u>
Utility Plant in Service	\$1,600	
Wages and Salaries Expense		\$400
Payroll Tax Expense		30
Health Insurance Expense		25
Pension Expense		40
Inventory		1,105

To record crew meter install at 101 W. Market Street and to reflect transfer of meter, pit, lid, copper line and other materials valued at \$1,105 out of Inventory.

Asset Retirement Accounting

Common Error: *Assets are retired by removing the original cost of the asset from Utility Plant in Service and an amount from Accumulated Depreciation that is based on a deprecation rate multiplied by the asset cost and the number of years in service. The difference between the original cost and the accumulated depreciation for the asset is recorded as a gain or loss on the Income Statement. A separate concern exists where assets are retired or replaced without removing the asset from the utility's accounting and plant records.*

Proper Accounting: *The original cost of the asset retired should be removed from the Utility Plant in Service account and the same amount should be removed from the Accumulated Depreciation account.*

Depreciation accounting used by utilities is different than the practice followed by non-regulated industries. Utilities typically employ a group or composite concept rather than individual asset accounting. When an asset is retired under the individual asset model, any difference between the original cost recorded in Utility Plant in Service and the amount of Accumulated Depreciation is recorded as a gain or loss on the Income Statement. Under the group accounting model, no gain or loss is recorded because it is assumed that the retired asset is fully depreciated at retirement. Thus, the original cost of the asset represents the amount to be removed from Accumulated Depreciation.

For someone familiar with individual asset accounting, this concept probably does not make a lot of sense because assets are not likely to be retired at precisely the same time the asset is fully depreciated. And in fact, under group depreciation, an asset will generate depreciation expense as long as it remains in service. To the extent assets are under or over-depreciated, the depreciation rates in a Depreciation Study will be adjusted to "correct" for these differences. For additional explanation about how group depreciation works, you can find more information on the internet and our discussion on Depreciation Expense (pages 11 and 12).

Example: XYZ Utility recently retired 20,000 feet of 12" main that was installed in 1972 for \$140,000 where a composite depreciation rate of 2% was applied.

	<u>Debit</u>	<u>Credit</u>
Accumulated Depreciation	\$140,000	
Utility Plant in Service		\$140,000
To record retirement of 20,000 feet of 12" main installed in 1972 along Copeland Ridge Road.		

Asset Retirement Accounting Discussion Continues on Next Page

Asset Retirement Accounting (Continued)

Remember, do not calculate the amount of depreciation expense on the asset retired and use that amount as the offset to Accumulated Depreciation and then record a gain or loss on the Income Statement! Doing so will improperly affect your income statement as well as Accumulated Depreciation and Retained Earnings on your Balance Sheet. It is also important to retire these assets from your accounting and plant records. Failure to do so will overstate your Depreciation Expense and, if you are subject to property taxes and use your accounting and plant records to complete Indiana Department of Local Government Finance's U.D. Form 45, you will pay property taxes on assets that are no longer in use.

	<u>Debit</u>	<u>Credit</u>
Accumulated Depreciation	\$112,000	
Loss on Disposition of Asset	28,000	
Utility Plant in Service		\$140,000

To record retirement of 20,000 feet of 12" main installed 50 years ago along Smith Ridge Road.

Monthly Financial/Accounting Duties

(from State Board of Accounts "Cities and Towns Manual")

If you represent a municipal utility, you are probably aware of the excellent resources provided by the Indiana State Board of Accounts (SBA). One such resource is the Cities and Towns Manual. The SBA includes a chapter in this manual that lists monthly duties for employees with financial responsibilities and has been reproduced below. While this manual was written for cities and towns, many of the responsibilities listed also apply to small not-for-profit and investor-owned utilities. Also as noted below, the list of duties is not complete, but the list below provides a great starting point to create your own checklist. If you would like to view the most current version of the duties and to view the entire Cities and Towns or other SBA manuals, you can do so by following this link: <http://www.in.gov/sboa/2413.htm>

CHAPTER 6 - CALENDAR OF MONTHLY DUTIES

This section contains a calendar of monthly duties and while not complete, should be referred to each month to insure that such duties are not overlooked. Duties which reoccur each month are not repeated in the calendar. Monthly duties include:

- (1) At the close of the month, post and close all records as promptly as possible and reconcile with depositories and with utilities or any other department maintaining separate records. Prepare the monthly balance and financial report for the board.
- (2) Report and pay Social Security (FICA) each reporting period to the Internal Revenue Service on or before the dates established by federal regulations. See Federal Circular E for payment procedures and due dates.
- (3) Deposit federal income tax withheld from employees' compensation in accordance with federal regulations. This may vary from one unit to another dependent on the total amount withheld per month. See Federal Circular E for payment procedures and due dates.
- (4) Deposit state and county income tax withheld from employees' compensation within 20 days after the close of each month.
- (5) Report and pay unemployment compensation commitments to Indiana Employment Security Division as required per selected plan.
- (6) Make reports of Utility Receipts Tax due from city or town to Indiana Department of Revenue as required by that agency.
- (7) Make reports of sales tax collected by and due from cities and towns to Indiana Department of Revenue as required by that agency.
- (8) Make reports of police, fire and employee pension payment contributions to the Public Employees' Retirement Fund as required by that agency.
- (9) Make reports and payments of special fuels tax due from cities and towns to Indiana Department of Revenue, Special Fuel Tax Division.

Small Utility Accounting Manual

January

- 20 Last date to report and make payment of state and county income tax withheld during December to Department of Revenue, Indianapolis.
- 31 Last day to make report and complete the payment of federal tax and F.I.C.A. (Social Security Tax) tax withheld in the fourth quarter of the preceding year to the District Director of Internal Revenue. Each employee shall be furnished Form W-2 in duplicate, showing compensation paid during the preceding year, federal tax withheld and social security tax withheld.
- Last day to provide each employee with Form WH-2 in duplicate or copy of W-2 for state and local income tax withheld.
- Last day to file Form 100-R, Report of Names and Compensation of Officers and Employees on the Gateway.

February

- 20 Last day to report and make payment of state and county income tax withheld during January to Department of Revenue, Indianapolis.
- 28 Last day to file withholding statements W-2 and WH-2 together with Yearly Reconciliation of Employer's Quarterly Tax Returns W-3 and WH-3 with District Director of Internal Revenue and Indiana Department of Revenue, respectively.

March

- 1 Last day to file Video Franchise Fee Report with the IURC.
- Last day for filing and publishing the Gateway Annual Financial Report. [IC 5-3-1-3 (a)]
- Last day to file Debt Management Report on the Gateway.
- Last day to prepare list of old outstanding checks for cancellation. [IC 5-11-10.5-3] See Page 61-14
- 20 Last day to report and make payment of state and county income tax withheld during February to Department of State Revenue, Indianapolis.

April

- 15 Last day to make report on Form URT and payment of Utility Receipts Tax for city or town for the preceding year, if not made January 31, to the Indiana Department of Revenue, State Office Building.
- 20 Last day to report and make payment of state and county income tax withheld during March to Department of State Revenue, Indianapolis.
- 30 Last day to make report and complete payment of federal tax and F.I.C.A. (Social Security Tax) tax withheld during the first quarter of the year to the District Director of Internal Revenue.

Small Utility Accounting Manual

Make report and file quarterly unemployment compensation report with the Indiana Employment Security Division.

Last day to file Water Utility Resource Report with the IURC.

Last day for filing Annual Utility Report with Utility Regulatory Commission, 101 W. Washington Street, Suite 1500 E., Indianapolis, Indiana, 46204-3407.

May

- 20 Last day to report and make payment of state and county income tax withheld during April to Department of State Revenue, Indianapolis.
- 31 Last day to certify delinquent Barrett Law assessments to the County Auditor. (IC 36-9-37-23)

June

- 1 Last day to certify names of persons who have money due them for salaries, wages, or other reasons to the county treasurer for determining if such persons owe delinquent taxes. [IC 6-1.1-22-14]

Last day for cities and towns with population of 20,000 or more to file Annual Operational Report of Motor Vehicle Highway Fund with State Board of Accounts, 302 W. Washington Street, Indianapolis, Indiana, 46204

- 20 Last day to report and make payment of state and county income tax withheld during May to Department of State Revenue, Indianapolis.

July

- 20 Last day to report and make payment of state and county income tax withheld during June to the Department of State Revenue, Indianapolis.
- 31 Last day to make report and complete payment of federal tax and F.I.C.A. (Social Security Tax) tax withheld in the second quarter of the year to the District Director of Internal Revenue.

Make report and file quarterly unemployment compensation report with the Indiana Employment Security Division.

August

- 20 Last day to report and make payment of state and county income tax withheld during July to the Department of State Revenue, Indianapolis.

September

- 20 Last day to report and make payment of state and county income tax withheld during August to the Department of State Revenue, Indianapolis.

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October

- 20 Last day to report and make payment of state and county income tax withheld during September to the Department of State Revenue, Indianapolis.
- 31 Last day to make report and complete payment of federal tax and F.I.C.A. (Social Security Tax) tax withheld in the third quarter of the year to District Director of Internal Revenue.
- Make report and file quarterly unemployment compensation report with the Indiana Employment Security Division.

November

- 1 Last day for final passage of ordinance fixing salaries of appointive officers and employees of a city for ensuing year. See Page 61-11 and 61-12.
- 20 Last day to report and make payment of state and county income tax withheld during October to the Department of State Revenue, Indianapolis.

December

- 1 Last day to certify names of persons who have money due them for salaries, wages or other reasons to the County Treasurer for determining if such persons owe delinquent taxes. [IC 6-1.1-22-14]
- 20 Last day to report and make payment of state and county income tax withheld during November to the Department of State Revenue, Indianapolis.
- 31 Review year-end duties, Page 61-3.

Small Utility Accounting Manual

The Clerk-Treasurer or Controller shall deposit all collections not later than the next business day following the receipt of funds in depositories selected by the city or town as provided in an ordinance adopted by the city or town and approved as depositories of state funds. [IC 5-13-6-1]

SOCIAL SECURITY

Internal Revenue Service
575 North Pennsylvania Street
Indianapolis, Indiana 46204
Telephone: 1-800-772-1213

PENSIONS

Police Officers and Firemen Employed After May 1, 1977

Administrator
1977 Police Officers and Firefighters' Pension and Disability Fund
Public Employees' Retirement Fund
800 Harrison Building
Indianapolis, Indiana 46204
Telephone: 232-1615, Area 317

All Other City, Town, Utility Covered Employees

Executive Secretary
Public Employees' Retirement Fund
800 Harrison Building
Indianapolis, Indiana 46204
Telephone: 232-1615, Area 317

FEDERAL WITHHOLDING

Internal Revenue Service
575 North Pennsylvania Street
Indianapolis, Indiana 46204
Telephone: 685-7500, Area 317
TOLL FREE - 1-800-829-1040

STATE AND COUNTY WITHHOLDING

Withholding Section
Indiana Department of Revenue
Indiana Government Center North, Room N281
100 North Senate Avenue
Indianapolis, Indiana 46204
Telephone: 233-4016, Area 317

Small Utility Accounting Manual

UNEMPLOYMENT COMPENSATION

Department of Workforce Development
Employment Security Division
Room 113, 10 North Senate Avenue
Indianapolis, Indiana 46204
Telephone: 232-7698, Area 317

STATE TAXES

Utility Receipts Tax

Liability and Reports

Administrator, Compliance Division
Department of Revenue
Indiana Government Center North
100 North Senate Avenue
Indianapolis, Indiana 46204
Telephone: 615-2662, Area 317

Sales Tax

Sales Tax Division
Department of Revenue
Indiana Government Center North
100 North Senate Avenue
Indianapolis, Indiana 46204
Telephone: 233-4015, Area 317

Gasoline Taxes

Department of Revenue
Indiana Government Center North
100 North Senate Avenue
Indianapolis, Indiana 46204
Telephone: 232-3432, Area 317

WAGE AND HOUR

Federal Wage and Hour Regulations

United States Department of Labor
Wage and Hour Division
46 East Ohio Street
Indianapolis, Indiana 46204-1515
Telephone: 226-6772 or 6801, Area 317

South Bend Office
(574) 236-8331

PUBLIC ACCESS COUNSELOR

Public Access Counselor
W074, Indiana Government Center South
402 West Washington Street
Indianapolis, Indiana 46204
Telephone: 1-800-228-6013

Annual Report Checklist

The following checklist is used by the IURC's analysts when reviewing the utility's annual report filing. If this information is not complete, a letter will usually be sent to the utility requesting this information be completed or reconciled.

GENERAL REVIEW

- All applicable information completed – No section or question should be blank. Insert “None” or “N/A” if a section or question does not apply

EXECUTIVE SECTION

- General Information form (page E-1) is completed and emergency contract information provided
- Utility Profile section (page E-2) is up to date
- Officer and Director information is up to date (pages E-2 and E-3)
- Personnel Data is complete (page E-4)
- Contractual Services form is completed (page E-5)
- Certification page is signed and notarized (page E-7)

FINANCIAL SECTION

- Comparative Balance sheet balances (“Total Assets and Other Debits” (page F-1(b) = “Total Equity Capital and Liabilities” (page F-2))
- On all reference pages, the account balances agree to each account balances shown on the balance sheet (pages F-1 and F-2) For example, for Account 101 – 106 “Utility Plant” on page F-1 of the balance sheet has a reference page of F-5. Thus, the “Total Utility Plant” amount shown on page F-5 should agree with the “Utility Plant” amount shown on page F-1. NOTE: Complete pages F-5 through F-21 before completing pages F-1 through F-4
- Statement of Retained Earnings form (page F-14 or F-15) – “Balance Transferred From Income” agrees with “Net Income” shown on the Comparative Operating Statement - (page F-3)
- Additions to Contributions in Aid of Construction (CIAC) are described on pages F-19 and F-20 or F-21

Small Utility Accounting Manual

- For water utilities, the “Itemized Unit Costs” form (page F-21) is completed - make sure “Total number gallons of water pumped during year” agrees with the “Total Pumped from Sources. . .” shown on page W-6

OPERATION SECTION(S)

- The Beginning and ending year number of customers are provided for each customer class (page W-1)
- Operating revenues for each customer class are provided and the “Total Water or Wastewater Operating Revenues” (page W-1 or S-1, depending on type of utility) agree with Account 400, “Operating Revenues” shown on the “Comparative Operating Statement” - (page F-3)
- The total for the current year, shown on the “Comparative Detail of Operation and Maintenance Expenses (page W-2(a) or S-2(a)) agrees with Account 401, “Operating Expenses” shown on the “Comparative Operating Statement” (page F-3)
- The total in the “Current Year” column for “Total Utility Plant in Service” shown on page W-3(b) or S-3(b) agrees with the total in Account 101, “Utility Plant in Service” shown on page F-5) NOTE: If prior fixed asset records have not been maintained, it doesn’t preclude you from beginning to maintain these records
- Plant additions and retirements by sub-account are provided on pages W-3(a) or S-3(a). Also, additional information regarding any asset addition or retirement exceeding \$10,000 in a single purchase should be provided on page W-3(c) or S-3(c)
- You are using the correct composite depreciation rate or if not using a composite depreciation rate, a depreciation study must be approved by the Commission (page W-4)
- Make sure Accumulated Depreciation is broken out by sub-account - (pages W-5 or S-5)
- For water utilities, the “Pumping and Purchased Water Statistics” (page W-6) information is completed by Month and all questions answered
- “Other System Information” (page W-8 or S-8) questions are answered completely
- For systems that serve fewer than 10,000 customers, page W-9 is answered completely
- For utilities that elect to participate in the Commission Alternative Regulatory Program, the Performance Measures are completed and reported accurately

For additional questions, call the IURC Water/Sewer Division at (317) 232-2750.

Accounting Related Statutes

(does not include finance or loan related statutes)

Title 8

IC 8-1-2-10 “Accounting systems”

Every public utility shall keep and render to the commission, in the manner and form prescribed by the commission, uniform accounts of all business transacted. In formulating a system of accounting for any class of public utilities, the commission shall consider any system of accounting established by any federal law, commission or department and any system authorized by a national association of such utilities.

IC 8-1-2-12 “Books, accounts, papers, and records”

The commission shall prescribe the forms of all books, accounts, papers and records required to be kept, and every public utility is required to keep and render its books, accounts, papers and records accurately and faithfully in the manner and form prescribed by the commission and to comply with all directions of the commission relating to such books, accounts, papers and records.

IC 8-1-2-14

Books, accounts, papers, or records; approval of system

No public utility shall keep any other books, accounts, papers or records of the business transacted than those prescribed or approved by the commission, unless required by other public authority.

IC 8-1-2-16

Accounts; closing date; filing with commission

The accounts shall be closed annually on the thirty-first day of December, and a balance sheet of that date promptly taken therefrom. On or before the thirtieth day of April following, such balance sheet, together with such other information as the commission shall prescribe, verified by an officer of the public utility, shall be filed with the commission.

IC 8-1-2-17 “Accounts; examination and audit”

The commission shall provide for the examination and audit of all accounts, and all items shall be allocated to the accounts in the manner prescribed by the commission.

IC 8-1-2-18 “Books, accounts, papers, records, and memoranda; inspection and examination”

The agents, accountants or examiners employed by the commission shall have authority, under the direction of the commission, to inspect and examine any and all books, accounts, papers, records and memoranda kept by such public utility.

IC 8-1-2-19 “Depreciation account”

Every public utility shall carry a separate, proper and adequate depreciation account whenever the commission, after investigation, shall determine that such depreciation account reasonably can be required. The commission, from time to time, shall ascertain and determine the proper and adequate rates of depreciation of the several classes of property of each public utility. The rates, tolls and charges shall be such as will provide the amounts required over and above the reasonable and necessary operating expenses, to maintain such property in an operating state of efficiency corresponding to the progress of the industry. Each public utility shall conform its depreciation accounts to such rates, so ascertained and determined by the commission. The commission shall make changes in such rates of depreciation, from time to time, as it may find necessary.

IC 8-1-2-20 “Depreciation account; rules, regulations, and forms”

The commission shall also prescribe rules, regulations and forms of accounts regarding such depreciation, which the public utility is required to carry into effect.

IC 8-1-2-21 “Depreciation; rates, tolls, and charges”

The commission shall provide for such depreciation in fixing the rates, tolls and charges to be paid by the public.

IC 8-1-2-23 “Construction accounts; additions or extension; approval by commission”

The commission shall keep itself informed of all new construction, extensions and additions to the property of such public utility and shall prescribe the necessary forms, regulations and instructions to the officers and employees of such public utility for the keeping of construction accounts which shall clearly distinguish all operating expenses and new construction. Unless a public utility shall obtain the approval by the commission of any expenditure exceeding ten thousand dollars (\$10,000) for an extension, construction, addition or improvement of its plant and equipment, the commission shall not, in any proceeding involving the rates of such utility, consider the property acquired by such expenditures as a part of the rate base, unless in such proceeding the utility shall show that such property is in fact used and useful in the public service; Provided, That the commission in its discretion may authorize the expenditure for such purpose of a less amount than shown in such estimate.

IC 8-1-2-26 “Financial statements and accounts”

Each public utility shall furnish to the commission in such form and at such time as the commission shall require, such accounts, reports, and information as will show in itemized detail:

- (1) the depreciation per unit;
- (2) the salaries and wages separately per unit;
- (3) legal expenses per unit;
- (4) taxes and rentals separately per unit;
- (5) the quantity and value of material used per unit; (6) the receipts from residuals, byproducts, services or other sales, separately per unit;
- (7) the total and net cost per unit;
- (8) the gross and net profit per unit;

- (9) the dividends and interest per unit;
- (10) surplus or reserve per unit;
- (11) the prices per unit paid by consumer;
- (12) names of, and amount of fees paid to, legal counsel who are not employees;
- (13) names of, and amount of fees paid to, other consultants; and
- (14) such other items, whether of a nature similar to those hereinbefore enumerated or otherwise, as the commission may prescribe, in order to show completely and in detail the entire operation of the public utility in furnishing the unit of its product or service for the public.

IC 8-1-2-25 “Rates and charges; rules and regulations involving changes”

The commission shall ascertain, determine and order such rates, charges and regulations as may be necessary to give effect to such arrangement, but the right and power to make such other and further changes in rates, charges and regulations as the commission may ascertain and determine to be necessary and reasonable, and the right to revoke its approval and amend or rescind all orders relative thereto, is reserved and vested in the commission, notwithstanding any such arrangement and mutual agreement.

Indiana Administrative Code

170 IAC 6-2-2 Classification of accounts for Classes A, B, and C water utilities; adoption by reference

Authority: IC 8-1-1-3; IC 8-1-2-10

Affected: IC 8-1-2-10; IC 8-1-2-46

Sec. 2. (a) The rules governing the classification of accounts for Classes A, B, and C water utilities operating within the state of Indiana shall be the 1996 edition of the Uniform System of Accounts as approved, prescribed, and promulgated by the National Association of Regulatory Utility Commissioners, which:

- (1) are hereby incorporated into this rule by reference; and
- (2) do not include any later amendments or editions.

(b) Copies of the 1996 edition of the Uniform System of Accounts prescribed for Classes A, B, and C water utilities, as approved, prescribed, and promulgated by the National Association of Regulatory Utility Commissioners are available for purchase from the National Association of Regulatory Commissioners, 1101 Vermont Avenue NW, Suite 200, Washington, D.C. 20005.

170 IAC 8-2-1 Classification of accounts; adoption by reference

Authority: IC 8-1-1-3

Affected: IC 8-1-2-10; IC 8-1-2-12

Sec. 1. (a) The rules governing the classification of accounts for Class A, B, and C private rural sewage utilities operating within the state of Indiana as approved, prescribed, and promulgated by the National Association of Regulatory Utility Commissioners at the 96th Annual Convention on November 26-29, 1984, are adopted by reference.

(b) Copies of the Uniform System of Accounts prescribed for Class A, B, and C private rural sewage utilities, as approved, prescribed, and promulgated by the National Association of Regulatory Utility Commissioners, as set out at the 96th Annual Convention on November 26-29, 1984, are available for purchase from the National Association of Regulatory Commissioners, Post Office Box 684, Room 1102, Interstate Commerce Commission Building, Washington, D.C. 20044.

MCWD Position	Current			Contractor Position fr Wage Determination	2015			2017 WD		
	Hrly Wage	Benefits Per Hr	Total Pay/Hr		Hrly Wage	Benefits Per Hr	Total Pay/Hr	Hrly Wage	Benefits Per Hr	Total Pay/Hr
Laborer I	\$ 12.48	\$ 5.33	\$ 17.81	General Laborer	\$ 20.60	\$ 9.39	\$ 29.99	\$ 20.60	\$ 9.39	\$ 29.99
Cust Service Rep	\$ 19.01	\$ 7.73	\$ 26.74	Pipelayer	\$ 20.13	\$ 8.63	\$ 28.76	\$ 20.13	\$ 8.63	\$ 28.76
Laborer II	\$ 14.74	\$ 7.29	\$ 22.03							
Dist Crew Supr	\$ 21.93	\$ 6.32	\$ 28.25	Operator: Backhoe, et al	\$ 23.60	\$ 12.65	\$ 36.25	\$ 23.60	\$ 12.65	\$ 36.25
Meter Tester/HE Operator	\$ 19.53	\$ 7.52	\$ 27.05							

Movants
 Exhibit 4
 Monroe Co. v.

General Decision Number: KY170133 09/15/2017 KY133

Superseded General Decision Number: KY20160133

State: Kentucky

Construction Type: Heavy

County: Monroe County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	02/24/2017
2	09/15/2017

CARP0064-007 05/01/2015

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 27.50	16.06

ELEC0369-004 09/05/2016

	Rates	Fringes
LINE CONSTRUCTION		
Equipment Operator.....	\$ 32.27	20%+5.46
Groundman.....	\$ 21.29	20%+5.46
Lineman.....	\$ 36.12	20%+5.46

ENGI0181-010 07/01/2016

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 31.05	14.65
GROUP 2.....	\$ 28.28	14.65
GROUP 4.....	\$ 27.97	14.65

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Grader/Blade; Mechanic; Scraper

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Forklift

GROUP 4 - Oiler

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

 * IRON0782-010 08/01/2017

	Rates	Fringes
IRONWORKER (Reinforcing & Structural)		
Projects over \$20,000,000.00.....	\$ 27.09	20.66
Projects under \$20,000,000.00.....	\$ 28.32	23.00

 LABO0189-014 07/01/2015

	Rates	Fringes
LABORER		
Concrete Saw (Hand Held/Walk Behind).....	\$ 22.55	12.46
Concrete Worker.....	\$ 22.30	12.46

 SUKY2011-010 06/25/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 21.60	10.35
ELECTRICIAN.....	\$ 32.35	2.18
LABORER: Common or General.....	\$ 20.60	9.39
LABORER: Flagger.....	\$ 18.31	8.89
LABORER: Pipelayer.....	\$ 20.13	8.63
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 23.60	12.65
OPERATOR: Bulldozer.....	\$ 20.99	6.33
OPERATOR: Loader.....	\$ 30.35	0.00

 WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
 =====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave

for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and

non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an

interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

Comparison of Water District Wages with State and National Water Industry Wages/Salaries¹

	Years Employed by Monroe District	Age	Monroe District Total Adjusted Pay	2016 ²		2017		2017	2016
				AWWA - 50th Percentile	AWWA - Mid Average Salary	AWWA - 50th Percentile	AWWA - Mid Average Salary	KRWA Average	KLC
General Manager*	16	65	\$58,678.90	\$81,120.00	\$84,708.00	\$75,000.00	\$76,513.00	\$64,063.00	\$58,355.00
Office Manager*	26	46	\$51,671.39	\$48,256.00	\$59,754.00	\$49,098.00	\$54,151.00	\$50,033.00	\$35,880.00
Distribution Crew Supervisor*	20	46	\$52,653.93	\$56,000.00	\$56,496.00	\$53,800.00	\$54,449.00	\$46,522.00	\$46,236.00
Accounts Receivable III*	20	60	\$34,687.16	\$47,996.00	\$52,701.00	\$47,955.00	\$53,689.00	\$35,394.00	\$31,006.00
Customer Service Rep Supervisor*	17	61	\$42,626.70	\$52,358.00	\$48,804.00	\$50,514.00	\$48,463.00	\$30,142.00	\$35,652.00
Meter Tester/Equip. Operator II*	15	56	\$43,001.90	\$47,000.00	\$47,603.00	\$45,000.00	\$45,462.00	\$37,348.00	\$35,652.00
Laborer II*	13	62	\$31,209.83	\$37,950.00	\$41,873.00	\$36,872.00	\$36,506.00	\$37,348.00	\$28,375.00
Accounts Receivable II*	6	28	\$26,794.84	\$40,000.00	\$40,404.00	\$38,480.00	\$39,219.00	\$35,394.00	\$31,006.00
Laborer I*	2	47	\$26,948.44	\$37,950.00	\$41,873.00	\$36,872.00	\$36,506.00	\$30,244.00	\$28,375.00
Accounts Receivable I (2017 Hire)	0	30	\$24,292.32	\$40,000.00	\$40,404.00	\$38,480.00	\$39,219.00	\$35,394.00	\$31,006.00
Laborer (2017 Hire)	0	25	\$23,337.60	\$37,950.00	\$41,873.00	\$36,872.00	\$36,506.00	\$30,244.00	\$28,375.00

More complete job descriptions are attached.

* Each employee denoted with an asterisk worked overtime hours in 2015. As explained in Exhibit 1 to the Third Supplement to Application, Monroe County Water District's ("Monroe District") total adjusted pay was determined by applying current wage rates to regular and overtime hours worked in 2015. The KRWA Compensation and Benefit Survey specifies that "wage information has been annualized using 2080 hours per year for full time employment." Thus, unlike the Monroe District pay, which includes overtime, the KRWA average does not include overtime. The KRWA further advises users of its survey to "take into consideration that years of service, geographic location, and sophistication of operation have not been factored into this survey." Monroe District's counsel has been unable to ascertain whether the AWWA or KLC Compensation Surveys include overtime in their salary figures.

¹ The supporting information from the 2016 American Water Works Association ("AWWA") Survey, the 2017 Kentucky Rural Water Association ("KRWA") Survey, and the 2016 Kentucky League of Cities ("KLC") Survey was filed as an exhibit to Monroe District's Notice of Filing on September 21, 2017. The AWWA recently released a 2017 Survey. Monroe District has not filed this Survey with the Public Service Commission ("Commission"), but will furnish it to the Commission and Attorney General upon request. The excerpt of the KLC Survey showing the City Clerk position was not included in the original excerpt filed by Monroe District, but is included as Exhibit A to this filing.

² Some salaries included in this table differ from those originally filed by Monroe District in Tab 24 to the Application. The originally filed table included salary information that was derived from different portions of the Survey. The 2016 AWWA Survey data was updated in this table for consistency.

General Manager

Monroe District Job Description:

- In charge of day to day operations of the water district
- Responsible for supervision of all employees
- Schedule work and duties for employees
- Maintain inventory and time records as needed
- Manage and prepare budgets; prepare financial information for presentation to the Board of Commissioners
- Carry out the instructions and directions of the Board of Commissioners
- Attend meetings of Board of Commissioners
- Assist and prepares monthly and quarterly reports
- Assist in preparing new construction project plans
- Prepare and revise rules, rates, and regulations in tariff
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 2001 (16 years)

Special Skills and Qualifications:

Class IIID Distribution Operator (1999)¹; Class IVA Treatment Operator (2005)²; Certified Meter Tester (2004); Previously held Commercial Driver's License; Experienced and proficient in operating heavy equipment; Trained in disaster preparedness; Previously held Wastewater Class II License (1979); Serves on Barren River Area Development District Water Management Council (BRADD); CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System General Manager (Superintendent)³

Position Description: Responsible for office and field administration, planning, reporting, and policy administration. Hires and terminates employees and determines compensation.

Responsible for public relations and compliance policies. Reports directly to board of directors or city council and may supervise contract, office, plant, distribution, and operations employees.

KRWA Comparable Position: Manager/Superintendent/CEO⁴

KLC Comparable Position: Utilities Director

Position Description: Directs operation and maintenance of water distribution/treatment system and/or sewage collection/treatment system

¹ For each employee, the year following the certification indicates the year in which the certification was obtained. Unless otherwise noted, the certification has been maintained.

² The General Manager first obtained a Class IIA Treatment Operator License in 1973 and a Class IIIA Treatment Operator License in 1977. His operator license lapsed and he retested and obtained a Class IIIA Treatment Operator License in 1999.

³ In the 2016 AWWA Guide, positions are described with "Rural System" preceding the job title. In the 2017 AWWA Guide, positions are described with "Small System" preceding the job title. The job descriptions otherwise remain the same. Each AWWA Comparable Position is described with "Rural/Small System" preceding the job title to represent both the 2016 and 2017 AWWA Guides.

⁴ No position descriptions are available in the KRWA Guide.

Office Manager

Monroe District Job Description:

- Generate letters, reports, and other documents
- Prepare reports, charts and agenda packets for Board of Commissioners meetings
- Attend and maintains the minutes of Board of Commissioners meetings
- Maintain central filing system
- Assist General Manager with various administrative duties, correspondence and related work
- Generate misc. bills for General Manager, along with follow up on delinquent misc. bills
- Assist in the preparation of water sample reports and filing of Lab results
- Assist in the preparation of Monthly Operating Report
- Prepares Quarterly Meter Testing Report
- Assist in the preparation of Monthly Water Loss Report
- Assist in preparing new project plans
- Prepares necessary documents for new water main extensions including easements
- Assist in updating maps and records of District facilities
- Liaison to general public, contractors, and developers
- Request on call personnel to make emergency repairs and satisfy customer requests
- Prepare annual budget and financial reports to USDA Rural Development, Public Service Commission, and Department of Local Government
- Assist Certified Public Accounts preparing annual audit
- Assist with preparation of Operations and Maintenance Manual
- Assist with Telemetry System, sending repairs, and restocking of parts for tanks and pump stations
- Assist with SCADA monitoring system
- Assist in preparation and revision of rules, rates and regulations in tariff
- Responsible for daily deposits and audit of cash flow
- Approve all customer adjustments (MCWD leak, customer leak, or misread)
- Reconcile and balance all bank accounts for reviewed by General Manager
- Compile monthly operating report to show revenue, expenses of accounts payable, profit and loss, and other items of business
- Prepare payroll checks weekly
- Prepare all payroll withholding reports monthly and quarterly (Federal, Medicare, Social Security, State, Local)
- Prepare monthly school tax report, monthly retirement report, and monthly sales tax report
- Assist in preparing new construction project plans and serve as Project Administrator for EPA, USDA-RD, and KIA funded projects
- Responsible for preparation and maintenance of general ledger and accounts payable
- Human Resource Officer and Civil Rights Coordinator
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 1991 (26 years)

Special Skills and Qualifications:

Utility Management Institute Certification (2007); Certified Meter Tester (2004); Proficient and trained in Telemetry System; Proficient and trained in United Systems billing software; Proficient in Microsoft

Office; Trained in implementing Boil Water Advisory; Serves on BRADD Water Management Council; Notary Public; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Office Manager

Description: Responsible for supervision of all administrative functions at the utility, including maintaining office supplies and coordinating office administrative schedules. Supervises other administrative personnel. May also be responsible for certain accounting activities, including billing, processing utility payments, bank deposits, drawing warrants for payment of delinquent bills, and processing payroll, along with taking minutes at meetings and serving as receptionist.

KRWA Comparable Position: Assistant Mgr/Supt/CEO⁵

KLC Comparable Position: City Clerk⁶

Description: Directs operations of city clerk's office; clerk of governing body and custodian of record.

⁵ In the Application and Third Supplement, the KRWA Comparable Position was mistakenly listed as "Office Manager." Monroe District's Office Manager's job more closely aligns with the Assistant Mgr/Supt/CEO. The salary from the Assistant Mgr/CEO was correctly included on Tab 24 of the Application and updated in the Third Supplement.

⁶ No comparable position to the Office Manager exists in the KLC Survey. The responsibilities of City Clerk most closely align with, but do not fully encompass, those of the Office Manager.

Distribution Crew Supervisor

Monroe District Job Description:

- Install, repair and maintain water lines, meters, fire hydrants, valves and related plant
- Map and locate water lines and valves
- Inspect, maintain and operate vehicles and equipment
- Perform maintenance on pump station and telemetry
- Assist with SCADA Monitoring system
- Clean up all areas pertaining to Water District work (such as, leveling ground and sowing grass seed, etc.)
- Pull meters for testing
- Inspect customer water service lines
- Maintain Class IID Distribution Operation certification
- Assist with all operation and maintenance of the water district as needed
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 1997 (20 years)

Special Skills and Qualifications:

Class IID Distribution Operator (2005); Commercial Driver's License (1998); Certified Meter Tester (2004); Experienced and proficient in using backhoe, trencher, and boring machine; Experienced and proficient in SCADA system software and field infrastructure maintenance; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Field Manager

Description: Responsible for all managerial tasks for the distribution and/or collection system, including human resource recommendations for field staff and the maintenance, repair, and construction of facilities in the distribution and/or collection system. Must have a state operator's license or be directly supervised by a licensed operator.

KRWA Comparable Position: Superintendent/Supervisor/Foreman

KLC Comparable Position: Utility Crew Foreman

Description: Provides first-line supervision of a small unit of utility workers on an assigned shift.

Accounts Receivable III

Monroe District Job Description:

- Assist with answering and directing telephone calls in a pleasant and professional manner
- Courteously greet customers and visitors and provide assistance and information as needed
- Enter pertinent data into computer for billing, meter change outs, bank drafts, meter testing and etc.
- Assist with collecting customer payments and reconciling cash drawer daily
- Maintain and file paperwork for billing, meter change outs, bank drafts, meter testing, service line inspections and leaks reported
- Call telephone company for line locates as needed
- Prepare Monthly Service Report and Water Line list
- Maintains water district computer network and all informational technology assets, including computer software
- Perform routine updates and work with United Systems problem solving
- Assist Office Manager and General Manager with creating tables, reports, general paperwork and etc. as needed
- Assist with SCADA Monitoring system as needed
- Assist with general office duties and other duties deemed necessary by supervisor
- Prepare Disinfection Byproduct Reports for review by General Manager
- Reconcile bank statements and assist with accounts payable
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 1997 (20 years)

Special Skills and Qualifications:

Proficient and trained in Telemetry System; Proficient and trained in United Systems billing software; Trained in implementing Boil Water Advisory; Trained to complete Consumer Confidence Reports; Proficient and trained in Microsoft Office; Proficient in network management and able to troubleshoot IT issues; Proficient in SCADA software; Proficient in Itron meter reading software; Proficient and trained in GPS software; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Bookkeeper (Accountant, if certified)

Description: Responsible for maintaining the system's financial accounts. Typically pays vendor and utility bills, processes receivables and deposits and maintains accurate records of all financial transactions. Is not required to possess an accounting certificate.

KRWA Comparable Position: Bookkeeper

KLC Comparable Position: Utility Clerk

Description: Performs routine clerical work; collects and distributes materials and products to appropriate destinations; provides support service, data entry, and simple bookkeeping

Customer Service Representative Supervisor

Monroe District Job Description:

- Read master meters daily, take chlorine samples daily
- Check and reread customer meters as problems occur
- Inspect and maintain vehicles
- Map and locate water lines and valves
- Inspect customer water service lines
- Monitor SCADA system at office
- Record keeping on all work orders
- Perform monthly Pump Station and Pressure Relief Valve (PRV) maintenance
- Disassemble and repair old meters
- Assist office personnel as needed
- Maintain shop
- Install, repair and maintain water lines, meters, fire hydrants, valves and etc. as needed
- Assist with all operation and maintenance of the water district as needed
- Flushing lines (Semi-annually)
- Pull meters for testing
- Maintain Class IID Distribution Operation certification
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 2000 (17 years)

Special Skills and Qualifications:

Certified Meter Tester (2004); Class IID Distribution Operator (2005); Experienced in and performs most of daily maintenance work orders; Experienced and proficient in Division of Water pressure testing; Experienced and proficient in customer communication; Experienced and proficient in SCADA system software and field infrastructure maintenance; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Operator I⁷

Description: In addition to plant and system operator duties, lead operators are responsible for oversight and collection of water or wastewater samples, compiling data for monthly operating reports, and crew oversight. Position requires a state operator's license.

KRWA Comparable Position: Customer Service Representative⁸

KLC Comparable Position: Water Distribution System Operator II

Description: Conducts maintenance of water distribution system apparatus; has Class II state certification

⁷ Monroe County Water District's Counsel previously compared the Customer Representative Supervisor to the AWWA Rural/Small System Receptionist. Closer examination of the responsibilities of Customer Representative Supervisor reveals that the position is more comparable to a Rural/Small System Operator I.

⁸ This position does not fully encompass the job responsibilities and qualifications of Monroe County Water District's Customer Service Representative Supervisor. For example, the KRWA classification does not require that a Customer Service Representative to be a certified distribution system operator or perform field work.

Meter Tester/Equipment Operator II

Monroe District Job Description:

- Test meters and perform all necessary paperwork
- Install, repair and maintain water lines, meters, fire hydrants, valves and etc.
- Map and locate water lines and valves
- Inspect, maintain and operate all vehicles and equipment
- Maintain shop, pump stations and PRVs
- Pull meters for testing
- Clean up all areas pertaining to Water District work (e.g., leveling ground and sowing grass seed)
- Assist with SCADA system, including recordkeeping of inventory
- Maintain Class IID Distribution Operator certification
- Assist with all operation and maintenance of the water district as needed
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 2002 (15 years)

Special Skills and Qualifications:

Certified Meter Tester (2004); Class IID Distribution Operator (2006); Commercial Driver's License (2005); Experienced and proficient in using backhoe, trencher, and boring machine; Experienced and proficient in SCADA system software and field infrastructure maintenance; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Maintenance Technician

Description: Responsible for planning, scheduling, and performing preventative and regular maintenance work. May hold a state operator's license or operate water and wastewater components under the supervision of a licensed operator. Must possess strong working knowledge of water main maintenance, valves, meters, chemicals, controls, and other treatment procedures.

KRWA Comparable Position: Certified Operator⁹

KLC Comparable Position: Water Distribution System Operator II

Description: Conducts maintenance of water distribution system apparatus; has Class II state certification

⁹ Monroe County Water District's Counsel previously compared the Meter Tester/Equipment Operator II to the KRWA Non-certified Field Personnel. Closer examination of the job description and responsibilities of Meter Tester/Equipment Operator II, including the requirement to hold a Class IID Distribution Operator certification, suggests that the position is more comparable to a Certified Operator.

Laborer II

Monroe District Job Description:

- Install, repair and maintain water lines, meters, fire hydrants, valves and etc.
- Perform maintenance and rereading of customer's meters and boxes
- Pull meters for testing
- Mowing and weed-eating of all Water District properties
- Maintain pump station sites and shop cleanliness
- Map and locate water line and fire hydrant valves
- Electrical maintenance on shop, office and the other sites
- Inspect and maintain vehicles
- Assist with all operation and maintenance of the water district as needed
- Maintain a Class IID Distribution Operator certification
- Take daily chlorine samples
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 2004 (13 years)

Special Skills and Qualifications:

Class IID Distribution Operator (2007); Certified Meter Tester (2012); Licensed electrician – able to perform minor electrical work; Most experienced employee with flushing; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Laborer

Description: Responsible for grounds maintenance, system repairs, excavation equipment operation, and meter installation and replacement. Must maintain a state operator's license or be directly supervised by a licensed operator.

KRWA Comparable Position: Certified Operator¹⁰

KLC Comparable Position: Water/Wastewater Laborer

Description: Performs semiskilled and skilled labor in a wide variety of water/wastewater duties.

¹⁰ Monroe County Water District's Counsel previously compared the Laborer II to the KRWA Non-certified Field Personnel. Closer examination of the job description and responsibilities of Laborer II, including the requirement to hold a Class IID Distribution Operator certification, suggests that the position is more comparable to a Certified Operator.

Accounts Receivable II

Monroe District Job Description:

- Greet customers and visitors and provide assistance and information
- Answer and direct telephone calls in a pleasant and professional manner
- Check back-up tape in computer daily
- Open, work up, and distribute mail to the proper departments
- Record meter deposits in computer and meter deposit books
- Assist with preparation for mailing bills
- Assists in maintaining water district computer network and all informational technology assets, including computer software
- Load and unload PDAs and check readings for high/low usage and notify customers when necessary
- Fill out and complete necessary paperwork for maintenance work orders
- Fill out purchase orders as needed
- Enter pertinent data in computer for new customers, penalties, delinquent notices, etc.
- Maintain and file paperwork
- Assist customers with bank draft
- Assist with SCADA Monitoring system as needed
- Assist with general office duties and other duties deemed necessary by supervisor
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 2011 (6 years)

Special Skills and Qualifications:

Proficient and trained in Telemetry System; Proficient and trained in United Systems billing software; Trained in implementing Boil Water Advisory; Proficient in Microsoft Office; Proficient in network management and able to troubleshoot IT issues; Proficient in SCADA software; Proficient in Itron meter reading software; Proficient and trained in GPS software; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Accounting Clerk

Description: Responsible for assisting the bookkeeper or office manager with billing functions. May assist customers who pay in person by collecting cash and checks, processing credit cards, issuing receipts, and fielding questions and complaints. May also collect and process meter readers' reports.

KRWA Comparable Position: Bookkeeper

KLC Comparable Position: Utility Clerk

Description: Performs routine clerical work; collects and distributes materials and products to appropriate destinations; provides support service, data entry, and simple bookkeeping

Laborer I

Monroe District Job Description:

- Install new water lines
- Repair water lines
- Install meters
- Pull meters
- Recheck meter readings
- Check customer's meters for problems such as high or low pressure
- Turn meters on or off — lock or unlock
- Mowing and weed-eating all the tank and pump station sites
- Mowing and weed-eating office and shop lawns
- Cleaning and sweeping pump station sites
- Replace and repair fire hydrants
- Repair, replace, and install water mains and valves
- Map and locate water valves and fire hydrant valves
- Clean and maintain shop
- Electrical maintenance on shop, office and the other sites
- Inspect, maintain, and drive vehicles
- Repair meters
- Ditch Witch and backhoe trainee
- Train to obtain a Class IID Distribution Operator certification
- On call for emergencies 24 hours a day, 7 days a week

Hire Date: 2015 (2 years)

Special Skills and Qualifications:

Trained in using backhoe, trencher, and boring machine; Proficient and trained in GPS and SCADA; Currently in training to obtain distribution operator certification (attended operator training in 2017); CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Laborer

Description: Responsible for grounds maintenance, system repairs, excavation equipment operation, and meter installation and replacement. Must maintain a state operator's license or be directly supervised by a licensed operator.

KRWA Comparable Position: Non-Certified Field Personnel

KLC Comparable Position: Water/Wastewater Laborer

Description: Performs semiskilled and skilled labor in a wide variety of water/wastewater duties.

Accounts Receivable I (2017 Hire)

Monroe District Job Description

- Greet customers and visitors and provide assistance and information
- Answer and direct telephone calls in a pleasant and professional manner
- Insert back-up tape in computer daily
- Open, work up and distribute mail to the proper departments
- Record meter deposits in computer and meter deposit books
- Assist with preparation for mailing bills
- Load and unload PDAs and check readings for high/low usage and notify customers when necessary
- Fill out and complete necessary paperwork for maintenance work orders
- Fill out purchase orders as needed
- Enter pertinent data in computer regarding new customers, penalties, delinquent notices and etc.
- Maintain and file paperwork
- Assist customers with bank draft
- Assist with SCADA Monitoring system as needed
- Assist with general office duties and other duties deemed necessary by supervisor
- Adjust customer bills as needed for leaks, misreads, etc.
- Responsible for overseeing 811 program
- On call for emergencies 24 hours a day, 7 days a week

Special Skills and Qualifications:

Bachelor's Degree from Western Kentucky University in Interdisciplinary Studies with emphasis on Social & Human Behavior (2016); Proficient in Microsoft Office; Proficient and trained in Telemetry System; Proficient and trained in United Systems billing software; Proficient in Itron meter reading software; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Accounting Clerk

Description: Responsible for assisting the bookkeeper or office manager with billing functions. May assist customers who pay in person by collecting cash and checks, processing credit cards, issuing receipts, and fielding questions and complaints. May also collect and process meter readers' reports.

KRWA Comparable Position: Bookkeeper

KLC Comparable Position: Utility Clerk

Description: Performs routine clerical work; collects and distributes materials and products to appropriate destinations; provides support service, data entry, and simple bookkeeping

Laborer I (2017 Hire)

Monroe District Job Description:

- Install new water lines
- Repair water lines
- Install meters
- Pull meters
- Recheck meter readings
- Check customer's meters for problems such as high or low pressure
- Turn meters on or off — lock or unlock
- Mowing and weed-eating all the tank and pump station sites
- Mowing and weed-eating office and shop lawns
- Cleaning and sweeping pump station sites
- Replace and repair fire hydrants
- Repair, replace and install water mains and valves
- Map and locate water valves and fire hydrant valves
- Clean and maintain shop
- Electrical maintenance on shop, office and the other sites
- Inspect, maintain and drive vehicles
- Repair meters
- Ditch Witch and backhoe trainee
- Train to obtain a Class IID Distribution Operation certification
- On call for emergencies 24 hours a day, 7 days a week

Special Skills and Qualifications:

Commercial Driver's License; Currently in training to obtain distribution operator certification (attended operator training in 2017); Proficient and trained in GPS; CPR and First Aid Certified

AWWA Comparable Position: Rural/Small System Laborer

Description: Responsible for grounds maintenance, system repairs, excavation equipment operation, and meter installation and replacement. Must maintain a state operator's license or be directly supervised by a licensed operator.

KRWA Comparable Position: Non-Certified Field Personnel

KLC Comparable Position: Water/Wastewater Laborer

Description: Performs semiskilled and skilled labor in a wide variety of water/wastewater duties.

Administration**CITY CLERK**

*Directs operations of city clerk's office;
clerk of governing body and custodian of records*

Statewide	# Reporting	Salary Paid				
		Minimum	25%	50%	75%	Maximum
Kentucky	99	\$0	\$8,370	\$35,880	\$45,190	\$76,859

Population Range	# Reporting	Salary Paid				
		Minimum	25%	50%	75%	Maximum
100,000 or more	2	\$63,303	-	\$69,903	-	\$76,502
20,000-99,999	11	\$40,600	\$49,885	\$54,795	\$66,595	\$76,859
8,000-19,999	13	\$32,319	\$38,064	\$47,186	\$56,014	\$75,858
3,000-7,999	22	\$21,600	\$37,478	\$42,250	\$45,215	\$61,030
1,000-2,999	13	\$4,410	\$21,463	\$29,120	\$36,421	\$41,000
Less than 1,000	38	\$0	\$1,515	\$3,738	\$26,942	\$72,987

Administration**CITY CLERK/
TREASURER**

Performs duties of both the city clerk and city treasurer

Statewide	# Reporting	Salary Paid				
		Minimum	25%	50%	75%	Maximum
Kentucky	95	\$0	\$15,425	\$32,073	\$42,411	\$91,065

Population Range	# Reporting	Salary Paid				
		Minimum	25%	50%	75%	Maximum
100,000 or more	0	-	-	-	-	-
20,000-99,999	2	\$53,424	-	\$66,183	-	\$78,942
8,000-19,999	5	\$47,320	\$52,956	\$54,995	\$65,520	\$91,065
3,000-7,999	10	\$31,990	\$41,891	\$48,083	\$57,096	\$66,040
1,000-2,999	31	\$4,120	\$32,084	\$35,360	\$45,022	\$74,000
Less than 1,000	47	\$0	\$9,025	\$15,600	\$31,041	\$43,160

**ATTACHMENT A
STAFF REPORT, CASE NO. 2015-00065
WEBSTER COUNTY WATER DISTRICT
ENGINEERING DIVISION'S
ANALYSIS OF ASSET SERVICE LIVES**

Historically, the Commission has relied on the National Association of Regulatory Utility Commissioners Study of Depreciation Practices for Small Water Utilities ("NARUC Study"), dated August 15, 1979, to evaluate the reasonableness of a utility's depreciation practices. This study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water works practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of this range, while service lives falling within these ranges are generally accepted.

In the following table, Engineering Staff has identified the account classifications for which the utility's current service lives are not consistent with the service lives contained in the NARUC Study. The table shows the utility's current and Engineering Staff's recommended reasonable and appropriate service lives based on a review of information contained in the record of this case.

Asset Classification	Current	Staff Recommended	NARUC Study
E-Structure & Improve-Source of Supply (304-0002): 304.2 Structures & Improve, Pumpsite Improvements, Pumpstation-St, Pumpstation-CD.	30-50	37.5	35-40
F-Structure & Improve-Water Treatment (304-0003): Improvements, Interconnect Project, Phase III Upgrade	20, 30	37.5	35-40
G-Structures & Improvements-Office (304-0005): Building, New Office Building, Improvements	10-30	37.5	35-40
I-Structures & Improve-River Intake (304-0007): River Intake Structure, Plant Structure	50	37.5	35-40
I-Structures & Improve-River Intake (304-0007): Raw Water Intake, River Intake/Lake, River and Other Intakes	50	40	35-45
J-Structures & Improve-Pumping (304-0007): Pump Station-S, C, & Ritz Road	30	37.5	35-40

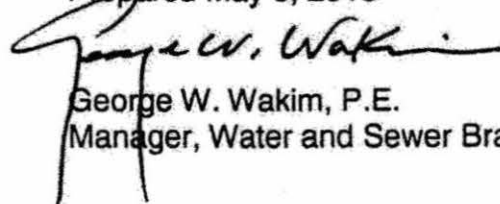
Asset Classification	Current	Staff Recommended	NARUC Study
L-Electric Pumping Equipment (311-0002): Electric Pumping Equipment, Equipment, Pumping Equipment, Pump & Intake, Pump & Labor, High Service Pump, Motor Pumping Equipment, 60 & 30 HP Motors, Pump Repairs	10, 50	20	20
N-Reservoirs and Standpipes (330-0004): Tank Painting, Painting-300,000 Elevated Tank	20,50	15	*
O-Trans & Distribution Mains (311-0004)	40,50	50	50-75
P-Meters & Installations (334-0004)	10	45	40-50
Q-Hydrants (335-0004)	10,40	40	40-60
T-Transportation Equipment (341-0005)	5	7	7

*Tank painting costs are normally amortized rather than depreciated. As such, service lives of tank paintings are not represented in the NARUC Study.

A portion of the asset groups O and Q have service lives within the NARUC Study range. Adjusting the service lives of the remaining assets in these groups with service lives outside the NARUC Study range to the same service lives of the rest of the assets in these groups, is reasonable.

Absent any specific and verifiable evidence supporting alternative service lives, Engineering Staff finds that service lives based on the NARUC Study, as shown in the above table, should be considered reasonable and appropriate.

Prepared May 8, 2015



George W. Wakim, P.E.
Manager, Water and Sewer Branch

**WOOD CREEK WATER DISTRICT
CASE NO. 2015-00428**

**ENGINEERING DIVISION'S
ANALYSIS OF ASSET SERVICE LIVES
FOR WATER SYSTEMS**

Historically, the Commission has relied on the *Depreciation Practices for Small Water Utilities* by National Association of Regulatory Utility Commissioners, Washington, DC, August 15, 1979, page 11, to evaluate the reasonableness of a utility's depreciation practices. This study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water utility practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of the range, while service lives falling within these ranges are generally accepted.

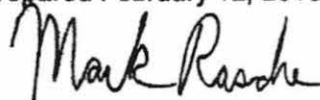
Certain asset service lives proposed in this case were found to be outside the Commission's established guidelines or as otherwise previously adopted by the Commission.

NARUC Account Number	Type of Asset	NARUC Average Service Life	Submitted Service Life/Lives	Recommended Staff Report Service Life/Lives
311	Structures and Improvements	35-40	20	35
			50	40
321	Structures and Improvements	35-40	50	40
			30	35
324-7	Pumping Equipment	20	7	20
331	Structures and Improvements	35-40	20	35
			50	40
332	Water Treatment Equipment	20-35	50	35
343	Transmission and Distribution Mains	50-75	20	50
345	Services	30-50	10	30
			20	30
346	Meters	35-45	20	35
348	Hydrants	40-80	20	40
390	Structures and Improvements	35-40	20	35
			50	40
391	Office Furniture and Equipment	20-25	10	20
392	Transportation Equipment	7	4	7
394	Tools, Shop & Garage Equipment	15-20	25	20
			10	15
			7	15

NOTE: Some Types of Asset had more than one service life submitted. In these cases, service life/lives that were within the NARUC range should remain unchanged.

The Recommended Staff Report Service Life/Lives should be used for the purpose of the Commission Staff Report unless specific and verifiable evidence supports using alternative service lives.

Prepared February 12, 2016



Mark Rasche, P.E.
Manager, Water and Sewer Branch

LAUREL COUNTY WATER DISTRICT NO. 2
CASE NO. 2015-00341

**ENGINEERING DIVISION'S
ANALYSIS OF ASSET SERVICE LIVES
FOR WATER SYSTEMS**

Historically, the Commission has relied on the *Depreciation Practices for Small Water Utilities* by the National Association of Regulatory Utility Commissioners ("NARUC"), Washington, DC, August 15, 1979 ("Study"), page 11, to evaluate the reasonableness of a utility's depreciation practices. This Study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water utility practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of the range, while service lives falling within these ranges are generally accepted.

Certain asset service lives proposed in this case were found to be outside the Commission's established guidelines or as otherwise previously adopted by the Commission:

NARUC Account Number	Type of Asset	NARUC Average Service Life (Years)	Submitted Service Life/Lives (Months)	Recommended Staff Report Service Life/Lives	
				(Months)	(Years)
311	Structures and Improvements	35-40	300	420	35
			480	480	40
			180	420	35
317	Other Source of Water Supply Plant	30-40	180	360	30
321	Structures and Improvements	35-40	300	420	35
			240	420	35
324-7	Pumping Equipment	20	60	240	20
331	Structures and Improvements	35-40	300	420	35
332	Water Treatment Equipment	20-35	300	300	25
			120	240	20
341	Structures and Improvements	35-40	240	420	35
			480	480	40
			120	420	35
342	Reservoirs and Tanks	30-60	480	480	40
			120	360	30
343	Transmission and Distribution Mains	50-75	120	600	50
			480	600	50
			360	600	50
			240	600	50

NARUC Account Number	Type of Asset	NARUC Average Service Life (Years)	Submitted Service Life/Lives (Months)		Recommended Staff Report Service Life/Lives (Months) (Years)	
345	Services	30-50	240	360	30	
346	Meters	35-45	240	420	35	
			60	420	35	
347	Meter Installations	40-50	240	480	40	
348	Hydrants	40-60	240	480	40	
390	Structures and Improvements	35-40	180	420	35	
			240	420	35	
			120	420	35	
			480	480	40	
			300	420	35	
391	Office Furniture and Equipment	20-25	120	240	20	
			60	240	20	
			240	240	20	
392	Transportation Equipment	7	60	84	7	
394	Tools, Shop & Garage Equipment	15-20	60	180	15	
			120	180	15	
395	Laboratory Equipment	15-20	120	180	15	
396	Power Operated Equipment	10-15	120	120	10	
			180	180	15	
			60	120	10	
397	Communications Equipment	10	120	120	10	
			60	120	10	

NOTE: Some Types of Asset had more than one service life submitted. In these cases, service life/lives that were within the NARUC range should remain unchanged.

The Recommended Staff Report Service Life/Lives should be used for the purpose of the Commission Staff Report unless specific and verifiable evidence supports using alternative service lives.

Prepared January 25, 2016



Mark Rasche, P.E.
 Manager, Water and Sewer Branch

**McKINNEY WATER DISTRICT
CASE NO. 2015-00331**

**ENGINEERING DIVISION'S
ANALYSIS OF ASSET SERVICE LIVES
FOR WATER SYSTEMS**

Historically, the Commission has relied on the *Depreciation Practices for Small Water Utilities* by National Association of Regulatory Utility Commissioners ("NARUC"), Washington, DC, August 15, 1979, pp 11, to evaluate the reasonableness of a utility's depreciation practices. This study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water utility practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of the range, while service lives falling within these ranges are generally accepted.

Certain asset service lives proposed in this case were found to be outside the Commission's established guidelines or as otherwise previously adopted by the Commission.

NARUC Account Number	Type of Asset	NARUC Average Service Life	Submitted Service Life/Lives	Recommended Staff Report Service Life/Lives
324-7	Pumping Equipment	20	33	20
341	Structures and Improvements	35-40	33	35
342	Reservoirs and Tanks	30-60	33, 15, 20	33, 30
343	Transmission and Distribution Mains	50-75	50, 33, 35	50
390	Structures and Improvements	35-40	20	35
392	Transportation Equipment	7	5	7
394	Tools, Shop & Garage Equipment	15-20	10	15
397	Communications Equipment	10	10, 5	10

NOTE: Some Types of Asset had more than one service life submitted. In these cases, service life/lives that were within the NARUC range should remain unchanged.

The Recommended Staff Report Service Life/Lives should be used for the purpose of the Commission Staff Report unless specific and verifiable evidence supports using alternative service lives.

Prepared January 25, 2016



Mark Rasche, P.E.
Manager, Water and Sewer Branch

ATTACHMENT B

STAFF REPORT, CASE NO. 2015-00308
HARRISON COUNTY WATER ASSOCIATION

ENGINEERING DIVISION'S
ANALYSIS OF ASSET SERVICE LIVES
FOR WATER SYSTEMS

Historically, the Commission has relied on the *Depreciation Practices for Small Water Utilities* by the National Association of Regulatory Utility Commissioners ("NARUC"), Washington, D. C., August 15, 1979 ("Study"), page 11, to evaluate the reasonableness of a utility's depreciation practices. This Study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water utility practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of the range, while service lives falling within these ranges are generally accepted.

Certain asset service lives submitted in this case were found to be outside the ranges in the NARUC Study or guidelines previously adopted by the Commission. The following table identifies the service lives submitted outside the Commission's established guidelines:

NARUC Account Number	Type of Asset	NARUC Average Service Life	Submitted Service Life/Lives	Recommended Staff Report Service Life/Lives
328	Other Pumping Plant	25	38, 20	25
331	Structures and Improvements	35-40	20	35
341	Structures and Improvements	35-40	30	35
342	Reservoirs and Tanks	30-60	20, 30	30
343	Transmission and Distribution Mains	50-75	30, 50, 63	50, 63
346	Meters	35-45	20, 35	35
391	Office Furniture and Equipment	20-25	23, 7, 5	23, 20
392	Transportation Equipment	7	7, 5	7
394	Tools, Shop & Garage Equipment	15-20	7, 13, 10	15
396	Power Operated Equipment	10-15	20, 30	15
397	Communications Equipment	10	20, 30, 10, 18, 7	10

NOTE: Some Types of Assets had more than one service life submitted. In these cases, service life/lives that were within the NARUC range shall remain unchanged.

The Recommended Staff Report Service Life/Lives shall be used for the purpose of the Commission Staff Report unless specific and verifiable evidence supports using alternative service lives.

Prepared December 16, 2015



Mark Rasche, P.E.
Manager, Water and Sewer Branch

ATTACHMENT B
 STAFF REPORT, CASE NO. 2015-00097
 KIRKSVILLE WATER ASSOCIATION
 ENGINEERING DIVISION'S
 ANALYSIS OF ASSET SERVICE LIVES

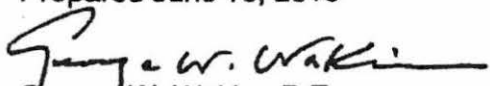
Historically, the Commission has relied on the National Association of Regulatory Utility Commissioners Study of Depreciation Practices for Small Water Utilities ("NARUC Study"), dated August 15, 1979, to evaluate the reasonableness of a utility's depreciation practices. This study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water works practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of this range, while service lives falling within these ranges are generally accepted.

In the following table, Engineering Staff has identified the account classifications for which the utility's current service lives are not consistent with the service lives contained in the NARUC Study. The table shows the utility's current and Engineering Staff's recommended reasonable and appropriate service lives based on a review of information contained in the record of this case.

Asset Classification	Current	Staff Recommended	NARUC Study
DISTRIB. & TRANS. MAINS:102, 103, 104,105, 108, 109, 113, and 114	40-50	50	50-75
METER SETS	7-25	45	40-50
OFFICE EQUIPMENT: 87, EIC SYSTEMS TELEMENTARY	20	10	10
PHASE V	25	50	50-75
PUMPING EQUIPMENT: 24, BOOSTER PUMP STATION	30	35	35-40
PUMPING EQUIPMENT:38, 45, and 46	30-35	50	50-75
PUMPING EQUIPMENT: 50, PUMPING EQUIPMENT	30	20	20
TELEMETRY	25	10	10

Absent any specific and verifiable evidence supporting alternative service lives, Engineering Staff finds that service lives based on the NARUC Study, as shown in the above table, should be considered reasonable and appropriate.

Prepared June 16, 2015


 George W. Wakim, P.E.
 Manager, Water and Sewer Branch

**ATTACHMENT B
STAFF REPORT, CASE NO. 2015-00088
BLACK MOUNTAIN UTILITY DISTRICT
ENGINEERING DIVISION'S
ANALYSIS OF ASSET SERVICE LIVES**

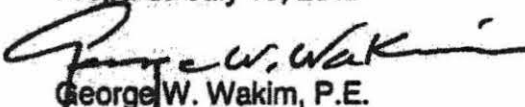
Historically, the Commission has relied on the National Association of Regulatory Utility Commissioners Study of Depreciation Practices for Small Water Utilities ("NARUC Study"), dated August 15, 1979, to evaluate the reasonableness of a utility's depreciation practices. This study outlines expected service life ranges for various asset groups designed, installed, and maintained in accordance with good water works practices. Typically, an adjustment is made when the Commission finds that a utility is proposing to use a service life that falls outside of this range, while service lives falling within these ranges are generally accepted.

In the following table, Engineering Staff has identified the account classifications for which the utility's current service lives are not consistent with the service lives contained in the NARUC Study. The table shows the utility's current and Engineering Staff's recommended reasonable and appropriate service lives based on a review of information contained in the record of this case.

Asset Classification	Current	Staff Recommended	NARUC Study
Pumping Equipment	15, 25	20	20
Water Treatment Eq.	50	25	20-35
Dist. Res. & Standpipes	20, 25, 50	45	30-60
Meters	25	40	35-45
Office Furniture & Eq.	5	22.5	20-25
Transportation Equipment	3, 5	7	7
Structures	15	37.5	35-40
Trans & Dist Mains	25	50	50-75
Meters and Installations: Installations	25	45	40-50
Telemetry	5, 15	10	10

Absent any specific and verifiable evidence supporting alternative service lives, Engineering Staff finds that service lives based on the NARUC Study, as shown in the above table, should be considered reasonable and appropriate.

Prepared July 10, 2015


George W. Wakim, P.E.
Manager, Water and Sewer Branch

EMPLOYEE COMPENSATION COST
(Prior to 2017 Hires – 2015 Test Period)

Employee Wages	\$383,329
Add: Health Insurance Cost	\$ 97,916
Add: Dental Insurance Cost	\$ 2,541
Add: Life Insurance Cost	\$ 2,088
Add: FICA (7.65% of Wages)	\$ 29,325
Add: Retirement Contribution (8% of Wages)	\$ 30,666
Add: KaCo Workers Compensation	<u>\$ 9,269</u>
Equals: Total Compensation	\$555,134
Divided By Number of Hours Worked:	<u>21,468</u>
Employer Cost for Employee Compensation Cost	\$25.86

EMPLOYEE COMPENSATION COST
(With 2017 Hires – Pro Forma Test Period)

Employee Wages	\$415,903.01
Add: Health Insurance Cost	\$107,392.20
Add: Dental Insurance Cost	\$ 2,548.56
Add: Life Insurance Cost	\$ 2,124.56
Add: FICA (7.65% of Wages)	\$ 31,816.60
Add: Retirement Contribution (8% of Wages)	\$ 33,272.24
Add: KaCo Workers Compensation	<u>\$ 11,122.80</u>
Equals: Total Compensation	\$604,179.97
Divided By Number of Hours Worked:	<u>23,547.5</u>
Employer Cost for Employee Compensation Cost	\$25.68

EMPLOYEE COMPENSATION COST
INCLUDING PAID LEAVE

(With 2017 Hires – Pro Forma Test Period)

Employee Wages	\$415,903.01
Add: Health Insurance Cost	\$107,392.20
Add: Dental Insurance Cost	\$ 2,548.56
Add: Life Insurance Cost	\$ 2,124.56
Add: FICA (7.65% of Wages)	\$ 31,816.60
Add: Retirement Contribution (8% of Wages)	\$ 33,272.24
Add: KaCo Workers Compensation	<u>\$ 11,122.80</u>
Equals: Total Compensation	\$604,179.97
Divided By Number of Hours Worked:	<u>23,547.5</u>
Employer Cost for Employee Compensation Cost	\$25.68
Add: Average Employer Cost of Paid Leave	<u>\$ 2.49</u>
Employer Cost for Employee Compensation Cost (Including Paid Leave)	\$ 28.17

2018 Monthly Premiums and Contributions

Non-Tobacco User Rates

All employee contributions are per employee, per month

LivingWell CDHP	Total Premium	Completing LivingWell Promise Rates		Without Completing LivingWell Promise Rates	
		Employer Contribution	Employee Contribution	Employer Contribution	Employee Contribution
Single	\$709.46	\$660.04	\$49.42	\$620.04	\$89.42
Parent Plus	\$978.50	\$851.84	\$126.66	\$811.84	\$166.66
Couple	\$1,325.64	\$1,029.02	\$296.62	\$989.02	\$336.62
Family	\$1,479.76	\$1,131.64	\$348.12	\$1,091.64	\$388.12
Family Cross-Reference	\$818.96	\$738.64	\$80.32	\$698.64	\$120.32

LivingWell PPO	Total Premium	Employer Contribution	Employee Contribution	Employer Contribution	Employee Contribution
Parent Plus	\$1,037.08	\$802.26	\$234.82	\$762.26	\$274.82
Couple	\$1,589.10	\$1,060.74	\$528.36	\$1,020.74	\$568.36
Family	\$1,767.60	\$1,105.34	\$662.26	\$1,065.34	\$702.26
Family Cross-Reference	\$876.68	\$719.12	\$157.56	\$679.12	\$197.56

Standard PPO	Total Premium	Employer Contribution	Employee Contribution
Parent Plus	\$975.90	\$847.98	\$127.92
Couple	\$1,497.18	\$1,197.60	\$299.58
Family	\$1,666.26	\$1,314.66	\$351.60
Family Cross-Reference	\$824.54	\$743.42	\$81.12

Standard CDHP	Total Premium	Employer Contribution	Employee Contribution
Parent Plus	\$940.64	\$878.24	\$62.40
Couple	\$1,450.02	\$1,189.96	\$260.06
Family	\$1,615.30	\$1,303.24	\$312.06
Family Cross-Reference	\$800.94	\$771.84	\$29.10



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2018 Monthly Premiums and Contributions

Tobacco User Rates

All employee contributions are per employee, per month

LivingWell CDHP	Total Premium	Completing LivingWell Promise Rates		Without Completing LivingWell Promise Rates	
		Employer Contribution	Employee Contribution	Employer Contribution	Employee Contribution
Single	\$709.46	\$620.04	\$89.42	\$580.04	\$129.42
Parent Plus	\$978.50	\$771.84	\$206.66	\$731.84	\$246.66
Couple	\$1,325.64	\$949.02	\$376.62	\$909.02	\$416.62
Family	\$1,479.76	\$1,051.64	\$428.12	\$1,011.64	\$468.12
Family Cross-Reference	\$818.96	\$698.64	\$120.32	\$658.64	\$160.32

LivingWell PPO	Total Premium	Completing LivingWell Promise Rates		Without Completing LivingWell Promise Rates	
		Employer Contribution	Employee Contribution	Employer Contribution	Employee Contribution
Single	\$729.34	\$606.96	\$122.38	\$566.96	\$162.38
Parent Plus	\$1,037.08	\$722.26	\$314.82	\$682.26	\$354.82
Couple	\$1,589.10	\$980.74	\$608.36	\$940.74	\$648.36
Family	\$1,767.60	\$1,025.34	\$742.26	\$985.34	\$782.26
Family Cross-Reference	\$876.68	\$679.12	\$197.56	\$639.12	\$237.56

Standard PPO	Total Premium	Completing LivingWell Promise Rates	
		Employer Contribution	Employee Contribution
Single	\$685.38	\$595.46	\$89.92
Parent Plus	\$975.90	\$767.98	\$207.92
Couple	\$1,497.18	\$1,117.60	\$379.58
Family	\$1,666.26	\$1,234.66	\$431.60
Family Cross-Reference	\$824.54	\$703.42	\$121.12

Standard CDHP	Total Premium	Completing LivingWell Promise Rates	
		Employer Contribution	Employee Contribution
Single	\$682.80	\$616.60	\$66.20
Parent Plus	\$940.64	\$798.24	\$142.40
Couple	\$1,450.02	\$1,109.96	\$340.06
Family	\$1,615.30	\$1,223.24	\$392.06
Family Cross-Reference	\$800.94	\$731.84	\$69.10



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Exhibit 10

Commission on Rural Water

O&M
Guide for the Support of
Rural Water-Wastewater Systems



TD

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Further information regarding National Demonstration Water Project and the Commission on Rural Water available from:

Information Clearinghouse
Commission on Rural Water
Suite 2026
221 North La Salle Street
Chicago, Illinois 60601

Pub.
20.00 per yr. (2000)
6.15/76

Preface

This manual is intended primarily as a guide for the manager of a small rural water and wastewater system. He is the "you" referred to in the text. The book is not meant to be a textbook for engineers nor even a sufficient handbook for plant operators. Instead it focuses on the things the manager needs to know if he is to assume the responsibility for system operation. It gives him a look at management and administration, handling of equipment and personnel, estimating costs and budgeting, and supervising the technical side of water-wastewater system operation. This is the gap in the literature of rural water development which we have tried to fill. Nowhere else, we believe, is information on so many different topics pulled together in one place, written for the non-technician, and concentrated on the special problems of rural areas. For those who need more detailed technical information, a selected bibliography is included in the appendix.

A number of people associated with National Demonstration Water Project and the Commission on Rural Water have combined their efforts in producing this guide. Here are the important contributors in both research and writing:

Chapter One (Management) -- Mary E.
Morgan of Conset, Inc.

Chapter Two (Water Systems) --
Michael D. Campbell and William Hunt
of the National Water Well Association
Research Facility.

Chapter Three (Wastewater Systems) --
Steven N. Goldstein and Walter Moberg,
Jr., of Conset, Inc.

Chapter Four (Personnel) -- Campbell,
Hunt and Moberg.

Chapter Five (Costs) -- Goldstein

Many others contributed their expertise to the guide in the form of comments and suggestions. They include: Jay H. Lehr, executive director, National Water Well Association; Stanley Zimmerman, executive director, National Demonstration Water Project; John E. Foster, P.E., Conset, Inc.; Heinz Russelmann, National Sanitation Foundation; Roscoe Thornbury, president, National Demonstration Water Project; Harry Conard, New Mexico Home Education Livelihood Program; Joseph H. VanDeventer and Wallace

Johnston, Demonstration Water Project, Roanoke, Virginia.

The book was designed by Leo Zayauskas. Production was under the supervision of the Ground Water Council, which serves as the Information Clearinghouse for the Commission.

Finally, the manuscript was organized, largely written, and edited by Edwin L. Cobb of Conset, Inc. He may be blamed for the corny jokes which pop up from time to time. These are intended only to lighten the narrative; it goes without saying that water and wastewater service is a serious matter.

National Demonstration Water Project, for which the Commission on Rural Water serves as a public relations and publications unit, is attempting to improve water and wastewater services in rural areas through affiliate projects, public information efforts, and publications. Hopefully, this guide will be a significant addition to the "Rural Water Bookshelf," which has been designed to meet the specific needs of small rural communities.

Commission on Rural Water
Washington, D.C.
October, 1974

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marily concerned with failure resulting from wear and tear.

Estimating Replacement Expenses

The first item needed in estimating major repair and replacement costs is the expected equipment service lifetime. For example, the service lifetime of small pumps is usually estimated at anywhere from three to seven years -- five years on the average. Table 44 gives average lifetimes for the major water and wastewater system components.

Table 44
Average Service Lifetimes,
Major Systems Components

WATER SYSTEMS	
<u>Well</u>	
Casing, metal	10-50 years
Casing, plastic	25-75 years
Screen, metal	4-50 years
Screen, plastic	4-75 years
Pump, submersible	1-15 years
Pump, jet	1-15 years
Pump, turbine	7-20 years
<u>Storage Tanks</u>	
Hydroneumatic	30-50 years
Elevated/Standpipes, metal	30-50 years
Elevated/Standpipes, concrete	30-50 years
Ground Storage, metal	25-50 years
Ground Storage, concrete	40-60 years
Reservoir Liners	10-15 years
<u>Transmission Systems</u>	
Pumps, auxiliary	7-15 years
Mains, plastic	40-75 years
<u>Distribution Systems</u>	
Pumps, auxiliary	7-15 years
Mains, plastic	25-50 years
Water meters	7-10 years
<u>Treatment Systems</u>	
Sand Filters	30-40 years
Greensand Filters	30-40 years
Zeolite Softeners	15-30 years
<u>Disinfection Devices</u>	
Gas Chlorinators	7-10 years
Hypochlorinators, liquid	7-10 years
Hypochlorinators, dry chemical	7-15 years
Ozonators	5-10 years
WASTEWATER SYSTEMS	
<u>Septic Tank-Soil Absorption</u>	
Septic Tank	20-50 years
Soil Absorption System	10-30 years
<u>Home Aerobic Tanks</u>	
Tank	20-50 years
Mechanical Components	3-10 years

Collection Systems

Gravity Sewers, clay, cement	25-50 years
Gravity Sewers, cast iron	30-75 years
Gravity Sewers, plastic	30-75 years
Manholes, structures	20-50 years
Lift Stations, structures	20-50 years
Lift Station, pumps, etc.	7 years
Pressure sewers, plastic, small dia.	5-10 years
Small (household) sewage pumps	5-10 years
Pressure Mains - same as gravity sewers	

Treatment Systems

Primary

Comminutors	5 years
Screens	10 years
Clarifier Tanks, concrete	20 years
Clarifier Tanks, metal	20 years
Grit and Sludge Handling Equipment	5-10 years

Secondary

Lagoons	5-25 years
Extended Aeration tankage, concrete	20-50 years
Extended Aeration tankage, metal	20-30 years
Aerator Compressors	5-10 years
Air diffusers	3 years
Sludge pumps	5-10 years
Clarifier Tankage, Concrete	20-50 years
Clarifier Tankage, Metal	20-30 years
Chlorinators	10 years
Sludge Digesters	same as aeration tankage

Advanced Wastewater Treatment

Sand Filters	5-10 years
--------------	------------

Sludge Disposal Equipment

Drying beds	5-15 years
Incinerators	
Dewatering devices	

Effluent Disposal

Irrigation Pumps	5-10 years
Sprinkler Heads	2- 5 years

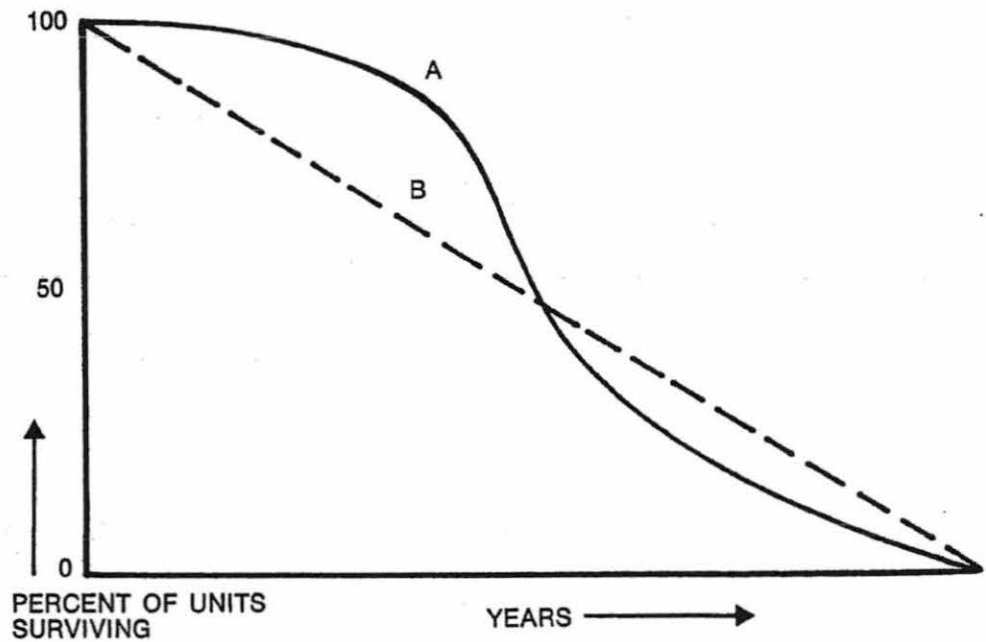
General Use Equipment

Laboratory instrumentation	3-10 years
Service Vehicles	3- 5 years
Pumper/Tank trucks	5-10 years
Automatic Controls	5-20 years

Service lifetimes vary, of course, because of differences in the way equipment is used and maintained. Environmental factors such as corrosive water and soils, temperature extremes, and humidity are always important. A submersible pump may fail in six months in one location while the same model lasts 10 or 15 years in another. Obviously, if only premium materials and equipment have been used in the system, service lifetimes will be longer. The lower initial cost of a less-than-premium item must be weighed against the fact that it will probably have to be replaced sooner.

Even better than a simple estimate of the service lifetime of a system component is a "survivor curve" for the component. The survivor curve is a graph which shows the percentage of units of a particular item which are still working after a certain number of years. Unfortunately, it is difficult to obtain survivor curves for many components. Figure 21 has a sample curve.

Figure 21
Sample Survivor Curves



Survivor curve "A" depicts a group of units of which very few fail for a number of years, after which there is a rapid fall-off and most experience failure within a few years. Submersible pumps are a good example. Curve "B" represents a situation where a constant number of units fail each year. Not many items will fit this pattern perfectly, but some may approximate it. The equipment units represented by both curves "A" and "B" have about the same average service life.

It is important to know the failure patterns of equipment as well as the average service life so that adequate capital can be available when replacement is necessary. Some components may be replaced on a regular basis under a preventive maintenance program. For example, a 1,000-customer utility may elect to start replacing 100 water meters annually with rebuilt meters after the first 10 years of operation. This would correspond to a 15-year service life for new

meters and a 10-year life for rebuilt meters if the replacement continues beyond year 20.

Some system components are costed at a constant annual rate per unit for repair and replacement -- for example, sewer maintenance and repair at 10-cents per foot/year. If the system has been properly designed and installed, there should be few major failures for several years of operation. Thereafter, failure may occur at a steady or even an increasing rate. The main reason for quoting the constant annual rate, therefore, is that detailed survival information is not available. In an expanding system, there is a mixture of new and old equipment, making a composite cost more convenient.

Funding an Equipment Replacement Reserve

There are several strategies which may be used in setting up a financial reserve for equipment replacement. First, suppose that a component which costs \$10.00 today will have to be replaced at the end of 10 years of service. Assume further that the component is subject to an average annual inflation rate of 6 percent. At the end of 10 years, it will cost $(1.06)^{10}$, or 1.79 times as much to replace -- \$17.91 plus installation. The objective is to accumulate this much money over the 10-year period.

If the component had been depreciated over 10-years, \$10.00 would have been recovered from its replacement. (You cannot depreciate an item more than its original cost.) \$10.00 would not be enough to buy a replacement. If the straight-line method of depreciation (see Chapter One) had been used and if the annual depreciation of one dollar had been invested at interest every year, \$12.58 would have been accumulated at 5 percent interest or \$13.18 at 6 percent -- still not enough to buy a replacement unit. If accelerated depreciation had been taken and the money invested at interest, more would have accumulated at the end of 10 years than under the straight-line method because a greater amount would have been invested in the early years. Even so, the cost of a replacement unit would not have been matched.

Suppose that the \$10.00 initial cost had been treated as a loan which had to be paid off in annual installments with interest payable on the unpaid balance (annualized or capitalized). The annualized payment at 6 percent interest is \$1.36, or \$13.60 at the end of 10 years. Still not

enough. Suppose, though, that an amount annualized at 6 percent is invested in an interest-bearing account. If the account pays 6 percent, 17.91 would have accumulated -- just enough!

The point is that if the replacement cost of a unit is annualized for n years at a rate equal to the inflation rate and the annual amounts are invested also at an interest rate equal to that of inflation, then at the end of n years there will be exactly as much available as the inflated replacement cost. The inflation rate and interest rates will rarely be identical. However, if the sum of the chosen annualization rate plus the bank's interest rate is equal to twice the inflation rate, the amount of money available after n years will be approximately equal to the inflated price.

Inflation varies in a fairly unpredictable manner, interest rates are not always stable, and the lifetime of the equipment at the start of its use cannot be exactly forecast, so there is no exact method for accumulating funds for equipment replacement. Nevertheless, here is a strategy which goes a long way to achieving the desired results:

- (1) Estimate the lifetime of the unit.
- (2) Estimate the inflation rate over the lifetime.
- (3) Estimate what interest can be earned on funds earmarked for equipment replacement.
- (4) Annualize the present purchase price at a rate which, when combined with the interest rate, yields twice the inflation rate.

Annualization factors for a wide range of rates are given in Table 45.

An example of the above strategy: A steel storage tank costs \$2,000 and has an expected 20-year lifetime. The inflation rate for steel tanks is expected to be 5.5 percent over the next 20 years. Interest of 5 percent can be earned in a demand savings account. An annualization rate of 6 percent plus the 5 percent interest totals 11 percent, twice the assumed rate of inflation. After 20 years at 5.5 percent inflation, the unit should cost \$5,836 ($2,000 (1 + .055)^{20} = 2,000 \times 2.9178 = \$5,836$). This is the

amount you will need.

A regular deposit of one dollar annually for 20 years at 5 percent interest will yield \$33.066. The annualization factor for 20 years at 6 percent is 0.08719. If the annualized amount ($\$2,000 \times 0.08719$ or \$174.38) is invested regularly at 5 percent interest, it will yield \$5,766 ($\174.38×33.066), or just under the expected inflated replacement cost. If the inflation, earned interest, and annualized interest rates had all been the same, the results would have been perfect -- that is, exactly \$5,836 would have accumulated in the bank account.

As an added insurance, three additional precautions may be taken. First, estimate the service life conservatively so that money will be accumulated at a faster rate. Secondly, the full replacement cost, including transportation and installation, should be used rather than the purchase price alone. Finally, you may disregard interest earned and make annual reserve payments equal to the total replacement cost divided by expected lifetime. This is a very conservative measure which can be justified only in cases of extreme uncertainty and a system which is highly vulnerable to failure of expensive equipment.

Equipment Replacement Costs and Depreciation

Depreciation is a loss of value of a capital investment, such as a treatment plant, because of wear and tear, etc. It is thus closely related to equipment replacement.

From a tax accounting viewpoint, however, depreciation is a method for recovering capital investment. While the rate of capital recovery is supposed to be related to the rate of loss of value, depreciation accounting normally involves the choice of a reasonable lifetime ("asset depreciation period") consistent with norms defined by federal and state tax authorities and the use of an acceptable recovery formula (for example, "straight line", "double declining balance", or "sum-of-digits").

The depreciation amount is treated as a business expense which reduces the amount of revenues subject to taxation as income. The value of the asset for tax and rate-making purposes is also reduced by the total amount of depreciation taken on it over the years

(accumulated depreciation). For example, a plant which originally cost \$1,000,000, but for which \$300,000 had been recovered as depreciation over the years, could only be counted as a \$700,000 investment for figuring allowable profit. There are many other considerations which would tend to adjust the \$700,000 figure, but the basic principle remains unchanged.

In theory, if utility services were to be provided in perpetuity, the annual depreciation allowances could be invested and then used at a later time to replace or overhaul major items of equipment as needed. In practice, profit-making companies tend to regard depreciation allowances as a tax break (they do not have to pay taxes on the amount of income equal to the depreciation), and the money recovered from depreciation would normally be invested in system expansion or some other aspect of the business rather than being held unused in a savings account. The attitude of the businessman -- and it is a sensible attitude -- is that he is better off using the depreciation money for his business needs rather than borrowing money at high rates and investing the depreciation money at lesser rates. He banks on the premise that because his is a growing concern with an expanding capital base, he can always borrow the money at favorable terms later on when the need arises.

In the case of small rural utilities with a well-defined, slowly-changing service population and little opportunity for system expansion, the above premises are not likely to apply. Furthermore, if the utility is run as a non-profit or a municipal entity, the whole tax accounting structure changes and the use of the depreciation allowance does not apply, since there are no surplus revenues that have to be offset by allowances to prevent their taxation as income. Depreciation in such situations is important mainly insofar as it may reduce asset values for purposes of local property taxes.

Whether the utility or support company is run as a profit-motivated business or as a public service organization, it is important that the equipment replacement needs be realistically estimated and that resources be clearly earmarked and kept available for replacement when the need arises. If, for example, a profit-making organization uses its depreciation allowance to fund system expansion, the manager should insure that there will be funds available from other sources for replacing major equipment. This could mean

that the organization would not borrow up to the full limit of its credit in order to preserve borrowing power for emergencies.

AND FINALLY...

We have tried in these pages to cover the subject of operation and maintenance for water and wastewater systems in a way that will be most useful to you, the system manager. We have tried to do it with some wisdom and even a little wit. Once again, you are reminded that our intention is to help you become a better manager, not an engineer. But at least you should have more grasp of what is technically involved than the construction foreman who yelled at one of his workers on the job site: "Leave that wheelbarrow alone, Henry; you don't know nuthin' about machinery!"

■

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EMPLOYER HEALTH BENEFITS
2016 ANNUAL SURVEY

Worker and
Employer
Contributions
for Premiums

SECTION

6

WORKER AND EMPLOYER CONTRIBUTIONS FOR PREMIUMS

IN 2016, PREMIUM CONTRIBUTIONS BY COVERED WORKERS AVERAGE 18% FOR SINGLE COVERAGE AND 30% FOR FAMILY COVERAGE.¹ THE AVERAGE MONTHLY WORKER CONTRIBUTIONS ARE \$94 FOR SINGLE COVERAGE (\$1,129 ANNUALLY) AND \$440 FOR FAMILY COVERAGE (\$5,277 ANNUALLY).² COVERED WORKERS IN SMALL FIRMS (3-199 WORKERS) HAVE A LOWER AVERAGE CONTRIBUTION AMOUNT FOR SINGLE COVERAGE (\$1,021 VS. \$1,176), BUT A HIGHER AVERAGE CONTRIBUTION AMOUNT FOR FAMILY COVERAGE (\$6,597 VS. \$4,719) THAN COVERED WORKERS IN LARGE FIRMS (200 OR MORE EMPLOYEES).

- ▶ In 2016, covered workers on average contribute 18% of the premium for single coverage and 30% of the premium for family coverage (Exhibit 6.1). These contribution percentages have remained stable in recent years for both single and family coverage.
 - Covered workers in small firms contribute a higher percentage of the premium for family coverage (39% vs. 26%) than covered workers in large firms (Exhibit 6.23).
- ▶ On average, workers with single coverage contribute \$94 per month (\$1,129 annually), and workers with family coverage contribute \$440 per month (\$5,277 annually) towards their health insurance premiums (Exhibit 6.2), (Exhibit 6.3), and (Exhibit 6.4).
 - The average worker contribution in HDHP/SOs is lower than the overall average worker contribution for single coverage (\$943 vs. \$1,129) and family coverage (\$4,289 vs. \$5,277) (Exhibit 6.5).
- ▶ Worker contributions also differ by firm size. As in previous years, workers in small firms contribute a lower amount annually for single coverage than workers in large firms (\$1,021 vs. \$1,176). In contrast, workers in small firms with family coverage contribute significantly more annually than workers in large firms (\$6,597 vs. \$4,719) (Exhibit 6.6).
- ▶ The average worker contributions for single coverage and family coverage are similar to last year for both small firms and large firms (Exhibit 6.8) and (Exhibit 6.9).

VARIATION IN WORKER CONTRIBUTIONS TO THE PREMIUM

- ▶ The majority of covered workers are employed by a firm that contributes at least half of the premium for single and family coverage.
 - Twelve percent of covered workers are in plans where the employer pays the entire premium for single coverage; three percent of covered workers are in plans where the employer pays the entire premium for family coverage (Exhibit 6.17).
 - Covered workers in small firms are much more likely to work for a firm that pays 100% of the premium than workers in large firms. Thirty percent of covered workers in small firms have an employer that pays the full premium for single coverage, compared to five percent of covered workers in large firms (Exhibit 6.18). For family coverage, eight percent of covered workers in small firms have an employer that pays the full premium, compared to one percent of covered workers in large firms (Exhibit 6.19).
- ▶ Fifteen percent of covered workers have a plan where they are required to contribute more than 50% of the cost of family coverage.

NOTE:

¹ Estimates for premiums, worker contributions to premiums, and employer contributions to premiums presented in Section 6 do not include contributions made by the employer to Health Savings Accounts (HSAs) or Health Reimbursement Arrangements (HRAs). See Section 8 for estimates of employer contributions to HSAs and HRAs.

² The average percent contribution is calculated as a weighted average of all a firm's plan types and may not necessarily equal the average worker contribution divided by the average premium.

- Three percent of covered workers in small firms and 1% of covered workers in large firms contribute more than 50% of the premium for single coverage (Exhibit 6.18). For family coverage, 34% of covered workers in small firms work in a firm where they must contribute more than 50% of the premium, compared to seven percent of covered workers in large firms (Exhibit 6.19).
- ▶ There is considerable variation around the distribution of the average dollar contribution amounts. Note that we changed our methods beginning in 2016: previously, the percentages were calculated excluding workers who do not make a premium contribution; now all covered workers are included (with a zero dollar contribution value for those workers where the employer pays 100% of the premium).
 - For single coverage, 34% of covered workers contribute \$1,355 or more annually (140% or more of the average worker contribution), while 41% of covered workers have an annual worker contribution of less than \$903 (less than 60% of the average worker contribution) (Exhibit 6.16).
 - For family coverage, 28% of covered workers contribute \$6,332 or more annually (140% or more of the average worker contribution), while 41% of covered workers have an annual worker contribution of less than \$4,222 (less than 60% of the average worker contribution) (Exhibit 6.16).

DIFFERENCES BY FIRM CHARACTERISTICS

- ▶ The percentage of the premium paid by covered workers varies by several firm characteristics.
 - Covered workers in firms with a larger share of lower-wage workers (35% or more earn \$23,000 or less annually) contribute a greater percentage of the premium for single coverage (23% v. 18%) and family coverage (35% vs. 30%) than those in firms with a smaller share of lower-wage workers (Exhibit 6.21) and (Exhibit 6.22). Covered workers in firms with a larger share of higher-wage workers (35% or more earn \$59,000 or more a year) contribute less on average for family coverage (27% vs. 33%) than those in firms with a smaller share of higher-wage workers.
 - Looking at dollar amounts, covered workers in firms with a larger share of lower-wage workers (35% or more earn \$23,000 or less annually) on average contribute \$1,322 for single coverage compared with \$1,115 for covered workers in firms with a smaller share of lower-wage workers (Exhibit 6.15).
 - Covered workers in large firms that have at least some union workers have lower average contribution percentages for family coverage than those in firms without any unionized workers (22% vs. 29%). Covered workers at firms with some union workers have a lower average contribution amount for family coverage (\$4,264 vs. \$5,800) (Exhibit 6.15) and (Exhibit 6.22).
 - Covered workers in large firms that are partially or completely self-funded have a lower average percentage contribution for family coverage than workers in large firms that are fully insured (25% vs. 30%) (Exhibit 6.22).³
 - Covered workers in public organizations have lower average premium contributions for single and family coverage than workers in private for-profit firms (Exhibit 6.21) and (Exhibit 6.22).

NOTE:

³ For definitions of Self-Funded and Fully-Insured plans, see the introduction to Section 10.

CONTRIBUTION APPROACHES

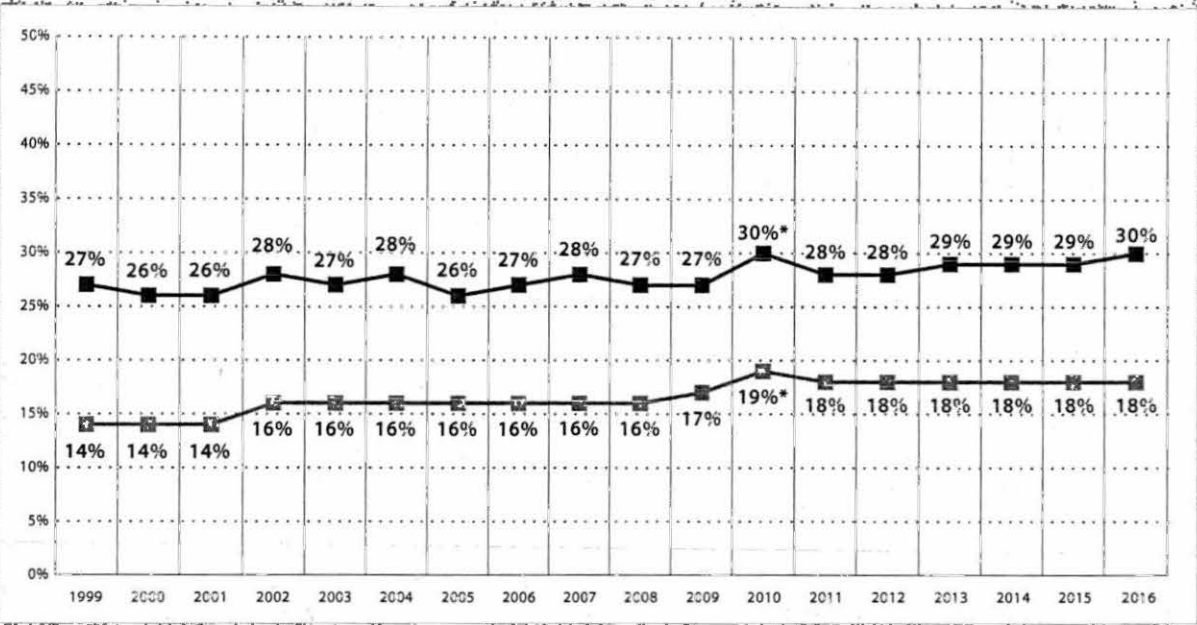
- ▶ Firms take different approaches for contributing towards family coverage. Among firms offering health benefits, 45% of small firms and 18% of large firms contribute the same dollar amount for single coverage as for family coverage, which means that the worker must pay the entire difference between the cost of single and family coverage if they wish to enroll their family members. Forty-five percent of small firms and 67% of large firms make a larger dollar contribution for family coverage than for single coverage (Exhibit 6.26).
- ▶ Among firms offering health benefits, 15% require workers who use tobacco to contribute more towards the premium or cost-sharing than those who do not use tobacco (Exhibit 6.28).

CHANGES OVER TIME

- ▶ The average worker contributions for single and family coverage have increased 80% and 78%, respectively, over the last 10 years, and 23% and 28%, respectively, over the last five years.
- ▶ The average premium contributions for covered workers with single and family coverage have grown at similar rates in small firms and large firms (Exhibit 6.8) and (Exhibit 6.9).

EXHIBIT 6.1

Average Percentage of Premium Paid by Covered Workers for Single and Family Coverage, 1999-2016



SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different from estimate for the previous year shown ($p < .05$).

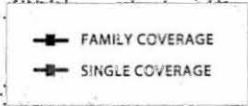


EXHIBIT 6.2

Average Monthly Worker Premium Contributions Paid by Covered Workers for Single and Family Coverage, 1999-2016



SOURCE:

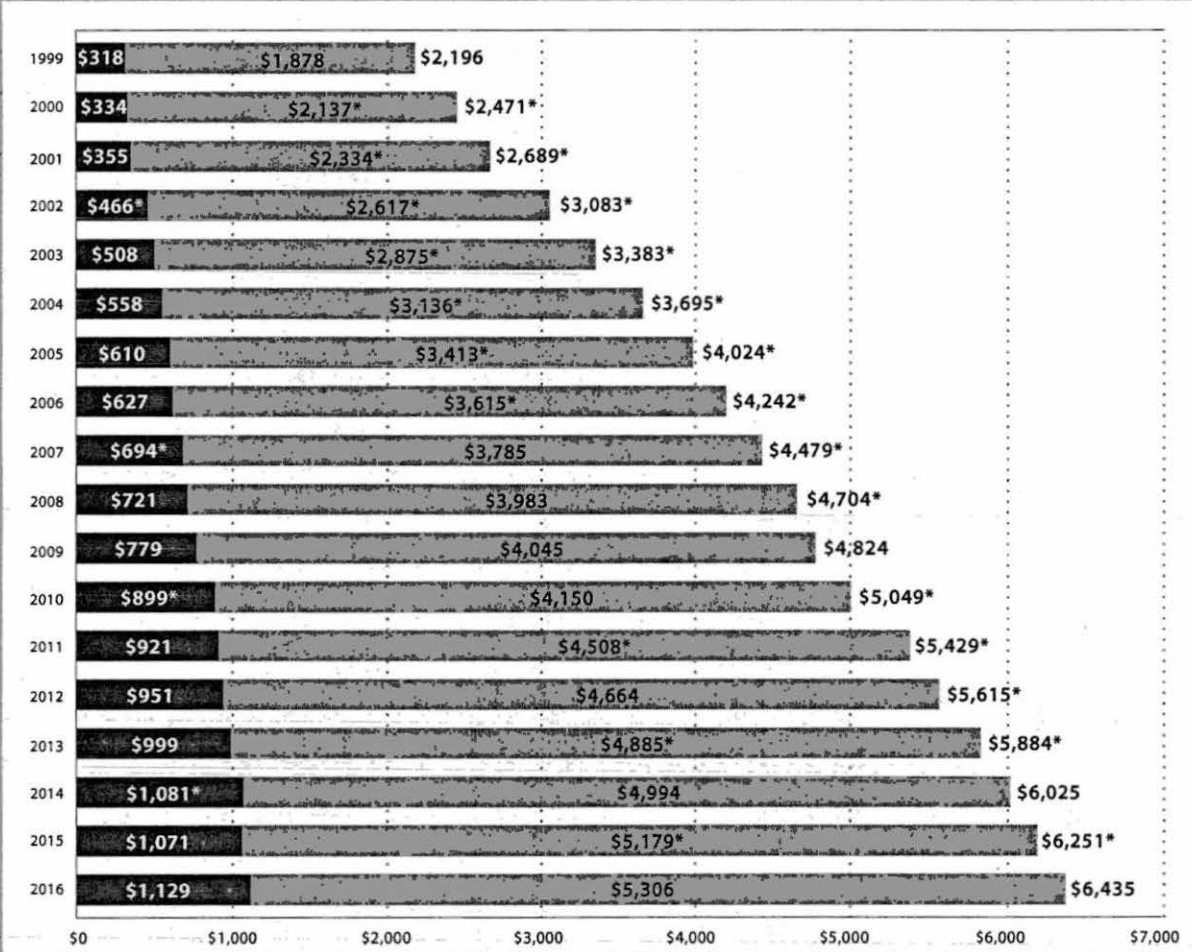
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different from estimate for the previous year shown (p < .05).

FAMILY COVERAGE
 SINGLE COVERAGE

EXHIBIT 6.3

Average Annual Worker and Employer Contributions to Premiums and Total Premiums for Single Coverage, 1999-2016



SOURCE:

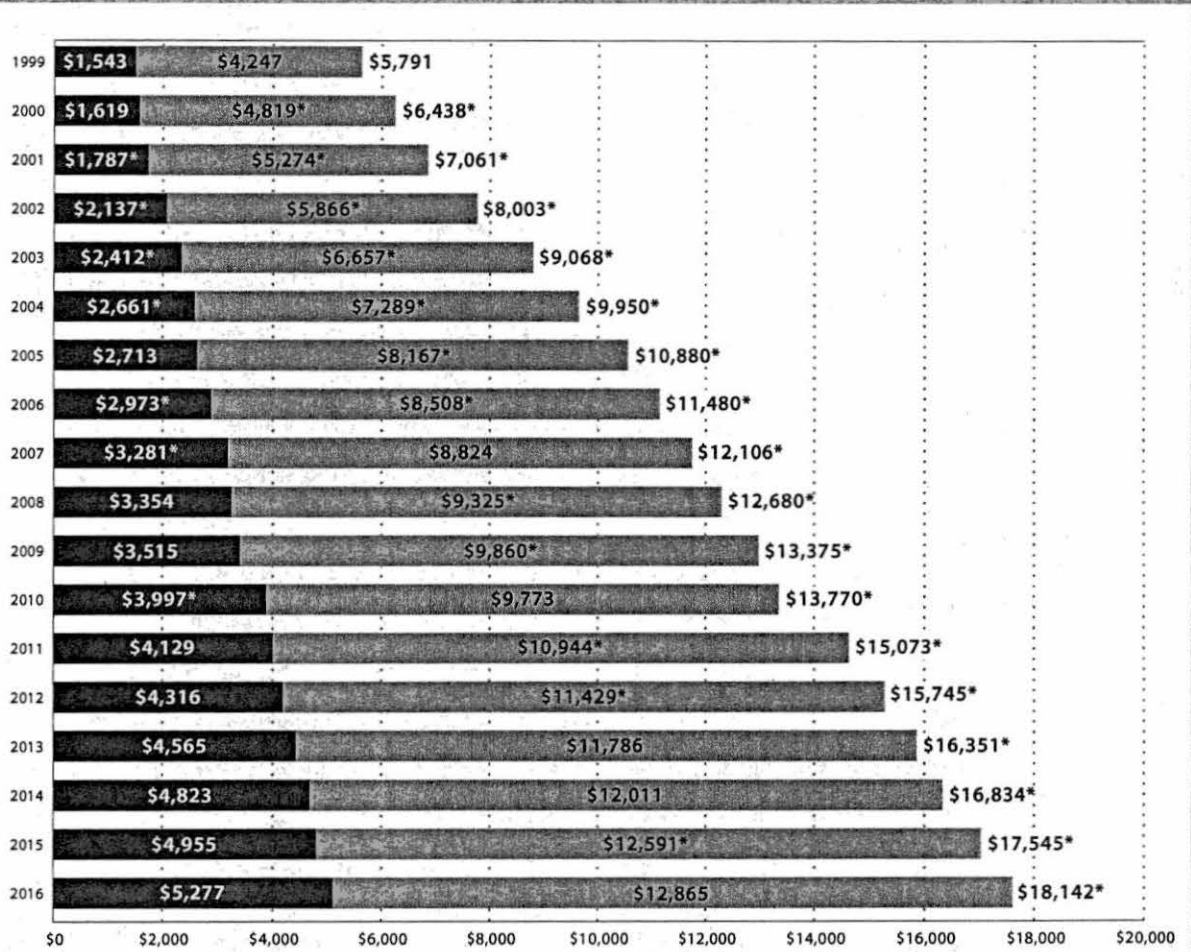
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different from estimate for the previous year shown (p < .05).

■ WORKER CONTRIBUTION
 ■ EMPLOYER CONTRIBUTION

EXHIBIT 6.4

Average Annual Worker and Employer Contributions to Premiums and Total Premiums for Family Coverage, 1999-2016



SOURCE:

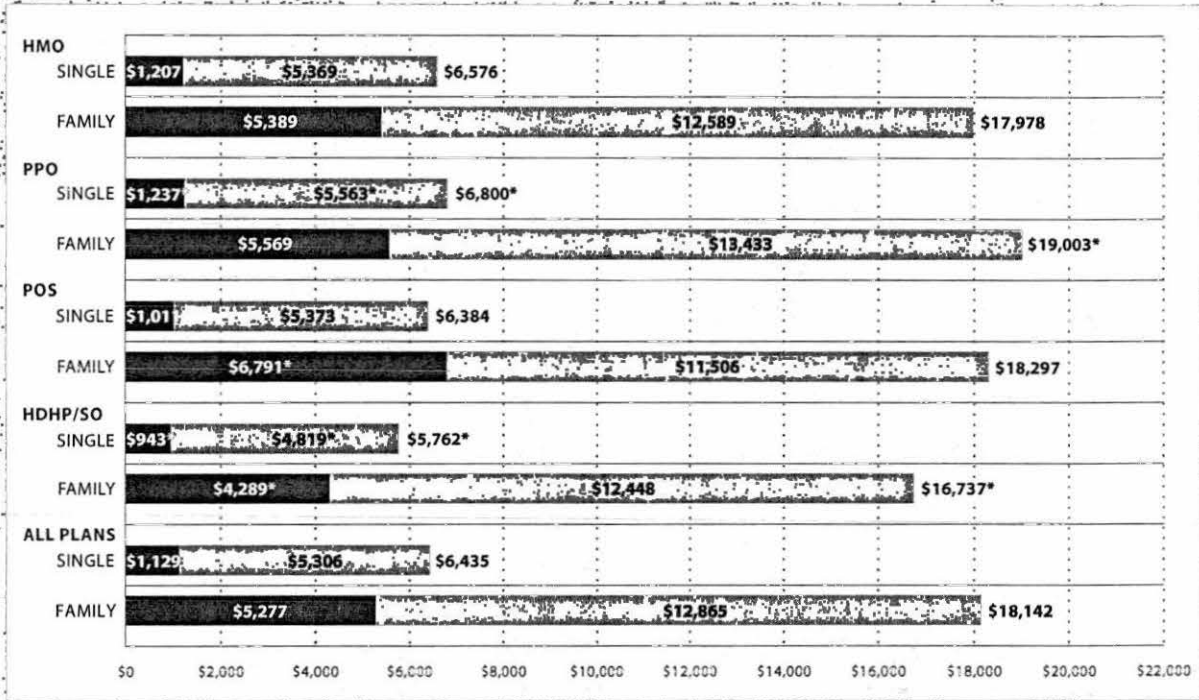
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different from estimate for the previous year shown (p < .05).

■ WORKER CONTRIBUTION
 ■ EMPLOYER CONTRIBUTION

EXHIBIT 6.5

Average Annual Firm and Worker Premium Contributions and Total Premiums for Covered Workers for Single and Family Coverage, by Plan Type, 2016



SOURCE:

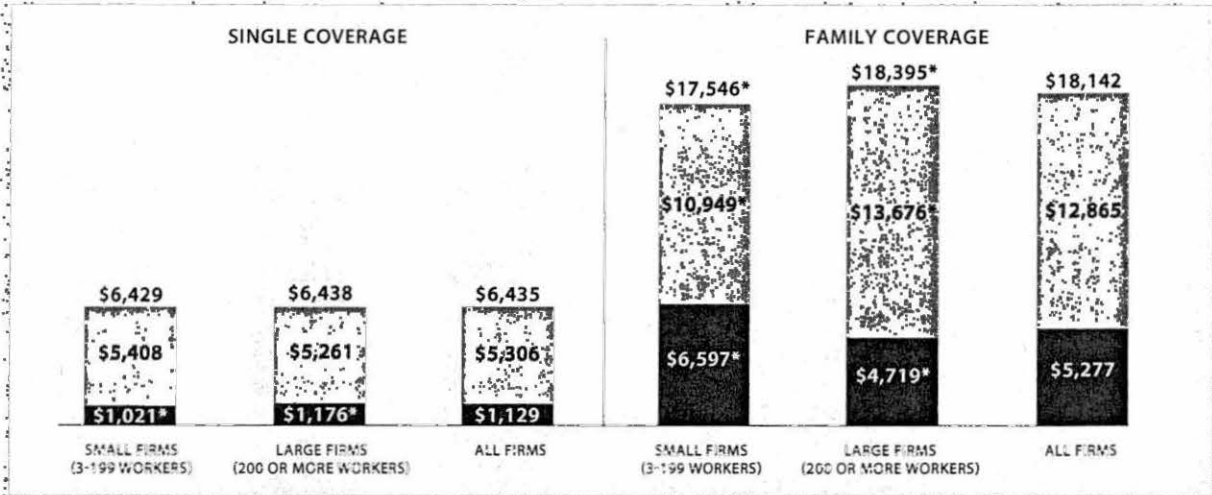
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

WORKER CONTRIBUTION
 EMPLOYER CONTRIBUTION

* Estimate is statistically different from All Plans estimate by coverage type (p < .05).



EXHIBIT 6.6

Average Annual Worker and Employer Contributions to Premiums and Total Premiums for Single and Family Coverage, by Firm Size, 2016



SOURCE:

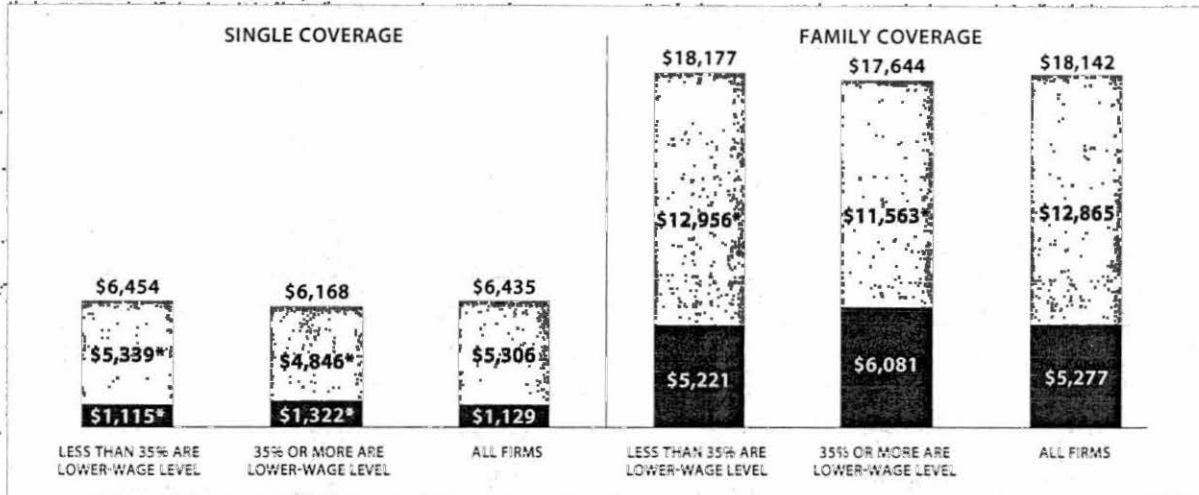
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

 EMPLOYER CONTRIBUTION
 WORKER CONTRIBUTION

* Estimate is statistically different between All Large Firms and All Small Firms estimate ($p < .05$).

EXHIBIT 6.7

Average Annual Worker and Employer Contributions to Premiums and Total Premiums for Single and Family Coverage, by Firm Wage Level, 2016



SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

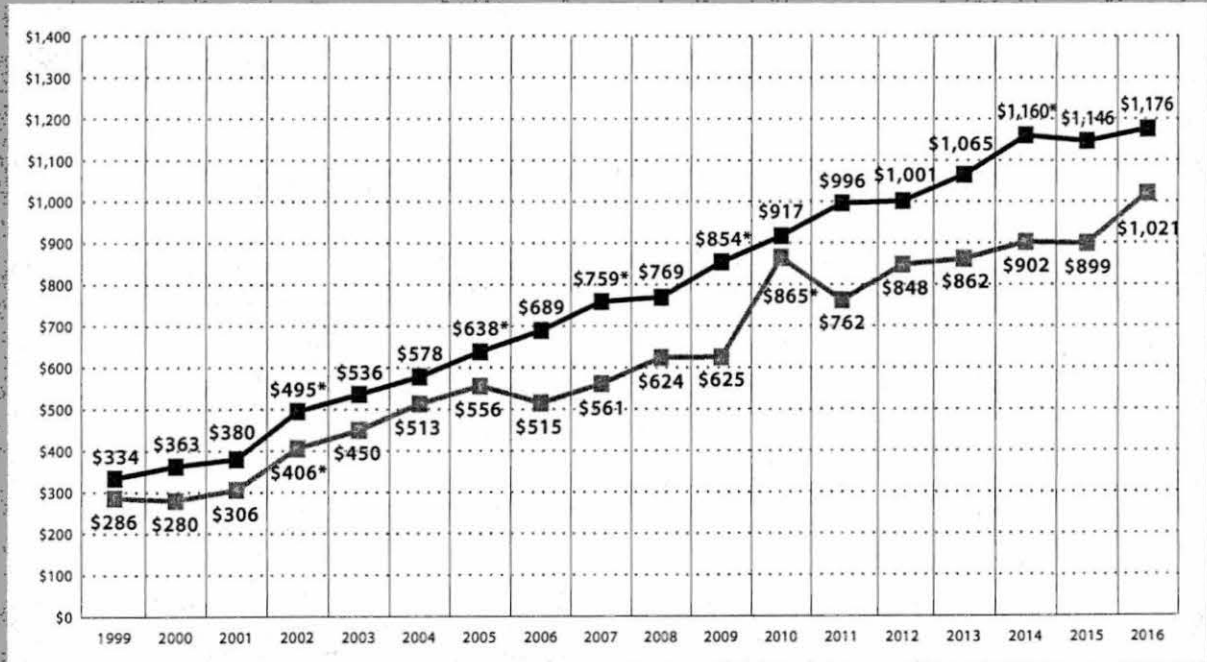
EMPLOYER CONTRIBUTION
 WORKER CONTRIBUTION

* Estimate is statistically different between All Large Firms and All Small Firms estimate (p < .05).

NOTE: Lower wage level is \$23,000 annually or less, the 25th percentile for workers' earnings nationally.

EXHIBIT 6.8

Average Annual Worker Contributions for Covered Workers with Single Coverage, by Firm Size, 1999-2016



SOURCE:

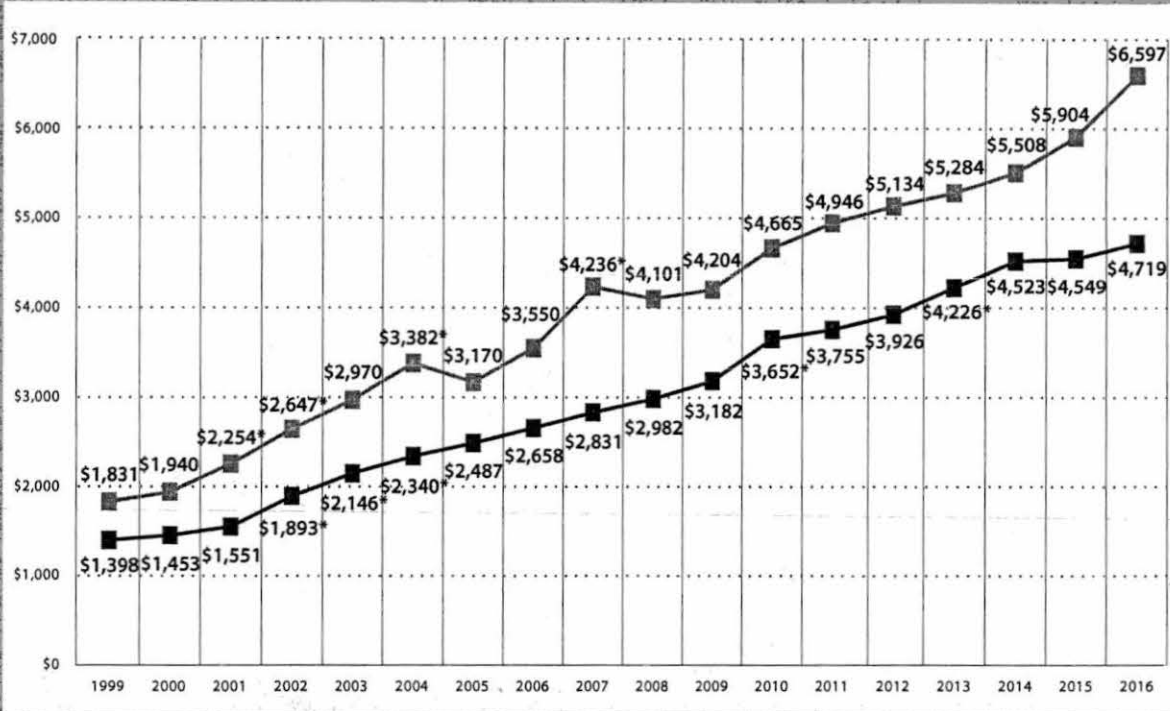
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different from estimate for the previous year shown (p < .05).

- ALL SMALL FIRMS (3-199 WORKERS)
- ◆ ALL LARGE FIRMS (200 OR MORE WORKERS)

EXHIBIT 6.9

Average Annual Worker Contributions for Covered Workers with Family Coverage, by Firm Size, 1999-2016



SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different from estimate for the previous year shown ($p < .05$).

- ALL SMALL FIRMS (3-199 WORKERS)
- ALL LARGE FIRMS (200 OR MORE WORKERS)

EXHIBIT 6.10

Average Annual Worker Premium Contributions Paid by Covered Workers for Single and Family Coverage, by Firm Size, 1999-2016

	Single Coverage		Family Coverage	
	All Small Firms (3-199 Workers)	All Large Firms (200 or More Workers)	All Small Firms (3-199 Workers)	All Large Firms (200 or More Workers)
1999	\$286	\$334	\$1,831*	\$1,398*
2000	\$280*	\$363*	\$1,940*	\$1,453*
2001	\$306*	\$380*	\$2,254*	\$1,551*
2002	\$406*	\$495*	\$2,647*	\$1,893*
2003	\$450	\$536	\$2,970*	\$2,146*
2004	\$513	\$578	\$3,382*	\$2,340*
2005	\$556	\$638	\$3,170*	\$2,487*
2006	\$515*	\$689*	\$3,550*	\$2,658*
2007	\$561*	\$759*	\$4,236*	\$2,831*
2008	\$624*	\$769*	\$4,101*	\$2,982*
2009	\$625*	\$854*	\$4,204*	\$3,182*
2010	\$865	\$917	\$4,665*	\$3,652*
2011	\$762*	\$996*	\$4,946*	\$3,755*
2012	\$848*	\$1,001*	\$5,134*	\$3,926*
2013	\$862*	\$1,065*	\$5,284*	\$4,226*
2014	\$902*	\$1,160*	\$5,508*	\$4,523*
2015	\$899*	\$1,146*	\$5,904*	\$4,549*
2016	\$1,021*	\$1,176*	\$6,597*	\$4,719*

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

* Estimate is statistically different between All Small Firms and All Large Firms within year ($p < .05$).

EXHIBIT 6.11

Average Annual Firm and Worker Premium Contributions and Total Premiums for Covered Workers for Single Coverage, by Plan Type and Firm Size, 2016

	Worker Contribution	Employer Contribution	Total Premium
HMO			
All Small Firms (3-199 Workers)	\$1,391	\$5,309	\$6,700
All Large Firms (200 or More Workers)	\$1,113	\$5,400	\$6,513
PPO			
All Small Firms (3-199 Workers)	\$1,059*	\$5,532	\$6,590
All Large Firms (200 or More Workers)	\$1,296*	\$5,574	\$6,870
POS			
All Small Firms (3-199 Workers)	\$877	\$5,258	\$6,136
All Large Firms (200 or More Workers)	\$1,248	\$5,575	\$6,823
HDHP/SO			
All Small Firms (3-199 Workers)	\$830	\$5,386*	\$6,215*
All Large Firms (200 or More Workers)	\$986	\$4,604*	\$5,590*
ALL PLANS			
All Small Firms (3-199 Workers)	\$1,021*	\$5,408	\$6,429
All Large Firms (200 or More Workers)	\$1,176*	\$5,261	\$6,438

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different within plan type between All Small Firms and All Large Firms ($p < .05$).

EXHIBIT 6.12

Average Annual Firm and Worker Premium Contributions and Total Premiums for Covered Workers for Family Coverage, by Plan Type and Firm Size, 2016

	Worker Contribution	Employer Contribution	Total Premium
HMO			
All Small Firms (3-199 Workers)	\$7,526*	\$9,756*	\$17,282
All Large Firms (200 or More Workers)	\$4,345*	\$13,972*	\$18,318
PPO			
All Small Firms (3-199 Workers)	\$6,731*	\$11,406*	\$18,137
All Large Firms (200 or More Workers)	\$5,193*	\$14,090*	\$19,283
POS			
All Small Firms (3-199 Workers)	\$7,461	\$10,100*	\$17,561
All Large Firms (200 or More Workers)	\$5,657	\$13,886*	\$19,543
HDHP/SO			
All Small Firms (3-199 Workers)	\$5,249*	\$11,560	\$16,809
All Large Firms (200 or More Workers)	\$3,928*	\$12,781	\$16,709
ALL PLANS			
All Small Firms (3-199 Workers)	\$6,597*	\$10,949*	\$17,546*
All Large Firms (200 or More Workers)	\$4,719*	\$13,676*	\$18,395*

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different within plan type between All Small Firms and All Large Firms ($p < .05$).

EXHIBIT 6.13

Average Monthly and Annual Worker Premium Contributions Paid by Covered Workers for Single and Family Coverage, by Plan Type and Firm Size, 2016

	Monthly		Annual	
	Single Coverage	Family Coverage	Single Coverage	Family Coverage
HMO				
All Small Firms (3-199 Workers)	\$116	\$627*	\$1,391	\$7,526*
All Large Firms (200 or More Workers)	93	362*	1,113	4,345*
ALL FIRM SIZES	\$101	\$449	\$1,207	\$5,389
PPO				
All Small Firms (3-199 Workers)	\$88*	\$561*	\$1,059*	\$6,731*
All Large Firms (200 or More Workers)	108*	433*	1,296*	5,193*
ALL FIRM SIZES	\$103	\$464	\$1,237	\$5,569
POS				
All Small Firms (3-199 Workers)	\$73	\$622	\$877	\$7,461
All Large Firms (200 or More Workers)	104	471	1,248	5,657
ALL FIRM SIZES	\$84	\$566	\$1,011	\$6,791
HDHP/SO				
All Small Firms (3-199 Workers)	\$69	\$437*	\$830	\$5,249*
All Large Firms (200 or More Workers)	82	327*	986	3,928*
ALL FIRM SIZES	\$79	\$357	\$943	\$4,289
ALL PLANS				
All Small Firms (3-199 Workers)	\$85*	\$550*	\$1,021*	\$6,597*
All Large Firms (200 or More Workers)	98*	393*	1,176*	4,719*
ALL FIRM SIZES	\$94	\$440	\$1,129	\$5,277

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different within plan and coverage types between All Small Firms and All Large Firms ($p < .05$).

EXHIBIT 6.14

Average Monthly and Annual Worker Premium Contributions Paid by Covered Workers for Single and Family Coverage, by Plan Type and Region, 2016

	Monthly		Annual	
	Single Coverage	Family Coverage	Single Coverage	Family Coverage
HMO				
Northeast	\$129*	\$417	\$1,544*	\$5,007
Midwest	127*	490	1,523*	5,876
South	111	473	1,335	5,672
West	76*	444	917*	5,325
ALL REGIONS	\$101	\$449	\$1,207	\$5,389
PPO				
Northeast	\$121*	\$444	\$1,455*	\$5,324
Midwest	120*	443	1,445*	5,316
South	94*	482	1,123*	5,782
West	84*	469	1,010*	5,625
ALL REGIONS	\$103	\$464	\$1,237	\$5,569
POS				
Northeast	\$100	\$507	\$1,201	\$6,078
Midwest	84	626	1,006	7,510
South	87	609	1,045	7,309
West	67	497	808	5,965
ALL REGIONS	\$84	\$566	\$1,011	\$6,791
HDHP/SO				
Northeast	\$79	\$322	\$953	\$3,862
Midwest	90	361	1,081	4,332
South	85	352	1,018	4,220
West	54*	406	654*	4,876
ALL REGIONS	\$79	\$357	\$943	\$4,289
ALL PLANS				
Northeast	\$106*	\$400*	\$1,267*	\$4,805*
Midwest	108*	439	1,300*	5,262
South	93	457	1,111	5,482
West	73*	448	871*	5,372
ALL REGIONS	\$94	\$440	\$1,129	\$5,277

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimate is statistically different within plan and coverage type from estimate for all other firms not in the indicated region ($p < .05$).

EXHIBIT 6.15

Average Annual Premium Contribution Paid by Covered Workers for Single and Family Coverage, by Firm Characteristics, 2016

	Single Coverage	Family Coverage
Lower-Wage Level		
Less Than 35% Earn \$23,000 a Year or Less	\$1,115*	\$5,221
35% or More Earn \$23,000 a Year or Less	\$1,322*	\$6,081
Higher-Wage Level		
Less Than 35% Earn \$59,000 a Year or More	\$1,149	\$5,788*
35% or More Earn \$59,000 a Year or More	\$1,111	\$4,824*
Unions		
Firm Has At Least Some Union Workers	\$1,133	\$4,264*
Firm Does Not Have Any Union Workers	\$1,127	\$5,800*
Younger Workers		
Less Than 35% of Workers Are Age 26 or Younger	\$1,122	\$5,224
35% or More Workers Are Age 26 or Younger	\$1,199	\$5,832
Older Workers		
Less Than 35% of Workers Are Age 50 or Older	\$1,118	\$5,445
35% or More Workers Are Age 50 or Older	\$1,142	\$5,077
Funding Arrangement		
Fully Insured	\$1,077	\$6,302*
Self-Funded	\$1,163	\$4,637*
Firm Ownership		
Private For-Profit	\$1,191*	\$5,389
Public	\$782*	\$4,490*
Private Not-For-Profit	\$1,218	\$5,566
ALL FIRMS	\$1,129	\$5,277

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different from each other within firm size category ($p < .05$).

EXHIBIT 6.16

Distribution of Worker Premium Contributions for Single and Family Coverage Relative to the Average Annual Worker Premium Contribution, 2016

Premium Contribution Range, Relative to Average Premium Contribution	Single Coverage		Family Coverage	
	Premium Contribution Range, Dollar Amount	Percentage of Covered Workers in Range	Premium Contribution Range, Dollar Amount	Percentage of Covered Workers in Range
Less than 60%	Less than \$678	29%	Less than \$3,166	27%
60% to Less than 80%	\$678 to <\$903	12%	\$3,166 to <\$4,222	14%
80% to Less than Average	\$903 to <\$1,129	11%	\$4,222 to <\$5,277	18%
Average to Less than 120%	\$1,129 to <\$1,355	14%	\$5,277 to <\$6,332	14%
120% to Less than 140%	\$1,355 to <\$1,581	10%	\$6,332 to <\$7,388	6%
140% or More	\$1,581 or More	24%	\$7,388 or More	21%

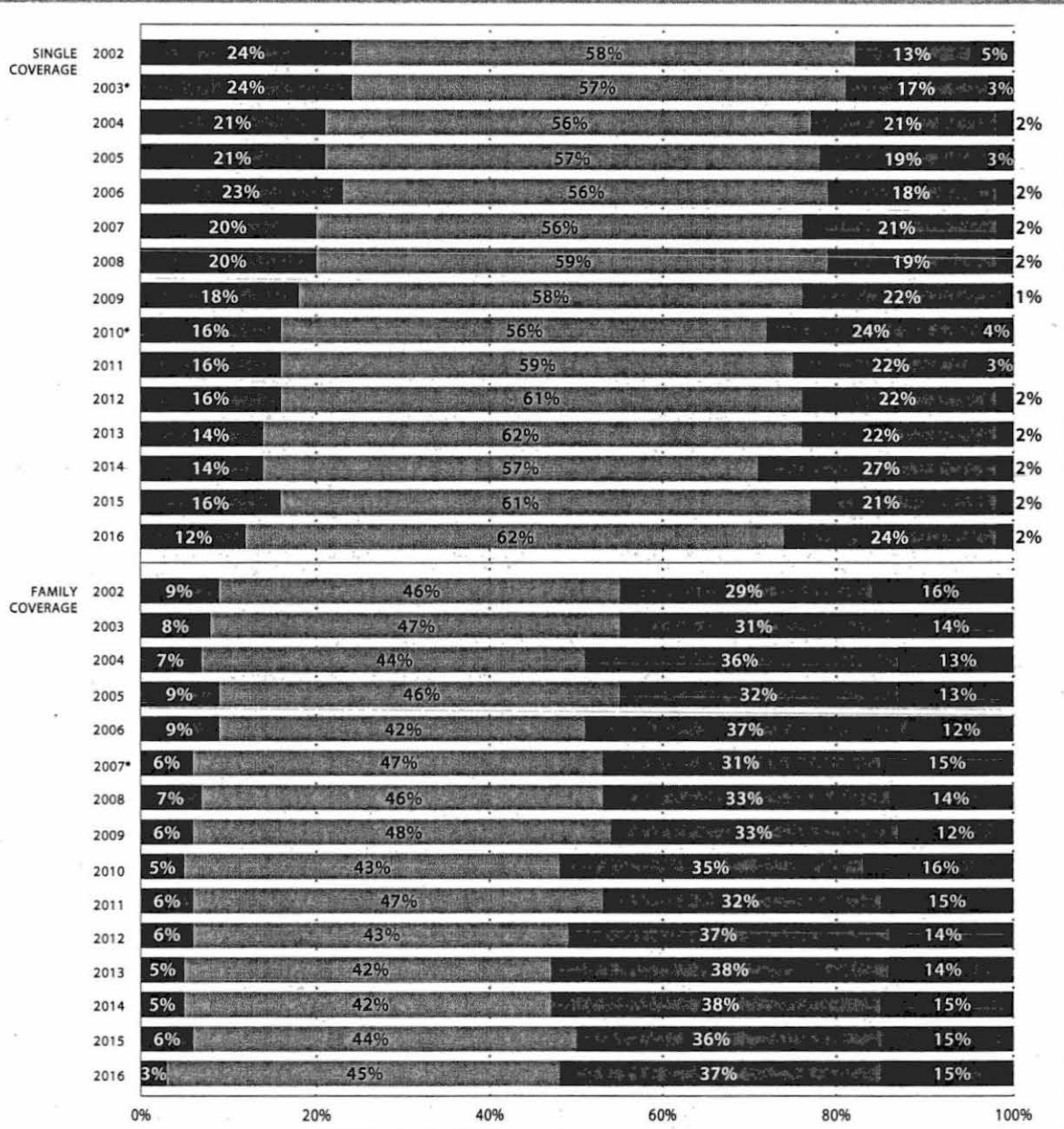
SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

Note: The average annual worker contribution is \$1,129 for single coverage and \$5,277 for family coverage. The worker contribution distribution is relative to the average single or family worker contribution. For example, \$903 is 80% of the average single worker contribution and \$1,355 is 120% of the average single worker contribution. The same break points relative to the average are used for the distribution for family coverage.

EXHIBIT 6.17

Distribution of Percentage of Premium Paid by Covered Workers for Single and Family Coverage, 2002-2016



SOURCE:

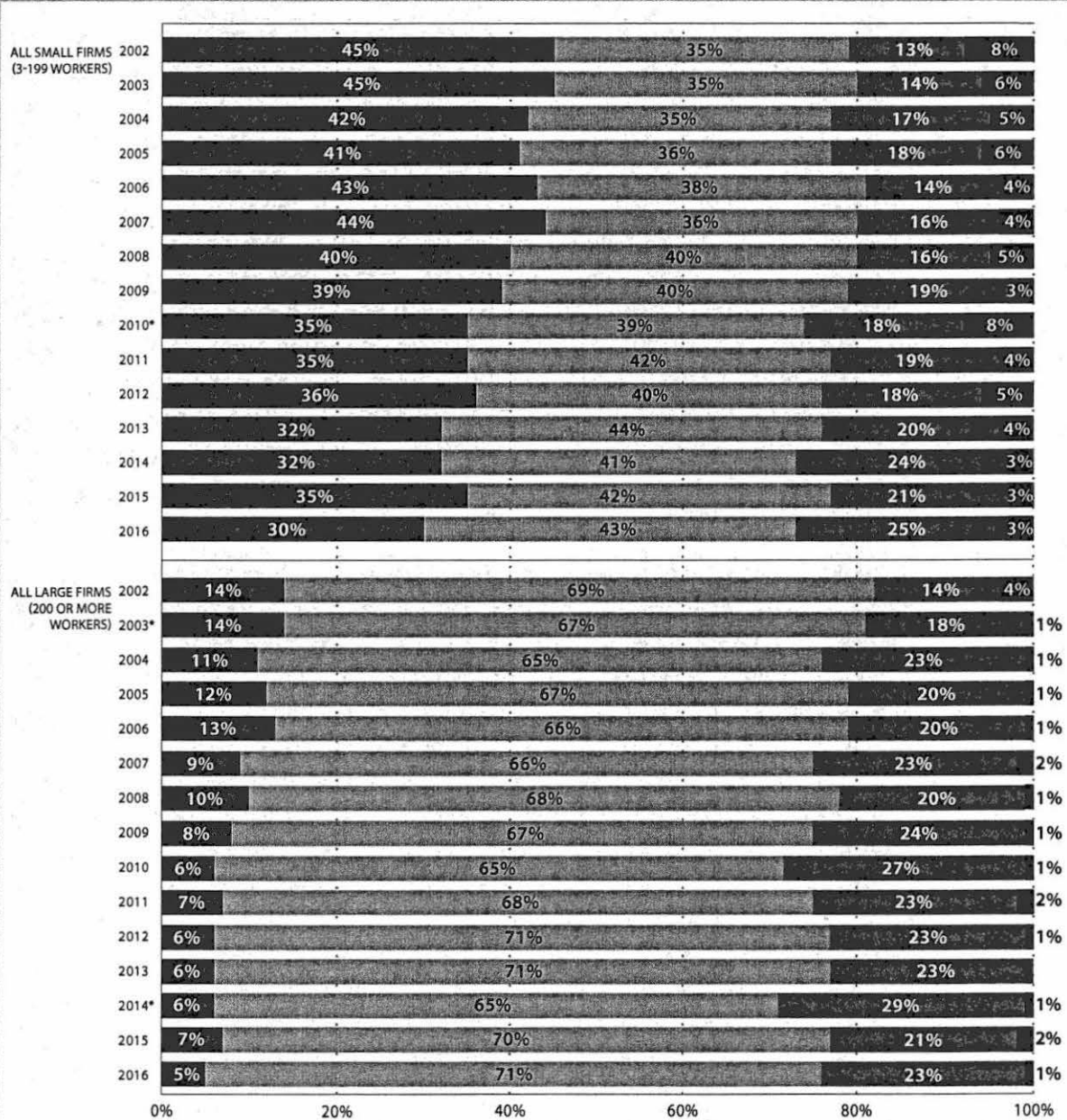
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2002-2016.

* Distribution is statistically different within coverage type from distribution for the previous year shown (p < .05).

- 0%
- GREATER THAN 0%, LESS THAN OR EQUAL TO 25%
- GREATER THAN 25%, LESS THAN OR EQUAL TO 50%
- GREATER THAN 50%

EXHIBIT 6.18

Distribution of Percentage of Premium Paid by Covered Workers for Single Coverage, by Firm Size, 2002-2016



SOURCE:

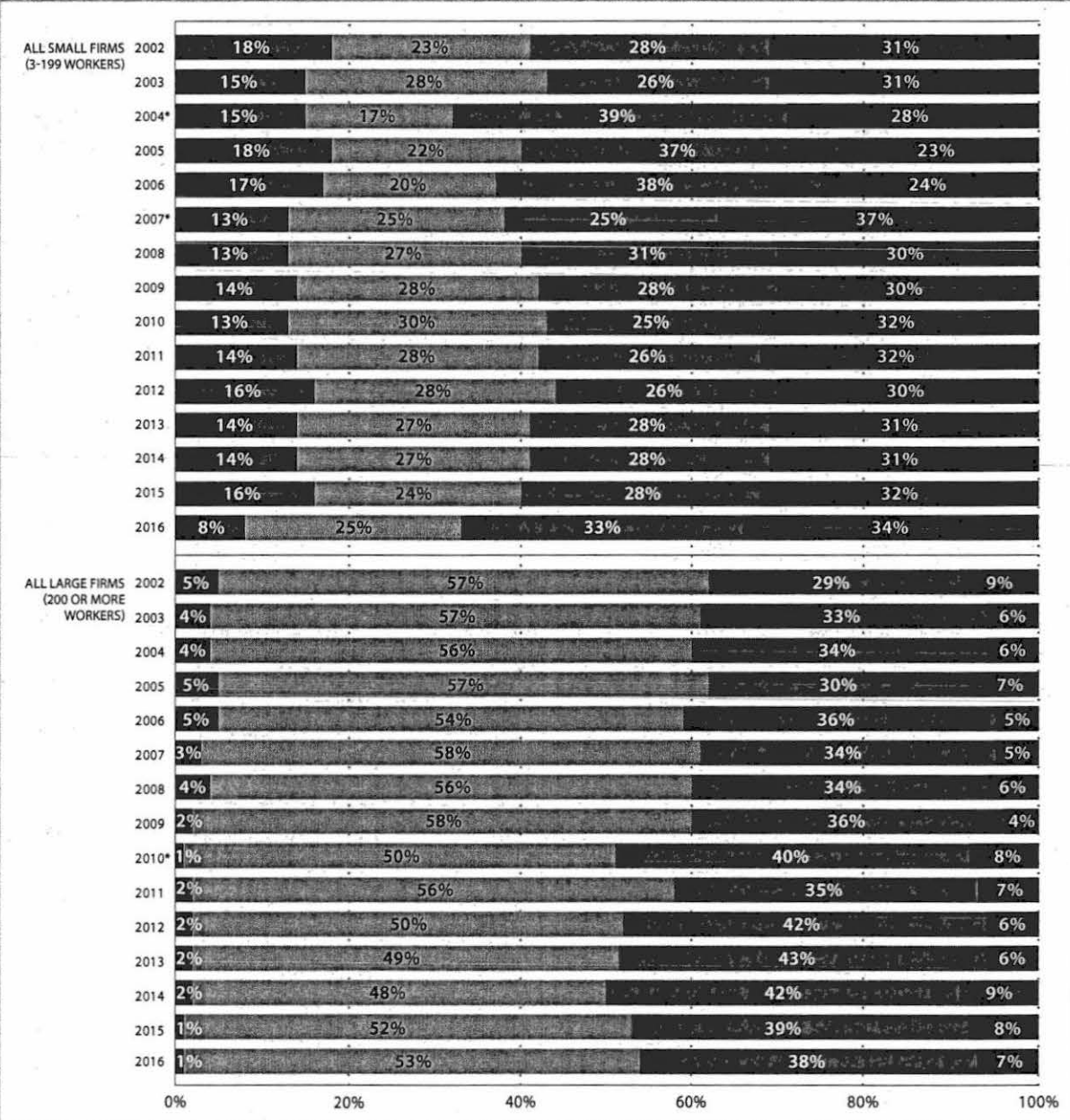
Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2002-2016

* Distribution is statistically different within firm size from distribution for the previous year shown (p < .05).

- 0%
- GREATER THAN 0%, LESS THAN OR EQUAL TO 25%
- GREATER THAN 25%, LESS THAN OR EQUAL TO 50%
- GREATER THAN 50%

EXHIBIT 6.19

Distribution of Percentage of Premium Paid by Covered Workers for Family Coverage, by Firm Size, 2002-2016



SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2002-2016.

* Distribution is statistically different within firm size from distribution for the previous year shown (p < .05).

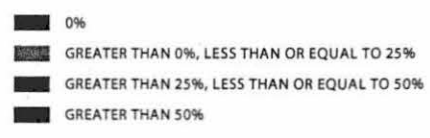
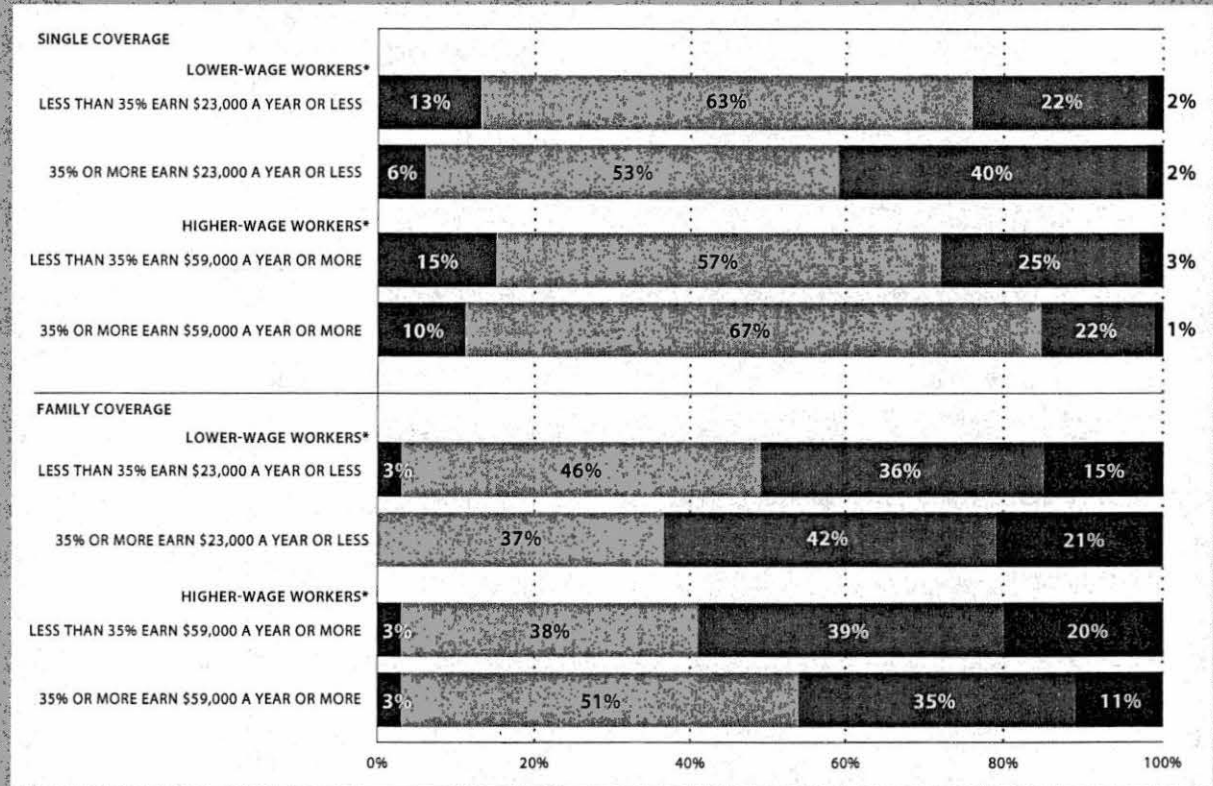


EXHIBIT 6.20

Distribution of the Percentage of Total Premium Paid by Covered Workers for Single and Family Coverage, by Firm Wage Level, 2016



SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

*Distributions for higher wage and lower wage firms are statistically different within coverage type (p < .05).

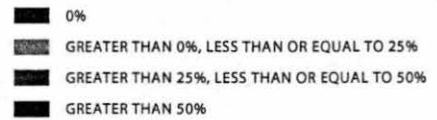


EXHIBIT 6.21

Average Percentage of Premium Paid by Covered Workers for Single Coverage, by Firm Characteristics and Size, 2016

	All Small Firms (3-199 Workers)	All Large Firms (200 or More Workers)	All Firms
Lower-Wage Level			
Less Than 35% Earn \$23,000 a Year or Less	17%	18%*	18%*
35% or More Earn \$23,000 a Year or Less	21%	24%*	23%*
Higher-Wage Level			
Less Than 35% Earn \$59,000 a Year or More	17%	20%*	19%
35% or More Earn \$59,000 a Year or More	18%	17%*	18%
Unions			
Firm Has At Least Some Union Workers	16%	18%	18%
Firm Does Not Have Any Union Workers	17%	19%	18%
Younger Workers			
Less Than 35% of Workers Are Age 26 or Younger	17%	18%	18%
35% or More Workers Are Age 26 or Younger	17%	21%	20%
Older Workers			
Less Than 35% of Workers Are Age 50 or Older	18%	19%	19%
35% or More Workers Are Age 50 or Older	16%	18%	17%
Funding Arrangement			
Fully Insured	17%	19%	18%
Self-Funded	17%	18%	18%
Firm Ownership			
Private For-Profit	19%*	21%*	20%*
Public	8%*	12%*	11%*
Private Not-For-Profit	12%*	20%	18%
ALL FIRMS	17%	19%	18%

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different from each other within firm size category ($p < .05$).

EXHIBIT 6.22

Average Percentage of Premium Paid by Covered Workers for Family Coverage, by Firm Characteristics and Size, 2016

	All Small Firms (3-199 Workers)	All Large Firms (200 or More Workers)	All Firms
Lower-Wage Level			
Less Than 35% Earn \$23,000 a Year or Less	40%	25%*	30%*
35% or More Earn \$23,000 a Year or Less	38%	33%*	35%*
Higher-Wage Level			
Less Than 35% Earn \$59,000 a Year or More	42%	28%*	33%*
35% or More Earn \$59,000 a Year or More	35%	24%*	27%*
Unions			
Firm Has At Least Some Union Workers	34%	22%*	23%*
Firm Does Not Have Any Union Workers	40%	29%*	34%*
Younger Workers			
Less Than 35% of Workers Are Age 26 or Younger	39%	25%*	29%*
35% or More Workers Are Age 26 or Younger	44%	31%*	34%*
Older Workers			
Less Than 35% of Workers Are Age 50 or Older	43%*	27%	32%*
35% or More Workers Are Age 50 or Older	35%*	24%	28%*
Funding Arrangement			
Fully Insured	40%	30%*	37%*
Self-Funded	35%	25%*	26%*
Firm Ownership			
Private For-Profit	41%	26%	31%*
Public	32%	25%	26%*
Private Not-For-Profit	37%	27%	29%
ALL FIRMS	39%	26%	30%

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different from each other within firm size category ($p < .05$).

EXHIBIT 6.23

Average Percentage of Premium Paid by Covered Workers for Single and Family Coverage, by Plan Type and Firm Size, 2016

	Single Coverage	Family Coverage
HMO		
All Small Firms (3-199 Workers)	22%	46%*
All Large Firms (200 or More Workers)	18%	24%*
ALL FIRM SIZES	19%	31%
PPO		
All Small Firms (3-199 Workers)	17%	39%*
All Large Firms (200 or More Workers)	19%	27%*
ALL FIRM SIZES	19%	30%
POS		
All Small Firms (3-199 Workers)	17%	43%*
All Large Firms (200 or More Workers)	19%	31%*
ALL FIRM SIZES	18%	38%
HDHP/SO		
All Small Firms (3-199 Workers)	14%	33%*
All Large Firms (200 or More Workers)	18%	23%*
ALL FIRM SIZES	17%	26%
ALL PLANS		
All Small Firms (3-199 Workers)	17%	39%*
All Large Firms (200 or More Workers)	19%	26%*
ALL FIRM SIZES	18%	30%

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimates are statistically different within plan and coverage types between All Small Firms and All Large Firms ($p < .05$).

EXHIBIT 6.24

Average Percentage of Premium Paid by Covered Workers for Single and Family Coverage, by Plan Type and Region, 2016

	Single Coverage	Family Coverage
HMO		
Northeast	22%	27%
Midwest	26*	39
South	22	31
West	15*	32
ALL REGIONS	19%	31%
PPO		
Northeast	20%	26%*
Midwest	22*	28
South	18	34*
West	15*	30
ALL REGIONS	19%	30%
POS		
Northeast	20%	33%
Midwest	17	40
South	19	44
West	14	32
ALL REGIONS	18%	38%
HDHP/SO		
Northeast	18%	24%
Midwest	19	26
South	17	25
West	12*	29
ALL REGIONS	17%	26%
ALL PLANS		
Northeast	20%	26%*
Midwest	21*	29
South	18	32*
West	14*	31
ALL REGIONS	18%	30%

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimate is statistically different within plan and coverage type from estimate for all other firms not in the indicated region ($p < .05$).

EXHIBIT 6.25

Average Percentage of Premium Paid by Covered Workers, by Plan Type and Industry, 2016

	Single Coverage	Family Coverage
HMO		
Agriculture/Mining/Construction	NSD	NSD
Manufacturing	23%	40%
Transportation/Communications/Utilities	18	20*
Wholesale	NSD	NSD
Retail	12	18
Finance	18	31
Service	21	33
State/Local Government	NSD	NSD
Health Care	20	40
ALL INDUSTRIES	19%	31%
PPO		
Agriculture/Mining/Construction	22%	36%
Manufacturing	22*	27*
Transportation/Communications/Utilities	17	23*
Wholesale	22	31
Retail	21	29
Finance	16	28
Service	19	34*
State/Local Government	13*	27
Health Care	18	31
ALL INDUSTRIES	19%	30%
POS		
Agriculture/Mining/Construction	NSD	NSD
Manufacturing	NSD	NSD
Transportation/Communications/Utilities	NSD	NSD
Wholesale	NSD	NSD
Retail	NSD	NSD
Finance	NSD	NSD
Service	13%	32%
State/Local Government	NSD	NSD
Health Care	22	44
ALL INDUSTRIES	18%	38%

Continued on next page

EXHIBIT 6.25 *Continued from previous page*

Average Percentage of Premium Paid by Covered Workers, by Plan Type and Industry, 2016

	Single Coverage	Family Coverage
HDHP/SO		
Agriculture/Mining/Construction	NSD	NSD
Manufacturing	15%	22%
Transportation/Communications/Utilities	14	19*
Wholesale	18	38
Retail	25*	33
Finance	20	24
Service	17	28
State/Local Government	6*	16*
Health Care	14	28
ALL INDUSTRIES	17%	26%
ALL PLANS		
Agriculture/Mining/Construction	21%	33%
Manufacturing	20	27
Transportation/Communications/Utilities	16	22*
Wholesale	20	36
Retail	20	31
Finance	18	27
Service	19	32
State/Local Government	11*	23*
Health Care	18	33
ALL INDUSTRIES	18%	30%

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimate is statistically different within plan and coverage type from estimate for all other firms not in the indicated industry category ($p < .05$).

NSD: Not Sufficient Data.

EXHIBIT 6.26

Among Firms Offering Family Coverage, Percentage of Firms Using Various Approaches to Family Premium Contributions, by Firm Size, 2016

	Firm contributes the same dollar amount for family coverage as for single coverage	Firm contributes a larger dollar amount for family coverage than single coverage	Some other approach	Varies by class of employees
FIRM SIZE				
3-24 Workers	48%	42%	6%	4%
25-199 Workers	39	51	8	2
200-999 Workers	20*	65*	9	5
1,000-4,999 Workers	7*	78*	8	7
5,000 or More Workers	6*	75*	7	11*
All Small Firms (3-199 Workers)	45%*	45%*	7%	3%
All Large Firms (200 or More Workers)	18%*	67%*	9%	6%
ALL FIRMS	44%	46%	7%	3%

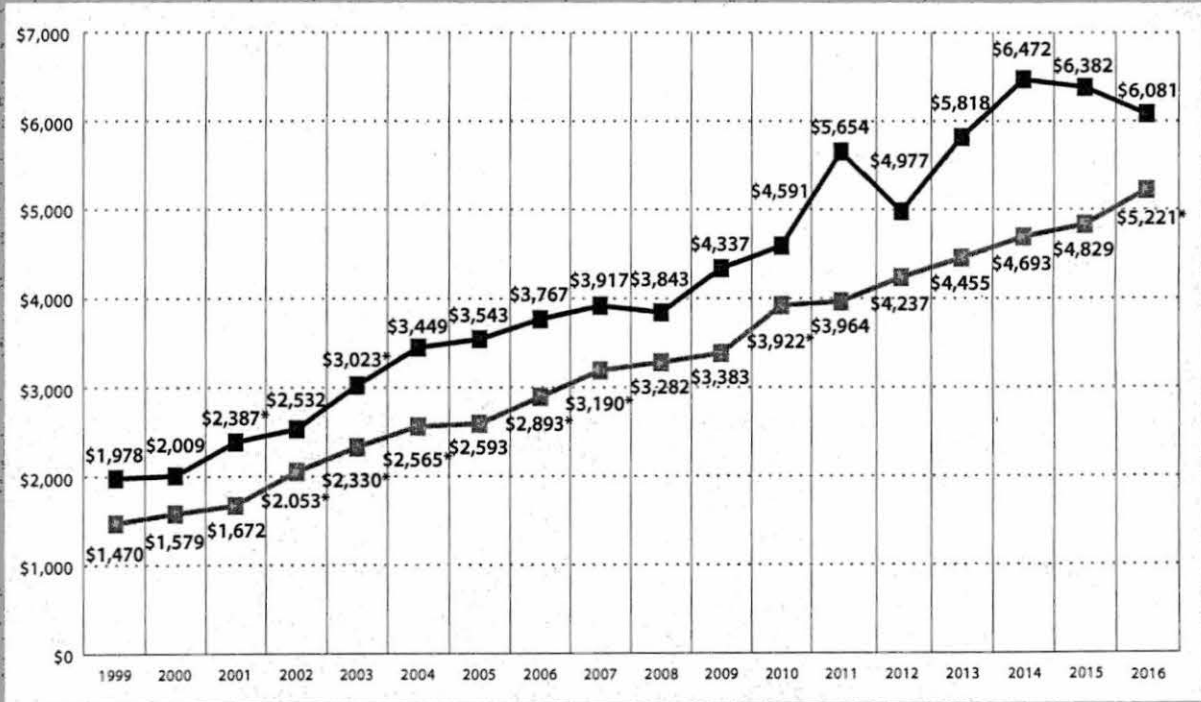
SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimate is statistically different within response selection from all other firms not in the indicated firm size category ($p < .05$).

EXHIBIT 6.27

Average Annual Worker Contributions for Covered Workers with Family Coverage, by Firm Wage Level, 1999-2016



SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 1999-2016.

*Estimate is statistically different from estimate for the previous year shown (p < .05).

NOTE: Lower wage level is defined as the 25th percentile of workers' earnings for the indicated year. Firms with many lower wage workers are those where 35% or more earn \$23,000 a year or less.

LESS THAN 35% ARE LOWER-WAGE LEVEL
 35% OR MORE ARE LOWER-WAGE LEVEL

EXHIBIT 6.28

Among Firms Offering Health Benefits, Percentage of Firms That Require Employees Who Use Tobacco to Contribute More to the Premium or Cost-Sharing, by Firm Size and Region, 2016

	Tobacco Users Contribute More to Premium or Cost-Sharing
FIRM SIZE	
All Small Firms (3-199 Workers)	14%
All Large Firms (200 or More Workers)	16%
REGION	
Northeast	4%*
Midwest	24
South	16
West	12
ALL FIRMS	15%

SOURCE:

Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

* Estimate is statistically different within response selection from all other firms not in the indicated firm size or region ($p > .05$).

Note: Four percent of firms offering health benefits self-reported that not smoking is a condition of employment.



MATTHEW G. BEVIN
GOVERNOR

EXECUTIVE ORDER

RECEIVED AND FILED
DATE November 21, 2016
2:41 pm

Secretary of State
Frankfort
Kentucky

2016-832
November 18, 2016

ALISON UNDERGRAN GRIMES
SECRETARY OF STATE
COMMONWEALTH OF KENTUCKY
BY R. Adler

**RELATING TO THE REORGANIZATION OF THE
ENERGY AND ENVIRONMENT CABINET
PUBLIC SERVICE COMMISSION**

WHEREAS, this Administration desires and will implement more effective and efficient management of state government operations; and

WHEREAS, greater efficiency, economy and improved administration will result from the alteration of current organizational units as set out in this Executive Order; and

WHEREAS, the Public Service Commission, which is administratively attached to the Energy and Environment Cabinet, is charged with ensuring safe and reliable service at a reasonable price to the customers of jurisdictional utilities while providing for the financial stability of those utilities by setting fair and just rates, and supporting their operational competence by overseeing regulated activities:

NOW THEREFORE, I, Matthew G. Bevin, Governor of the Commonwealth of Kentucky, under the authority vested in me by the Constitution, Sections 69 and 81, and Kentucky Revised Statutes 12.028, do hereby Order and Direct the following organizational changes within the Public Service Commission:

- I. The Office of General Counsel is hereby created, and shall be headed by an executive director who shall report to the executive director of the Public Service Commission.
- II. The Division of General Administration is hereby created, and shall be headed by a director who shall report to the executive director of the Public Service Commission.
- III. The Division of Inspections is hereby created, and shall be headed by a director who shall report to the executive director of the Public Service Commission.



MATTHEW G. BEVIN
GOVERNOR


EXECUTIVE ORDER

Secretary of State
Frankfort
Kentucky

2016-832
November 18, 2016

- IV. The Division of Engineering is hereby abolished. All files, funds, personnel, records and equipment are hereby transferred to the newly established Division of Inspections.
- V. The Division of Consumer Services is hereby abolished. All files, funds, personnel, records and equipment are hereby transferred to the newly established Division of General Administration.
- VI. The Division of Filings is hereby abolished. All files, funds, personnel, records and equipment are hereby transferred to the newly established Division of General Administration and the Division of Financial Analysis.
- VII. The Division of General Counsel is hereby abolished. All files, funds, personnel, records and equipment are hereby transferred to the newly established Office of General Counsel.
- VIII. The Energy and Environment Cabinet, Finance and Administration Cabinet, Office of State Budget Director, and Personnel Cabinet are directed to initiate all actions that are necessary to effectuate the provisions of this Order.

This Order is effective November 16, 2016.


MATTHEW G. BEVIN, Governor
Commonwealth of Kentucky


ALISON LUNDERGAN GRIMES
Secretary of State



MATTHEW G. BEVIN
GOVERNOR

EXECUTIVE ORDER

Secretary of State
Frankfort
Kentucky

2016-832
November 18, 2016

REORGANIZATION PLAN

INTRODUCTION

The Public Service Commission's mission is to foster the provision of safe and reliable service at a reasonable price to the customers of jurisdictional utilities while providing for the financial stability of those utilities by setting fair and just rates, and supporting their operational competence by overseeing regulated activities. In order to promote the efficient and effective management of state government resources, the Public Service Commission is recommending a reorganization of its current structure. This reorganization will streamline the operations of the Commission by appropriately allocating agency functions, funds, personnel, and other resources to provide improved service to the citizens of the Commonwealth.

Five (5) divisions within the Commission will be affected as a result of this reorganization: The Division of General Counsel, Division of Engineering, Division of Financial Analysis, Division of Filings, and the Division of Consumer Services. This proposal creates one (1) new office, two (2) new divisions, and six (6) new branches and abolishes four (4) divisions and thirteen (13) branches. All personnel, funds, records, files and equipment shall be maintained by the Commission.

SUMMARY OF PLAN

The Division of General Counsel will be abolished and the Office of General Counsel will be created. All existing staff of the Division of General Counsel will transfer to the newly created Office of General Counsel. This Division is being elevated to an Office to provide a better organizational structure for the management of the General Counsel functions. This will allow for better supervision, attorney management, and long term retention of institutional knowledge.

The Administrative Services Branch will be abolished and the Division of General Administration will be created to consolidate the support functions such as rotational phone coverage and special project assignments. within the Commission into one division. These functions previously were located in three separate divisions under multiple directors and branch managers. This consolidation will allow for more efficient scheduling of personnel resources into the areas where they are needed. Three (3) branches will be established within this newly created division: the Consumer Services Branch, the Filings Branch, and the Administrative Services Branch. All existing staff from the Administrative Services Branch will transfer to the new Administrative Services Branch within the newly created Division.

The Division of Engineering, along with the three (3) branches located within, the Gas Pipeline Safety Branch, the Water and Sewer Branch, and the Electric and Communications Branch, will be abolished and the Division of Inspections will be created. All positions within the former Division of Engineering will transfer to the newly created Division of Inspections, which will more accurately reflect the functions of the division. The focus of the Division of Inspections is to ensure safe and reliable service to the customers of the regulated utilities. The Commission no longer relies on engineering services given the evolution of the utility industry.



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The Division of Consumer Services is abolished and all positions will transfer to the Consumer Services Branch, under the newly created Division of General Administration. This abolishment and transfer of staff into the Division of General Administration/Consumer Services Branch is due to a decreased workload due to changing regulations. It is more efficient to consolidate into the General Administrative Support Division as it provides support to the Commission's core mission of safe and reliable services, at fair, just and reasonable rates. Further, the administrative functions of this branch are transferrable between the other branches within this division, allowing for cross training of functions and duties.

The Division of Filings as well as its four (4) branches, the Docket Branch, the Annual Report Branch, the Tariff Review Branch, and the Information Technology Branch, will be abolished. All positions within the Docket Branch and the Annual Report Branch will transfer to the newly created Filings Branch, Division of General Administration. This transfer of personnel and consolidation of branches will allow for more efficient services within the General Administrative Support Division, as it provides support to the Commission's core mission of safe and reliable services, at fair, just and reasonable rates. Further, the administrative functions of this branch are transferrable between the other branches within this division, allowing for cross training of functions and duties. All positions within the Tariff Review Branch will transfer to the Division of Financial Analysis to more closely align their job duties as Public Utility Rate Analysts within the organization. This consolidation will ensure that tariff review will be done more efficiently. All positions within the Information Technology Branch will transfer to the newly created Administrative Services Branch, Division of General Administration, due to the information technology functions being a support function of the Commission. Further, the maintenance of the in house docket system is primarily a support function for multiple divisions within the agency, similar to other support functions within the Administrative Services Branch.

While the Division of Financial Analysis will remain, all five (5) branches within this organizational unit will be abolished. The Electric and Gas Revenue Requirements Branch, Water Revenue Requirements Branch, Electric and Gas Rate Design Branch, Water and Sewer Rate Design Branch, and the Audit and Telecommunications Branch will be abolished. The Water and Sewer Branch and the Electric and Gas Branch will be created. All positions from the abolished Water and Sewer Rate Design Branch and the Water Revenue Requirements Branch will transfer to the newly created Water and Sewer Branch. All positions from the Electric and Gas Revenue Requirements Branch, the Electric and Gas Rate Design Branch, and the Audit and Telecommunications Branch will transfer to the newly created Electric and Gas Branch. Abolishing the former branches and establishing joint new branches allows employees responsible for casework involving specific utility types to become cross trained between rate design and revenue requirements. Additionally, combining the personnel and resources of the former branches enables the Commission to more efficiently use the positions involved in the financial analysis of water and sewer utilities and electric and gas utilities. The creation of these new branches will utilize existing knowledge and skills which will benefit the Division of Financial Analysis as a whole, by allowing cross training and greater collaboration.



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The Communications and Editing Branch will be established and will report directly to the Executive Director of the Public Service Commission. This branch shall process, edit, and distribute press releases, Commission Orders, and all other documents for the Public Service Commission as needed. This branch shall be comprised of three existing positions that will transfer from the office of the Public Service Commission.

FISCAL IMPACT

There will be no fiscal impact associated with this reorganization.

PERSONNEL IMPACT

All staff of the Commission affected within this reorganization will be reassigned to newly created divisions and branches within the Commission. There will be no increase in the personnel cap. The personnel changes as a result of this reorganization would be one (1) less division director, and three (3) fewer branch manager positions. Employees currently in management positions within branches being abolished will be reclassified into accurate job classifications after the reorganization is complete.

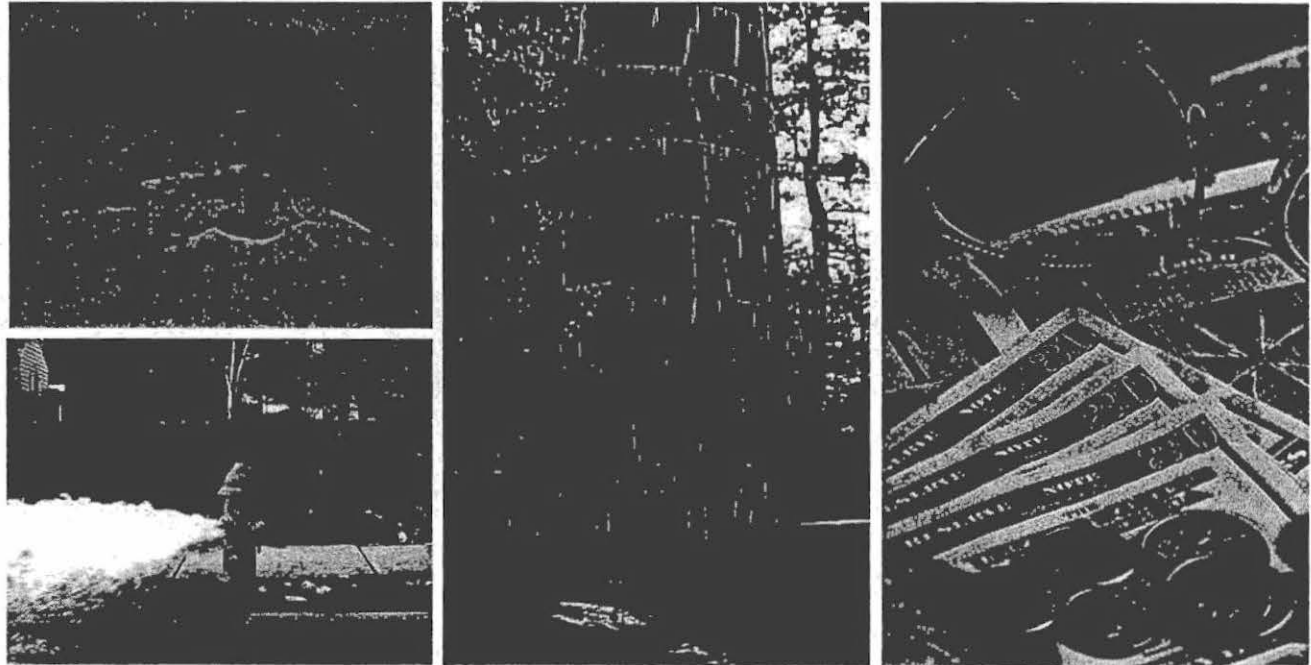
NET EFFECT

There will be no increase in personnel cap or budget for the Public Service Commission on the effective date of this reorganization. There has been a concentrated effort to streamline several program areas and shifting duties to effectively align with the objectives of the new structures to better serve the Commission. This reorganization is anticipated to increase efficiency and effectiveness of staff due to streamlining of program areas and duties.



Asset Management: A Handbook for Small Water Systems

One of the Simple Tools for Effective
Performance (STEP) Guide Series



Office of Water (4606M)

EPA 816-R-03-016

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Is This Guide for Me?

This guide is designed for owners and operators of small community water systems (CWSs). CWSs include all systems (both publicly and privately owned) with at least 25 year-round residential customers or 15 year-round service connections. Typical systems that may find this guide useful include:

- Small towns
- Rural water districts
- Tribal systems

This guide presents basic concepts of asset management and provides the tools to develop an asset management plan. Very small CWSs may have some difficulty in completing some of the worksheets included in this booklet, while medium CWSs may find the worksheets too simple for their needs. Due to each system's particular circumstances, the time and effort needed to develop the plan will vary. Building a team, made up of your operator, board members, owners, assistance providers, and state drinking water staff, will help you develop an effective and complete plan.

State and Regional Tribal Capacity Development Program Coordinators are available to help you understand the concepts covered in this guide and complete the accompanying worksheets. They can also provide additional asset management tools and offer resources to help implement an asset management plan. Contact your Capacity Development Program for more information. Contact information is provided in Appendices E and F.

Additional copies of this guide may be obtained by calling the Safe Drinking Water Hotline at (800) 426-4791 and requesting document number EPA 816-R-03-16. You may also download the guide from EPA's Safe Drinking Water Website at www.epa.gov/safewater/smallsys/ssinfo.htm.

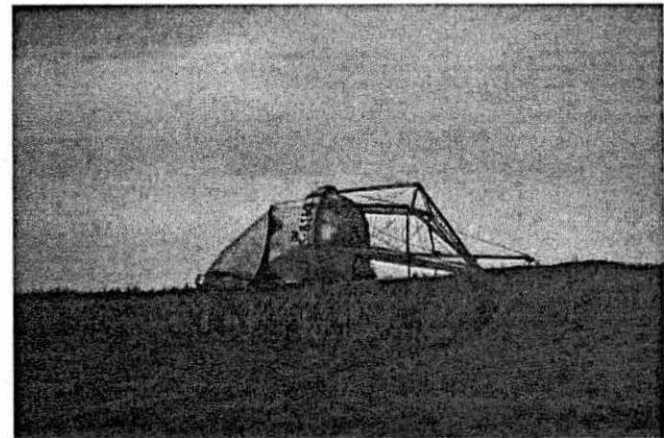
EPA has developed a simpler asset management booklet for homeowners' associations and manufactured home communities called "Taking Stock of Your Water System" (EPA 816-K-03-002). You can obtain this booklet by calling the Safe Drinking Water Hotline or downloading it from EPA's Safe Drinking Water Website at www.epa.gov/safewater/smallsys/ssinfo.htm.

What Will I Learn?

As a drinking water system owner or operator, your most important job is delivering safe and secure drinking water to your customers. Part of providing safe and secure drinking water is taking care of your system's facilities and equipment and planning for any needed rehabilitations and replacements. An asset management plan will help you meet these goals in an efficient and cost-effective manner.

This guide will help you by providing information about:

- How asset management can help improve your system's financial health and ability to provide safe drinking water.
- How asset management fits into the development of an overall plan for your system's future (i.e., strategic planning).
- How to complete a five-step asset management process including:
 - ▶ Conducting a thorough asset inventory.
 - ▶ Prioritizing the rehabilitation and replacement of your assets.
 - ▶ Developing an annual estimate of needed reserves and an annual budget.
 - ▶ Implementing the asset management plan.
 - ▶ Reviewing and revising the asset management plan.



A water tower that has exceeded its useful life!

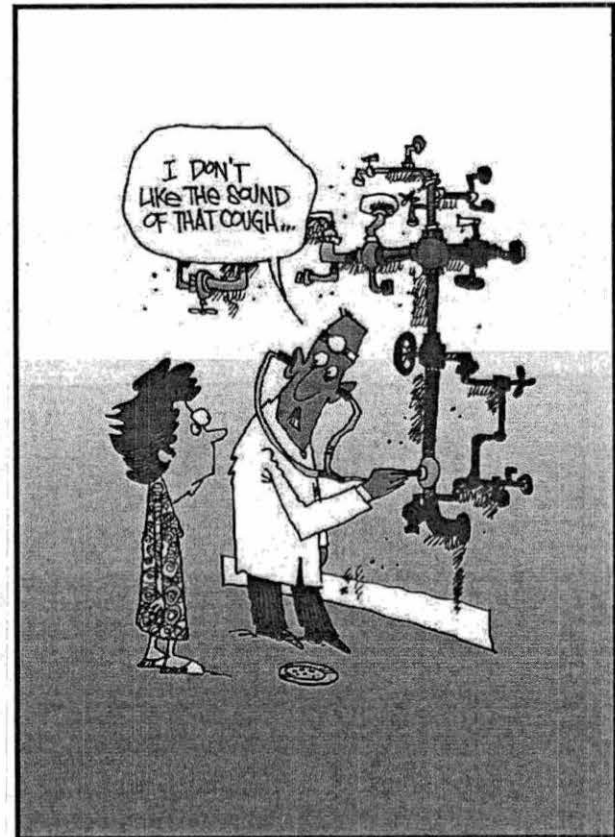
The worksheets and other information in this guide will also help you begin to develop an overall strategy for your system. Using this guide along with EPA's "Strategic Planning: A Handbook for Small Water Systems" (EPA 816-R-03-015) will help you develop, implement, and receive optimal benefit from an asset management plan that fits in with your system's overall strategy.

How Can Asset Management Help Me?

Applying the practices recommended in this guidebook will help you improve the management of your system by:

- Increasing your knowledge of your system, which will allow you to make better financial decisions. This is useful information when considering options to address various system challenges such as meeting regulatory requirements or upgrading system security.
- Reducing system "down-time" and the number of emergency repairs, since you will have planned for the replacement and rehabilitation of your assets.
- Prioritizing rehabilitation and replacement needs and providing time to research cost-effective alternatives.
- Showing investors and the public that you are using their money effectively and efficiently, which may make them more likely to increase investment or tolerate rate increases.
- Giving you greater access to financial assistance. Some funding sources give applicants extra credit (higher priority ratings) for having an asset management plan or a capital improvement plan.

For additional information on funding sources, see Appendix B. EPA's Sources of Technical and Financial Assistance Workbook (EPA 816-K-02-005), which you can obtain by calling the Safe Drinking Water Hotline ((800) 426-4791), provides additional information. Additional resources, such as electronic programs, documents, and a listing of organizations, are provided in Appendix D. Your State or Regional Tribal Capacity Development Program can also provide assistance to help you develop and implement an asset management plan. Contact information is provided in Appendices E and F.



What Is Asset Management?

Asset management is a planning process that ensures that you get the most value from each of your assets¹ and have the financial resources to rehabilitate and replace them when necessary. Asset management also includes developing a plan to reduce costs while increasing the efficiency and the reliability of your assets. Successful asset management depends on knowing about your system's assets and regularly communicating with management and customers about your system's future needs.

You should thoroughly review your asset management plan at least once a year, noting any relevant changes. Throughout the year, you should keep a running list of items to consider or include in the annual update.



What is the Governmental Accounting Standards Board's Statement #34?

The Governmental Accounting Standards Board's Statement #34 (GASB 34) revises several accounting and financial reporting practices for state and local governmental entities including publicly-owned water systems. If your water system is publicly owned, you will need to follow GASB 34 requirements to obtain a "clean opinion" (i.e., a good credit rating) from an auditor. Without a clean opinion, you may face higher interest rates on loans and bonds and may be more closely scrutinized by regulators and public officials. Following GASB 34 standards will require publicly-owned water systems to report the value of infrastructure assets and the cost of deferred maintenance. An accurate and up-to-date asset management plan will help you comply with this requirement. See Appendix C for more information on GASB 34.

Note: If you operate a privately owned water system, you do not need to comply with GASB 34. However, complying with generally accepted accounting principles (GAAP) makes sense for any system. Visit the Financial Accounting Standards Board (FASB) at www.fasb.org for more information on GAAP for private entities.

¹ In this guide, an "asset" is any building, tool, piece of equipment, furniture, pipe, or machinery used in the operation of your system.

How Does Asset Management Relate to Strategic Planning?

The U.S. drinking water industry faces many key challenges in the 21st century, such as replacing aging infrastructure, addressing security concerns, and complying with new regulations. Depending on the circumstances of your system, you may need to make changes to the operation of your system. **Strategic planning** is a management concept that helps you address and prepare for both anticipated and unexpected problems. Strategic planning utilizes asset management to evaluate your system's current physical situation, and it also evaluates your system's financial and managerial situation. It requires you to make fundamental decisions about your water system's purpose, structure, and functions.

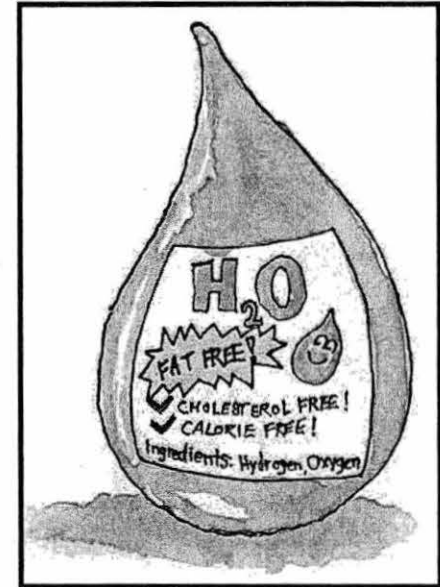
In order to make Strategic Planning work for your water system, you need to collect the information that will allow you to make intelligent, informed decisions about your system's future. Developing an asset management plan can provide you with some of that information. For more information on Strategic Planning, see EPA's Strategic Planning Workbook (EPA 816-R-03-015), which you can obtain by calling the Safe Drinking Water Hotline ((800) 426-4791), visit the Alliance for Nonprofit Management at <http://www.allianceonline.org/faqs.html>, or contact your State or Regional Tribal Capacity Development Program Coordinator.



What Is the Asset Management Process?

Asset management consists of the following five steps:

- 1.** Taking an inventory. Before you can manage your assets, you need to know what assets you have and what condition they are in. This information will help you schedule rehabilitations and replacements of your assets.
- 2.** Prioritizing your assets. Your water system probably has a limited budget. Prioritizing your assets will ensure that you allocate funds to the rehabilitation or replacement of your most important assets.
- 3.** Developing an asset management plan. Planning for the rehabilitation and replacement of your assets includes estimating how much money you will need each year to maintain the operation of your system each year. This includes developing a budget and calculating your required reserves.
- 4.** Implementing your asset management plan. Once you have determined how much money you will have to set aside each year and how much additional funding (if any) you will need to match that amount, you need to work with your management and customers and with regulators to carry out your plan and ensure that you have the technical and financial means to deliver safe water to your customers.
- 5.** Reviewing and revising your asset management plan. Once you have developed an asset management plan, do not stick it in a drawer and forget about it! Your asset management plan should be used to help you shape your operations. It is a flexible document that should evolve as you gain more information and as priorities shift.



This guidebook provides information and worksheets that will help you complete all five steps. As you work your way through this guidebook, you should remember that the suggestions provided and the results you develop based on the worksheets are not set in stone. You should adjust your plan based on your own experience and the particular characteristics of your system. In addition, you should reevaluate your plan every year, updating each of the worksheets provided in this booklet.

Contact your State or Regional Tribal Capacity Development Program Coordinator for more information or assistance. Other sources of information on asset management are listed in Appendix D of this guide.

Step #1 – How Do I Inventory My Assets?

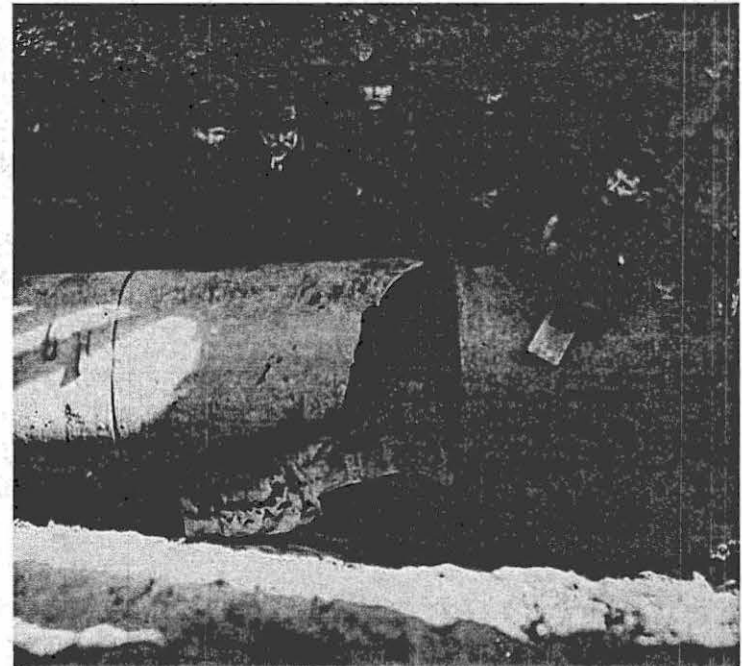
Before you can manage your assets, you need to know what you have, what condition it is in, and how much longer you expect it to last. To complete an inventory, list all your assets and collect the following information for each:

1. Condition
2. Age
3. Service history
4. Useful life

The worksheets on the following pages will help you develop an asset inventory and keep track of important information. Detailed instructions are provided.

You may want to keep track of your assets on a computer spreadsheet or use custom software. Appendix D includes information on electronic programs you may want to use.

Inventorying your assets can be an intensive job. Get the best information that you can, but don't get bogged down in this step and use estimates where needed. If you keep up with an asset management program, new information will become available as assets get replaced or rehabilitated, and your inventory of assets will improve.



Remember!

The worksheets in this guide could contain sensitive information about your water system. Make sure you store these worksheets, as well as all other asset information about your system, in a secure location.

Introduction to the System Inventory Worksheet

The following System Inventory Worksheet will help you:

- Identify all of your system's assets;
- Record the condition of your assets;
- Record the service history of your assets;
- Determine your assets' adjusted useful lives;
- Record your assets' ages; and,
- Estimate the remaining useful life of each of your assets. Usually, there are two steps to estimating useful life:
 1. Determine the expected useful life by using the manufacturer's recommendations or the estimates provided in the box to the right. Adjust these numbers based on the specific conditions and experiences of your system.
 2. Calculate an adjusted useful life by taking into account the service history and current condition of your asset.

Two copies of the worksheet are provided. The first copy is followed by instructions that will help you understand how to complete it. The second worksheet is an example. Appendix A has blank worksheets that you can photocopy and use.

Estimated Useful Lives

Asset	Expected Useful Life (in years)
Intake Structures	35-45
Wells and Springs	25-35
Galleries and Tunnels	30-40
Chlorination Equipment	10-15
Other Treatment Equipment	10-15
Storage Tanks	30-60
Pumps	10-15
Buildings	30-60
Electrical Systems	7-10
Transmission Mains	35-40
Distribution Pipes	35-40
Valves	35-40
Blow-off Valves	35-40
Backflow Prevention	35-40
Meters	10-15
Service Lines	30-50
Hydrants	40-60
Lab/Monitoring Equipment	5-7
Tools and Shop Equipment	10-15
Landscaping/Grading	40-60
Office Furniture/Supplies	10
Computers	5
Transportation Equipment	10

Note: These numbers are ranges of expected useful lives drawn from a variety of sources. The ranges assume that assets have been properly maintained.

System Inventory Worksheet

Date Worksheet Completed/Updated: **1**

Asset	Expected Useful Life	Condition	Service History	Adjusted Useful Life	Age	Remaining Useful Life
2	3	4	5	6	7	8

Using the System Inventory Worksheet

This section presents instructions for completing the System Inventory Worksheet. Each step presented here corresponds to a numbered section of the sample worksheet on page 10.

Step #1

Enter the date.

- Circle whether you are completing or updating the worksheet and fill in the date. You should update this worksheet at least once a year. You can either make minor adjustments to the worksheet as the condition of your assets change, or start a new worksheet each year.

Step #2

Identify your assets.

- Write in each of your system's assets. Be as specific as possible by providing location, manufacturer, or some other identifier for each asset. List separately assets made of different materials or installed at different times. For example, you might list a section of your distribution system as "10-inch PVC on Main St." You can make a copy of this worksheet if you need more room to list assets.

Step #3

Fill in expected useful life.

- Use the manufacturer's recommendation or the list provided in the box on page 9 to enter the expected useful life for each asset.

Step #4

Describe assets' condition.

- Briefly describe the condition of each asset. Focus especially on conditions that may influence the useful life (for example, rust or broken parts).

Step #5

Describe service history.

- Briefly describe the service history of each asset. Include routine maintenance activities as well as any repairs and rehabilitations. List how often you have made repairs and rehabilitations.

Step #6

Estimate the adjusted useful life for each asset.

- Using the Expected Useful Life (step 3) as a guide, estimate the adjusted useful life for each of your assets by considering its current condition (step 4) and its service history (step 5).
- If your asset is in poor condition, has not been properly maintained, or faces other challenges (poor water or soil quality, excessive use, etc.), then the adjusted useful life is likely to be less than the lower end of the expected useful life range.
- If your asset is in good condition, has been properly maintained, and faces average water quality, then you can use the average useful life value. However, you may want to use the lower end of the range to be more conservative and help ensure that you are prepared to replace the asset.

Step #7

Record age.

- For each asset, fill in how long the asset has been in use. If the asset has been previously used by another system, you should list the total age, not just the length of time your system has used it.

Step #8

Calculate the remaining useful life.

- For each asset, calculate the remaining useful life by subtracting its age (step 7) from its adjusted useful life (step 6).

Example System Inventory Worksheet

Date Worksheet Completed/Updated: 8/14/02

Asset	Expected Useful Life	Condition	Service History	Adjusted Useful Life	Age	Remaining Useful Life
Well 1 (1993)	30	Good		30	9	21
Well 1 pump	10	Good	Rehab (1996)	10	9	1
Well 2 (1993)	30	Good		30	9	21
Well 2 pump	10	Good	Rehab (1998)	10	9	1
Pumphouse (1993)	30	Good		30	9	21
Electrical components	10	Some corrosion	Rehab (1994)	10	9	1
Chlorinator (1993)	10	Good	Rehab (1998)	5	3	2
Storage tank 1 (1993)	40	Good	Rehab (2000) - \$17,000	40	9	31
Storage tank 2 (1993)	40	Good	Rehab (2000) - \$17,000	40	9	31
Storage tank 3 (2000)	40	Almost new		40	2	38
<i>Distribution System:</i>						
Hydrants (15)	40	Unknown		40	9	11
Valves (45)	40	Unknown	6 valves don't work	40	9	11
6-inch (PVC)	60	Unknown		60	9	51
4-inch (PVC)	60	Unknown		60	9	51
2-inch (PVC)	60	Unknown	Repair breaks (2/year)	60	9	51

Explanation of Example System Inventory Worksheet

A small, municipally-owned water system serving 750 service connections has decided to develop an asset management plan. A neighboring water system recently negotiated very good interest rates on a loan to fund distribution pipe replacement due in part to their asset management plan. This inspired the managers of this system to develop their own asset management plan.

In addition, the municipality plans to begin significant road work sometime in the next five years. The water system managers have been asked to determine whether any of the pipes under the roads scheduled to be repaired will need to be replaced in that time frame.

As a first step, the system operator develops a list of the system's assets and evaluates the condition of each asset. To differentiate the assets, the operator includes the year that some of the assets were installed. Although he does not have comprehensive information about every asset on the list, there is enough information to begin assessing the overall health of the system.

Note that although the estimated useful life for a chlorinator is 10 years (see the box on page 9), the operator of this system knows that they had to replace their previous chlorinator after only 5 years. He adjusts the useful life for the chlorinator from the estimated 10 years to a more conservative 5 years. He uses the manufacturers' recommendations as the useful life for the hydrants, valves, and PVC pipes.

Upon completing the System Inventory Worksheet, the system managers notice that they will have to replace a significant number of their assets starting next year and then about every ten years (11, 21, and 31 years from now). They begin to consider whether spacing the projects out over two or three years is possible, or if they will need to replace these assets in the same year.

In addition to the System Inventory Worksheet, the other worksheets in this guide will help the system managers prioritize the assets and determine how much money they will need to set aside each year to meet the financial demands of replacing them when necessary.

Step #2 – How Do I Prioritize My Assets?

Once you have inventoried your assets, your next step will be to prioritize your assets based on their importance to your system. Prioritization means ranking your system's assets to help you decide how to allocate resources. Factors involved in prioritization include:

- How soon will you have to replace an asset (its remaining useful life).
- How important the asset is to the provision of safe drinking water (its impact on public health).
- How important the asset is to the operation of the system (can other assets do the same job?).

A water system is often one of many responsibilities of a community or municipality. Other factors can influence which water system projects are funded and when they are completed. For example, in many small communities, distribution system rehabilitation and replacement is tied to the road repair schedule and budgeting. Developing an asset management plan and prioritizing your assets will help you determine when you should replace your assets so as to not jeopardize water delivery, but you may have to work with your community or municipality to develop a replacement schedule that works for all parties.

Ideally, an asset management plan will help you forecast your financial needs well into the future and develop a rehabilitation and replacement schedule appropriate for your system's priorities.

An Example Prioritization Scheme

There is no one correct way to prioritize your assets. Most often, assets are prioritized based on their remaining useful life. However, this is not the only way to prioritize your assets and may not be the best way for your system.

One possible prioritization scheme, in order from most critical assets to the least critical:

1. Existing threat to public health, safety, or environment;
2. Potential public health, safety, or environmental concern;
3. Internal safety concern or public nuisance;
4. Improved system operations & maintenance (O&M) efficiency; and
5. It would be nice to have...

Introduction to the Prioritization Worksheet

The following Prioritization Worksheet will help you:

- Consider the redundancy and importance of each of your system's assets; and,
- Prioritize your assets based on their remaining useful life, redundancy, and importance.

Two copies of the worksheet are provided. The first copy is followed by instructions that will help you understand how to complete it. The second worksheet is an example. Appendix A has blank worksheets that you can photocopy and use.

Things to Keep In Mind

- Assets with a shorter **remaining useful life** should have a higher priority, as you will have to replace these assets sooner.
- Assets that are more **important** to your ability to deliver safe water should have a higher priority, because your water system relies on these assets to deliver safe water.
- Assets for which there is less **redundancy** should have a higher priority, because your system will have trouble continuing to operate without them.
- The "big picture," or how your community is planning development, is important to your operating plans and your prioritization decisions. For example, if the replacement of distribution system pipes is tied to road repairs, and the road repairs are delayed, water system improvements will also be delayed.
- Any engineering master plans, capital improvement plans (CIPs), or comprehensive performance evaluations (CPEs) done for your system.

Prioritization Worksheet

Date Worksheet Completed/Updated: **1**

Asset	Remaining Useful Life	Importance	Redundancy	Priority (1 is high)
2	3	4	5	6

Using the Prioritization Worksheet

This section presents instructions for completing the Prioritization Worksheet. Each step presented here corresponds to a numbered section of the sample worksheet on page 16.

Step #1

Enter the date.

- Circle whether you are completing or updating the worksheet and fill in the date. You should update this worksheet at least every year. You can either make minor adjustments to the worksheet as your priorities change or problems are addressed, or start a new worksheet each year.

Step #2

List your assets.

- Copy your list of assets from step 2 of the System Inventory Worksheet.

Step #3

Enter assets' remaining useful life.

- For each of your assets, copy the remaining useful life from step 8 of the System Inventory Worksheet.

Step #4

Describe assets' importance.

- Briefly describe the importance of each of the assets to the operation of your system and the protection of public health. Assets that are required in order to keep the system running are usually more important than those that just make operation more efficient.

Step #5

Describe assets' redundancy.

- Briefly describe the redundancy of each of the assets. Are there assets that can do the same job, even if they cannot do it as well?

Step #6

Evaluate assets' priority.

- Considering remaining useful life, importance, redundancy, and any other important factors, rank your assets in terms of how important it is to reserve money for them. Write "1" next to the asset with the highest priority, "2" next to the asset with the next highest priority, and so on. You may find that you have more than one asset with the same level of priority. You can assign the same ranking to all assets with the same priority.
- Assets with a shorter remaining useful life should have a higher priority (lower number) because you will need to rehabilitate or replace them relatively soon.
- Assets that are more important to your ability to deliver safe water should have a high priority (lower number), because of public health protection goals.
- Assets for which there is less redundancy should have a high priority (lower number), because your system will have trouble continuing to operate without them.

EXAMPLE Prioritization Worksheet

Date Worksheet Completed/Updated: 8/14/02

Asset	Remaining Useful Life	Importance	Redundancy	Priority (1 is high)
<i>Well 1 (1993)</i>	<i>21</i>	<i>Needed for service</i>	<i>Other well, but need backup</i>	<i>6</i>
<i>Well 1 pump</i>	<i>1</i>	<i>Needed for service</i>	<i>Other well, but need backup</i>	<i>3</i>
<i>Well 2 (1993)</i>	<i>21</i>	<i>Needed for service</i>	<i>Other well, but need backup</i>	<i>6</i>
<i>Well 2 pump</i>	<i>1</i>	<i>Needed for service</i>	<i>Other well, but need backup</i>	<i>3</i>
<i>Pumphouse (1993)</i>	<i>21</i>	<i>Needed for service</i>	<i>Other well, but need backup</i>	<i>6</i>
<i>Electrical components</i>	<i>1</i>	<i>Needed for control</i>	<i>No redundancy - corrosion</i>	<i>2</i>
<i>Chlorinator (1993)</i>	<i>2</i>	<i>Mandatory</i>	<i>No redundancy - need backup</i>	<i>1</i>
<i>Storage tank 1 (1993)</i>	<i>31</i>	<i>Need for fire flow and demand</i>	<i>Other tanks</i>	<i>6</i>
<i>Storage tank 2 (1993)</i>	<i>31</i>	<i>Need for fire flow and demand</i>	<i>Other tanks</i>	<i>6</i>
<i>Storage tank 3 (2000)</i>	<i>38</i>	<i>Need for fire flow and demand</i>	<i>Other tanks</i>	<i>6</i>
<i>Distribution System:</i>				
<i>Hydrants (15)</i>	<i>11</i>	<i>Needed for public safety</i>	<i>Other hydrants</i>	<i>5</i>
<i>Valves (45)</i>	<i>11</i>	<i>Needed for isolation</i>	<i>Other valves, but some are out of service</i>	<i>4</i>
<i>6-inch (PVC)</i>	<i>51</i>	<i>Needed for delivery</i>	<i>No redundancy</i>	<i>6</i>
<i>4-inch (PVC)</i>	<i>51</i>	<i>Needed for delivery</i>	<i>No redundancy</i>	<i>6</i>
<i>2-inch (PVC)</i>	<i>51</i>	<i>Needed for delivery</i>	<i>No redundancy</i>	<i>6</i>

Explanation of Example Prioritization Worksheet

Once the water system operator completes the System Inventory Worksheet (see page 12), he begins to work with the system managers to prioritize the assets. A number of assets will require attention within the next five years. These assets are given the highest priority.

Even though the chlorinator has a longer remaining useful life than both well pumps and the electrical components, the system managers have assigned the chlorinator the highest priority. The delivery of safe drinking water and the system's compliance with drinking water regulations depends on the chlorinator. The managers have also assigned a high priority to both well pumps and the electrical components of the pumphouse since consistent and adequate water delivery will be in jeopardy if these items are not replaced.

Deciding whether to assign the chlorinator, the pumps, or the electrical components a higher priority was a difficult decision, as all are integral to the operation of the water system. The managers know they will have to replace all of these assets if they expect to continue to provide their customers with safe drinking water. By completing the prioritization worksheet, however, the managers gave themselves some time to properly evaluate the situation, collect the necessary resources, and replace all critical assets according to a schedule that will work for the system.

The Prioritization Worksheet also helps the managers forecast future needs and allocate resources. The managers are able to inform the municipality that the distribution pipes will not require replacement for another 50 years. By not replacing the pipes before the end of their useful lives, the funds that might have been allotted to the pipe-replacing project can now be assigned to more critical projects, such as replacing the chlorinator.

The managers will need to decide how to fund the necessary rehabilitations or replacements. Based on the System Inventory Worksheet, many of the system's assets will require major rehabilitation or replacement every 10 years. The remaining worksheets in this guide will help the system managers determine how much money they will need to reserve each year and whether current revenues can cover the costs of on-going operation and rehabilitation and replacement of all of these assets. If current revenues are insufficient, they will need to seek additional sources of funding.

Step #3 – How Do I Plan for the Future?

Now that you have prioritized your assets, you will have to determine how much it will cost to rehabilitate and replace them as they deteriorate. To properly protect public health and deliver safe water, you need to rehabilitate and replace your assets in addition to operating your water system. Many systems will need considerable lead-time to budget and gather the necessary funds. By developing an asset management plan, you will be able to allocate your resources in the most efficient way.

The Required Reserve Worksheet on the next few pages will lead you through the steps necessary to determine how much money you need to put in reserve each year (for the next five years) to fund your highest priority activities. This reserve should be protected from other use.

The worksheet will give you an idea of how much money you should set aside to fund your reserve account this year. Changes in your system's finances and costs of new assets can change from year to year. It is important that you update this worksheet every year. This will ensure that you have enough reserves to cover necessary rehabilitations and improvements. This worksheet only helps account for additional funds you will need to rehabilitate or replace your assets. Standard O&M costs (e.g., chemicals for disinfection) are not included in the calculations on this worksheet.



Remember that while the total reserves needed each year may at first seem overwhelming, it is easier to put aside \$500 a year to replace a storage tank than to pay \$20,000 to replace it when it fails. Step #4 will discuss some of your system's options for raising revenues to carry out your asset management plan. Contact your State or Regional Tribal Coordinator for additional ideas on funding options available to your system.

Remember!

A preventive maintenance program will allow you to maximize the useful lives of your assets and can help you avoid problems and cut down or delay replacement costs. Contact your State or Regional Tribal Coordinator for more information on developing and implementing a preventive maintenance program.

Introduction to the Required Reserve Worksheet

The following Required Reserve Worksheet will help you calculate the amount of money that you will need to set aside every year (your annual reserve) to pay for the rehabilitation and replacement of your assets. Standard O&M costs are not included.

The worksheet asks for the estimated cost of rehabilitation and replacement activities associated with your highest-priority assets. Remember to gather information on all of the costs associated with rehabilitation and replacement such as equipment purchase, installation, pilot tests, labor charges, clean up, and disposal of the replaced asset. To determine your estimated costs, you can:

- Ask local contractors and businesses for estimated costs.
- Contact equipment manufacturers.
- Talk to neighboring systems about the cost of their rehabilitations or replacements.
- Discuss this with your state, tribal, or local technical assistance organization.

This worksheet can be used to estimate your annual reserves for the next five years. The worksheet uses a five year forecast to help you think about and begin financial planning for your short-term future needs. Although several of your assets will have remaining useful lives considerably longer than five years, it is unlikely that you will be able to forecast your water system's situation much farther into the future. You should update the worksheet at least once a year because your system is likely to experience changes in costs, budgeting, and funding.

Two copies of the worksheet are provided. The first copy is followed by instructions that will help you understand how to complete it. The second worksheet is an example. Appendix A has blank worksheets that you can photocopy and use.

Required Reserve Worksheet¹

Date Worksheet Completed/Updated:

1

Asset (list from highest to lowest priority)	Activity	Years until action needed	Cost (\$)	Reserve required current year
2	3	4	5	6
Total reserve in the current year				7

¹Note: The Required Reserve Worksheet only helps you account for the additional funds you will require to rehabilitate or replace your asset. Standard O&M costs are not included in this calculation.

Using the Required Reserve Worksheet

This section presents instructions for completing the Required Reserve Worksheet. Each step presented here corresponds to a numbered section of the sample worksheet on page 22.

Step #1

Enter the date.

- Circle whether you are completing or updating the worksheet and fill in the date. You should update this worksheet at least once a year. You can either make minor adjustments to the worksheet, or start a new worksheet each year.

Step #2

List your prioritized assets.

- List the assets from the Prioritization Worksheet. List the assets in order, with the highest priority assets (lowest number) first.

Step #3

List activities.

- For each asset, list the rehabilitation and replacement activities that you expect to perform over the next five years. Provide enough detail for each activity so that you can determine the cost of the activity.

Step #4

Estimate years until action needed.

- For each activity, fill in the number of years before you will need to do that task.
- For annual activities, enter "1."
- For replacement activities, enter the remaining useful life you estimated in step 8 of the System Inventory Worksheet.

Step #5

Estimate cost.

- Fill in the expected cost for each activity. Make sure to include the complete cost, including preparation, clean-up, removal, and disposal of any waste.
- If you expect to sell an asset at the end of its useful life, subtract the estimated sale price from the cost of a new item and enter the difference.

Step #6

Calculate the reserve required per year.

- For each asset, calculate the reserve required by dividing the cost by the years until the action is needed. This is the estimated amount of money that your system needs to set aside per year for that asset.

Step #7

Calculate the total reserve required in the current year.

- Add the reserve required per year for each item to calculate the total reserve required in the current year. This is the estimated amount of money that your system needs to set aside, starting this current year, if you want to pay for all of these rehabilitation and replacement activities.

EXAMPLE Required Reserve Worksheet¹

Date Worksheet Completed/Updated: 8/15/02

Asset (list from highest to lowest priority)	Activity	Years until action needed	Cost (\$)	Reserve required current year
1. Chlorinator	Replace	2	\$2,000	\$1,000
	Purchase redundant unit	1	\$2,000	\$2,000
2. Pumphouse - Electrical	Replace with controller	1	\$2,000	\$2,000
3. Well Pumps	Replace Well 1 pump	1	\$5,000	\$5,000
	Replace Well 2 pump	1	\$5,000	\$5,000
	Next Replacements (2 well pumps at \$5000 each)	10	\$10,000	\$1,000
4. Valves	Replacement (45 valves at \$500 each)	31	\$22,500	\$726
5. Hydrants	Replacement (30 hydrants at \$2,000 each)	31	\$60,000	\$1,935
6. Pipe	6-inch (3600 ft. at \$20/ft.)	51	\$302,000	\$5,922
	4-inch (9500 ft. at \$20/ft. - replace 4-inch with 6 inch)			
	2-inch (2000 ft. at \$20/ft. - replace 2-inch with 6 inch)			
	(Total is 15,100 ft. at \$20/ft.)			
7. Storage	Rehabilitate 3 tanks (1 every 8 years, 1993 and 2000 tanks)	5	\$50,000	\$10,000
	Replace - 2 tanks (1993 tanks)	31	\$40,000	\$1,290
	1 tank (2000 tank)	38	\$20,000	\$526
Total reserve in the current year				\$36,399

¹ Note: The Required Reserve Worksheet only helps you account for the additional funds you will require to rehabilitate or replace your asset. Standard O&M costs are not included in this calculation.

Explanation of Example Required Reserve Worksheet

In order to calculate the funds the system will have to set aside each year to pay for the upkeep of its assets, the managers complete the Required Reserve Worksheet. By inventorying and determining the condition of the system's assets, and evaluating when they will need to be replaced, the managers realize:

- That while none of the items that require replacement within the next 1-2 years (the chlorinator, the pumps, and the electrical system for the pumphouse) is very expensive, they will have to set aside approximately \$16,000 in the next two years to cover the cost of replacing these assets.
- The replacement of pipes in this system's distribution system is by far the most costly activity for the system. It will cost an estimated \$302,000 to replace pipes, but since this cost can be spread out over 50 years, they only need to put aside an additional \$6,000 a year (every year) to fund this activity.
- The total reserve required to successfully implement this asset management plan is around \$36,500 per year.

Before beginning the asset management plan process, the managers were planning on replacing the chlorinator next year but did not plan on replacing either of the well pumps until they broke. Now, they plan on using some of the system's current reserve fund to purchase a redundant unit and to begin saving for the replacement of one of the well pumps. They also decide to meet with town officials to discuss system priorities, costs, and funding options.

Step #4 – How Do I Carry Out This Plan?

In the previous section, you may have discovered that you should be reserving additional money every year to cover the cost of rehabilitating and replacing your assets. Preparing a financial forecast (by estimating how much revenue you expect for the next five years) will help you determine if you will need to supplement your revenues to carry out your asset management plan.

If you don't already have a five-year forecast, the Budgeting Worksheet on page 28 will help you complete this task. In addition, to increase or more efficiently use your revenues to operate and maintain your system and carry out your asset management plan you can:

- **Create additional reserve accounts.** Reserve all or some of the money you will need in a protected capital improvement reserve account and create an emergency account to fund unexpected repairs and replacements. You may be restricted in how much money can be placed in reserve accounts. Check with your state or tribal coordinator for more information. Contact information is provided in Appendix E.
- **Form partnerships.** Working with other water systems may allow you to lower costs, simplify management, and continue to provide your customers with safe drinking water.
- **Consider increasing rates.** Alternatively, consider assessing a flat fee for infrastructure improvements or funding of a reserve account. Check with your state for rate-setting information.
- **Apply for financial assistance.** Banks and government agencies can provide funds for infrastructure projects such as treatment facilities, distribution lines, and water source development. If you do not have enough funds to pay for needed capital improvements, you can apply for loans and grants. Although you will pay interest on loans which will, over the long term, increase your costs, loans will allow you to address needed system improvements without dramatically increasing rates or assessing fees to cover the costs. Seek financial advice from your city clerk, a certified accountant, or contact your State or Regional Tribal Capacity Development Coordinator if you are considering a loan to fund capital improvement projects. The table in Appendix B provides information on some programs that may provide financial assistance to help you fund major infrastructure improvement and replacement projects.



Introduction to the Budgeting Worksheet

The following simple five-year Budgeting Worksheet will help you quickly determine:

- Your system's annual revenues from fees, loans and grants, interest from any accounts, and other sources of income.
- Your annual expenditures on maintenance, utilities, salaries and benefits, office supplies, professional services, taxes, and loan payments.
- Your net income.
- How much additional funding you will need to continue to operate and maintain your system and replace and repair your assets.²

You should complete the Budgeting Worksheet every year. It will allow you to assess your financial situation and properly plan for future needs. Two copies of the worksheet are provided. The first copy is followed by instructions that will help you understand how to complete it. The second worksheet is an example. Appendix A has blank worksheets that you can photocopy and use.

The budgeting worksheet is intended to help you understand the financial position of your system and forecast any potential shortfalls you may face. It will help you determine whether or not you are adequately funding your reserve account(s) and whether or not you should begin searching for additional funding sources. It *is not* meant to serve as an accounting tool, nor is it intended to replace your current accounting practices.

² The Budgeting Worksheet does not take into account current reserves or your annual contributions to other reserve accounts. If you already have reserve accounts, you can use them to supplement your asset management plan. It is important, however, to continue contributing to these reserve accounts so that you don't experience a shortfall if you use these funds for repair and replacement of assets.

Budgeting Worksheet

Date Worksheet Completed/Updated: **1**

Revenues	Expenses	Net Income
Service Fees: _____ Fees and Service Charges (late fee, connection fee, fire fee, etc.): _____ Impact Fees (demand fee, system development fee, etc.): _____ Secured Funding: 2 _____ Interest: _____ Other: _____ _____ _____ _____ _____	Maintenance: _____ Utilities (power, telephone): _____ Salaries and Benefits: _____ Equipment Cost: _____ Chemicals: _____ Monitoring and Testing: _____ Rent or Mortgage: _____ Insurance: _____ Professional Services (legal, accounting, engineering, etc.): 4 _____ Training Costs: _____ Billing Costs: _____ Fees (state PWS fee, franchise fee, conservation fee, etc.): _____ Security: _____ Other (debt payments, taxes, miscellaneous, etc.): _____ _____ _____ _____	Total Revenues: _____ Total Expenses: _____ Net Income 6 (Revenue - Expenses): _____
		Additional Reserves Needed 7
		Total Required Reserves: _____
		8
		Net Income: _____
		9
		Additional Reserves Needed (Income - Required Reserves): _____
Total Revenues: 3	Total Expenses: 5	

Using the Budgeting Worksheet

This section presents instructions for completing the Budgeting Worksheet. Each step presented here corresponds to a numbered section of the sample worksheet on page 28.

Step #1

Enter the date.

- Circle whether you are completing or updating the worksheet and fill in the date. You should update this worksheet once a year. You can either make minor adjustments to the worksheet, or start a new worksheet each year.

Step #2

List your revenues.

- Fill in your revenues in the lines provided. If your system has other sources of income not listed on the worksheet, enter them in the "Other" lines provided.

Step #3

Calculate total annual revenues.

- Calculate your total revenues by adding all the revenues you listed in the previous step. Enter this number in the box marked "Total Revenues." Do not include funding you expect but have not secured.

Step #4

List your expenses.

- Fill in your expenses in the lines provided. If your system has other expenses not listed on the worksheet, enter them in the "Other" lines provided.

Step #5

Calculate total expenses.

- Calculate your total expenses by adding all the expenses you listed in the previous step. Enter this number in the box marked "Total Expenses."

Step #6

Calculate net income.

- Enter the result of step 3 on the "Total Revenues" line and the result of step 5 on the "Total Expenses" line. Calculate your net income by subtracting your expenses from your revenues. Enter this number on the "Net Income" line.

Step #7

Enter your total required reserves.

- Enter your total required reserves from the Required Reserves Worksheet.

Step #8

Enter your net income.

- Enter the result of step 6 on the "Net Income" line.

Step #9

Calculate additional reserves needed.

- Subtract your total required reserves (from step 7) from your net income (from step 8). Enter this number in the box marked "Additional Reserves Needed."
- If the result is a positive number (i.e., your resources are larger than your required reserves), you will not have to plan for ways to make up for the shortfall and can set aside the required funds in a reserve account.
- If the result is a negative number (i.e., your resources are less than the required reserves), you should start planning for ways to make up for the shortfall.

EXAMPLE Budgeting Worksheet

Date Worksheet Completed/Updated: 8/14/02

Revenues	Expenses	Net Income
Service Fees: <u>\$249,971</u>	Maintenance: <u>\$54,320</u>	Total Revenues: <u>\$255,430</u>
Fees and Service Charges (late fee, connection fee, fire fee, etc.): <u>\$5,284</u>	Utilities (power, telephone): <u>\$3,992</u>	Total Expenses: <u>\$245,072</u>
Impact Fees (demand fee, system development fee, etc.): <u>\$175</u>	Salaries and Benefits: <u>\$76,689</u>	Net Income
Secured Funding: _____	Equipment Cost: <u>\$1,371</u>	(Revenue - Expenses): <u>\$10,358</u>
Interest: _____	Chemicals: <u>\$40,512</u>	
Other: _____	Monitoring and Testing: <u>\$8,096</u>	
_____	Rent or Mortgage: _____	
_____	Insurance: <u>\$1,453</u>	
_____	Professional Services (legal, accounting, engineering, etc.): <u>\$400</u>	
	Training Costs: <u>\$1,000</u>	
	Billing Costs: <u>\$2,500</u>	
	Fees (state PWS fee, franchise fee, conservation fee, etc.): <u>\$500</u>	Additional Reserves Needed
	Security: <u>\$609</u>	Total Required Reserves: <u>\$34,625</u>
	Other (debt payments, taxes, miscellaneous, etc.): <u>\$53,630</u>	
	_____	Net Income: <u>\$10,358</u>

	_____	Additional Reserves Needed
		(Income - Required Reserves): <u>-\$24,267</u>
Total Revenues: <u>\$255,430</u>	Total Expenses: <u>\$245,072</u>	

Explanation of Example Budgeting Worksheet

In order to better understand their financial position, the managers for the water system must complete the budgeting worksheet. Note that almost all of their revenues come from service fees (\$249,971 of \$255,430 in total revenues). Most of their expenditures go to pay for maintenance, salaries and benefits, and chemicals.

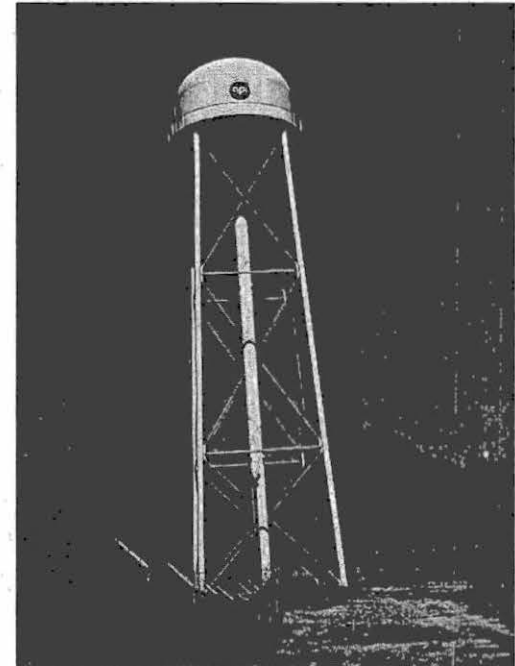
On the surface, it would seem that the system is in a fairly good financial situation. After expenses, it has a net income of \$10,358 a year. However, the system cannot afford the annual \$34,625 contribution to its reserve account with its current income. If the system does not raise revenues or secure outside funding, it will not have the income necessary to pay for rehabilitation and replacement of its assets in the future. The water system managers will have to start thinking about how to raise the additional revenue necessary to make up for the shortfall.

Step #5 – What Should I Do Next?

Once you have inventoried and prioritized your assets, determined how much money you will need to set aside each year to fund the rehabilitation and replacement of your assets, and explored funding options for your water system, you can use your asset management plan to help plan your water system's future. You will have a good picture of when you will need to replace your assets and how much money you will need to fund those replacements and continue to deliver safe and secure drinking water to your customers.

Remember that the worksheets should be reviewed, revised, and updated on an annual basis. Your asset management plan should help you shape your system's operations and should change as your priorities change. Current information in the worksheets provides a better picture of your system's position, and better prepares you to meet your water system's future needs.

Taken in tandem with the strategic planning tools available in EPA's Strategic Planning STEP Guide (EPA 816-R-03-015), the worksheets will give you a good idea of the challenges your system may face in the future and help you think about the most cost-effective and efficient way to address those challenges. Consulting with your State or Regional Tribal Capacity Development Coordinators and developing a plan of action with their assistance will ensure that you can continue to deliver safe and secure drinking water well into the future.



Appendix A: Worksheets

-----cut along dotted line-----

System Inventory Worksheet						
Date Worksheet Completed/Updated:						
Asset	Expected Useful Life	Condition	Service History	Adjusted Useful Life	Age	Remaining Useful Life

-----cut along dotted line-----

Prioritization Worksheet				
Date Worksheet Completed/Updated:				
Asset	Remaining Useful Life	Importance	Redundancy	Priority (1 is high)

-----cut along dotted line-----

Required Reserve Worksheet¹

Date Worksheet Completed/Updated:

Asset (list from highest to lowest priority)	Activity	Years until action needed	Cost (\$)	Reserve required current year
Total reserve in the current year				

¹ Note: The Required Reserve Worksheet only helps you account for the additional funds you will require to rehabilitate or replace your asset. Standard O&M costs are not included in this calculation.

-----cut along dotted line-----

Budgeting Worksheet		
Date Worksheet Completed/Updated: _____		
Revenues	Expenses	Net Income
Service Fees: _____ Fees and Service Charges (late fee, connection fee, fire fee, etc.): _____ Impact Fees (demand fee, system development fee, etc.): _____ Secured Funding: _____ Interest: _____ Other: _____ _____ _____ _____ _____	Maintenance: _____ Utilities (power, telephone): _____ Salaries and Benefits: _____ Equipment Cost: _____ Chemicals: _____ Monitoring and Testing: _____ Rent or Mortgage: _____ Insurance: _____ Professional Services (legal, accounting, engineering, etc.): _____ Training Costs: _____ Billing Costs: _____ Fees (state PWS fee, franchise fee, conservation fee, etc.): _____ Security: _____ Other (debt payments, taxes, miscellaneous, etc.): _____ _____ _____ _____	Total Revenues: _____ Total Expenses: _____ Net Income (Revenue - Expenses): _____ <hr/> Additional Reserves Needed Total Required Reserves: _____ Net Income: _____ Additional Reserves Needed (Income - Required Reserves): _____
Total Revenues: _____	Total Expenses: _____	

Appendix B: Sources of Financial Assistance to Drinking Water Systems

System improvements can be funded by raising rates, issuing bonds, or by successfully applying for loans or grants. The table below provides information on some programs that may provide financial assistance to help you raise the money your system will require to maintain its assets in good condition, replace deteriorated assets, and continue to provide safe and secure drinking water to your customers. Consult with your State or Regional Tribal Capacity Development Coordinator and the Public Service Agency in your state for additional information.

Major Providers of Financial Assistance to Drinking Water Systems		
Name of Program	Description	Contact Information
Drinking Water State Revolving Fund (DWSRF)	These state-administered loans enable water systems to finance infrastructure improvements, provide training, and fund source water protection activities.	www.epa.gov/safewater/dwsrf/contacts.html Safe Drinking Water Hotline at (800) 426-4791
Rural Utilities Service (RUS) Water and Wastewater Loan and Grant Program	This program offers loans and grants to develop water and waste-disposal systems in rural areas to reduce user costs.	www.usda.gov/rus/water/states/usamap.htm (202) 720-9540
State-specific programs	Your state may offer additional funding programs.	See Appendix E for state contact information
Tribal-specific programs	EPA gives grants (not loans) to tribes through the DWSRF Tribal Set-Aside program for improvements to water systems that serve tribes. States and the Indian Health Service may provide additional financial assistance.	See Appendix F for tribal contact information

Other Potential Sources of Financing or Financial Assistance for Drinking Water Systems

Name of Program	Description	Contact Information
Community Development Block Grants (CDBG)	This program offers grants to disadvantaged cities, urban counties, and states to develop viable communities.	www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin/stateadmincontact.cfm (202) 708-1112
Public Works and Infrastructure Development Grants	These grants help distressed communities overcome barriers that inhibit the growth of their local economies.	www.doc.gov/eda/HTML/1c_regloffices.htm (202) 482-5081
National Bank for Cooperatives Loan Program (CoBank)	CoBank provides loans to larger, credit-worthy rural utilities.	www.cobank.com (800) 542 -8072
Rural Community Assistance Corporation (RCAC)	RCAC provides loans to rural utilities in 11 western states to help meet the financing needs of rural communities and disadvantaged populations.	http://www.rcac.org/programs/serv-financial.html (916) 447-2854
Small Business Administration (SBA)	SBA helps small businesses get low-interest loans.	www.sba.gov (800) 827-5722
Local Commercial Banks	Banks in your community can offer loans to help finance capital improvements. Although interest rates may not be as favorable as other options, it may be easier for you to negotiate a loan through a local bank.	Talk to your city clerk about what banks in your area most closely match your needs.

Before you apply for funding, find out what each source will pay for and what information they will need to consider in your application. Ask about local matching fund requirements, application procedures, what makes a project "fundable," and special program requirements and restrictions. Ask to see applications from previously funded projects. Get an idea of what information is required for an application; most lending and granting agencies will want to see financial statements such as budgets, income statements, and cash flow documents. Publicly-owned systems may need a clean opinion from an auditor to show good accounting practices and/or compliance with GASB 34. See Appendix C for more information on GASB 34.

Appendix C: Introduction to GASB 34

The Governmental Accounting Standards Board (GASB) is a private, nonprofit organization that is responsible for establishing and improving governmental accounting and financial reporting standards. GASB also establishes generally accepted accounting principles (GAAP) for state and local governmental entities, including publicly-owned water systems.³ The standards and principles developed by GASB are strictly voluntary. However, some states may incorporate them into their laws and regulations and therefore make them mandatory for local governments and the water systems they operate.

In June 1999, GASB approved "Statement Number 34, Basic Financial Statements and Management's Discussion and Analysis for State and Local Governments."⁴ Statement Number 34 revised several accounting practices and established new standards for the annual financial reports required of state and local governments. The revisions were intended to make annual financial reports easier to understand and make the financial data more useful to decision makers.

GAAP and GASB 34 make good sense for publicly-owned water systems as these principals are often the best way to keep track of finances. Following them will help you form a better picture of your system's financial health, forecast future shortfalls, and continue to deliver safe drinking water to your customers. In addition, following GASB standards is a must for obtaining a "clean opinion" (i.e., a good credit rating) from an auditor. Clean opinions are often necessary for loans, negotiating favorable interest rates, or issuing bonds.

GASB 34 requires:

1. An accounting of revenues and expenditures in the period in which they are earned or incurred. This is called accrual-based accounting. For example, if the water system provides water in December 2003 and receives payment in February 2004, the water system would report that the money was earned in 2003. This change will allow the system and its investors to understand the direct financial results of its investments.

³ The Financial Accounting Standards Board (FASB) establishes and improves standards of financial accounting and reporting in the private sector. If your system is privately owned, visit www.fasb.org for more information on private accounting standards.

⁴ The new standards took effect for small governments (including water systems) with annual revenues of less than \$10 million on June 15, 2003.

2. A reporting of the value of infrastructure assets and the cost of deferred maintenance. These measures allow the public to evaluate how well the system is managing its assets. A current asset management plan is a valuable tool to help you meet this requirement if you are complying with Statement 34. In addition, reporting the true cost of deferred maintenance (i.e., unmade repairs that result in equipment or facility deterioration) may allow systems to more easily raise money for maintenance activities necessary to use facilities and equipment for their full expected lives.
3. Contributed capital (for example, federal grants) to be considered a form of income. This change will increase a system's reported income. While reporting all forms of income is a necessary accounting principal, this method of reporting (which includes contributed capital) may make it more difficult to justify rate increases.

For more information, talk to your city clerk, ask a certified public accountant, or contact your State or Regional Tribal Capacity Development Coordinator. GASB's website offers more information on Statement 34, as well as guidance documents, case studies of entities that have implemented Statement 34, and trainings. Visit www.gasb.org for more information.

Appendix D: Sources for More Information on Asset Management

Electronic Programs

- **CAPFinance.** The Environmental Finance Center at Boise State University has developed an easy-to-use computer program to help water systems inventory their assets and analyze funding options for rehabilitation and replacement of assets. For more information or to order a copy, call (208) 426-1567 or visit their website <http://sspa.boisestate.edu/efc/services.htm>.
- **Show-me Water Ratemaker.** The Missouri Department of Natural Resources has developed analysis software to help water systems set rates. To obtain a free copy see: <http://www.dnr.state.mo.us/oac/Ratemakerbrochure.pdf>, or call (800) 361-4827.

Documents

- *A Guidebook of Financial Tools*, produced by the Environmental Financial Advisory Board and the Environmental Finance Center Network, is available in PDF format at: <http://www.epa.gov/efinpage/guidbkpdf.htm>. It is also available by emailing efin@epa.gov or by calling (800) 490-9198.
- *Financial Accounting Guide for Small Water Utilities*, Michael D. Peroo, 1997, Kansas Rural Water Association. This document is available through the National Drinking Water Clearinghouse, West Virginia University, (800) 624-830.
- *GASB 34: What Is It? Why Should You Care?*, copy can be downloaded from www.nrwa.org/2001/frontpage/Pages/gasb34.htm.

Assistance

- EPA's Environmental Finance Program provides financial and technical assistance to water systems and other regulated entities. Visit www.epa.gov/efinpage/ or call (202) 564-4994 for more information about the program, for access to the program's publications, and to reach the Environmental Finance Center network.

Additional Organizations

- American Water Works Association: www.awwa.org
- Association of Metropolitan Water Agencies: www.amwa.net
- Association of State Drinking Water Administrators: www.asdwa.org
- Government Finance Officers Association: www.gfoa.org
- National Association of Regulatory Utility Commissioners: www.naruc.org
- National Association of Water Companies: www.nawc.org
- National Rural Water Association: www.nrwa.org
- Rural Community Assistance Program: www.rcap.org
- Rural Utilities Service: www.usda.gov/rus

Appendix E: Safe Drinking Water Act Primacy Agencies

For additional information or to learn more about the laws in your own state, please contact your EPA Regional Coordinator or State Drinking Water Agency.

EPA Region 1	www.epa.gov/region1/eco/drinkwater/index.html	(617) 918-1584
Connecticut Department of Public Health: Drinking Water Division	www.dph.state.ct.us/BRS/water/dwd.htm	(860) 509-7333
Maine Maine Department of Human Services: Division of Health Engineering	www.state.me.us/dhs/eng/water/index.htm	(207) 287-2070
Massachusetts Department of Environmental Protection: Drinking Water Program	www.state.ma.us/dep/brp/dws/dwshome.htm	(617) 292-5770
New Hampshire Department of Environmental Services: Water Supply Engineering Bureau	www.des.state.nh.us/wseb/	(603) 271-2513
Rhode Island Department of Health: Office of Drinking Water Quality	www.healthri.org/environment/dwq/Home.htm	(401) 222-6867
Vermont Department of Environmental Conservation: Water Supply Division	www.vermontdrinkingwater.org	(802) 241-3400

EPA Region 2	www.epa.gov/region02/water/drinkingwater/	(212) 637-3879
New Jersey Department of Environmental Protection: Bureau of Safe Drinking Water	www.state.nj.us/dep/watersupply/safedrnk.htm	(609) 292-5550
New York Department of Public Health: Bureau of Public Water Supply Protection	www.health.state.ny.us/nysdoh/water/main.htm	(518) 402-7650
Puerto Rico Department of Health: Public Water Supply Supervision Program	www.epa.gov/region02/cepd/prlink.htm	(787) 977-5870
Virgin Islands Department of Planning and Natural Resources: Division of Environmental Protection	www.epa.gov/region02/cepd/vilink.htm	(340) 773-1082

EPA Region 3	www.epa.gov/reg3wapd/	(215) 814-2300
Delaware Delaware Health and Social Services: Division of Public Health	www.state.de.us/dhss/dph/hsp.htm	(302) 739-5410
District of Columbia Environmental Health Administration: Water Resources Management Division	www.dcwasa.com/	(202) 535-2190
Maryland Department of the Environment: Public Drinking Water Program	www.mde.state.md.us/aboutmde/reports/index.asp	(410) 537-3000
Pennsylvania Department of Environmental Protection: Bureau of Water Supply Management	www.dep.state.pa.us/dep/deputate/watermgmt/wsm/wsm.htm	(717) 787-5017
Virginia Department of Health: Division of Water Supply Engineering	www.vdh.state.va.us/ddw/index.htm	(804) 786-5566
West Virginia Bureau for Public Health: Environmental Engineering Department	www.wvdhhr.org/oehs/eed/	(304) 558-2981

EPA Region 4	www.epa.gov/region4/water/	(404) 562-9345
Alabama Department of Environmental Management: Water Supply Branch	www.adem.state.al.us/WaterDivision/WaterDivisionPP.htm	(334) 271-7773
Florida Department of Environmental Protection: Drinking Water Section	www.dep.state.fl.us/water/drinkingwater/index.htm	(850) 487-1762
Georgia Department of Natural Resources: Water Resources Branch	www.dnr.state.ga.us/dnr/environ/	(404) 656-4087
Kentucky Department of Environmental Protection: Drinking Water Branch	water.nr.state.ky.us/dw/	(502) 564-3410
Mississippi Department of Health: Division of Water Supply	www.msdh.state.ms.us/watersupply/index.htm	(601) 576-7518
North Carolina Department of Environment and Natural Resources: Public Water Supply Section	www.deh.enr.state.nc.us/pws	(919) 733-2321
South Carolina Department of Health and Environmental Control: Bureau of Water	www.scdhec.net/water/html/dwater.html	(803) 898-4300
Tennessee Department of Environment and Conservation: Division of Water Supply	www.state.tn.us/environment/dws/	(615) 532-0191

EPA Region 5	www.epa.gov/r5water/	(312) 886-4239
Illinois Environmental Protection Agency: Division of Public Water Supplies	www.epa.state.il.us/water/index-pws.html	(217) 785-8653
Indiana Department of Environmental Management: Drinking Water Branch	www.ai.org/idem/owm/dwb/index.html	(317) 308-3282
Michigan Department of Environmental Quality: Drinking Water and Radiological Protection Division	www.michigan.gov/deq	(517) 335-9216
Minnesota Department of Health: Drinking Water Protection Section	www.health.state.mn.us/divs/eh/index.html	(651) 215-0770
Ohio Environmental Protection Agency: Division of Drinking and Ground Water	www.epa.state.oh.us/dsw/	(614) 644-2752
Wisconsin Department of Natural Resources: Bureau of Water Supply	www.dnr.state.wi.us/org/water/dwg/index.htm	(608) 266-2299

EPA Region 6	www.epa.gov/region6/water	(214) 665-2757
Arkansas Department of Health: Division of Engineering	www.healthyarkansas.com/eng/index.html	(501) 661-2623
Louisiana Office of Public Health: Division of Environmental and Health Services	www.dhh.state.la.us/OPH/safewtr.htm	(225) 765-5038
New Mexico Environment Department: Drinking Water Bureau	www.nmenv.state.nm.us/dwb/dwbtop.html	(505) 827-7536
Oklahoma Department of Environmental Quality: Water Quality Division	www.deq.state.ok.us/WQDnew/index.htm	(405) 702-8100
Texas Texas Commission on Environmental Quality: Water Supply Division	www.tnrcc.state.tx.us/permitting/waterperm/pdw/pdw000.html	(512) 239-6096

EPA Region 7	www.epa.gov/region7/water/dwgw.htm	(913) 551-7030
Iowa Department of Natural Resources: Water Supply Section	www.state.ia.us/epd/wtrsuply/wtrsup.htm	(515) 725-0275
Kansas Department of Health and Environment: Public Water Supply Section	www.kdhe.state.ks.us/pws/	(785) 296-5514
Missouri Department of Natural Resources: Public Drinking Water Program	www.dnr.state.mo.us/wpscd/pdwp/homepdwp.htm	(573) 751-5331
Nebraska Department of HHS Regulation and Licensure	www.hhs.state.ne.us/enh/enhindex.htm	(402) 471-2541

EPA Region 8	www.epa.gov/region08/water/	(303) 312-7021
Colorado Department of Public Health and Environment: Drinking Water Program	www.cdphe.state.co.us/wq/wqhom.asp	(303) 692-3500
Montana Department of Environmental Quality: Public Water Supply Section	www.deq.state.mt.us/wqinfo/index.asp	(406) 444-3080
North Dakota Department of Health: Division of Municipal Facilities	www.ehs.health.state.nd.us/ndhd/environ/mff/index.htm	(701) 328-5211
South Dakota Department of Environment and Natural Resources: Drinking Water Program	www.state.sd.us/denr/des/drinking/dwprg.htm	(605) 773-3754
Utah Department of Environmental Quality: Division of Drinking Water	www.deq.state.ut.us/eqdw/Index.htm	(801) 536-4200
Wyoming EPA Region VIII: Wyoming Drinking Water Program	www.epa.gov/region08/water/dwhome/wycon/wycon.html	(303) 312-6312

EPA Region 9	www.epa.gov/region9/water/index.html	(415) 744-1884
American Samoa Environmental Protection Agency: American Samoa	www.epa.gov/Region9/cross_pr/islands/samoa.html	(415) 744-2170
Arizona Department of Environmental Quality: Drinking Water Monitoring and Assessment Division	www.adeq.state.az.us/environ/water/dw/index.html	(602) 207-4644
California Department of Health Services: Division of Drinking Water and Environmental Management	www.dhs.cahwnet.gov/org/ps/ddwem/	(916) 323-6111
Guam Guam Environmental Protection Agency	www.epa.gov/region09/cross_pr/islands/guam.html	(671) 472-8863
Hawaii Department of Health: Environmental Management Division	www.hawaii.gov/health/eh/sdwb/index.html	(808) 586-4258
Nevada Department of Human Resources: Bureau of Health Protection Services	www.health2k.state.nv.us/bhps/phe/sdwp.htm	(775) 687-6615

EPA Region 10	www.epa.gov/region10/	(206) 553-1389
Alaska Department of Environmental Conservation: Drinking Water and Wastewater Program	www.state.ak.us/dec/deh/safewater.htm	(907) 269-7653
Idaho Department of Environmental Quality: Water Quality Division	www2.state.id.us/deq/water/water1.htm	(208) 373-0502
Oregon Department of Human Resources: Drinking Water Program	www.ohd.hr.state.or.us/dwp/index.htm	(503) 731-4317
Washington Department of Health: Drinking Water Division	www.doh.wa.gov/ehp/dw/	(360) 236-3096

Appendix F: Tribal Contacts

For additional information or to learn more about the laws governing your Tribe, use the contact information provided in this Appendix.

US EPA Headquarters		
American Indian Environmental Office	www.epa.gov/indian	(202) 564-0303

US EPA Regional Tribal Capacity Development Coordinators		
EPA Region 1	www.epa.gov/region01/topics/government/tribal.html	(888) 372-7341
EPA Region 2	www.epa.gov/region02/nations/index.html	(212) 637-3600
EPA Region 4	www.epa.gov/region04/ead/indian/index.htm	(404) 562-6939
EPA Region 5	www.epa.gov/region5/water/stpb	(312) 353-2123
EPA Region 6	www.epa.gov/region06/6xa/tribal.htm	(800) 887-6063
EPA Region 7	www.epa.gov/region07/government_tribal/index.htm	(913) 551-7030
EPA Region 8	www.epa.gov/region08/tribes	(303) 312-6116
EPA Region 9	www.epa.gov/region09/cross_pr/indian/index.html	(415) 744-1500
EPA Region 10	yosemite.epa.gov/r10/tribal.NSF/webpage/tribal+office+homepage?opendocument	(206) 553-4011

Other Contacts		
Administration for Native Americans	www.acf.dhhs.gov/programs/ana/	(877) 922-9262
Bureau of Indian Affairs	www.doi.gov/bureau-indian-affairs.html	(202) 208-3710
Indian Health Services	www.ihs.gov	(301) 443-3024
Native American Water Association	www.nawainc.org	(775) 782-6636

Appendix G: Other STEP Guide Documents

This brochure is one in a series of Simple Tools for Effective Performance (STEP) documents for small drinking water systems. The STEP documents can be obtained from EPA by calling the Safe Drinking Water Hotline at (800) 426-4791 and requesting the document by its publication number. The documents can also be found at www.epa.gov/safewater/smallsys/ssinfo.htm.

AVAILABLE NOW

A Small Systems Guide to the Total Coliform Rule (TCR)

This workbook is designed to help small systems understand the TCR and the mandatory monitoring required under the rule. The workbook provides sample worksheets to help systems organize and track TCR monitoring data, and provides appropriate follow-up actions should monitoring show a positive presence of coliform.

Publication number EPA 816-R-01-017A

Published: June 2001

Safe Drinking Water Act (SDWA) Regulation Overview Brochure for Small Systems

This brochure summarizes SDWA regulations that currently exist, are proposed, or are under development that affect or will affect small water systems. The brochure emphasizes how the regulations relate to each other, and explains the multi-barrier approach to microbial and chemical/radiological risks and how SDWA regulations fit into this type of framework.

Publication number EPA 816-R-03-017

Published: September 2003

Complying With the Revised Drinking Water Standard for Arsenic: Small Entity Compliance Guide

This workbook is designed to help systems understand and achieve compliance with the Arsenic Rule. The workbook provides sample worksheets to help systems organize data, and provides guidance for small systems on their selection of appropriate compliance options.

Publication number EPA 816-R-02-008A

Published: August 2002

Strategic Planning Workbook

This workbook is designed to help systems understand the concept of strategic planning and how it can help them prepare their water system to meet public expectations and regulatory requirements while maintaining organizational and financial stability in the future. The workbook provides worksheets to help systems begin to plan strategically, assess their capacity, define their area of service, identify options, and develop an implementation plan for their system.

Publication number EPA 816-R-03-015

Published: September 2003

UNDER DEVELOPMENT

Disinfectants/Disinfection By-Products (D/DBP) Rule Workbook

Rate-Setting: A Handbook for Small Systems

Restructuring: A Handbook for Small Systems

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