

DIRECT TESTIMONY

of

MIKE LUTH

Rates Department  
Financial Analysis Division  
Public Utilities Bureau  
Illinois Commerce Commission

Aqua Illinois, Inc.

Docket No. 04-0442

September 15, 2004

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## INTRODUCTION TO TESTIMONY

1 Q. Please state your name and business address.

2 A. Mike Luth, 527 East Capitol Avenue, Springfield, Illinois 62701.

3 Q. Please state your professional qualifications and work experience.

4 A. I received a B.S. in Accounting from Illinois State University. I have  
5 earned the C.P.A. and C.M.A. professional designations. Since  
6 graduating, I have worked as an Assistant Property Manager with a real  
7 estate company and as a Field Auditor with the Wisconsin Department of  
8 Revenue. In October 1990, I joined the Accounting Department of the  
9 Illinois Commerce Commission (“Commission”). In June 1998, I  
10 transferred from the Accounting Department of the Commission to the  
11 Rates Department.

12 Q. Have you testified in any previous Commission dockets?

13 A. Yes. I have testified on numerous occasions before the Commission.

### **Purpose of Testimony**

14 Q. What is the purpose of your testimony?

15 A. The purpose of my testimony is to address the filing by Aqua Illinois, Inc.  
16 (“Aqua” or “Company”) for a general increase in rates applicable to the  
17 Vermilion Water Division (“Vermilion”). I will be presenting testimony and  
18 exhibits concerning cost of service (“COS”) and rate design issues.

19 Q. Are you making any recommendations concerning the appropriateness of  
20 the total annual revenue requirement for the Company in this proceeding?

21 A. No, I am not. My testimony is directed toward the review of the proposed  
22 tariffs and underlying support filed by the Company to recover the revenue  
23 requirement deemed appropriate in this proceeding.

24 Q. Briefly summarize the major points of your testimony.

25 A. I disagree with the Company's rate proposals. My rates proposals are  
26 more closely based upon the cost of service study ("COSS" or "cost  
27 study") that I prepared than the Company's rate proposals are based upon  
28 the COSS that Company witness Monie prepared. Specifically, my  
29 proposed rates increase the percentage of cost of service that the  
30 Company's large industrial customer, TeePak, LLC ("TeePak"), pays.  
31 Additionally, I am not proposing the general increases in the fixed, monthly  
32 customer charges based upon meter size that the Company suggests.  
33 The only increase to a monthly customer charge that I am proposing is in  
34 the 3-inch turbo meter customer charge applicable to TeePak. Other than  
35 that increase, I am not proposing any increases in the monthly customer  
36 charge for other meter sizes. I am also proposing the elimination of the  
37 Company's fourth usage block, which is used to bill only a small  
38 percentage of usage by one customer class — the industrial class. Lastly,  
39 I am proposing fire protection rates that recover fire protection cost of

40 service, which differs from the Company's proposal to underrecover fire  
41 protection cost through the fire protection rates and shift the recovery of  
42 remaining fire protection costs to other rates.

43 Q. Please explain how your testimony is organized.

44 A. First, I present the results of my embedded cost study. I then address rate  
45 design, discussing the proposals of the Company and my  
46 recommendations.

47 Q. Did you prepare any supporting exhibits?

48 A. Yes, I prepared the following exhibits:

ICC Staff Exhibit 4.1	Cost of Service Study
ICC Staff Exhibit 4.2	Illustrative Rates at Full TeePak Recovery
ICC Staff Exhibit 4.3	Comparisons of Monthly Residential Bills

49 Q. Briefly summarize the schedules.

50 A. ICC Staff Exhibit 4.1 presents my proposed rates and the development of  
51 the cost of service study underlying those rates. ICC Staff Exhibit 4.2 is  
52 similar to pages 1 and 2 of ICC Staff Exhibit 4.1, but presents rates for  
53 illustrative purposes that I would recommend based upon the COSS  
54 presented in ICC Staff Exhibit 4.1, and would fully recover costs allocated  
55 to TeePak. ICC Staff Exhibit 4.3 calculates and compares the monthly bill  
56 to a Vermilion residential customer and TeePak at various levels of usage

57 under current rates, Aqua's proposed rates, and my proposed rates shown  
58 on ICC Staff Exhibit 4.1.

59 Q. What test year is the Company proposing to use for cost of service  
60 purposes?

61 A. The Company is proposing to use a projected future year ending  
62 December 31, 2005 as the test year (Aqua Illinois Exhibit 2.0, page 2, line  
63 numbers 21 through 23.)

### **EMBEDDED COST OF SERVICE STUDY**

64 Q. Briefly describe the importance of a COSS as the basis for determining  
65 rates for utility service.

66 A. A COSS is performed to allocate costs among all customer classes to  
67 determine each customer class' respective cost responsibility for the costs  
68 imposed on the utility by that specific customer class. A more detailed  
69 explanation of embedded cost studies and how costs are generally  
70 allocated is outlined in Appendix A attached to this exhibit.

71 Q. Did the Company present a cost of service study in its filing?

72 A. Yes, it did. Aqua Illinois Exhibit 4.0 presents the testimony, COSS, and  
73 workpapers of Aqua witness Mr. David R. Monie. The Company is  
74 proposing rates that are based upon across-the-board revisions to  
75 General Metered tariff rates in accordance with its revenue requirements

76 for Vermilion, with the exception of the Public Fire class and the Large  
77 Industrial class, which has one customer, TeePak (Aqua Illinois Exhibit  
78 4.0, page 5, line 26 through page 6, line 6). For TeePak, Aqua proposes  
79 to limit the increase to only 1 percent above the current Qualifying  
80 Infrastructure Plant ("QIP") surcharge ("QIPS") (Aqua Illinois Exhibit 4.0,  
81 page 5, line numbers 22 through 25).

82 Q. What methodology did you use in preparing your COSS for Vermilion?

83 A. My COSS uses the Base-Extra Capacity method of cost allocation to  
84 distribute costs to customer classes. The Base-Extra Capacity method is  
85 the same methodology employed and accepted by the Commission in  
86 Docket Nos. 00-0337, -0338, and -0339 (Consolidated), which was the  
87 last time rates for Vermilion were approved. A further discussion  
88 regarding methodology is provided in Appendix A attached to this exhibit.

89 Q. Please provide a brief explanation of your COSS, identified as ICC Staff  
90 Exhibit 4.1.

91 A. The calculation and summary of total revenues at the Company's present  
92 and proposed rates, and at my recommended rates, are set forth on ICC  
93 Staff Exhibit 4.1, pages 1 and 2.

94 The relative class cost-of-service figures, excluding Fire Protection,  
95 appear near the bottom of page 2 at the line, "Percent Cost of Service", for

96 each customer class. For example, under my proposed rates, the  
97 Residential class will provide revenues equal to 105.3 percent of their  
98 calculated cost-of-service.

99 The Demand Factors for Maximum Day ("Max Day") and Maximum Hour  
100 ("Max Hour") for customer classes and Fire Protection, and the million  
101 gallons per day ("MGD") pumpage and consumption numbers are listed on  
102 page 3 of the COSS. These factors represent the Max Day and Max Hour  
103 water usage relative to the average usage. The Demand Factors allocate  
104 costs to the customer classes and to Fire Protection. The allocation  
105 amounts are on pages 11 and 12. The water usage and pumpage  
106 amounts in MGD are used to allocate plant in service and operation and  
107 maintenance ("O&M") expenses to the plant's Base, Max Day and Max  
108 Hour functions.

109 Page 4 contains a numerical listing in percentages of cost allocation codes  
110 for the COSS. For example, an account assigned an allocation Code 3  
111 would be allocated 55.88 percent to Base Cost and 44.12 percent to Max  
112 Hour Cost.

113 Allocation of Net Plant in Service to the Base Cost, Max Day, Max Hour,  
114 Billing, Meters, Services, and Fire Protection categories is shown on  
115 pages 5 and 6. Page 6 also shows the percentage allocations for the Net

116 Plant in Service categories. These percentages are then used to allocate  
117 Utility Operating Income, Other Taxes, and Income Taxes to the various  
118 plant functions on page 9.

119 The allocation of Total Revenue Requirement, (i.e., total O&M,  
120 Depreciation, Other Taxes, Income Taxes and Utility Operating Income to  
121 the Base Cost, Extra Capacity, Customer Costs, and Fire Protection)  
122 according to function is shown on pages 7-10. The total revenue  
123 requirement is located at the bottom of page 9 on the line titled "DIRECT  
124 CUSTOMER REVENUES". The "TOTAL REVENUES ALLOCATED TO  
125 SMALL MAINS", is on page 10. The Direct Customer Revenues and Total  
126 Revenues Allocated to Small Mains are used to calculate the Cost of  
127 Service at the bottom of page 2.

128 The cost-of-service allocation percentages for the customer classes and  
129 fire protection are summarized on page 11. The allocation percentages  
130 are derived from annual consumption, the demand factors listed on page  
131 3, the number of monthly bills, and the number of monthly equivalent  
132 meters and services. For example, Residential usage is calculated to be  
133 2.497 MGD (calculated by converting the annual residential usage, found  
134 on page 2, to million gallons per day). That amount is 39.20 percent of  
135 total system usage. Therefore, 39.20 percent of total Base Cost is  
136 assigned to the Residential class. Multiplying the 225 percent Residential

137 Max Day factor (from ICC Staff Exhibit 4.1, page 3 of 16) by the Average  
138 Day of 2.497 MGD produces the Residential Max Day usage of 5.618  
139 MGD. The difference between the Max Day and Average Day is the  
140 Excess of 3.121 MGD for the Residential class. The Residential Excess of  
141 3.121 MGD is 52.98 percent of the total Excess usage over Average Day  
142 usage, and is used to allocate the Residential share of total Max Day  
143 costs.

144 The percent allocation of costs to the primary customer classes and Fire  
145 Protection, the total COS, and the COS to each customer class is on page  
146 12. The calculation of Public Fire Protection and Private Fire Protection  
147 COS is on page 13. Public Fire Protection Rates are on page 14.

148 The number of equivalent meters and service lines and their capacity  
149 ratios are on page 15. Distribution of customer costs by equivalent meter  
150 and service ratios recognizes that meter and service costs vary,  
151 depending on considerations such as size of service pipe, materials used,  
152 locations of meters, and other local characteristics for various sized  
153 meters as compared to  $\frac{5}{8}$ " meters and services. The number of  
154 equivalent meters and services (i.e., which is based on meter ratios)  
155 assists in allocating costs assigned for recovery through customer  
156 charges. This is necessary to adjust the units of service for each  
157 customer class as indexed against the smallest meter size. Therefore,

158 customers are allocated a charge that reflects the costs associated with  
159 their particular meter size. Equivalent Meters and Services ratios are  
160 taken from the American Water Works Association Water Meters-  
161 Selection, Installation, Testing, and Maintenance Manual (M6), 1972,  
162 pages 32-33.

163 The allocation of depreciation expense according to plant account is  
164 presented on page 16 of ICC Staff Exhibit 4.1.

165 A brief description of COSS allocation codes appears on page 17 of ICC  
166 Staff Exhibit 4.1.

167 Q. What is the source of the demand factors and million gallons a day  
168 pumpage numbers that you used in your COSS?

169 A. I employed the same class demand factors that were approved by the  
170 Commission in the Order in Docket Nos. 00-0337, -0338, and -0339  
171 (Consolidated). The MGD numbers that I employed are from the peak  
172 year for the period, 1999-2003. In my opinion, selection of the peak year  
173 from a recent period, such as five years, is appropriate because it gives an  
174 indication as to how the system has been recently used during periods of  
175 peak demand.

176 Q. Did the Company's COSS use different class demand factors from those  
177 that you used?

178 A. Yes, Mr. Monie used different class demand factors from those I used.  
179 His testimony did not explain why he used different demand factors, or  
180 provide a detailed explanation and calculation of how he calculated those  
181 class demand factors. The Company's response to Staff data request ML-  
182 15 stated that Mr. Monie did not have a copy of the Staff COSS from  
183 Docket Nos. 00-0337, -0338, and -0339 (Consolidated), and estimated the  
184 extra capacity factors in this docket. The Company's response to Staff  
185 data request ML-13 did not provide the requested supporting calculations  
186 and assumptions used in the development of the class demand factors.  
187 The lack of information supporting the class demand factors in Mr. Monie's  
188 COSS does not provide a suitable basis for changing the class demand  
189 factors from the COSS used to develop current Vermilion rates  
190 established in Docket Nos. 00-0337, -0338, and -0339 (Consolidated).

191 Q. How do the customer class demand factors affect the amount that  
192 customers pay?

193 A. A change in the customer class demand factors changes the amount of  
194 Max Day and Max Hour costs that a customer class pays, as shown on  
195 pages 11 and 12 of ICC Staff Exhibit 4.1. Customer class cost allocations  
196 comparable to pages 11 and 12 of ICC Staff Exhibit 4.1 are shown on  
197 Table 7 of Mr. Monie's COSS. A lower Max Day and Max Hour demand

198 factor reduces the amount of Max Day or Max Hour costs that a customer  
199 class pays. Conversely, a higher Max Day and Max Hour demand factor  
200 increases the amount of Max Day or Max Hour costs that a customer  
201 class pays.

202 Q. Did the Company provide information about the operating and  
203 maintenance expense of mains, meters, services, hydrants, and  
204 distribution reservoirs and standpipes?

205 A. No, it did not, although the Company was required to include that  
206 information as part of Schedule E-6 [83 Ill. Adm. Code 285.5305(a),  
207 (b)(1)]. This appears to be an on-going problem, since this was also a  
208 problem in Docket No. 03-0403, the rate increase for the Company's  
209 Kankakee Water Division (Docket No. 03-0403, ICC Staff Exhibit 4.0,  
210 page 10, lines 180 through 185).

## **RATE DESIGN**

211 Q. What is the Company's rate design methodology?

212 A. For the residential, commercial, and industrial customer classes, the  
213 Company is proposing a nearly across-the-board increase between 15.58  
214 percent and 15.93 percent based upon the increase in revenue  
215 requirement at the Vermilion Water Division (Aqua Illinois Exhibit 4.0,  
216 "Cost of Service and Tariff Design Studies", Table 12). For the large  
217 industrial customer, TeePak, the Company is proposing an increase of

218 only 0.97 percent (ld.). The general increase proposed by the Company  
219 suggests additional revenue recovery from customers not in the Large  
220 Industrial customer class in order to compensate for the Company's  
221 proposed underrecovery of Large Industrial class cost of service (ld.). The  
222 percentage increase reported by the Company's proposal for all customer  
223 classes is net of the 5 percent QIP surcharge currently in effect, which will  
224 be zeroed-out at the time rates established in this docket go into effect.  
225 Thus, the increases reported by the Company are approximately 5 percent  
226 less than what the increases actually are, because the increases include  
227 the revenue from a 5 percent QIP surcharge that will most likely  
228 incrementally resume in years after the rates established in this docket go  
229 into effect. Excluding the effects of the QIP surcharge, the Company's  
230 proposed increase results in an overall 21.55% increase in revenues from  
231 standard, or base, rates from all customers except TeePak, the Large  
232 Industrial customer (Aqua Illinois Exhibit 4.0, "Cost of Service and Tariff  
233 Design Studies", "Total Revenue from Customer Charge and Usage  
234 Charges" line in Table 10, minus the same line in Table 9, divided by the  
235 same line again in Table 9).

236 Q. Do you agree with the Company's rate proposals?

237 A. I do not agree with the Company's proposal to simply apply an across-the-  
238 board increase to most rates based upon the revenue requirement  
239 compared to present revenues, nor do I agree with the level of subsidy to

240 be provided by other rate classes to TeePak. A COSS should be  
241 developed with rates based upon the COSS. The rates that I am  
242 proposing are based upon the COSS that I prepared. Recognizing the  
243 importance of reducing rate shock to TeePak, my proposed rates continue  
244 a significant subsidy for TeePak, yet move TeePak away from a continued  
245 drop in percentage of cost of service recovered through rates and toward  
246 cost of service with approximately 60 percent of the TeePak cost of  
247 service (ICC Staff Exhibit 4.1, page 2, "Usage Charges" and "Percent Cost  
248 of Service").

249 In addition, I am proposing to remove the fourth usage block from the  
250 Company's rates because the usage in that block represents less than  
251 four percent of total industrial usage, and only  $\frac{1}{2}$  of one percent of total  
252 usage. The industrial customer class is the only customer class that  
253 would have any usage billing through the fourth usage block, so it is not  
254 necessary to have a fourth usage block to accommodate only four percent  
255 of the usage by the only customer class to which the rate would apply.

256 The rates proposed by the Company are not based upon the COSS  
257 prepared by Mr. Monie. Based upon Mr. Monie's COSS, the Company's  
258 proposed rates would recover 115 percent of the residential cost of  
259 service, 110 percent of the commercial cost of service, only 93 percent of  
260 the industrial cost of service, a still lower 79 percent of Sales for Resale

261 cost of service, and an incredibly low 35 percent of the TeePak cost of  
262 service (Aqua Illinois Exhibit 4.0, "Cost of Service and Tariff Design  
263 Studies", Table 12).

### **TeePak Rates**

264 Q. Has the Company shown that anything greater than its proposed less than  
265 one percent overall increase in revenues from TeePak would result in  
266 TeePak's leaving the Danville area?

267 A. No, it has not. In order to evaluate the significance of water supply costs  
268 to TeePak, other costs should be examined. Particularly useful might be  
269 other utility costs because the Company's assumption in this docket  
270 appears to be that it is up to Aqua to keep TeePak in Danville (Aqua  
271 Illinois Exhibit 4.0, page 5, lines 15 through 24). Smaller percentage  
272 reductions in other utility costs might be more significant to TeePak's  
273 operating costs than deeply discounted water rates that recover only 35  
274 percent of Vermilion's cost of providing service to TeePak.

275 The increase that I am proposing in TeePak's rates is approximately  
276 \$175,417 for the test year. According to the TeePak website, its revenues  
277 during the year 2000 from its cellulose and fibrous casing business totaled  
278 \$160 million. An increase of \$175,417 in water costs represents slightly  
279 more than 1/10<sup>th</sup> of one percent of those revenues. An increase of 1/10<sup>th</sup>  
280 of one percent in operating costs compared to revenues, while receiving a

281 40 percent subsidy from surrounding water customers, does not appear to  
282 be a powerful reason for TeePak to leave an established location with  
283 experienced employees producing its products.

284 Q. According to your COSS, what is the subsidy to TeePak that other water  
285 customers would provide under your proposed rates?

286 A. My COSS shows that TeePak has a cost of service totaling \$1,054,012  
287 (ICC Staff Exhibit 4.1, page 2, "PER STAFF - Cost of Service"). My  
288 proposed rates would recover only \$631,920 from TeePak (Id., "TOTAL  
289 REVENUES – Staff). Other customers are therefore providing a subsidy  
290 to TeePak of approximately \$422,029 according to my COSS. TeePak  
291 would continue to receive a subsidy under my proposed rates that is more  
292 than double the \$175,417 amount of increase that my proposed rates  
293 would require from TeePak. The effect upon rates paid by other  
294 customers from the TeePak subsidy is evident when comparing the rates  
295 shown on page 1 of ICC Staff Exhibit 4.1 to rates shown on page 1 of ICC  
296 Staff Exhibit 4.2. Under most any reasonable measure, my proposed  
297 rates provide TeePak with a sizeable subsidy and certainly represent a  
298 significant effort to work with what the Danville community considers a  
299 beneficial economic presence.

## Fire Protection

300 Q. Are you proposing public fire protection rates below cost of service, as is  
301 Aqua?

302 A. No, I am not. My proposed public fire protection rates will recover nearly  
303 30 percent more in revenues, and are therefore on average 30 percent  
304 higher than current fire protection rates. Fire protection rates are  
305 constant, and are based upon the meter size and fire district location of  
306 the customer. Customer charges are also constant, and are therefore in a  
307 sense similar to a public fire protection charge, but are based only upon  
308 the meter size of the customer. With the exception of the increase in the  
309 3-inch turbine meter customer charge applicable only to TeePak, I am not  
310 proposing increases in customer charges. The increase in fire protection  
311 charges that I am proposing is lower than the comparable Company-  
312 proposed increase in customer charges for the vast majority of Vermilion's  
313 fire protection billings, and should not be considered rate shock.  
314 Customers in the Village of Indianola are not currently paying a public fire  
315 protection charge, so a public fire protection charge will be a new line item  
316 on their bills. Since other Vermilion customers pay fire protection charges,  
317 the new line item on Indianola bills for fire protection is not an excessive  
318 addition relative to Vermilion bills at other locations. Moreover, my  
319 proposed public fire protection charges are based on the COSS that I  
320 prepared, do not recover more than the fire protection share of cost of  
321 service, and are therefore appropriate.

322 Q. If the Commission adopts a revenue requirement that different from Staff's  
323 proposed revenue requirement, what do you propose?

324 A. If the difference between the Commission's and Staff's proposed revenue  
325 requirements is 5% or less, each block of Staff's proposed usage charges  
326 should be adjusted by a uniform percentage to recover the revenue  
327 requirement adopted by the Commission. If the difference between the  
328 Commission's and Staff's proposed revenue requirements is 5% or more,  
329 then a revised Staff COSS should be developed based upon the  
330 adjustments that result in the difference in revenue requirements.

331 Q. Did you prepare a Schedule showing the bill comparison for a residential  
332 customer from both the Company's proposed rates and Staff's proposed  
333 rates?

334 A. Yes, I did. ICC Staff Exhibit 4.3 shows several comparisons involving  
335 Staff's proposed rates. Specifically, this schedule depicts the percentage  
336 change (i.e., increase or decrease) between the Company's present and  
337 proposed monthly revenues and between Staff's proposed monthly  
338 revenues.

339 Q. Does this conclude your direct testimony?

340 A. Yes.

## APPENDIX A

### Narrative Description of COSS Methodology

#### Summary

1 In general, the objectives of a COSS are to functionalize a utility's revenue  
2 requirement into basic categories and allocate those costs across rate classes to  
3 determine each class' cost of service. Rates can then be designed to recover  
4 the cost to serve each customer class. In the water industry, embedded cost  
5 studies are utilized as the main guide to designing rates unique to each utility.

6 The development of water rates, in general, involves the following procedures,  
7 described in the American Water Works Association ("AWWA"), "Water Rates,"  
8 Manual M1 p. vii (Fourth Edition):

- 9 • Determination of the total annual revenue requirements for the  
10 period in which the rates are to be effective.
- 11 • Allocation of the total annual revenue requirements to the basic  
12 functional cost components.
- 13 • Distribution of the component costs to the various customer classes  
14 in accordance with their requirements for service.
- 15 • Design of water rates that will recover from each class of  
16 customers, within practical limits, the cost to serve that class of  
17 customers.

18 The following report describes the procedures employed in performing the  
19 embedded cost of service study for the Company.

#### Explanation and Definitions

20 Staff's COSS uses the Base-Extra Capacity method described in detail in  
21 AWWA's "Water Rates", Manual M1, (Fourth Edition) pages 11-16, 1991. This  
22 procedure is a generally accepted and often used method of determining the cost  
23 to serve water customers and thus provides the basis of designing rates for a  
24 water utility.

25 The basic breakdown of cost is the functionalization into operational components.  
26 For a water utility, the three basic types of costs are 1) operation and

27 maintenance ("O&M") expense 2) depreciation expense and 3) return on capital  
28 investment. This information is normally readily available from the utility's  
29 accounting records.

30 After the costs are functionalized, they are allocated to four main components 1)  
31 base costs 2) extra capacity costs 3) customer costs and 4) direct fire protection  
32 costs.

33 • **Base costs** are those costs that tend to vary with the total quantity  
34 of water used. These costs also include O&M expenses and  
35 capital costs associated with serving customers under average load  
36 conditions.

37 • **Extra capacity costs**, and their associated O&M and capital costs,  
38 are costs correlated with meeting usage in excess of average  
39 usage. These costs can be further subdivided into costs  
40 associated with maximum-day extra usage and maximum-hour  
41 extra usage.

42 • **Customer costs** encompass those expenditures related to serving  
43 a customer regardless of that customer's water usage or rate of  
44 usage. These contain costs associated with meters, services and  
45 other customer related costs.

46 • **Direct fire protection costs** are directly applicable to the fire  
47 protection function.

48 After costs are properly allocated between cost components, the cost of service  
49 for each meter size is determined. The fixed customer cost of service per meter  
50 has three basic components:

51 • **Equivalent meter costs** include those customer costs associated  
52 with meters.

53 • **Equivalent service costs** include those customer costs associated  
54 with services.

55 • **Other customer costs** are those costs attributed directly to  
56 customers, divided by the number of bills to obtain a customer  
57 charge per bill. Other customer costs are non-meter size sensitive  
58 with each meter size being allocated the same per unit charge,  
59 regardless of class (i.e. residential, commercial, industrial etc.).

60 Equivalent meters and services is a method of assigning costs based on the size  
61 of the meter. Distribution of customer costs by equivalent meter and service  
62 ratios recognizes that meter and service costs vary, depending on considerations

63 such as size of service pipe, materials used, locations of meters, and other local  
64 characteristics for various sized meters as compared to  $\frac{5}{8}$ " meters and services.  
65 The number of equivalent meters and services (i.e. which is based on meter  
66 ratios) assists in allocating costs assigned for recovery in the customer charges.  
67 This is necessary to adjust the units of service for each customer class as  
68 indexed against the smallest meter size. Therefore, customers are allocated a  
69 charge that reflects the costs associated with their particular meter size. Actual  
70 cost differentials are taken from the AWWA Water Meters-Selection, Installation,  
71 Testing, and Maintenance Manual (M6), 1972 page 32-33.



ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Revenues at Present and Proposed Rates"

ITEM	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		TeePak		SALES FOR RESALE		BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	TOTAL		
	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.									
USAGE CHARGE REVENUES	Present	3,453,815	0	1,498,319	0	799,583	0	451,451	0	473,438	0	0	0	0	0	0	6,676,607		
	Proposed	4,197,299	0	1,821,047	0	971,947	0	478,596	0	575,464	0	0	0	0	0	0	8,044,354		
	Staff	3,986,816	0	1,717,625	0	892,061	0	624,850	0	504,472	0	0	0	0	0	0	7,725,825		
OTHER ADJUSTMENTS	Present	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Proposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Staff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL METERED REVENUES	Present	5,727,947	0	1,884,311	0	881,195	0	456,503	0	481,214	0	0	0	0	0	0	9,431,171		
	Proposed	6,980,543	0	2,291,184	0	1,071,149	0	483,954	0	584,915	0	0	0	0	0	0	11,411,746		
	Staff	6,260,948	0	2,103,617	0	973,673	0	631,920	0	512,248	0	0	0	0	0	0	10,482,407		
PVT. FIRE PROT RATES, MONTHLY										PRIVATE HYDRANTS									
Size Connection	Less than 3"	3"	4"	6"	8"	10"	12"	16"											
Present	E-2	6.00	8.00	12.00	26.00	50.00	85.00	135.00	283.00	0.00									
Proposed	E-2	7.20	9.60	14.40	31.20	60.00	102.00	162.00	339.60	0.00									
Per Cost of Service Study		6.33	9.32	14.49	33.04	65.04	113.16	179.87	377.92	N/A									
Staff		6.30	9.30	14.50	33.00	65.00	113.20	179.90	377.90	0.00									
Units (ANNUAL)	Table 10	71	0	384	1,187	625	192	48	0	0									
NON-METERED REVENUES										PVT. FIRE		PUBLIC FIRE		OTHER OPERATING		VARIABLE REVENUES		TOTAL NON-METERED	
Present		89,946	0	666,689	666,689	25,553	53,487	835,675											
Proposed		107,935	0	744,890	744,890	25,553	53,487	931,865											
Staff		116,181	0	865,056	865,056	163,243	60,185	1,204,666											
TOTAL REVENUES	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	RESALE	NON-METERED		TOTAL											
Present	5,727,947	1,884,311	881,195	456,503	481,214	0	0	0	835,675	10,266,846									
Proposed	6,980,543	2,291,184	1,071,149	483,954	584,915	0	0	0	931,865	12,343,611									
Staff	6,260,948	2,103,617	973,673	631,920	512,248	0	0	0	1,204,666	11,687,073									
PER STAFF	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	RESALE	PUB. FIRE		PVT FIRE											
Cost of Service	5,947,849	2,031,475	955,809	1,054,012	493,334	0	0	0	864,923	116,244									
Percent Increase	9.3	11.6	10.5	38.4	6.4	0.0	0.0	0.0	29.8	29.2									
Percent Cost of Service	105.3	103.6	101.9	60.0	103.8	0.0	0.0	0.0	100.0	99.9									

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Demand Factors"

DEMAND FACTORS		
Customer Class	Max Day	Max Hour
Residential	2.25	3.30
Commercial	1.95	2.40
Industrial	1.30	1.70
Large Industrial	1.30	1.70
Sales for Resale	1.75	2.50
	0.00	0.00
	0.00	0.00
Fire Protection	0.63	5.04
Gallons Per Minute	3,500	
Hours of Protection	3	
MGD PUMPAGE		
Average Daily Rate	ML-10	8.489
Max. Daily Rate	wp 1b, ML-10	10.623
Max. Hourly Pumpage Rate	ML-10	15.192
Max. Hourly Consumption Rate	ML-10	15.192

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Allocation to Cost Functions"

Description	Alloc. Code	Base Cost Percent	Extra Capacity		Customer Costs			Fire Service Percent
			Max Day Percent	Max Hour Percent	Billing Percent	Meter Percent	Services Percent	
Base Cost	1	100.00%						
Base-Max Day	2	79.91%	20.09%					
Base-Max Hr.	3	55.88%		44.12%				
Max Hour	4			100.00%				
Commercial	5				100.00%			
Meters	6					100.00%		
Services	7						100.00%	
Hydrants	8							100.00%
Plant	9	52.13%	12.11%	16.02%	0.00%	6.71%	9.29%	3.75%
Adm. and Gen	10	50.30%	11.73%	7.54%	30.44%	N/A	N/A	N/A
Labor B'fits	11	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Base/Max Day/ Max Hour	12	55.88%	14.05%	30.08%				

Refer to last page for brief allocation code explanations

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Plant in Service Allocation"

Act. No.	Account	Utility Cost (B-4)	Depreciation Reserve (B-2.1)	Net Cost	Base Cost	Extra Capacity		Customer Costs			Fire Service	Alloc. Code
						Max Day	Max Hour	Billing	Meter	Services		
	INTANGIBLE PLANT	142,885										
301	Organization	6,248		6,248	6,248							1
302	Franchises	136,637		136,637	136,637							1
339	Miscellaneous	0		0	0							1
	SOURCE OF SUPPLY PLANT	4,284,514										
303	Land and land rights	965,241		965,241	870,857	94,384	0	0	0	0	0	13
304	Structures and improvements	0		0	0	0	0	0	0	0	0	13
305	Collecting reservoirs	1,814,386	463,256	1,351,130	1,351,130							1
306	Intakes	1,074,790	127,747	947,043	756,796	190,247						2
307	Wells	179,128	43,294	135,834	108,547	27,287						2
308	Infiltration Galleries	0		0	0	0						2
309	Supply mains	250,969	52,429	198,540	158,656	39,884						2
339	Other plant	0		0	0	0						2
	PUMPING PLANT	1,903,550										
303	Land and land rights	26,755		26,755	14,950	3,758	8,047	0	0	0	0	13
304	Structures and improvements	350,645	946,502	(595,857)	(332,954)	(83,699)	(179,204)	0	0	0	0	13
310	Power Generation Equip	202,291	138,659	63,632	35,556	8,938	19,137					12
310	Other power productior	0	0	0	0	0	0					12
311	Steam pumping	0	0	0	0	0	0					12
311	Electrical Pumping	1,323,859	320,737	1,003,122	560,525	140,907	301,689					12
311	Diesel Pumping	0	0	0	0	0	0					12
339	OtherPlant & Misc. Equip.	0	0	0	0	0	0					12
	WATER TREATMENT PLANT	19,460,449										
303	Land and land rights	7,227	0	7,227	5,775	1,452	0	0	0	0	0	13
304	Structures and improvements	10,419,562	1,593,020	8,826,542	7,053,423	1,773,119	0	0	0	0	0	13
320	Water treatment	9,033,660	2,714,907	6,318,753	5,049,411	1,269,342						2
339	OtherPlant & Misc. Equip.	0	0	0	0	0						2
	TRANSMISSION/DISTRIBUTION	37,663,222										
303	Land and land rights	51,349	0	51,349	16,256	4,086	13,732	0	5,870	8,127	3,278	13
304	Structures and improvements	617,601	(231,591)	849,192	268,832	67,580	227,093	0	97,079	134,395	54,212	13
330	Dist. reservoirs and standpipe:	3,139,800	580,225	2,559,575			2,559,575					4
331	Mains	21,711,866	6,767,615	14,944,251	8,350,563	2,099,199	4,494,489					12
333	Services	6,018,628	1,843,988	4,174,640						4,174,640		7
334	Meters	3,542,678	679,052	2,863,626					2,863,626			6
334	Meter installations	158,780	6,894	151,886					151,886			6
335	Hydrants	2,332,204	648,247	1,683,957							1,683,957	8
336	Backflow Prevention Devices	0	0	0						0		7
339	OtherPlant & Misc. Equip.	90,316	15,344	74,972	23,734	5,966	20,049	0	8,571	11,865	4,786	13

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Plant in Service Allocation"

Act. No.	Account	Utility Cost	Depreciation Reserve	Net Cost	Base Cost	Extra Capacity		Customer Costs			Fire Service	Alloc. Code
						Max Day	Max Hour	Billing	Meter	Services		
	GENERAL PLANT	3,042,815										
303	Land and land rights	6,141	0	6,141	3,201	744	984	0	412	570	230	9
304	Structures and improvements	334,263	18,782	315,481	164,452	38,198	50,534	0	21,169	29,307	11,822	9
340	Office furniture	602,166	539,069	63,097	32,891	7,640	10,107	0	4,234	5,861	2,364	9
341	Transportation	984,786	584,228	400,558	208,800	48,499	64,161	0	26,878	37,210	15,010	9
342	Stores	41,226	16,101	25,125	13,097	3,042	4,025	0	1,686	2,334	941	9
343	Tools etc	385,965	216,305	169,660	88,439	20,542	27,176	0	11,384	15,761	6,357	9
344	Laboratory	314,205	61,709	252,496	131,619	30,572	40,445	0	16,943	23,456	9,461	9
345	Power operated	63,985	18,214	45,771	23,859	5,542	7,332	0	3,071	4,252	1,715	9
346	Communications	115,763	151,135	(35,372)	(18,438)	(4,283)	(5,666)	0	(2,374)	(3,286)	(1,325)	9
347	Miscellaneous	194,315	18,611	175,704	91,590	21,274	28,144	0	11,790	16,322	6,584	9
348	Other Tangible Plant	19,959	2,768	17,191	8,961	2,081	2,754	0	1,154	1,597	644	9
399	RECONCILIATION	0	0	0	0	0	0	0	0	0	0	9
	TOTAL PLANT IN SERVICE	66,517,394	18,337,247	48,180,147	25,183,415	5,816,301	7,694,603	0	3,223,380	4,462,410	1,800,037	
	Allocation Code 9	Cross check =		48,180,147	52.13%	12.11%	16.02%	0.00%	6.71%	9.29%	3.75%	
	Calculation			Total	Base Cost	Max Day	Max Hour					
	Small Main Plant in Service	ML-9		11,152,089	6,231,575	1,566,519	3,353,995					
	Small Main CIAC	ML-9		2,011,242	1,123,844	282,516	604,882					
	Total Plant CIAC	Schedule B-1		3,915,663	2,187,998	550,028	1,177,637					
	Allocated Total Plant less General				24,434,944	5,642,450	7,464,608					
	% Small Main to Allocated Total Plant				25.50%	27.76%	44.93%					
	Small Main with General Plant Allocated				6,422,455	1,614,786	3,457,336					
	Small Main with General Plant Allocated less CIAC				5,298,611	1,332,269	2,852,454					
	Allocated Total Plant less CIAC				22,995,417	5,266,273	6,516,965					

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Revenue Requirement Allocation"

Act. No.	Account	Utility Cost	Staff Adjust.	Net Cost	Base Cost	Extra Capacity		Customer Costs			Fire Service	Alloc. Code
						Max Day	Max Hour	Billing	Meter	Services		
	SOURCE OF SUPPLY	3,686										
601	Salaries and Wages ML-3	3,686	(428)	3,258	2,604	654						2
610	Purchased water	0	0	0	0							1
615	Purchased Power	0	0	0	0							1
616	Fuel for Power Prod.	0	0	0	0							1
618	Chemicals	0	0	0	0							1
	SOURCE OF SUPPLY	45,437										
620	Materials and Supplies ML-5	6,669	0	6,669	5,329	1,340						2
631	Contractual Serv.	0	0	0	0	0						2
635	Contractual Serv. - Testing	0	0	0	0	0						2
636	Contractual Serv. - Other ML-5	31,236	0	31,236	24,961	6,275						2
641	Rental of Property	0	0	0	0	0						2
642	Rental of Equipment ML-5	1,138	0	1,138	909	229						2
650	Transportation Exp. ML-5	1,044	0	1,044	834	210						2
658	Insurance	0	0	0	0	0						2
668	Water Res. Conserv. Exp.	0	0	0	0	0						2
675	Misc. Expenses ML-5	5,350	0	5,350	4,275	1,075						2
	PUMPING EXPENSES	429,039										
601	Salaries and Wages ML-3	16,340	(1,897)	14,443	8,070	2,029	4,344					12
615	Purchased Power ML-5	412,699	0	412,699	412,699							1
616	Fuel for power production	0	0	0	0							1
620	Materials and Supplies	0	0	0	0	0	0					12
631	Contractual Serv.	0	0	0	0	0	0					12
635	Contractual Serv. - Testing	0	0	0	0	0	0					12
636	Contractual Serv. - Other	0	0	0	0	0	0					12
641	Rental of Property	0	0	0	0	0	0					12
	PUMPING EXPENSES	0										
642	Rental of Equipment	0	0	0	0	0	0					12
650	Transportation Expenses	0	0	0	0	0	0					12
658	Insurance	0	0	0	0	0	0					12
675	Misc. Expenses	0	0	0	0	0	0					12
	WATER TREATMENT EXPENSE	719,184										
601	Salaries and Wages C-11.1, page 2	362,398	(42,077)	320,321	255,973	64,348						2
615	Purchased Power	0	0	0	0	0						2
616	Fuel for power production	0	0	0	0	0						2
618	Chemicals ML-5	310,121	0	310,121	310,121							1
620	Materials and Supplies ML-5	46,665	0	46,665	37,291	9,374						2

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Revenue Requirement Allocation"

Act. No.	Account	Utility Cost	Staff Adjust.	Net Cost	Base Cost	Extra Capacity Max Day	Max Hour	Customer Costs			Fire Service	Alloc. Code
								Billing	Meter	Services		
WATER TREATMENT EXPENSE		137,158										
631	Contractual Serv.	0	0	0	0	0						2
635	Contract. Serv. - Testing ML-5	21,780	0	21,780	17,405	4,375						2
636	Contractual Serv. - Other ML-5	73,764	0	73,764	58,946	14,818						2
641	Rental of Property	0	0	0	0	0						2
642	Rental of Equipment ML-5	4,171	0	4,171	3,333	838						2
650	Transportation Exp. ML-5	10,379	0	10,379	8,294	2,085						2
658	Insurance	0	0	0	0	0						2
675	Misc. Expenses ML-5	27,064	0	27,064	21,627	5,437						2
TRANSMISSION/DISTRIBUTION		265,051										
601	Salaries and Wages C-11.1, page 2	243,265	(28,245)	215,020	141,659	27,585	45,777	0	0	0	0	13
661	Storage Facilities	0	0	0			0					4
662	Mains	0	0	0	0	0						12
663	Meters	0	0	0					0			6
664	Services	0	0	0						0		7
615	Purchased Power ML-5	21,786	0	21,786	21,786							1
616	Fuel for Power Prod.	0	0	0	0							1
TRANSMISSION/DISTRIBUTION		296,167										
618	Chemicals	0	0	0	0							1
620	Materials and Supplies ML-5	72,291	0	72,291	47,626	9,274	15,390	0	0	0	0	13
672	Dist. reservoirs and standpipes	0	(9,064)	(9,064)			(9,064)					4
631	Contractual Serv.	0	0	0	0	0		0	0	0	0	13
635	Contractual Serv. - Testing	0	0	0	0							1
636	Contractual Serv. - Other ML-5	76,675	0	76,675	50,515	9,837	16,324	0	0	0	0	13
641	Rental of Property	0	0	0	0	0	0	0	0	0	0	13
677	Hydrants	0	0	0								8
642	Rental of Equipment ML-5	4,375	0	4,375	2,882	561	931	0	0	0	0	13
650	Transportation Exp. ML-5	133,999	0	133,999	74,876	18,823	40,300					12
658	Insurance	0	0	0	0	0	0					12
675	Misc. Expenses ML-5	8,827	0	8,827	5,815	1,132	1,879	0	0	0	0	13
CUSTOMER ACCOUNTS EXPENSE		421,513										
601	Salaries and Wages C-11.1, page 2	365,275	(42,411)	322,864				322,864				5
615	Purchased Power ML-5	1,582	0	1,582				1,582				5
616	Fuel for Power Prod.	0	0	0				0				5
670	Bad Debt Expense ML-5	41,635	(2,124)	39,511	19,873	4,634	2,978	12,026	0	0	0	10
620	Materials and Supplies ML-5	13,021	0	13,021				13,021				5
CUSTOMER ACCOUNTS EXPENSE		189,719										
631	Contractual Serv.	0	0	0				0				5
635	Contractual Serv. - Testing	0	0	0				0				5
636	Contractual Serv. - Other ML-5	163,168	(38,436)	124,732				124,732				5
641	Meter Reading	0	0	0				0				5
642	Rental of Equipment ML-5	4,975	0	4,975				4,975				5
650	Transportation Exp. ML-5	0	0	0				0				5
658	Insurance	779	0	779				779				5
675	Misc. Expenses ML-5	20,797	(19,246)	1,551				1,551				5



ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Revenue Requirement Allocation"

	Net Cost	Base Cost	Max Day	Max Hour	
Acct. 662 allocated to small mains	0	0	0	0	
Small mains with overhead	0	0	0	0	
Total Expense less Adm. & General anc less Pro Forma Adjustments		1,537,705	184,931	118,860	
% Small Mains to Total Expense		0.00%	0.00%	0.00%	
Small Mains with Adm. & General anc Pro Forma Adjustments* Allocated		0	0	0	
Depreciation		208,688	55,537	91,520	
Other Taxes		90,400	23,054	52,767	
Income Taxes		162,479	41,435	94,840	Total
Utility Operating Income		442,412	112,823	258,239	
TOTAL REVENUES ALLOCATED TO SMALL MAINS		903,979	232,849	497,367	1,634,195

\* excluding Fuel & Power, Chemical and Waste Disposa

Revenue Requirement from Small Mains	Residential	Commercial	Industrial	TeePak	Sales for Resale				Total
Remove From	788,711	332,595	165,865	224,292	122,732	0	0	0	1,634,195
Reallocate to Blocks	1,060,125	431,988	142,082	0	0	0	0	0	1,634,195
Net Adjustment	271,414	99,393	(23,783)	(224,292)	(122,732)	0	0	0	(0)

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Customer Group Allocation Factors"

Customer Class	Annual Consumption			Max Day				Max Hour				Commercial		Equivalent Meters		Equivalent Services	
	Usage	MGD	%	% of Ave.	Amt. MGD	Excess MGD	%	% of Ave.	Amt. MGD	Excess MGD	%	Monthly Bills	%	Monthly No.	%	Monthly No.	%
Residential	1,218,475	2.497	39.20%	225%	5.618	3.121	52.98%	330%	8.240	5.743	39.12%	185,844	91.16%	191,346	78.38%	187,159	89.67%
Commercial	632,440	1.296	20.35%	195%	2.527	1.231	20.90%	240%	3.111	1.814	12.36%	14,724	7.22%	40,908	16.76%	19,560	9.37%
Industrial	420,839	0.862	13.54%	130%	1.121	0.259	4.39%	170%	1.466	0.604	4.11%	756	0.37%	9,822	4.02%	1,843	0.88%
TeePak	569,080	1.166	18.31%	130%	1.516	0.350	5.94%	170%	1.983	0.816	5.56%	12	0.01%	1,080	0.44%	72	0.03%
Sales for Resale	236,719	0.485	7.62%	175%	0.849	0.364	6.18%	250%	1.213	0.728	4.96%	24	0.01%	960	0.39%	96	0.05%
	0	0.000	0.00%	0%	0.000	0.000	0.00%	0%	0.000	0.000	0.00%	0	0.00%	0	0.00%	0	0.00%
	0	0.000	0.00%	0%	0.000	0.000	0.00%	0%	0.000	0.000	0.00%	0	0.00%	0	0.00%	0	0.00%
	0	0.000	0.00%	0%	0.000	0.000	0.00%	0%	0.000	0.000	0.00%	0	0.00%	0	0.00%	0	0.00%
SUBTOTAL	3,077,553	6.307	99.01%		11.632	5.325	90.38%		16.012	9.705	66.10%	201,360	98.77%	244,116	100.00%	208,730	100.00%
Fire Prot.	30,776	0.063	0.99%		0.630	0.567	9.62%		5.040	4.977	33.90%	2,507	1.23%	-----	-----	-----	-----
TOTAL	3,108,329	6.370	100.00%		12.262	5.892	100.00%		21.052	14.682	100.00%	203,867	100.00%	244,116	100.00%	208,730	100.00%

Number of public fire protection bills ignored as immaterial

No services assigned to public fire protection; services considered to be part of hydrant

No services assigned to private fire protection since customer generally pays for service line

Fire Protection Consumption set at 1% of other consumption

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Percent Allocation to Customer Groups"

DESCRIPTION	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	SALES FOR RESALE				FIRE PROTECTION	TOTAL
Base	39.20%	20.35%	13.54%	18.31%	7.62%	0.00%	0.00%	0.00%	0.99%	100.00%
Maximum Day	52.98%	20.90%	4.39%	5.94%	6.18%	0.00%	0.00%	0.00%	9.62%	100.00%
Maximum Hour	39.12%	12.36%	4.11%	5.56%	4.96%	0.00%	0.00%	0.00%	33.90%	100.00%
Commercial	91.16%	7.22%	0.37%	0.01%	0.01%	0.00%	0.00%	0.00%	1.23%	100.00%
Meters	78.38%	16.76%	4.02%	0.44%	0.39%	0.00%	0.00%	0.00%	-----	100.00%
Services	89.67%	9.37%	0.88%	0.03%	0.05%	0.00%	0.00%	0.00%	-----	100.00%
Fire Service-Hyd	-----	-----	-----	-----	-----	-----	-----	-----	100.00%	100.00%

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Cost Allocation to Customer Groups"

DESCRIPTION	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	SALES FOR RESALE	0	0	0	FIRE PROTECTION	TOTAL
Base	2,456,476	1,275,015	848,422	1,147,279	477,231	0	0	0	62,044	6,266,467
Maximum Day	685,081	270,245	56,787	76,791	79,856	0	0	0	124,433	1,293,195
Maximum Hour	538,209	170,041	56,574	76,503	68,192	0	0	0	466,401	1,375,919
Commercial	883,368	69,987	3,593	57	114	0	0	0	11,916	969,036
Meters	523,462	111,911	26,870	2,955	2,626	0	0	0	-----	667,824
Services	703,303	73,502	6,926	271	361	0	0	0	-----	784,363
Fire Service-Hyd	-----	-----	-----	-----	-----	-----	-----	-----	330,271	330,271
Adjustments *	(113,464)	(38,619)	(19,581)	(25,551)	(12,314)	0	0	0	(13,899)	(223,428)
Small Main Adjustment	271,414	99,393	(23,783)	(224,292)	(122,732)	0	0	0		(0)
TOTAL COST OF SERVICE	5,947,849	2,031,475	955,809	1,054,012	493,334	0	0	0	981,167	11,463,646
Percent of COSS	51.88%	17.72%	8.34%	9.19%	4.30%	0.00%	0.00%	0.00%	8.56%	100.00%

\* for Other and for Unbillec

Special Tariff Revenues	0
Other Operating Revenues	163,243
Unbilled Revenues	60,185
Total Revenues	11,687,075

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Fire Protection Allocation"

FIRE PROTECTION	Equiv. Conn.
Public, monthly	18,900
Private, monthly	3,688
Total Equiv. Connections	22,588
Total Fire Protection per Cost of Service Study	981,167
Less Billing Costs	11,916
Less Hydrant Costs	330,271
Total Non-hydrant Fire Protection Costs	638,979
Total Non-hydrant Fire Protection Costs Per Equiv. Connection, monthly	28.29
Public Fire Protection Connection Costs	534,652
Plus Hydrant Costs	330,271
Total Public Fire Protection Costs	864,923
Total Private Fire Protection Connection Costs	104,327
Plus Billing Costs	11,916
Plus Hydrant Costs	0
Total Private Fire Protection Costs	116,244

Private Fire Protection Rates:

Private Fire Prot.	Ratio #	Monthly COSS Rates	Monthly Staff Rates
less than 3"	0.056	6.33	6.33
3	0.162	9.32	9.32
4	0.344	14.49	14.49
6	1.000	33.04	33.04
8	2.131	65.04	65.04
10	3.832	113.16	113.16
12	6.190	179.87	179.87
16	13.192	377.92	377.92

# - ratio based on capacity

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Public Fire Protection Surcharge"  
"Single - Tier Method"

Per Hydrant Cost Customer	\$549.16 Hydrants	Total Cost	Municipal Paid	Customer Surcharge	Table 10, ML-21 MONTHLY BILLS				Fire Prot Bills	Equiv. Fire Prot Bills	Monthly Rates				Actual Surcharge Revenues	Connections Per Hydrant
					5/8"	3/4"	1"	1 1/2"			5/8"	3/4"	1"	1 1/2"		
Total	1,575	864,923	0	864,923	193,882	84	4,932	3,768	202,666	225,178					865,056	
Outside	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	
Danville	1,243	682,603	0	682,603	140,615	72	3,744	3,288	147,719	166,523	4.10	6.15	10.25	20.50	682,744	9.90
Lynch	36	19,770	0	19,770	13,127	0	408	144	13,679	14,867	1.33	2.00	3.33	6.65	19,775	31.66
Kickapoo	73	40,089	0	40,089	11,832	12	192	108	12,144	12,870	3.11	4.67	7.78	15.55	40,027	13.86
Tilton	128	70,292	0	70,292	12,600	0	168	96	12,864	13,500	5.21	7.82	13.03	26.05	70,336	8.38
Westville	39	21,417	0	21,417	9,540	0	192	108	9,840	10,560	2.03	3.05	5.08	10.15	21,438	21.03
Bismarck	43	23,614	0	23,614	4,836	0	228	24	5,088	5,526	4.27	6.41	10.68	21.35	23,597	9.86
Indianola	13	7,139	0	7,139	1,332	0	0	0	1,332	1,332	5.36	8.04	13.40	26.80	7,140	8.54

ILLINOIS COMMERCE COMMISSION  
Cost of Service Study  
"Equiv. Meters and Services"

ITEM	METER RATIO	SERVICE RATIO	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	SALES FOR RESALE			TOTAL
METER SIZE										
5/8" disk	1.0	1.0	183,096	9,444	84	-	-	-	-	192,624
3/4" disk	1.5	1.1	84	-	-	-	-	-	-	84
1" disk	2.5	1.4	2,352	2,400	156	-	-	-	-	4,908
1 1/2" disk	5.0	1.8	180	1,140	96	-	-	-	-	1,416
2" disk	8.0	2.5	108	1,308	216	-	-	-	-	1,632
3" disk	15.0	3.0	12	180	12	-	-	-	-	204
4" disk	25.0	4.0	12	36	12	-	-	-	-	60
6" disk	50.0	5.0	-	-	-	-	-	-	-	-
8" disk	80.0	6.0	-	-	-	-	-	-	-	-
10" disk	115.0	6.5	-	12	-	-	-	-	-	12
12" disk	168.0	7.0	-	-	-	-	-	-	-	-
3" turbine	17.5	3.0	-	144	24	-	12	-	-	180
4" turbine	30.0	4.0	-	60	108	-	-	-	-	168
6" turbine	62.5	5.0	-	-	48	-	12	-	-	60
8" turbine	90.0	6.0	-	-	-	12	-	-	-	12
10" turbine	145.0	6.5	-	-	-	-	-	-	-	-
Parallel	?	?	-	-	-	-	-	-	-	-
Equiv Meters			191,346	40,908	9,822	1,080	960	-	-	244,116
Equiv Services			187,159	19,560	1,843	72	96	-	-	208,730

Act. No.	Account	Utility Depreciation (C-12)	Staff Adjust.	Net Cost	Base Cost	Extra Capacity		Customer Costs			Fire Service	Alloc. Code
						Max Day	Max Hour	Billing	Meter	Services		
	INTANGIBLE PLANT	0										
301	Organizator			0	0							1
302	Franchises			0	0							1
339	Miscellaneous			0	0							1
	SOURCE OF SUPPLY PLANT	50,749										
303	Land and land right:			0	0	0	0	0	0	0	0	13
304	Structures and improvement:			0	0	0	0	0	0	0	0	13
305	Collecting reservoir:	27,216	0	27,216	27,216							1
306	Intakes	15,799	0	15,799	12,625	3,174						2
307	Wells	2,991	0	2,991	2,390	601						2
308	Infiltration Gallerie:			0	0	0						2
309	Supply mains	4,743	0	4,743	3,790	953						2
339	Other plant			0	0	0						2
	PUMPING PLANT	56,133										
303	Land and land right:			0	0	0	0	0	0	0	0	13
304	Structures and improvement:	7,960	0	7,960	4,448	1,118	2,394	0	0	0	0	13
310	Power Generation Equip	6,736	0	6,736	3,764	946						12
310	Other power productior			0	0	0	0					12
311	Steam pumping			0	0	0	0					12
311	Electrical Pumping	41,437	0	41,437	23,154	5,821	12,462					12
311	Diesel Pumping			0	0	0	0					12
339	OtherPlant & Misc. Equip			0	0	0	0					12
	WATER TREATMENT PLANT	612,166										
302	Land and land right:			0	0	0	0	0	0	0	0	13
304	Structures and improvement:	289,664	0	289,664	231,475	58,189	0	0	0	0	0	13
320	Water treatment	322,502	0	322,502	257,716	64,786						2
339	Other Plant & Misc. Equip			0	0	0						2
	TRANSMISSION/DISTRIBUTION	939,060										
303	Land and land right:			0	0	0	0	0	0	0	0	13
304	Structures and improvement:	25,754	0	25,754	5,329	1,340	4,355	0	6,437	5,682	2,612	13
330	Dist. reservoirs and standpipe	52,435	0	52,435			52,435					4
331	Mains (net of Contributions in Aid of Constructior	336,348	0	336,348	187,945	47,246	101,157					12
333	Services	200,420	0	200,420						200,420		7
334	Meters	220,000	0	220,000				220,000				6
334	Meter installations	7,050	0	7,050				7,050				6
335	Hydrants	92,122	0	92,122							92,122	8
336	Backflow Prevention Device:			0						0		7
339	OtherPlant & Misc. Equip	4,931	0	4,931	1,020	256	834	0	1,233	1,088	500	13
	GENERAL PLANT	315,576										
303	Land and land right:			0	0	0	0	0	0	0	0	9
304	Structures and improvement:	13,371	0	13,371	6,136	1,487	1,417	0	1,893	1,671	768	9
340	Office furniture, includes Corporat	121,928	0	121,928	55,950	13,562	12,917	0	17,260	15,236	7,003	9
341	Transportator	106,061	0	106,061	48,669	11,797	11,236	0	15,014	13,253	6,092	9
342	Stores	1,352	0	1,352	620	150	143	0	191	169	78	9
343	Tools etc	28,214	0	28,214	12,947	3,138	2,989	0	3,994	3,526	1,620	9
344	Laboratory	15,710	0	15,710	7,209	1,747	1,664	0	2,224	1,963	902	9
345	Power operatec	3,199	0	3,199	1,468	356	339	0	453	400	184	9
346	Communications	14,470	0	14,470	6,640	1,609	1,533	0	2,048	1,808	831	9
347	Miscellaneous	10,610	0	10,610	4,869	1,180	1,124	0	1,502	1,326	609	9
348	Other Tangible Plan	661	0	661	303	74	70	0	94	83	38	9
399	RECONCILIATION	0	0	0	0	0	0	0	0	0	0	9
	TOTAL DEPRECIATION	1,973,684	0	1,973,684	905,684	219,531	209,095	0	279,392	246,623	113,359	
	Allocation Code 9 Calculator	Cross check =		1,973,684	45.89%	11.12%	10.59%	0.00%	14.16%	12.50%	5.74%	100.00%

CONSUMERS ILLINOIS WATER COMPANY  
Staff Cost of Service Study  
Explanation of Allocation Codes

- 1 This code refers to allocations made 100 percent to Base Cost. Base Costs are costs which tend to vary with the quantity of water used and do not contain elements necessary to meet variations in demand.
- 2 This code refers to allocations divided between Base Cost and Extra Capacity Cost on the ratio of the average annual consumption per day to the maximum consumption on the Maximum Day. Extra Capacity costs are those costs associated with meeting rate of use requirements in excess of the average.
- 3 This code refers to allocations divided between Base Cost and Extra Capacity Cost on the ratio of the average annual consumption per day to the maximum hourly consumption.
- 4 This code refers to allocations made 100 percent to Extra Capacity - Maximum Hour.
- 5 This code refers to allocations made 100 percent to commercial costs associated with serving customers irrespective to the amount of water used or the maximum demand. They include meter reading, billing, customer accounting and collection expenses.
- 6 This code refers to allocations made 100 percent to maintenance and capital charges on customer meters.
- 7 This code refers to allocations made 100 percent to maintenance and capital charges on customer services.
- 8 This code refers to allocations made 100 percent to Fire Protection - Hydrants.
- 9 This code refers to allocations divided among various cost functions in the same ratio as the average allocation of plant in service as developed and shown on page 6 of 18 of this Schedule.

CONSUMERS ILLINOIS WATER COMPANY  
Staff Cost of Service Study  
Explanation of Allocation Codes

- 10 This code refers to allocations divided among various cost functions in the same ratio as the average allocation of operating and maintenance expenses has been allocated before administrative and general expenses and without considering fuel, power and chemical costs.
- 11 This code refers to allocations divided among various cost functions in the same ratio as the average allocation of labor costs if available or on the basis of Allocation Code 10 if not.
- 12 This code refers to allocations divided among Base Cost, Extra Capacity - Maximum Day and Extra Capacity - Maximum Hour.
- 13 This code refers to allocations divided among various cost functions in the same percentage ratio as the average of all items in that subgroup.



ILLINOIS COMMERCE COMMISSION  
Illustrative Rates at Full TeePak Cost Recovery

ITEM	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		TeePak		SALES FOR RESALE		BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	TOTAL				
	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.	BILL ANA.	ADJUST.											
USAGE CHARGE REVENUES	Present	3,453,815	0	1,498,319	0	799,583	0	451,451	0	473,438	0	0	0	0	0	0	0	6,676,607			
	Proposed	4,197,299	0	1,821,047	0	971,947	0	478,596	0	575,464	0	0	0	0	0	0	0	8,044,354			
	Staff	3,805,964	0	1,641,847	0	860,846	0	1,061,733	0	479,995	0	0	0	0	0	0	0	7,850,384			
OTHER ADJUSTMENTS	Present	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Proposed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Staff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
TOTAL METERED REVENUES	Present	5,727,947	0	1,884,311	0	881,195	0	456,503	0	481,214	0	0	0	0	0	0	0	9,431,171			
	Proposed	6,980,543	0	2,291,184	0	1,071,149	0	483,954	0	584,915	0	0	0	0	0	0	0	11,411,746			
	Staff	6,080,096	0	2,027,839	0	942,458	0	1,068,803	0	487,771	0	0	0	0	0	0	0	10,606,966			
PVT. FIRE PROT RATES, MONTHLY																					
Size Connection		Less than 3"	3"	4"	6"	8"	10"	12"	16"	PRIVATE HYDRANTS											
Present	E-2	6.00	8.00	12.00	26.00	50.00	85.00	135.00	283.00	0.00											
Proposed	E-2	7.20	9.60	14.40	31.20	60.00	102.00	162.00	339.60	0.00											
Per Cost of Service Study		6.36	9.41	14.67	33.56	66.14	115.15	183.08	384.77	N/A											
Staff		6.40	9.40	14.70	33.60	66.10	115.20	183.10	384.80	0.00											
Units (ANNUAL)	Table 10	71	0	384	1,187	625	192	48	0	0											
NON-METERED REVENUES											PVT. FIRE		PUBLIC FIRE			OTHER OPERATING		VARIABLE REVENUES		TOTAL NON-METERED	
Present	89,946		0		666,689		666,689		25,553		53,487		835,675								
Proposed	107,935		0		744,890		744,890		25,553		53,487		931,865								
Staff	118,202		0		875,439		875,439		25,553		60,904		1,080,099								
TOTAL REVENUES	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	RESALE	NON-METERED		TOTAL													
Present	5,727,947	1,884,311	881,195	456,503	481,214	0	0	0	835,675	10,266,846											
Proposed	6,980,543	2,291,184	1,071,149	483,954	584,915	0	0	0	931,865	12,343,611											
Staff	6,080,096	2,027,839	942,458	1,068,803	487,771	0	0	0	1,080,099	11,687,065											
PER STAFF	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	TeePak	RESALE	PUB. FIRE		PVT FIRE													
Cost of Service	6,015,672	2,054,560	967,514	1,069,286	500,695	0	0	0	874,733	118,158											
Percent Increase	6.1	7.6	7.0	134.1	1.4	0.0	0.0	0.0	31.3	31.4											
Percent Cost of Service	101.1	98.7	97.4	100.0	97.4	0.0	0.0	0.0	100.1	100.0											

**AQUA ILLINOIS, Inc.**  
**TYPICAL BILL COMPARISONS**  
**VERMILION WATER DIVISION**

Residential -Danville:

	CURRENT	COMPANY PROPOSED	STAFF PROPOSED
FACILITIES CHARGE	\$ 12.00	\$ 14.69	\$ 12.00
USAGE CHARGE (CCF)	\$ 2.8710	\$ 3.4890	\$ 3.3145
FIRE SURCHARGE	\$ 3.36	\$ 3.69	\$ 4.10

LINE NO.	USAGE 100'S CU. FT.	USAGE IN GALLONS	CURRENT MONTHLY BILL	COMPANY PROPOSED MONTHLY BILL	DOLLAR INCREASE	PERCENT INCREASE	STAFF PROPOSED MONTHLY BILL	DOLLAR INCREASE	PERCENT INCREASE
1	1	748	\$18.23	\$21.87	\$3.64	19.97%	\$19.41	\$1.18	6.5%
2	2	1,496	\$21.10	\$25.36	\$4.26	20.19%	\$22.73	\$1.63	7.7%
3	3	2,244	\$23.97	\$28.85	\$4.88	20.36%	\$26.04	\$2.07	8.6%
4	4	2,992	\$26.84	\$32.34	\$5.50	20.49%	\$29.36	\$2.52	9.4%
5	5	3,740	\$29.72	\$35.83	\$6.11	20.56%	\$32.67	\$2.95	9.9%
6	6	4,488	\$32.59	\$39.31	\$6.72	20.62%	\$35.99	\$3.40	10.4%
7	7	5,236	\$35.46	\$42.80	\$7.34	20.70%	\$39.30	\$3.84	10.8%
<b>8**</b>	<b>8</b>	<b>5,984</b>	<b>\$38.33</b>	<b>\$46.29</b>	<b>\$7.96</b>	<b>20.77%</b>	<b>\$42.62</b>	<b>\$4.29</b>	<b>11.2%</b>
9	9	6,732	\$41.20	\$49.78	\$8.58	20.83%	\$45.93	\$4.73	11.5%
10	10	7,480	\$44.07	\$53.27	\$9.20	20.88%	\$49.25	\$5.18	11.8%

**Notes:**

**\*\* Typical monthly residential usage**

Large Industrial (TeePak):

	Present Rates	Company Proposed Rates	Staff Proposed Rates
3-inch turbo meter customer charge, per month	\$ 421.00	\$ 446.47	\$ 589.16
All usage	\$ 0.7933	\$ 0.8410	\$ 1.0980
Fire Protection per month	\$ 16.80	\$ 18.45	\$ 20.50

LINE NO.	USAGE 100'S CU. FT.	USAGE IN GALLONS	CURRENT MONTHLY BILL	COMPANY PROPOSED MONTHLY BILL	DOLLAR INCREASE	PERCENT INCREASE	STAFF PROPOSED MONTHLY BILL	DOLLAR INCREASE	PERCENT INCREASE
1	35,567	26,604,303	\$28,653.30	\$30,376.98	\$1,723.68	6.02%	\$39,662.51	\$11,009.21	38.4%
2	47,423	35,472,404	\$38,058.47	\$40,347.66	\$2,289.19	6.01%	\$52,680.12	\$14,621.65	38.4%
3	59,279	44,340,505	\$47,463.63	\$50,318.35	\$2,854.72	6.01%	\$65,697.73	\$18,234.10	38.4%