SECTION 4
COST APPROACH

4.1 GENERAL

For the purposes of this report, I have chosen the replacement cost new less depreciation as the cost approach. I have relied upon Mr. Tony Malone, P.E. of ESI, the Client, the water company as well as the IEPA and ICC.

4.2 CRYSTAL CLEAR WATER COMPANY - RCNLD

The RCNLD of the water system is presented on **Table 4-1** for the analysis. The amounts determined were:

1. Replacement Cost New - $2,072,150
2. Physical Depreciation - $1,439,527
3. Replacement Cost New Less Physical Depreciation - $632,663

4.3 ADJUSTMENTS

The adjustments found are shown on **Table 4-2**. No material adjustments were required from **Table 4-1** for that finding.

4.4 RCNLD OF TPP AND IP

Note that land or real property (RP) is not included in this report.

The replacement cost new less depreciation (RCNLD) of the Tangible Personal Property (TPP) and Intangible Property (IP) includes additional items not presented in **Table 4-1**. Those items are shown on **Table 4-3**.

The estimates of the on-site consumables and inventory was found to be $8,000. Similarly the amount for equipment and tools was found to be $11,000.

The value of the facility records, reports, operations and maintenance, billing records, financials, regulatory records, and other records of the water system were estimated at $35,000.00.

While there are deficiencies and deferred maintenance, it was minor for this system.

We found no functional depreciation.

External depreciation, in this case, involves the market conditions, regulatory matters, and transactional costs to the buyer discounting the value. We found this amount to be $35,200 rounded.

Going concern is the difference between a "live" plant and a "dead" plant. The on-going nature of the customer base, etc. was evaluated, Nichols provides a range between 0% and 25% for water and wastewater utilities. This system is small and old and has had little additional growth recently. The percent applied is 10% or $58,700. The amount applied is $58,700. The entitlements and rights for water withdrawal and related activities were also found to be $58,700.

The resulting total replacement cost new less depreciation was found to be $769,000 rounded.

Table 4-1
Crystal Clear Water Company
Water System
Reproduction Costs New Less Depreciation

General Description	Quantity	Unit	Unit Price	Year Installed	Reproduction Cost New	Age	Average Service Life	Percent Depreciation	Total Depreciation	Reproduction Cost New Less Depreciation
Phase I										
Distribution System										
4" Water Main	13722	LF	$ 75.00	1954	$ 1,029,150.00	61	80	76%	$ 784,727	$ 244,423
6" Water Main	1590	LF	$ 80.00	1954	$ 127,200.00	61	80	76%	$ 96,990	$ 30,210
10" Water Main	360	LF	$ 105.00	1954	$ 37,800.00	61	80	76%	$ 28,823	$ 8,978
4" Valves	20	EA	$ 800.00	1954	$ 16,000.00	61	50	85%	$ 13,600	$ 2,400
4" Hydrants with auxillary valves	5	EA	$ 4,000.00	1954	$ 20,000.00	61	50	85%	$ 17,000	$ 3,000
4" Hydrants with auxillary valves	1	EA	$ 4,000.00	2006	$ 4,000.00	9	50	18%	$ 720	$ 3,280
5/8" Water Service (Main to B-Box)	264	EA	$ 1,000.00	1954	$ 264,000.00	61	50	85%	$ 224,400	$ 39,600
5/8" Meters	264	EA	$ 300.00	1954	$ 79,200.00	61	50	85%	$ 67,320	$ 11,880
Subtotal Phase I					**$ 1,577,350.00**				**$ 1,233,579.38**	**$ 343,770.63**

Phase II										
Distribution System										
4" Water Main	1428	LF	$ 75.00	1959	$ 107,100.00	56	80	70%	$ 74,970.00	$ 32,130.00
4" Valves	1	EA	$ 800.00	1959	$ 800.00	56	50	85%	$ 680.00	$ 120.00
4" Hydrants with auxillary valves	3	EA	$ 4,000.00	1959	$ 12,000.00	56	50	85%	$ 10,200.00	$ 1,800.00
5/8" Water Service (Main to B-Box)	29	EA	$ 1,000.00	1959	$ 29,000.00	56	50	85%	$ 24,650.00	$ 4,350.00
5/8" Meters	29	EA	$ 300.00	1959	$ 8,700.00	56	50	85%	$ 7,395.00	$ 1,305.00
Subtotal Phase II					**$ 157,600.00**				**$ 117,895.00**	**$ 39,705.00**

Table 4-1
Crystal Clear Water Company
Water System
Reproduction Costs New Less Depreciation

General Description	Quantity	Unit	Unit Price	Year Installed	Reproduction Cost New	Age	Average Service Life	Percent Depreciation	Total Depreciation	Reproduction Cost New Less Depreciation
Supply										
Pump House Building	1	EA	$ 150,000.00	1954/2009	$ 150,000.00	61/6	75	10%	$ 15,000.00	$ 135,000.00
10" dia. Well - 512' Deep	1	EA	$ 50,000.00	1954	$ 50,000.00	61	50	85%	$ 42,500.00	$ 7,500.00
8" dia. Well - 275' Deep	1	EA	$ 25,000.00	1961	$ 25,000.00	54	50	85%	$ 21,250.00	$ 3,750.00
66,000 gals Storage Tanks (Used)	1	EA	$ 100,000.00	2009	$ 100,000.00	6	75	8%	$ 8,000.00	$ 92,000.00
220 gal Pneumatic Tank	1	EA	$ 5,000.00	2009	$ 5,000.00	6	75	8%	$ 400.00	$ 4,600.00
Piping	1	EA	$ 2,000.00	2009	$ 2,000.00	6	80	8%	$ 150.00	$ 1,850.00
Flow Meter	2	EA	$ 1,500.00	2009	$ 3,000.00	6	80	8%	$ 225.00	$ 2,775.00
Chlorinators and Tank	1	EA	$ 1,200.00	2009	$ 1,200.00	6	25	24%	$ 288.00	$ 912.00
Jockey Pump	2	EA	$ 500.00	2009	$ 1,000.00	6	25	24%	$ 240.00	$ 760.00
Subtotal					**$ 337,200.00**				**$ 88,053.00**	**$ 249,147.00**
Total Cost					**$ 2,072,150.00**			**72%**	**$ 1,439,527.00**	**$ 632,663.00**

Table 4-2
Adjustments Made to Table 4-1
For Replacement Cost New Less
Physical Depreciation

Item	Quantity	Unit	Adjustments
1. Table 4-1 unit prices include all overheads and contractor mobilization / demobilization, general conditions and contractors profit.			
2. Since the materials and facilities are available in the market, the reproduction cost is the replacement cost for this water system.			
3. The depreciation shown in **Table 4-1** is the physical depreciation applied in a straight line convention against the physical average service life shown.			

Table 4-3
Replacement Cost New Less Depreciation
(TPP) plus Going Concern (IP) Summary

Description	Amount
1. Replacement Cost New	$2,072,150
2. Physical Depreciation	1,439,527
3. RCNLPD	$632,663
4. Consumables & Inventory	8,000
5. Equipment & Tools	11,000
6. Records, Report, O&M, etc	35,000
7. Deficiencies & Deferred Maintenance	0
8. Functional Depreciation	0
Subtotal	**$686,663**
9. External Depreciation	(35,200)
10. Going Concern	58,700
11. Water, IP, etc.	58,700
RCNLD	**$768,863**
RCNLD Rounded	**$769,000**

Section 5

SECTION 5
INCOME APPROACH

The purpose of this section of the Report is to consider the applicability and appropriateness of calculating the value of the System based on the income approach. In general, the income approach values the System based on the present value of the available cash flows generated from the ongoing operations of the System. However, in this particular instance there are several unique and mitigating factors which would tend to diminish the importance of the income approach in the determination of value, such that the weighting applied to this approach would be zero.

The income approach requires the use of the historic customer growth rates, consumption patterns, weather variability, utility revenues, utility expenses, capital requirements, debt service, current budgets, historic budget variances, etc. These historic data are used to create a "typical" financial year for the utility which is called a Test Year. The Test year is the starting point for a projection of the utility's financials for some period into the future, typically 20 to 30 years. The present value of the net income of the utility over this projection period is used, along with potential reversion value (the net income in the last year of the projection period capitalized to reflect ongoing operations in perpetuity) to determine the opinion of value for the income approach. In this particular instance, none of the base data are available to create a Test Year. Aqua is the entity that will purchase each System, they are regulated by the ICC which would have to establish the appropriate rates and charges for each System. The rates that may be approved, as well as operations and maintenance costs, renewal and replacement program, capital improvement program, etc. are purely speculative at this point in time. Therefore, it is nearly impossible to create a proforma financial analysis of each System with any confidence in the results.

Because of the reasons discussed above, I have determined that the income approach is not applicable for these Systems.

Section 6

SECTION 6
COMPARABLE SALES APPROACH

The third approach is the Comparable Sales Approach. This approach provides an indication of value by analyzing recent sales of similar property to the subject or Crystal Clear Water Company.

This approach is most reliable when the subject property sold at FMV recently or there is an active market providing a sufficient number of sales of comparable properties. That is not the case. This system has been owned and developed by this owner for decades.

While the system is a special purpose property and have certain unique characteristics, it is not so unique that the approach is not feasible. There is an active sales market for water utilities nationally and in Illinois.

The systems such as Crystal Clear Water Company sell as complete utility properties with all rights and privileges and as an on-going concern (i.e., a "live" plant versus a "dead" plant).

The water utility market is a monopoly with an exclusive service area which can not be invaded without a special circumstance.

USPAP in the Frequently Asked Question concerning pending sales as a comparable (page F-105); addresses the question as "USPAP does not require the use of a pending sale as a comparable, nor does USPAP prohibit such use". The response continues with the statement that "not considering a pending sale of a property highly similar to the subject could constitute an omission that would significantly affect the appraisal".

A recent sale is North Maine Utilities (NMU) with a water ERC at approximately $2,200 per ERC.

The selected sales are shown on **Table 6-1.**

These sales have to be timed adjusted to the present.

The time adjustment factors are taken from **Table 6-2.**

The effects of the time adjustment are shown on **Table 6-3.**

The average result is $2,186. NMU approximates that amount as a recent verification. Subject system is only in fair condition. For the purposes of this report I am using the amount of $2,200 per connection for the indicator of market sales.

Table 6-4 presents the effect of the factor applied to the system as shown below.

The comparable sales opinion is $653,000.00.

Table 6-1
ILLINOIS WATER SYSTEM
COMPARABLE SALES ANALYSIS
Asset Composition Adjustment

					Water System				
No.	**Name of Utility**	**Name of Purchasers**	**System Type**	**Year**		**Alloc P.P.**	**Conn**		**$/Conn**
1	Moecherville Water District	Aqua Illinois	W	2012	$	1,470,000	400	$	3,675.00
2	Village of Philo	Aqua Illinois	W	2004	$	599,675	540	$	1,110.51
3	Olwen Heights	Pennsylvania American	W	2013	$	461,250	175	$	2,635.71
4	Claysville Donegal Joint Municipal Authority	Pennsylvania American	W/S	2008	$	837,200	550	$	1,272.73
5	Mifflin Township Water Authority	Aqua Pennsylvania	W	2012	$	1,155,000	600	$	1,925.00
6	Town of Waveland	American Water Indiana	W	2009	$	800,175	213	$	3,756.69
7	Town of Darlington	Aqua Indiana	W	2006	$	321,045	315	$	1,019.19
8	Wingert Water System	Aqua Texas	W	2012	$	1,984,500	1,100	$	1,804.09
9	Royal Oaks Water System	Aqua Texas	W	2012	$	42,000	40	$	1,050.00
10	East Pasco Utilities	Pasco County	W/S	2003	$	2,798,127	1,693	$	1,652.76
11	Carolina Water Service	Dorchester County	W/S	2006	$	994,443	779	$	1,276.56
12	Park Manor Waterworks, Inc.	Orange County	W/S	2003	$	1,451,580	1,436	$	1,010.85

Table 6-2
Escalation Indices

	FPSC Annual Commission-Approved Index of Regulated Water & WW Utilities	U.S. Dept. of Labor Bureau of Labor Stats Customer Price Index Avg. All Urban Consumers (CPI-U) US		Engineering News Record Construction Cost Index		Risk Free Rate as calculated from Daily U.S. Treasury Yield Curve Rates	
Year	**FPSC Price Deflator**	**CPI - U**		**ENR CCI**		**Ann. Avg Risk Free Rate**	
		Index	**% Chg.**	**Index**	**% Chg.**	**%**	**Chg.**
		90.9		3,535			
1982	9.02%	96.5	6.13%	3,825	8.20%		
1983	5.99%	99.6	3.21%	4,066	6.30%		
1984	4.25%	103.9	4.30%	4,146	1.97%		
1985	3.76%	107.6	3.55%	4,195	1.18%		
1986	3.33%	109.6	1.90%	4.295	2.38%		
1987	2.69%	113.6	3.66%	4,406	2.58%		
1988	2.89%	118.3	4.08%	4,519	2.56%		
1989	4.35%	124.0	4.83%	4,615	2.12%		
1990	4.12%	130.7	5.40%	4,732	2.54%	8.61%	
1991	4.12%	136.2	4.23%	4,835	2.18%	8.14%	-0.47%
1992	3.63%	140.3	3.03%	4,985	3.10%	7.67%	-0.47%
1993	3.33%	144.5	2.95%	5,210	4.51%	6.59%	-1.07%
1994	2.56%	148.2	2.61%	5,408	3.80%	7.37%	0.78%
1995	1.95%	152.4	2.81%	5,471	1.16%	6.88%	-0.49%
1996	2.49%	156.9	2.93%	5,620	2.72%	6.71%	-0.17%
1997	2.13%	160.5	2.34%	5,826	3.67%	6.61%	-0.10%
1998	2.10%	163.0	1.55%	5,920	1.61%	5.58%	-1.03%
1999	1.21%	166.6	2.19%	6,059	2.35%	5.87%	0.30%
2000	1.36%	172.2	3.38%	6,221	2.67%	5.94%	0.07%
2001	2.50%	177.1	2.83%	6,343	1.96%	5.49%	-0.45%
2002	2.33%	179.9	1.59%	6,538	3.07%	5.40%	-0.09%
2003	1.31%	184.0	2.27%	6,694	2.39%	4.96%	-0.44%
2004	1.60%	188.9	2.68%	7,115	6.29%	5.04%	0.09%
2005	2.17%	195.3	3.39%	7,446	4.65%	4.64%	-0.40%
2006	2.74%	201.6	3.23%	7,751	4.10%	4.89%	0.24%
2007	3.09%	207.3	2.85%	7,966	2.77%	4.84%	-0.05%
2008	2.39%	215.3	3.84%	8,310	4.32%	4.28%	-0.56%
2009	2.55%	214.5	-0.36%	8,570	3.13%	4.08%	-0.20%
2010	0.56%	218.1	1.64%	8,802	2.71%	4.25%	0.17%
2011	1.18%	224.9	3.16%	9,066	2.99%	3.91%	-0.34%
2012	2.41%	229.6	2.07%	9,313	2.73%	2.92%	-0.99%
2013	1.63%	233.0	1.46%	9,546	2.50%	3.45%	0.52%
2014	1.41%	235.0	0.88%	9,699	1.61%	3.66%	0.21%
30-Yr Avg	2.46%		2.88%		2.89%		
20-Yr Avg	**1.96%**		**2.42%**		**3.08%**	**5.16%**	
10-Yr Avg	2.01%		2.40%		3.62%	4.23%	
5-Yr Avg	1.44%		1.60%		2.81%	3.72%	
1-Yr Avg						3.66%	
	(Estab. Jan 27, 2014)	(Through Mar 2014)		(Through Apr 2014)		Through 04/22/2014	
	(Upd. April 23, 2014)	(Upd. April 23, 2014)		(Upd. Apr 23, 2014)		(Upd. Apr 23, 2014)	

Table 6-3
ILLINOIS WATER SYSTEM
COMPARABLE SALES ANALYSIS
Time Adjustment

					Water System				
No.	Name of Utility	Name of Purchasers	System Type	Year		Sale $/Conn	Time Factor		Adjusted $/Conn
1	Moecherville Water District	Aqua Illinois	W	2012	$	3,675.00	1,073	$	3,943.00
2	Village of Philo	Aqua Illinois	W	2004	$	1,110.51	1,404	$	1,559.00
3	Olwen Heights	Pennsylvania American	W	2013	$	2,635.71	1,047	$	2,760.00
4	Claysville Donegal Joint Municipal Authority	Pennsylvania American	W/S	2008	$	1,272.73	1,202	$	1,530.00
5	Mifflin Township Water Authority	Aqua Pennsylvania	W	2012	$	1,925.00	1,073	$	2,066.00
6	Town of Waveland	American Water Indiana	W	2009	$	3,756.69	1,166	$	4,380.00
7	Town of Darlington	Aqua Indiana	W	2006	$	1,019.19	1,289	$	1,314.00
8	Wingert Water System	Aqua Texas	W	2012	$	1,804.09	1,073	$	1,936.00
9	Royal Oaks Water System	Aqua Texas	W	2012	$	1,050.00	1,073	$	1,127.00
10	East Pasco Utilities	Pasco County	W/S	2003	$	1,652.76	1,493	$	2,468.00
11	Carolina Water Service	Dorchester County	W/S	2006	$	1,276.56	1,289	$	1,509.00
12	Park Manor Waterworks, Inc.	Orange County	W/S	2003	$	1,010.85	1,436	$	1,509.00
							Average	**$**	**2,186.00**

Table 6-4
Market Factor Analysis

System	Factor	#Conn	Amount
Crystal Clear Water Company	$2,200	297	$653,000

Rounding the above results in the respective opinion for the system.

The opinion of market sales for TPP and IP is as shown below:

Crystal Clear Water Company - $653,000

Rounding the opinion is $653,000.

Section 7

SECTION 7
RECONCILIATION OF APPRAISAL APPROACHES

The cost, income and comparable sales approaches for the Utility System assets to be acquired are considered in this Section. The numeric results for each approach are presented below in **Table 7-1**.

Table 7-1
Results of TPP and IP Appraisal Approaches

Appraisal Approach	Crystal Clear Water Company
Cost	$769,000
Income	N/A [(1)]
Comparable Sales	$653,000

Note: [(1)] Income approach not applicable due to those reasons, as described in **Section 5.**

The cost approach provides a specific valuation for the properties. Based upon discussions with professionals staff and photographs taken by them during the site inspections provide the basis for producing the cost approach. This approach includes the adjustments to the system and the loss of the value from physical, functional and external depreciation, when applicable. This approach includes the documented value/cost of the properties and is an accurate representation of the complex, special purpose property. Using this approach, I have valued the TPP and IP of the Crystal Company at $769,000. I have quantified the weight for this approach at 90%. Presently, in the marketplace, the cost approach is the most determinate of value. However, due to the uniqueness of this System and potential transaction, and the variability in determination of value of the other approaches, this approach has been given the greatest weight.

The income approach values the utility based on the present value of the available cash flows anticipated to be generated from the ongoing operation of the system. However, in this particular instance there are several unique and mitigating factors which would tend to diminish the importance of the income approach in the determination of value, such that the weighting applied to this approach would be zero. As such this approach was considered but was not quantified, and this I have assigned this approach a 0% weighting.

There are numerous sales of water systems in a variety of contexts. Due to this data, I have included the comparable sales approach on this exclusive (monopoly) special purpose property at $653,000 for the Crystal Clear Water Company. Based on our consideration of the comparable sales approach, I have quantified the weight of the approach at 10%. In the real-estate marketplace, this approach is more determinative of value. However, given the

uniqueness of these systems and the potential transaction, the comparable sales approach has been weighted accordingly.

Based on the analyses conducted for this assignment, my experience and training, and facts known to me, I conclude the reconciliation with an opinion of value for the Crystal Clear Water Company TPP and IP at $757,000 as of September 17, 2015.

Appendix A