

Deans Corners Water Works, Inc.

Initial Rate
Cost of Service Study

Revenue Requirement Based on
Projected Complete System

Guastella Associates, LLC

May 2016

Schedule A

Deans Corners Water Works, Inc.**Revenue Requirement**

<u>Components</u>	<u>Amount</u>
Operation & Maintenance Expenses	\$59,574
Depreciation Expense	18,351
Amortization Expense	7,000
Taxes, Other than Income Taxes	8,000
Income Taxes	9,311
Return on Investment	<u>53,043</u>
Revenue Requirement	<u><u>\$155,278</u></u>

Schedule B

Deans Corners Water Works, Inc.**Rate Base**

	<u>12/31/2015</u>	<u>Complete System</u>
Utility Plant in Service	\$2,638,402	\$712,368
Accumulated Depreciation	<u>(203)</u>	<u>(98,842)</u>
Net Plant	2,638,199	613,527
Avg. Unamortized Rate Case Exp.	17,500	17,500
Working Capital	<u>11,915</u>	<u>11,915</u>
Rate Base	<u><u>\$2,667,614</u></u>	<u><u>\$642,942</u></u>

Deans Corners Water Works, Inc.**Utility Plant in Service**

	WP 4	Contributed	UPIS	73.0% Imputed	Complete
	Original Cost	Property	Net Cost	CIAC	System
Organization & Franchise	\$0		\$0	\$0	\$0
Land	24,000	(24,000)	0	\$0	0
Wells	44,239		44,239	(32,295)	11,944
Structures - Pumping	387,986		387,986	(283,230)	104,756
Pumping Equipment	591,935		591,935	(432,113)	159,822
Structures - Treatment	289,267		289,267	(211,165)	78,102
Purification Equipment	88,083		88,083	(64,300)	23,783
Distribution Reservoirs	433,414		433,414	(316,392)	117,022
Mains	679,383		679,383	(495,950)	183,433
Services	62,000		62,000	(45,260)	16,740
Hydrants	50,400		50,400	(36,792)	13,608
Meters	11,695		11,695	(8,537)	3,158
Office Furniture & Fixtures	0		0	0	0
Transportation Equipmt	0		0	0	0
Tools, Shop & Garage	0		0	0	0
Power Operated Equipmt	0		0	0	0
Communication Equipment	0		0	0	0
Misc Equipment	0		0	0	0
Plant in Service Balance	<u>\$2,662,402</u>	<u>(\$24,000)</u>	<u>\$2,638,402</u>	<u>(\$1,926,034)</u>	<u>\$712,368</u>

Deans Corners Water Works, Inc.

Depreciation Schedule

	In-Service	Rate	Year-End Depreciation Expense											Complete System Acc. Depr.
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Organization & Franchise	9/30/2014	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Land	9/30/2014	0.00%	0	0	0	0	0	0	0	0	0	0	0	0
Wells	9/30/2014	2.50%	3	13	40	80	127	152	179	209	239	269	299	1,608
Structures - Pumping	9/30/2014	2.50%	29	116	348	703	1,110	1,329	1,569	1,832	2,094	2,357	2,619	14,106
Pumping Equipment	9/30/2014	4.55%	80	321	966	1,950	3,080	3,686	4,354	5,081	5,809	6,537	7,265	39,130
Structures - Treatment	9/30/2014	2.50%	22	86	260	524	828	991	1,170	1,366	1,561	1,757	1,953	10,517
Purification Equipment	9/30/2014	5.56%	15	58	176	355	560	670	792	924	1,057	1,189	1,321	7,117
Distribution Reservoirs	9/30/2014	2.00%	26	104	311	628	992	1,188	1,403	1,637	1,872	2,106	2,340	12,606
Mains	9/30/2014	1.00%	20	81	244	492	778	931	1,099	1,283	1,467	1,651	1,834	9,880
Services	9/30/2014	2.00%	4	15	45	90	142	170	201	234	268	301	335	1,803
Hydrants	9/30/2014	1.54%	2	9	28	56	89	106	126	147	168	189	210	1,129
Meters	9/30/2014	5.56%	2	8	23	47	74	89	105	123	140	158	175	945
Office Furniture & Fixtures	9/30/2014	6.67%	0	0	0	0	0	0	0	0	0	0	0	0
Transportation Equipmt	9/30/2014	16.67%	0	0	0	0	0	0	0	0	0	0	0	0
Tools, Shop & Garage	9/30/2014	10.00%	0	0	0	0	0	0	0	0	0	0	0	0
Power Operated Equipmt	9/30/2014	10.00%	0	0	0	0	0	0	0	0	0	0	0	0
Communication Equipment	9/30/2014	10.00%	0	0	0	0	0	0	0	0	0	0	0	0
Misc Equipment	9/30/2014	10.00%	0	0	0	0	0	0	0	0	0	0	0	0
Annual Depreciation			\$203	\$812	\$2,439	\$4,926	\$7,780	\$9,312	\$10,997	\$12,835	\$14,674	\$16,512	\$18,351	\$98,842
Accumulated Depreciation			\$203	\$1,015	\$3,454	\$8,380	\$16,160	\$25,472	\$36,470	\$49,305	\$63,979	\$80,491	\$98,842	

Schedule C

Deans Corners Water Works, Inc.**Complete System Pro Forma Operating Statement**

Operating Revenue	
Residential	\$117,373
Commercial	37,908
Other	0
	<u>155,282</u>
O&M Expense	
Super & Labor (Operating Contract)	11,500
OM Labor	0
OM Employee Benefits	0
Sludge Removal	0
Security-Alarms	1,000
Purchased Power	7,500
Chemical Exp	3,500
Materials & Supplies	2,500
Repairs & Maintenance	3,100
Fuel & Propane	1,000
General Maint.-Landscape Services	1,000
Other Operating Expenses	500
Outside Services-Accounting	2,500
Outside Services-Legal	1,500
Outside Services-Engineering	1,000
Outside Services-Lab Exp & Testing	3,000
Outside Services-Contract Maint	4,000
Outside Services-Other	0
Insurance-Gen. Liability	3,000
Insurance-Workers Comp	0
Insurance-Other	0
Director's Fees	2,000
Admin and General	0
Office Supplies & Expense	3,100
Rent	1,000
Telephone	600
Transportation, Travel, Meetings	0
Billing, Collecting & Bookkeeping	3,000
Bad Debt Expense	0
Miscellaneous	<u>3,274</u>
Expense	59,574
Depreciation	18,351
Amortization	7,000
Taxes, Other	8,000
Income Taxes	<u>9,311</u>
Total Operating Expense	102,236
Net Operating Income	<u><u>\$53,046</u></u>
Rate Base	\$642,942
Rate of Return	8.25%

Schedule C-1

Deans Corners Water Works, Inc.**1) Depreciation Expense**See Schedule B-2 \$18,351**2) Amortization Expense**

Rate case expense amortization:

Amount	\$35,000
Amortization Period (Years)	5
Annual Expense Amortization	<u>\$7,000</u>

3) Taxes, Other than Income Taxes

Property Tax:	Real Estate	<u>\$8,000</u>
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4) Income Taxes

State Income Tax

Taxable Income	\$41,458
Tax Rate	8.775%
	<u>\$3,638</u>

Federal Income Tax

	Taxable Income	\$37,820
First 50,000	15.0%	5,673
50,000-75,000	25.0%	0
75,000-100,000	34.0%	0
100,000-335,000	39.0%	0
		<u>\$5,673</u>

Total Income Taxes

\$9,311

Schedule D

Deans Corners Water Works, Inc.**Capital Structure**

	<u>Amount</u>	<u>Ratio</u>	<u>Cost Rate</u>	<u>Weighted Cost</u>
Long-Term Debt	\$1,319,201	50.00%	6.50%	3.25%
Common Equity	<u>1,319,201</u>	50.00%	10.00%	<u>5.00%</u>
	\$2,638,402			8.25%

Synchronized to Complete System Rate Base
of \$642,942

	<u>Amount</u>	<u>Ratio</u>	<u>Cost Rate</u>	<u>Weighted Cost</u>
Long-Term Debt	\$321,471	50.00%	6.50%	3.25%
Common Equity	<u>321,471</u>	50.00%	10.00%	<u>5.00%</u>
	\$642,942			8.25%

Deans Corners Water Works, Inc.**Complete System Bill Analysis**

	ERC Factor	Quarterly Bills	ERC Factored Bills	Quarterly Rate / Bill	Annual Revenue
Residential Customers					
5/8" x 3/4" Meter	1.0	412	412.0	\$ 211.37	\$87,084
1" Meter	2.0	0	0.0	\$ 422.74	-
1 1/2" Meter	4.0	0	0.0	\$ 845.48	-
2" Meter	7.0	0	0.0	\$ 1,479.54	-
3" Meter	13.0	0	0.0	\$ 2,747.76	-
4" Meter	20.0	0	0.0	\$ 4,227.30	-
6" Meter	40.0	0	0.0	\$ 8,454.59	-
		<u>412</u>	<u>412.0</u>		<u>87,084</u>
		TG		Rate / TG	
Domestic		9,389.4			
Irrigation		<u>2,678.0</u>			
		12,067.4		\$ 2.51	30,289
Annual Residential Revenue					<u>117,373</u>

Average Annual Residential Charge \$ 1,139.55

Commercial Customers					
5/8" x 3/4" Meter	1.0	0	0.0	\$ 211.37	\$0
1" Meter	2.0	8	16.0	\$ 422.74	3,382
1 1/2" Meter	4.0	0	0.0	\$ 845.48	-
2" Meter	7.0	20	140.0	\$ 1,479.54	29,591
3" Meter	13.0	0	0.0	\$ 2,747.76	-
4" Meter	20.0	0	0.0	\$ 4,227.30	-
6" Meter	40.0	0	0.0	\$ 8,454.59	-
		<u>28</u>	<u>156.0</u>		<u>32,973</u>
		TG		Rate / TG	
Domestic		1,914.4			
Irrigation		<u>52.0</u>			
		1,966.4		\$ 2.51	4,936
Annual Commercial Revenue					<u>37,908</u>

Public Fire Protection

Hydrants 28

Complete System - Total Revenue \$155,282

Deans Corners Water Works, Inc.**Rate Design**

					<u>Proposed</u>
General Metered Rate					
Charge per 1,000 gallons					\$ 2.51
Irrigation Rate (Not metered separately from domestic use)					
Charge per 1,000 gallons					\$ 2.51
Customer Service Charge					<u>Quarterly Rate Proposed</u>
Meter Size	Customers	Bills	Factor	Factored Bills	
5/8" x 3/4"	103	412.0	1.0	412.0	\$ 211.37
1"	2	8.0	2.0	16.0	\$ 422.74
1 1/2"		-	4.0	-	\$ 845.48
2"	5	20.0	7.0	140.0	\$ 1,479.54
3"		-	13.0	-	\$ 2,747.76
4"		-	20.0	-	\$ 4,227.30
6"		-	40.0	-	\$ 8,454.59
		<u>440.0</u>		<u>568.0</u>	
Charge per Hydrant 28 (Fire protection costs included in base service costs)					

Revenue Requirement		\$ 155,278.19
Base Service	77.3%	\$ 120,030.04
Usage	22.7%	\$ 35,248.15
Fire Protection	0.0%	\$ -
		<u>\$ 155,278.19</u>

Deans Corners Water Works, Inc.

Work Papers in Support of
Cost of Service Study

Guastella Associates, LLC

Work Paper 1

Deans Corners Water Works, Inc.

Revenue Requirement Calculation

Equity Return		\$32,147
Regulatory Assessmt	0.00000%	0
FIT/SIT	22.4588%	9,311
Equity Grossed-Up		<u>41,458</u>
O&M Expenses		59,574
Depreciation		18,351
Amortization		7,000
Property Taxes		8,000
Payroll Taxes		0
Interest Expense		<u>20,896</u>
		113,820
Gross Revenue Tax		<u>0</u>
		113,820
Revenue Requirement		<u><u>\$155,278</u></u>

Deans Corners Water Works, Inc.
Annual Demand Projections

	Year 1 2015	Year 2 2016	Year 3 2017	Year 4 2018	Year 5 2019	Year 6 2020	Year 7 2021	Year 8 2022	Year 9 2023	Year 10 2024
Annual Sgl-Family Residential Growth	4	10	10	10	10	11	12	12	12	12
Active Connections	4	14	24	34	44	55	67	79	91	103
Domestic Use (tg)	91.159	91.159	91.159	91.159	91.159	91.159	91.159	91.159	91.159	91.159
Irrigation (tg)	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000	26.000
Average Consumption per Residence (tg)	117.159	117.159	117.159	117.159	117.159	117.159	117.159	117.159	117.159	117.159
Annual Water Demand (tg)										
5/8" x 3/4" Meter	364.635	1,276.223	2,187.810	3,099.398	4,010.985	5,013.731	6,107.636	7,201.541	8,295.446	9,389.351
1" Meter - WTP	27.375	27.375	27.375	27.375	27.375	27.375	27.375	27.375	27.375	27.375
1" Meter - WWTP	73.000	73.000	73.000	73.000	73.000	73.000	73.000	73.000	73.000	73.000
2" Meter - Club House		73.000	73.000	73.000	73.000	73.000	73.000	73.000	73.000	73.000
2" Meter - Castle				238.893	238.893	238.893	238.893	238.893	238.893	238.893
2" Meter - Carriage House				42.158	42.158	42.158	42.158	42.158	42.158	42.158
2" Meter - Horse Farm				730.000	730.000	730.000	730.000	730.000	730.000	730.000
2" Meter - Neighboring Farm			730.000	730.000	730.000	730.000	730.000	730.000	730.000	730.000
Irrigation - Residential	104.000	364.000	624.000	884.000	1,144.000	1,430.000	1,742.000	2,054.000	2,366.000	2,678.000
Irrigation - Commercial	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000	52.000
Total Annual System Demand	621.010	1,865.598	3,767.185	5,949.823	7,121.410	8,410.156	9,816.061	11,221.966	12,627.871	14,033.776
System Utilization	4.43%	13.29%	26.84%	42.40%	50.74%	59.93%	69.95%	79.96%	89.98%	100.00%
System Demand (gpd)	1.701	5.111	10.321	16.301	19.511	23.042	26.893	30.745	34.597	38.449
System Capacity (gpd)	461.359	461.359	461.359	461.359	461.359	461.359	461.359	461.359	461.359	461.359
	tg	Factor	Factored tg							
Metered Domestic Use	11,303.776	1.00	11,303.776							
Metered Irrigation Use	2,730.000	1	2,730.000							
	14,033.776		14,033.776							

Notes: Single-Family domestic consumption based on 250 gpd average.
Water Treatment Plant usage at 75 gpd.
Wastewater Treatment Plant and Club House usage at 200 gpd.
Castle / Carriage House combined usage at 770 gpd.
Farms usage at 2000 gpd.
Residential irrigation usage at 250 gpd, 4 days per week for twenty-six weeks.
Club House, WTP and WWTP irrigation equivalent to two residential sites.

Work Paper 3

Deans Corners Water Works, Inc.

Projected Annual O&M Expense - Complete System

Source: Delaware Engineering estimate 11/4/14

Super & Labor (Operating Contract)	\$ 11,500
OM Labor	0
OM Employee Benefits	0
Sludge Removal	0
Security-Alarms	1,000
Purchased Power	7,500
Chemical Exp	3,500
Materials & Supplies	2,500
Repairs & Maintenance	3,100
Fuel & Propane	1,000
General Maint.-Landscape Services	1,000
Other Operating Expenses	500
Outside Services-Accounting	2,500
Outside Services-Legal	1,500
Outside Services-Engineering	1,000
Outside Services-Lab Exp & Testing	3,000
Outside Services-Contract Maint	4,000
Management Fees	0
Insurance-Gen. Liability	3,000
Insurance-Workers Comp	0
Insurance-Other	0
Director's Fees	2,000
Admin and General	0
Office Supplies & Expense	3,100
Rent	1,000
Telephone	600
Transportation, Travel, Meetings	0
Billing, Collecting & Bookkeeping	3,000
Bad Debt Expense	0
Miscellaneous	3,274
TOTAL - O&M Expenses	59,574

Original Cost Plant
Source: DCWW Project Cost Detail

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