Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach

AUS Consultants
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Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

Cost Approach Summary

Account	Account Description	(2) Investment		(4) Reproduction Cost New (RCN)	(5a) Reproduction Cost New to Replacement Cost New (COR)	(5b) Replacement Cost New (COR)	(6a) Age at July 1, 2018 Appraisal Date	(5f) Normal Remaining Life	(5g) Total Life Expectancy	(5h) Condition	(6) Preliminary Cost Approach (RCN less Normal Depreciation)	(7) Economic Obsolescence	(8) Fair Market Value
		OC $s	-	RCN $s	COR $s / RCN $s	COR $s	years	years	years	% of COR	CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Input	Calculation	Calculation	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Input	Calculation
Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)	2018.00-[(1)+0.5]	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	Economic Obsolescence Analysis	(6) * |1.00-(7)|
303	Land	32,244	6.000	193,451	1.000	193,451	46.00	0.00	0.00	100.0%	193,451	0.0%	193,451
304	Treatment	7,580,743	1.478	11,205,461	1.000	11,205,461	7.25	33.16	48.56	64.1%	7,180,295	0.0%	7,180,295
311	Booster Station	896,330	7.060	6,328,090	1.000	6,328,090	45.00	6.59	51.59	12.8%	808,337	0.0%	808,337
330	Storage	977,752	8.200	8,017,566	1.000	8,017,566	45.00	20.85	65.85	31.7%	2,538,592	0.0%	2,538,592
331.1	Interconnection	-	-	-	-	-	-	0.00	0.00	0.0%	-	0.0%	-
331.2	Distribution	10,252,837	2.545	26,092,200	1.000	26,092,200	16.79	31.00	69.17	50.6%	13,200,798	0.0%	13,200,798
Total		**19,739,906**	**2.626**	**51,836,769**	**1.000**	**51,836,769**	**35.00**	**26.80**	**61.80**	**46.2%**	**23,921,473**	**0.00%**	**23,921,473**

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(0)		(2)	(3c)	(4)	(5a)	(5b)
Account		Investment	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
		OC $s		RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's E	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
1	3	9	13	14	15	16
303	Land	32,244	6	193,451	1.000	193,451
304	Treatment	7,580,743	1.478	11,205,461	1.000	11,205,461
311	Booster Station	896,330	7.06	6,328,090	1.000	6,328,090
330	Storage	977,752	8.2	8,017,566	1.000	8,017,566
331.1	Interconnection	-	0	-	0.000	-
331.2	Distribution	10,252,837	2.545	26,092,200	1.000	26,092,200
Total	**Total**	**19,739,906**	**2.626**	**51,836,769**	**1.000**	**51,836,769**

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(0)	(0.5)		(1a)	(4)	(5f)	(5g)	(5h)	(6)			
Account	Description		Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input		Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data		2018.50-[(1)+0.5]	Col (4)	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
18		19	21	22	28	29	30	31	32	33	34
303	Land		0.01	193,451	0.0000	0.0000	1.0000	193,451	2,607	-	-
304	Treatment		15.40	11,205,461	33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085
311	Booster Station		45.00	6,328,090	6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153
330	Storage		45.00	8,017,566	20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747
331.1	Interconnection		0.00	-	0.0000	0.0000	0.0000	-	-	-	-
331.2	Distribution		38.18	26,092,200	31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895
Total			**35**	**51,836,769**	**26.8**	**61.8**	**46.15%**	**23,921,473**	**1,814,191,476**	**1,389,222,002**	**3,203,410,880**

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(0)	(0.5)		(6)	(7)	(8)
Account	Description		Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input			Calculation	Input	Calculation
Exeter Data	Exeter Data		RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
36		37	39	40	41
303	Land		193,451	0.00%	193,451
304	Treatment		7,180,295	0.00%	7,180,295
311	Booster Station		808,337	0.00%	808,337
330	Storage		2,538,592	0.00%	2,538,592
331.1	Interconnection		-	0.00%	-
331.2	Distribution		13,200,798	0.00%	13,200,798
Total			**23,921,473**	**0.00%**	**23,921,473**

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(0)		(2)	(3c)	(4)	(5a)	(5b)
Account		Investment	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
		OC $s		RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
1		3	9	13	14	15	16
303	Land	32,244	6	193,451	1.000	193,451
304	Treatment	7,580,743	1.478	11,205,461	1.000	11,205,461
311	Booster Station	896,330	7.06	6,328,090	1.000	6,328,090
330	Storage	977,752	8.2	8,017,566	1.000	8,017,566
331.1	Interconnection	-	0	-	0.000	-
331.2	Distribution	10,252,837	2.545	26,092,200	1.000	26,092,200
Total	**Total**	**19,739,906**	**2.626**	**51,836,769**	**1.000**	**51,836,769**

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(0)	(0.5)	(1a)	(4)	(5f)	(5g)	(5h)	(6) Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
Account	Description	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Normal Remaining Life	Total Life Expectancy	Condition				
		years	COR $s	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	2018.50-[(1)+0.5]	Col (4)	(5b)*(5e)	(1a)+[(5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
17	18	19	21	22	28	29	30	31	32	33	34
303	Land	0.01	193,451	0.0000	0.0000	1.0000	193,451	2,607	-	-
304	Treatment	15.40	11,205,461	33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085
311	Booster Station	45.00	6,328,090	6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153
330	Storage	45.00	8,017,566	20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747
331.1	Interconnection	0.00	-	0.0000	0.0000	0.0000	-	-	-	-
331.2	Distribution	38.18	26,092,200	31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895
Total		**35**	**51,836,769**	**26.8**	**61.8**	**46.15%**	**23,921,473**	**1,814,191,476**	**1,389,222,002**	**3,203,410,880**

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(0)	(0.5)	(6)	(7)	(8)
Account	Description	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
		CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input	Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
35	36	37	39	40	41
303	Land	193,451	0.00%	193,451
304	Treatment	7,180,295	0.00%	7,180,295
311	Booster Station	808,337	0.00%	808,337
330	Storage	2,538,592	0.00%	2,538,592
331.1	Interconnection	-	0.00%	-
331.2	Distribution	13,200,798	0.00%	13,200,798
Total		**23,921,473**	**0.00%**	**23,921,473**

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Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(6a)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Earliest Trend Year	Original Costs	Age at July 1, 2018 Appraisal Date	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input									
Exeter Data	Exeter Data	(4)*(5f)	Exeter Data	2018.00-[(1)+0.5]	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
43		44	45	46	49	53	54	55	56	57	58	59	60
303	Land			32,244	46	0	0	0	-	32,244	1,483,145	-	-
304	Treatment			7,580,743	7.25	44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368
311	Booster Station			896,330	45	6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
330	Storage			977,752	45	20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129	64,384,969
331.1	Interconnection			-	0	0	0	0	-	-	-	-	-
331.2	Distribution			10,252,837	16.79	44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635	628,298,948
Total				**19,739,906**	**15.85**	**41.69**	**57.47**	**0.2512**	**4,959,398**	**14,433,435**	**312,905,771**	**822,970,324**	**1,134,392,950**

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Appraisal Work Papers
As of July 2018

Cost Approach
Reproduction Cost New (RCN)
and
Replacement Cost New (COR)

Summary
Example Account 331
Detail (All Accounts & Summary)

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(0)	(0)		(0.1)	(0.2)	(0.5)		(1.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Account	Account		Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
								OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
303		Land	Land			Checks		32,244				6	193,451	1	193,451
304		Treatment	Treatment			0		7,580,743				1.478	11,205,461	1	11,205,461
311		Booster Station	Booster Station			Checks		896,330				7.06	6,328,090	1	6,328,090
330		Storage	Storage			Checks		977,752				8.2	8,017,566	1	8,017,566
331.1		Interconnection	Interconnection			Checks		-				0	-	0	-
331.2		Distribution	Distribution			Checks		10,252,837				2.545	26,092,200	1	26,092,200
Total		**Total**	**Total**					**19,739,906**				**2.626**	**51,836,769**	**1.000**	**51,836,769**

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(0.01)	(0.05)		(0.1)	(0.2)	(0.5)		(1.5)	(2)	(2.5)	(3a)	(3b)	(3c)	(4)	(5a)	(5b)
Account	Account		Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
								OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
331	331.3	1	4" Ductile Iron Pipe	351	L.F.	1986	1986	6,203	HWW-135	263	858	3.262	20,234	1.000	20,234
331	331.3	2	6" Ductile Iron Pipe	5,398	L.F.	1986	1986	107,314	HWW-135	263	858	3.262	350,058	1.000	350,058
331	331.3	3	8" Ductile Iron Pipe	762	L.F.	1986	1986	21,881	HWW-135	263	858	3.262	71,376	1.000	71,376
331	331.3	4	12" Ductile Iron Pipe	1,662	L.F.	1986	1986	69,753	HWW-135	263	858	3.262	227,534	1.000	227,534
331	331.3	5	16" Ductile Iron Pipe	1,466	L.F.	1986	1986	74,481	HWW-135	263	858	3.262	242,957	1.000	242,957
331	331.3	6	4" Gate Valve	4	Ea.	1986	1986	2,033	HWW-135	263	858	3.262	6,632	1.000	6,632
331	331.3	7	6" Gate Valve	17	Ea.	1986	1986	11,829	HWW-135	263	858	3.262	38,586	1.000	38,586
331	331.3	8	8" Gate Valve	5	Ea.	1986	1986	5,467	HWW-135	263	858	3.262	17,833	1.000	17,833
331	331.3	9	12" Gate Valve	8	Ea.	1986	1986	14,137	HWW-135	263	858	3.262	46,115	1.000	46,115
331	331.3	10	16" Gate Valve	8	Ea.	1986	1986	60,083	HWW-135	263	858	3.262	195,991	1.000	195,991
335	335	11	Fire Hydrant Assembly Excavation And Aggregate	13	Ea.	1986	1986	41,639	HWW-142	296	1021	3.449	143,613	1.000	143,613
354	331.1	12	Backfill	9,639	L.F.	1986	1986	127,752	HWW-144	206.3	585	2.836	362,305	1.000	362,305
354	331.1	13	Surface Restoration	9,639	L.F.	1986	1986	178,852	HWW-144	206.3	585	2.836	507,224	1.000	507,224
Subtotal Installation Years 1981-1990 [4]								**721,424**				**3.092**	**2,230,458**	**1.000**	**2,230,458**

0 0 0.1 0.2 0.5 2 2.00 2.5 3a 3b 3c 4 5a 5b

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(0) (0) (0.1) (0.2) (0.5) (1.5) (2) (2.5) (3a) (3b) (3c) (4) (5a) (5b)

Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment OC $s	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN) RCN $s	Reproduction Cost New to Replacement Cost New (COR) COR $s / RCN $s	Replacement Cost New (COR) COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code Land and Land Rights	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
	Land and Land Rights													
303	303 Land and Land Rights	61-013-047 - 304 Christian Street		0.03	N/A	1972	-	USBLS1	42	252.006	6.000	-	1.000	-
303	303 Land and Land Rights	61-013-048 - 302 Christian Street		0.03	N/A	1972	-	USBLS1	42	252.006	6.000	-	1.000	-
303	303 Land and Land Rights	61-014-025 - Christian Street		0.37	1972	1972	1	USBLS1	42	252.006	6.000	6	1.000	6
303	303 Land and Land Rights	61-014-026 - 262 Christian Street		0.03	1972	1972	6,901	USBLS1	42	252.006	6.000	41,406	1.000	41,406
303	303 Land and Land Rights	61-014-027 - 260 Christian Street		0.03	1972	1972	8,240	USBLS1	42	252.006	6.000	49,440	1.000	49,440
303	303 Land and Land Rights	61-014-028 - 256 Christian Street		0.03	1972	1972	5,150	USBLS1	42	252.006	6.000	30,900	1.000	30,900
303	303 Land and Land Rights	61-014-029 - 254 Christian Street		0.09	1972	1972	6,695	USBLS1	42	252.006	6.000	40,170	1.000	40,170
303	303 Land and Land Rights	61-014-030 - 244 and 246 Christian Street		0.09	1972	1972	5,253	USBLS1	42	252.006	6.000	31,518	1.000	31,518
303	303 Land and Land Rights	63-045-115 - Reservoir Road		2.34	1971	1971	1	USBLS1	41	252.006	6.146	6	1.000	6
303	303 Land and Land Rights	63-045-126 - Kelker Road		1.14	1985	1985	1	USBLS1	108	252.006	2.333	2	1.000	2
303	303 Right-of-way	57-029-005 - Water line right-of-way (southern side of south Front Street between R Street and T Street)		0.56	2001	2001	1	USBLS1	177	252.006	1.424	1	1.000	1
303	303 Easement	62-043-051 - Water line easement		0.06	2010	2010	1	USBLS1	218	252.006	1.156	1	1.000	1
Subtotal La	Subtotal Land and Land Rights				Checks		32,244				6	193,451	1.000	193,451

NARUC Code	NARUC Code	Description			Original Year Installed	Age	Original Cost or Negative for Cost Deduction for Trending Back to 1973 [6]							
Water Trea	**Water Treatment Plant**													
Water Trea	Water Treatment Plant Building													
304	304	Building			1973	1973	1,260,090	HWW-18	100	706	7.060	8,896,235	1.000	8,896,235
Raw Water	Raw Water Pumping Station													
306	304.2	Water Intake Structure	Concrete 1973		1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
309	304.2	Water Intake LineWet WellBuilding	1,160 L.F. - 36" Cast Iron Pipe 1		1973	1973	(2,296)	HWW-115	100	706	7.060	(16,210)	1.000	(16,210)
309	304.2		382 L.F. - 24" Cast Iron Pipe 19		1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2				1973	1973	-	HWW-115	100	706	7.060	-	1.000	-

0 0 0.1 0.2 0.5 2 2.00 2.5 3a 3b 3c 4 5a 5b

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Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
							OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Cor	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
311	311				1973	1973	-	HWW-19	100	1216	12.160	-	1.000	-
334	334				1973	1973	-	HWW-140	100	434	4.340	-	1.000	-
304	304.2				1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2			1 - 10" Butterfly Valve (Electric	1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2			34 V.F. - Aluminum Ladder and	2010	2010	-	HWW-115	559.8	706	1.261	-	1.000	-
304	304.2			34 V.F. - Aluminum Ladder and	2014	2014	-	HWW-115	630.8	706	1.119	-	1.000	-
304	304.2			34 V.F. - Aluminum Ladder and	1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2			34 V.F. - Aluminum Ladder and	2014	2014	11,880	HWW-115	630.8	706	1.119	13,294	1.000	13,294
304	304.2			2 - 12" Check ValveHydrodyne	1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
320	320				1973	1973	-	HWW-117	100	930	9.300	-	1.000	-
304	304.2				1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2				1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
Chemical T	Chemical Treatment													
320	320	Liquefied Gas Chlorine SystemLiquid Alum SystemNon-Ic	4- 150 lb. Cylinder		1973	1973	-	HWW-117	100	930	9.300	-	1.000	-
320	320		3 - Gas Chlorinator (Regal Mod		1973	1973	-	HWW-117	100	930	9.300	-	1.000	-
320	320		3 - Gas Chlorinator (Regal Mod		2016	2016	3,996	HWW-117	867.5	930	1.072	4,284	1.000	4,284
320	320				1973	1973	(732)	HWW-117	100	930	9.300	(6,808)	1.000	(6,808)
320	320	Chemical Feed Lines and Appurtenances	Chemical Feed Lines and Appur		1973	1973	(705)	HWW-117	100	930	9.300	(6,557)	1.000	(6,557)
320	320	2-2,800 Gallon Firberglass Tanks			2017	2017	3,996	HWW-117	896.5	930	1.037	4,144	1.000	4,144
320	320				1973	1973	(2,856)	HWW-117	100	930	9.300	(26,561)	1.000	(26,561)
320	320	1-Peristatic (Blue White Flex-Pro)			2015	2015	15,120	HWW-117	843.3	930	1.103	16,677	1.000	16,677
320	320	Chemical Feed Lines and Appurtenances			1973	1973	-	HWW-117	100	930	9.300	-	1.000	-
320	320	1-Peristatic (Blue White Flex-Pro)			1973	1973	-	HWW-117	100	930	9.300	-	1.000	-
320	320	Chemical Feed Lines and Appurtenances	Chemical Feed Lines and Appur		2004	2004	15,000	HWW-117	480	930	1.938	29,070	1.000	29,070
320	320	Soda Ash System	1 - Volumetric Dry Feeder (OM		2016	2016	15,902	HWW-117	867.5	930	1.072	17,047	1.000	17,047
320	320	Soda Ash System			1973	1973	(2,915)	HWW-117	100	930	9.300	(27,110)	1.000	(27,110)
320	320		Chemical Feed Lines and Appur		1973	1973	-	HWW-117	100	930	9.300	-	1.000	-
Rapid (Flas	Rapid (Flash) Mixer													
304	304.2	Structure	7' x 7.5' x 9.2' Concrete Structu		1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2	Structure	2 - 4' x 1.75' Aluminum Hatche		1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
304	304.2	Structure	2 - 12" Sluice Gate with Floor S		1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
320	320	Mixer	1 - Vertical Mixer		1973	1973	(187)	HWW-117	100	930	9.300	(1,739)	1.000	(1,739)
320	320	Mixer	1 - Vertical Mixer		2018	2018	1,080	HWW-117	930	930	1.000	1,080	1.000	1,080
Clarificatio	Clarification System													
304	304.2	Structure	2 - Circular Clarifiers; 35' Radiu		2010	2010	3,580,390	HWW-115	559.8	706	1.261	4,514,872	1.000	4,514,872
304	304.2		2 - Circular Clarifiers; 35' Radiu		1973	1973	(771,092)	HWW-115	100	706	7.060	(5,443,910)	1.000	(5,443,910)

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NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
311	311	Pumps		2 - Sludge Pumps (KSB/100gpm	2012	2012	8,640	HWW-19	787.5	1216	1.544	13,340	1.000	13,340
311	311			2 - Sludge Pumps (KSB/100gpm	1973	1973	(1,759)	HWW-19	100	1216	12.160	(21,389)	1.000	(21,389)
334	334	Meters and Meters Installation		2 - Flow Meters (3" Mag Meter	2015	2015	6,000	HWW-140	400.8	434	1.083	6,498	1.000	6,498
Filtration S	Filtration System													
320	320	WTP EquipmentPumps		4 - Dual Media Filters; Anthraci	2014	2014	8,208	HWW-117	814.5	930	1.142	9,374	1.000	9,374
320	320				1973	1973	(1,586)	HWW-117	100	930	9.300	(14,750)	1.000	(14,750)
Clearwell S	Clearwell System													
304	304.2	Structure	Concrete Baffled Tank (73,617 Gallon, max.)	Pumps 2- Centrifugal Pumps w/ VFD's (250 HP/2,083gpm) 1973 45	1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
311	311				1973	1973	20,457	HWW-19	100	1216	12.160	248,757	1.000	248,757
334	334				1973	1973	-	HWW-140	100	434	4.340	-	1.000	-
Clearwell B	Clearwell Booster System													
304	304.2	StructurePumpsMeters and Meters InstallationPiping an	1-40' Diameter Circular Concre		2017	2017	2,548,882	HWW-115	675.3	706	1.045	2,663,582	1.000	2,663,582
311	311				1973	1973	-	HWW-19	100	1216	12.160	-	1.000	-
334	334				1973	1973	-	HWW-140	100	434	4.340	-	1.000	-
309	304.2				1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
339	304.2				1973	1973	-	HWW-115	100	706	7.060	-	1.000	-
Backwash S	Backwash System													
304	304.2	StructurePumps		1 - Backwash Pumping Station	1973	1973	(766)	HWW-115	100	706	7.060	(5,408)	1.000	(5,408)
311	311				2018	2018	4,428	HWW-19	1216	1216	1.000	4,428	1.000	4,428
Generator	Generator													
310	310	1 - 650 kW Diesel GeneratorPower Generation EquipmentElectrical and Structural Appurtenances			2015	2015	545,902	USBLS4	206.4	211.2	1.023	558,458	1.000	558,458
Constellati	Constellation Energy													
339	339	Other Plant and MiscellaneousEnergy Efficiency Upgrades	2009[6]Equipment		2009	2009	302,500	HWW-117	672.5	930	1.383	418,358	1.000	418,358
339	339	Other Plant and MiscellaneousEnergy Efficiency Upgrades	2009[6]Equipment		1973	1973	(66,889)	HWW-117	100	930	9.300	(622,068)	1.000	(622,068)
Elevator	Elevator													
347	347	Miscellaneous Equipment	1 - Thyson Krupp Elevator Improvements	2015[6] 3 $56,000 [4] ($10,575)	2015	2015	60,480	HWW-117	843.3	930	1.103	66,709	1.000	66,709
347	347	Miscellaneous Equipment	1 - Thyson Krupp Elevator Improvements	2015[6] 3 $56,000 [4] ($10,575)	1973	1973	(11,421)	HWW-117	100	930	9.300	(106,215)	1.000	(106,215)
Lab Equipn	Lab Equipment													
344	344	Laboratory Equipment		HACH DR 6000 UV Spectromet	2017	2017	9,288	HWW-139	650.3	667	1.026	9,529	1.000	9,529
344	344				2017	2017	14,040	HWW-139	650.3	667	1.026	14,405	1.000	14,405
Instrument	Instrumentation/Monitors													
339	339	Other Plant and Miscellaneous Equipment		6 - HACH Turbidimeters	2015	2015	2,916	HWW-117	843.3	930	1.103	3,216	1.000	3,216
339	339				1973	1973	(551)	HWW-117	100	930	9.300	(5,124)	1.000	(5,124)
339	339				2017	2017	3,780	HWW-117	896.5	930	1.037	3,920	1.000	3,920
339	339				1973	1973	(667)	HWW-117	100	930	9.300	(6,203)	1.000	(6,203)
339	339			3 - HACH CL 17 Analyzers	3 - Ro	2015	2015	2,700	HWW-117	843.3	930	1.103	2,978	1.000	2,978

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NARUC Cor	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
339	339			3 - HACH CL 17 Analyzers	3 - Ro:	1973	1973 (510)	HWW-117	100	930	9.300	(4,743)	1.000	(4,743)
Subtotal Tr	Subtotal Treatment				Checks		7,580,743				1.478	11,205,461	1.000	11,205,461
Booster Pu	**Booster Pump Station**													
Installation	Installation Years 1973 [1]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation		Estimated Original Cost [1]						
		Booster Pump Station												
304	304.1	Building	18' x 16' CMU Structure w/ Brick Facade, with 2'-8" x 7'-											
304	304.1	Building	4" x 6'-8" Dry Pit	1	Ea.	1973	1973	896,330	HWW-18	100	706	7.060	6,328,090	1.000	6,328,090
304	304.1	Building	1 - Door	1	Ea.	1973	1973		HWW-18	100	706	7.060	-	1.000	-
304	304.1	Building	3 - Windows	1	Ea.	1973	1973		HWW-18	100	706	7.060	-	1.000	-
311	311	Pumps	2 - Centrifugal Pump with VFDs (Aurora, 15HP/480GPM)	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	8" Cast Iron Piping and Fittings	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	4" Cast Iron Piping and Fittings	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	2 - 8" Butterfly Valve	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	1 - 8" Check Valve	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	2 - 6" Butterfly Valve	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	2 - 4" Check Valve	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
309	311	Piping andAppurtenances	2 - 4" Butterfly Valve	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
348	311	Other	Electrical and HVAC Wiring and Controls	1	Ea.	1973	1973		HWW-19	100	1216	12.160	-	1.000	-
Subtotal	Subtotal					Checks		896,330				7.06	6,328,090	1.000	6,328,090
Installation	Installation Years 1973 [1]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation		Estimated Original Cost [1]						
Finished W	**Finished Water Storage Tank**													
330	330		2 - 2 MG Steel Tanks (110' Diameter x 28' Height)	1	Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
330	330		20" Screened Roof Vent (each)	1	Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
330	330		Cage Ladder (each)	1	Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
330	330		8" Steel Overflow Pipe (each)	1	Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
330	330		24" Roof Hatch (each)	1	Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
330	330		24" Shell Hatch (each)	1	Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-

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Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
Valve Pits	Valve Pits													
304	330		2 - 10' x 7'-6" x 6'-6" Concrete Valve Pit	1 Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
304	330		5' x 2'-6" Double Leaf Hatch (each)	1 Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
304	330		12" Ductile Iron Influent/Effluent Piping (each)	1 Ea	1973	1973	977,752	HWW-123	100	820	8.200	8,017,566	1.000	8,017,566
304	330		6" Cast Iron Drain Piping (each)	1 Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
304	330		2" Sump	1 Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
304	330		1 - 12" Butterfly Valve (each)	1 Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
304	330		1 - 6" Butterfly Valve (each)	1 Ea	1973	1973	-	HWW-123	100	820	8.200	-	1.000	-
Subtotal	Subtotal				Checks		977,752				8.2	8,017,566	1.000	8,017,566
Interconne	**Interconnection with Suez (S. 19th Street)**													
Installation	Installation Years 2010													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
304	331.1	Structure	15'-8.5x6'x6' Concrete Metering Chamber			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
309	331.1	Piping and Appurtenances	1-54"x48" Access Hatch			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
309	331.1		6" Ductile Iron Piping & Fittings			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
309	331.1		2-6" Gate Valve			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
309	331.1		1-6" Flow Control Valve			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
336	331.1	Backflow Preventer	1-6' Backflow Preventer			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
354	331.1	Meters	1-6" Flow Meter			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
348	331.1	Other	Electric Unit Heater			2010	2010 -	HWW-144	506.6	585	1.155	-	1.000	-
Subtotal In	Subtotal Interconnection with Suez					Checks	-				0	-	0.000	-
Distributio	**Distribution System Assets**													
Installation	Installation Years 1903-1910 [2]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
Installation	Installation Years 1903-1910 [2]													
331	331.3	1	4' Ductile Iron Pipe	1,106	L.F.	1907	1912 414	HWW-135	9	858	95.333	39,468	1.000	39,468
331	331.3	2	6' Ductile Iron Pipe	5,798	L.F.	1907	1912 2,442	HWW-135	9	858	95.333	232,803	1.000	232,803
331	331.3	3	8' Ductile Iron Pipe	3,720	L.F.	1907	1912 2,263	HWW-135	9	858	95.333	215,739	1.000	215,739

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NARUC Co	NARUC Code	Asset Parcel Number	Acres				Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset Parcel Number	Acres				Original Cost							
331	331.3	4 10' Ductile Iron Pipe	4,523	L.F.	1907	1912	3,810	HWW-135	9	858	95.333	363,219	1.000	363,219
331	331.3	5 4' Gate Valve	5	Ea.	1907	1912	54	HWW-135	9	858	95.333	5,148	1.000	5,148
331	331.3	6 6' Gate Valve	16	Ea.	1907	1912	235	HWW-135	9	858	95.333	22,403	1.000	22,403
331	331.3	7 8' Gate Valve	9	Ea.	1907	1912	208	HWW-135	9	858	95.333	19,829	1.000	19,829
331	331.3	8 10' Gate Valve	4	Ea.	1907	1912	150	HWW-135	9	858	95.333	14,300	1.000	14,300
335	335	9 Fire Hydrant Assembly	18	Ea.	1907	1912	1,221	HWW-142	7	1021	145.857	178,091	1.000	178,091
354	331.1	10 Excavation And Aggregate Backfill	15,147	L.F.	1907	1912	4,253	HWW-144	9.7	585	60.309	256,494	1.000	256,494
354	331.1	11 Surface Restoration	15,147	L.F.	1907	1912	5,954	HWW-144	9.7	585	60.309	359,080	1.000	359,080
Subtotal In	Subtotal Installation Years 1903-1910 [2]						21,004				81.25	1,706,574	1.000	1,706,574
Installation	Installation Years 1911-1920 [2]													
NARUC	NARUC	Item No. Description	Est. Qty.	Unit	Date of Installation		Estimated Original Cost [1]							
331	331.3	1 4' Ductile Iron Pipe	374	L.F.	1916	1916	210	HWW-135	12	858	71.500	15,015	1.000	15,015
331	331.3	2 6' Ductile Iron Pipe	1,068	L.F.	1916	1916	673	HWW-135	12	858	71.500	48,120	1.000	48,120
331	331.3	3 8' Ductile Iron Pipe	733	L.F.	1916	1916	666	HWW-135	12	858	71.500	47,619	1.000	47,619
331	331.3	4 12' Ductile Iron Pipe	5,837	L.F.	1916	1916	7,758	HWW-135	12	858	71.500	554,697	1.000	554,697
331	331.3	5 4' Gate Valve	3	Ea.	1916	1916	49	HWW-135	12	858	71.500	3,504	1.000	3,504
331	331.3	6 6' Gate Valve	6	Ea.	1916	1916	132	HWW-135	12	858	71.500	9,438	1.000	9,438
331	331.3	7 8' Gate Valve	1	Ea.	1916	1916	35	HWW-135	12	858	71.500	2,503	1.000	2,503
331	331.3	8 12' Gate Valve	16	Ea.	1916	1916	1,237	HWW-135	12	858	71.500	88,446	1.000	88,446
335	335	9 Fire Hydrant Assembly	18	Ea.	1916	1916	1,825	HWW-142	9	1021	113.444	207,035	1.000	207,035
354	331.1	10 Excavation And Aggregate Backfill	8,012	L.F.	1916	1916	3,362	HWW-144	12.9	585	45.349	152,463	1.000	152,463
354	331.1	11 Surface Restoration	8,012	L.F.	1916	1916	4,708	HWW-144	12.9	585	45.349	213,503	1.000	213,503
Subtotal In	Subtotal Installation Years 1911-1920 [2]						20,655				64.989	1,342,342	1.000	1,342,342
Installation	Installation Years 1921-1930 [2]													
NARUC	NARUC	Item No. Description	Est. Qty.	Unit	Date of Installation		Estimated Original Cost [1]							
331	331.3	1 4' Ductile Iron Pipe	6,414	L.F.	1926	1926	5,182	HWW-135	23	858	37.304	193,309	1.000	193,309
331	331.3	2 6' Ductile Iron Pipe	6,934	L.F.	1926	1926	6,303	HWW-135	23	858	37.304	235,127	1.000	235,127
331	331.3	3 8' Ductile Iron Pipe	2,050	L.F.	1926	1926	2,691	HWW-135	23	858	37.304	100,385	1.000	100,385
331	331.3	4 10' Ductile Iron Pipe	420	L.F.	1926	1926	764	HWW-135	23	858	37.304	28,500	1.000	28,500
331	331.3	5 12' Ductile Iron Pipe	3,697	L.F.	1926	1926	7,093	HWW-135	23	858	37.304	264,597	1.000	264,597

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Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
							OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
331	331.3	6 4' Gate Valve		26	Ea.	1926	1926 604	HWW-135	23	858	37.304	22,532	1.000	22,532
331	331.3	7 6' Gate Valve		28	Ea.	1926	1926 891	HWW-135	23	858	37.304	33,238	1.000	33,238
331	331.3	8 8' Gate Valve		10	Ea.	1926	1926 500	HWW-135	23	858	37.304	18,652	1.000	18,652
331	331.3	9 10' Gate Valve		3	Ea.	1926	1926 242	HWW-135	23	858	37.304	9,028	1.000	9,028
331	331.3	10 12' Gate Valve		10	Ea.	1926	1926 1,116	HWW-135	23	858	37.304	41,631	1.000	41,631
335	335	11 Fire Hydrant Assembly		25	Ea.	1926	1926 3,661	HWW-142	19	1021	53.737	196,731	1.000	196,731
354	331.1	12 Excavation And Aggregate Backfill		19,515	L.F.	1926	1926 11,825	HWW-144	24.6	585	23.780	281,199	1.000	281,199
354	331.1	13 Surface Restoration		19,515	L.F.	1926	1926 16,555	HWW-144	24.6	585	23.780	393,678	1.000	393,678
Subtotal In	Subtotal Installation Years 1921-1930 [2]						57,427				31.668	1,818,607	1.000	1,818,607
Installation	Installation Years 1941-1950 [2]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331.3	1 4" Ductile Iron Pipe		1,299	L.F.	1946	1946 1,868	HWW-135	32	858	26.813	50,087	1.000	50,087
331	331.3	2 4" Gate Valve		3	Ea.	1946	1946 124	HWW-135	32	858	26.813	3,325	1.000	3,325
335	335	3 Fire Hydrant Assembly		1	Ea.	1946	1946 260	HWW-142	25	1021	40.840	10,618	1.000	10,618
354	354	4 Excavation And Aggregate Backfill		1,299	L.F.	1946	1946 1,402	HWW-135	32	858	26.813	37,592	1.000	37,592
354	354	5 Surface Restoration		1,299	L.F.	1946	1946 1,962	HWW-135	32	858	26.813	52,607	1.000	52,607
Subtotl Ins	Subtotl Installation Years 1941-1950 [2]						5,616				27.462	154,229	1.000	154,229
Installation	Installation Years 1951-1960 [2]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331	1 10" Ductile Iron Pipe		618	L.F.	1956	1956 3,737	HWW-144	57.9	585	10.104	37,759	1.000	37,759
354	354	2 Excavation And Aggregate Backfill		618	L.F.	1956	1956 1,245	HWW-135	62	858	13.839	17,230	1.000	17,230
354	354	3 Surface Restoration		618	L.F.	1956	1956 1,744	HWW-135	62	858	13.839	24,135	1.000	24,135
Subtotal In	Subtotal Installation Years 1951-1960 [2]						6,726					79,123	1.000	79,123
Installation	Installation Years 1941-1950 [2]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331	1 4" Ductile Iron Pipe		267	L.F.	1966	1966 1,101	HWW-144	73	585	8.014	8,823	1.000	8,823
331	331	2 6" Ductile Iron Pipe		258	L.F.	1966	1966 1,197	HWW-144	73	585	8.014	9,593	1.000	9,593

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Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment OC $s	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN) RCN $s	Reproduction Cost New to Replacement Cost New (COR) COR $s / RCN $s	Replacement Cost New (COR) COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
331	331	3 4" Gate Valve		2	Ea.	1966	1966 237	HWW-144	73	585	8.014	1,899	1.000	1,899
331	331	4 6" Gate Valve		2	Ea.	1966	1966 325	HWW-144	73	585	8.014	2,605	1.000	2,605
354	331.1	5 Excavation And Aggregate Backfill		525	L.F.	1966	1966 1,623	HWW-144	73	585	8.014	13,007	1.000	13,007
354	331.1	6 Surface Restoration		525	L.F.	1966	1966 2,272	HWW-144	73	585	8.014	18,208	1.000	18,208
Subtotal In	Subtotal Installation Years 1941-1950 [2]						6,755				8.014	54,135	1.000	54,135
Installation	Installation Years 1971-1980 [3]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331.3	1	4" Ductile Iron Pipe	2,269	L.F.	1976	1976 22,214	HWW-135	163	858	5.264	116,935	1.000	116,935
331	331.3	2	6" Ductile Iron Pipe	12,362	L.F.	1976	1976 136,157	HWW-135	163	858	5.264	716,730	1.000	716,730
331	331.3	3	8" Ductile Iron Pipe	11,528	L.F.	1976	1976 183,403	HWW-135	163	858	5.264	965,433	1.000	965,433
331	331.3	4	10" Ductile Iron Pipe	6,492	L.F.	1976	1976 143,008	HWW-135	163	858	5.264	752,794	1.000	752,794
331	331.3	5	12" Ductile Iron Pipe	3,412	L.F.	1976	1976 79,336	HWW-135	163	858	5.264	417,625	1.000	417,625
331	331.3	6	16" Ductile Iron Pipe	462	L.F.	1976	1976 13,004	HWW-135	163	858	5.264	68,453	1.000	68,453
331	331.3	7	4" Gate Valve	12	Ea.	1976	1976 3,378	HWW-135	163	858	5.264	17,782	1.000	17,782
331	331.3	8	6" Gate Valve	41	Ea.	1976	1976 15,805	HWW-135	163	858	5.264	83,198	1.000	83,198
331	331.3	9	8" Gate Valve	36	Ea.	1976	1976 21,808	HWW-135	163	858	5.264	114,797	1.000	114,797
331	331.3	10	10" Gate Valve	10	Ea.	1976	1976 9,790	HWW-135	163	858	5.264	51,535	1.000	51,535
331	331.3	11	12" Gate Valve	3	Ea.	1976	1976 4,057	HWW-135	163	858	5.264	21,356	1.000	21,356
331	331.3	12	16" Gate Valve	1	Ea.	1976	1976 4,161	HWW-135	163	858	5.264	21,904	1.000	21,904
335	335	13	Fire Hydrant Assembly	38	Ea.	1976	1976 67,431	HWW-142	157	1021	6.503	438,504	1.000	438,504
354	331.1	14	Excavation And Aggregate Backfill	36,525	L.F.	1976	1976 268,195	HWW-144	129.8	585	4.507	1,208,755	1.000	1,208,755
354	331.1	15	Surface Restoration	36,525	L.F.	1976	1976 375,474	HWW-144	129.8	585	4.507	1,692,261	1.000	1,692,261
Subtotal In	Subtotal Installation Years 1971-1980 [3]						1,347,221				4.964	6,688,061	1.000	6,688,061
Installation	Installation Years 1981-1990 [4]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331.3	1	4" Ductile Iron Pipe	351	L.F.	1986	1986 6,203	HWW-135	263	858	3.262	20,234	1.000	20,234
331	331.3	2	6" Ductile Iron Pipe	5,398	L.F.	1986	1986 107,314	HWW-135	263	858	3.262	350,058	1.000	350,058
331	331.3	3	8" Ductile Iron Pipe	762	L.F.	1986	1986 21,881	HWW-135	263	858	3.262	71,376	1.000	71,376
331	331.3	4	12" Ductile Iron Pipe	1,662	L.F.	1986	1986 69,753	HWW-135	263	858	3.262	227,534	1.000	227,534
331	331.3	5	16" Ductile Iron Pipe	1,466	L.F.	1986	1986 74,481	HWW-135	263	858	3.262	242,957	1.000	242,957

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Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
							OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
331	331.3	6 4" Gate Valve		4	Ea.	1986	1986 2,033	HWW-135	263	858	3.262	6,632	1.000	6,632
331	331.3	7 6" Gate Valve		17	Ea.	1986	1986 11,829	HWW-135	263	858	3.262	38,586	1.000	38,586
331	331.3	8 8" Gate Valve		5	Ea.	1986	1986 5,467	HWW-135	263	858	3.262	17,833	1.000	17,833
331	331.3	9 12" Gate Valve		8	Ea.	1986	1986 14,137	HWW-135	263	858	3.262	46,115	1.000	46,115
331	331.3	10 16" Gate Valve		8	Ea.	1986	1986 60,083	HWW-135	263	858	3.262	195,991	1.000	195,991
335	335	11 Fire Hydrant Assembly		13	Ea.	1986	1986 41,639	HWW-142	296	1021	3.449	143,613	1.000	143,613
354	331.1	12 Excavation And Aggregate Backfill		9,639	L.F.	1986	1986 127,752	HWW-144	206.3	585	2.836	362,305	1.000	362,305
354	331.1	13 Surface Restoration		9,639	L.F.	1986	1986 178,852	HWW-144	206.3	585	2.836	507,224	1.000	507,224
Subtotal In	Subtotal Installation Years 1981-1990 [4]						721,424				3.092	2,230,458	1.000	2,230,458
Installation	Installation Years 1981-1990 [5]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331.3	1 6" Ductile Iron Pipe		7,301	L.F.	1996	1996 190,477	HWW-135	348	858	2.466	469,716	1.000	469,716
331	331.3	2 8" Ductile Iron Pipe		3,867	L.F.	1996	1996 145,725	HWW-135	348	858	2.466	359,358	1.000	359,358
331	331.3	3 6" Gate Valve		32	Ea.	1996	1996 29,219	HWW-135	348	858	2.466	72,054	1.000	72,054
331	331.3	4 8" Gate Valve		18	Ea.	1996	1996 25,828	HWW-135	348	858	2.466	63,692	1.000	63,692
335	335	5 Fire Hydrant Assembly		23	Ea.	1996	1996 96,674	HWW-142	418	1021	2.443	236,175	1.000	236,175
354	331.1	6 Excavation And Aggregate Backfill		11,168	L.F.	1996	1996 194,242	HWW-144	284.9	585	2.053	398,779	1.000	398,779
354	331.1	7 Surface Restoration		11,168	L.F.	1996	1996 271,939	HWW-144	284.9	585	2.053	558,291	1.000	558,291
Subtotal In	Subtotal Installation Years 1981-1990 [5]						954,104				2.262	2,158,064	1.000	2,158,064
Installation	Installation Years 1981-1990 [6]													
NARUC	NARUC	Item No.	Description	Est. Qty.	Unit	Date of Installation	Estimated Original Cost [1]							
331	331.3	1 6" Ductile Iron Pipe		555	L.F.	2006	2006 19,687	HWW-135	498	858	1.723	33,921	1.000	33,921
331	331.3	2 8" Ductile Iron Pipe		23,914	L.F.	2006	2006 1,225,236	HWW-135	498	858	1.723	2,111,082	1.000	2,111,082
331	331.3	3 10" Ductile Iron Pipe		964	L.F.	2006	2006 68,387	HWW-135	498	858	1.723	117,831	1.000	117,831
331	331.3	4 12" Ductile Iron Pipe		8,534	L.F.	2006	2006 639,043	HWW-135	498	858	1.723	1,101,071	1.000	1,101,071
331	331.3	5 16" Ductile Iron Pipe		1,517	L.F.	2006	2006 137,511	HWW-135	498	858	1.723	236,931	1.000	236,931
331	331.3	6 6" Gate Valve		2	Ea.	2006	2006 2,483	HWW-135	498	858	1.723	4,278	1.000	4,278
331	331.3	7 8" Gate Valve		96	Ea.	2006	2006 187,284	HWW-135	498	858	1.723	322,690	1.000	322,690
331	331.3	8 10" Gate Valve		2	Ea.	2006	2006 6,305	HWW-135	498	858	1.723	10,864	1.000	10,864
331	331.3	9 12" Gate Valve		19	Ea.	2006	2006 59,906	HWW-135	498	858	1.723	103,218	1.000	103,218

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Account	Account	Account Description	Description 1	Description 2	Placement / Purchase Date	Earliest Trend Year	Investment	Costing Parameter	Placement Date Cost Index	Appraisal Date Cost Index	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New to Replacement Cost New (COR)	Replacement Cost New (COR)
							OC $s					RCN $s	COR $s / RCN $s	COR $s
Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Steelton's I	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	Steelton's Engineers' Assessment Data	AUS Input	Steelton's Engineers' Assessment Data	AUS Input	Cost Indices	Cost Indices	Col (3b) / (3a)	Col (2) * (3c)	AUS Input	Col (4) * (5a)
NARUC Co	NARUC Code	Asset	Parcel Number	Acres			Original Cost	CostIndexTable	YearIndex	APPCostIndex	Translator	RCN		
NARUC Code	NARUC Code	Asset	Parcel Number	Acres			Original Cost							
331	331.3	10 16" Gate Valve	4	Ea.	2006	2006	53,599	HWW-135	498	858	1.723	92,351	1.000	92,351
335	335	11 Fire Hydrant Assembly	55	Ea.	2006	2006	314,307	HWW-142	642.5	1021	1.589	499,434	1.000	499,434
354	331.1	13 Excavation And Aggregate Backfill	35,454	L.F.	2006	2006	838,380	HWW-144	433.5	585	1.349	1,130,975	1.000	1,130,975
354	331.1	14 Surface Restoration	35,454	L.F.	2006	2006	1,173,731	HWW-144	433.5	585	1.349	1,583,363	1.000	1,583,363
Subtotal In	Subtotal Installation Years 1981-1990 [6]						4,725,859				1.555	7,348,008	1.000	7,348,008
Installation	Installation Years 1981-1990 [6]													
NARUC	NARUC	Item No. Description	Est. Qty.	Unit	Date of Installation		Estimated Original Cost [1]							
331	331.3	1 2016 Pine/Harrisburg Streets Replacement Project(8)	1	Ea	2016	2016	1,614,679	HWW-135	805.3	858	1.065	1,719,633	1.000	1,719,633
331	331.3	2 2017 Mulberry/Bessemer Replacement Project(9)	1	Ea	2017	2017	248,802	HWW-135	834.8	858	1.028	255,768	1.000	255,768
331	331.3	3 2017 Ugies Water Main Installation Project(10)	1	Ea	2017	2017	522,565	HWW-135	834.8	858	1.028	537,197	1.000	537,197
Subtotal In	Subtotal Installation Years 1981-1990 [6]						2,386,046				1.053	2,512,598	1.000	2,512,598
Subtotal Di	Subtotal Distribution				Checks		10,252,837				2.545	26,092,200	1.000	26,092,200
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
303	Land	Land			Checks			32,244				6	193,451	1.000	193,451
304	Treatment	Treatment						7,580,743				1.478	11,205,461	1.000	11,205,461
311	Booster Station	Booster Station			Checks			896,330				7.06	6,328,090	1.000	6,328,090
330	Storage	Storage			Checks			977,752				8.2	8,017,566	1.000	8,017,566
331.1	Interconnection	Interconnection			Checks			-				0	-	0.000	-
331.2	Distribution	Distribution			Checks			10,252,837				2.545	26,092,200	1.000	26,092,200
	Total	Total		16,277,868	(3,462,038)			19,739,906				2.626	51,836,769	1.000	51,836,769

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach
Replacement Cost New less Depreciation (CORLD)

Summary
Example Account 331
Detail (All Accounts & Summary)

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371
J. Weinert's E-Mail: weinertj@auswest.net

Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

(0)	(0.5)		(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)			
Account	Description		Earliest Trend Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
				years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input		Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data		AUS Input	2018.50-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
18		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
303	Land			0.01	193,451						0	0	1	193,451	2,607	-	-
304	Treatment			15.4	11,205,461						33.16	48.56	0.6408	7,180,295	172,522,691	371,566,386	544,089,085
311	Booster Station			45	6,328,090						6.59	51.59	0.1277	808,337	284,764,041	41,702,112	326,466,153
330	Storage			45	8,017,566						20.85	65.85	0.3166	2,538,592	360,790,488	167,166,259	527,956,747
331.1	Interconnection			0	-						0	0	0	-	-	-	-
331.2	Distribution			38.18	26,092,200						31	69.17	0.5059	13,200,798	996,111,649	808,787,245	1,804,898,895
Total				**35**	**51,836,769**						**26.8**	**61.8**	**46.15%**	**23,921,473**	**1,814,191,476**	**1,389,222,002**	**3,203,410,880**

Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)			
Account	Description	Earliest Trend Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	AUS Input	2018.50-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
331.3	4" Ductile Iron Pipe	1986	32.00	20,234	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	9,924	647,494	623,213	1,270,707
331.3	6" Ductile Iron Pipe	1986	32.00	350,058	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	171,685	11,201,865	10,781,795	21,983,659
331.3	8" Ductile Iron Pipe	1986	32.00	71,376	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	35,006	2,284,026	2,198,375	4,482,401
331.3	12" Ductile Iron Pipe	1986	32.00	227,534	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	111,593	7,281,097	7,008,056	14,289,153
331.3	16" Ductile Iron Pipe	1986	32.00	242,957	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	119,157	7,774,625	7,483,076	15,257,701
331.3	4" Gate Valve	1986	32.00	6,632	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	3,252	212,213	204,255	416,468
331.3	6" Gate Valve	1986	32.00	38,586	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	18,924	1,234,758	1,188,455	2,423,213
331.3	8" Gate Valve	1986	32.00	17,833	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	8,746	570,667	549,267	1,119,934
331.3	12" Gate Valve	1986	32.00	46,115	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	22,617	1,475,676	1,420,339	2,896,015
331.3	16" Gate Valve	1986	32.00	195,991	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	96,123	6,271,704	6,036,515	12,308,219
335	Fire Hydrant Assembly	1986	32.00	143,613	R3.0	55.0	58	R3.0058	0.47316	26.02	58.02	44.846605%	64,406	4,595,613	3,736,808	8,332,421
331.1	Excavation And Aggregate Backfill	1986	32.00	362,305	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	177,691	11,593,749	11,158,984	22,752,733
331.1	Surface Restoration	1986	32.00	507,224	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	248,766	16,231,177	15,622,508	31,853,684
Subtotal Installation Years 1981-1990 [4]			**32.00**	**2,230,458**						**30.49**	**62.49**	**48.774290%**	**1,087,890**	**71,374,664**	**68,011,646**	**139,386,308**

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
303	Land and Land R	1972	46.00	-	Non-Depr							100.000%	-	276	-	-
303	Land and Land R	1972	46.00	-	Non-Depr							100.000%	-	276	-	-
303	Land and Land R	1972	46.00	6	Non-Depr							100.000%	6.00	276	-	-
303	Land and Land R	1972	46.00	41,406	Non-Depr							100.000%	41,406.00	276	-	-
303	Land and Land R	1972	46.00	49,440	Non-Depr							100.000%	49,440.00	276	-	-
303	Land and Land R	1972	46.00	30,900	Non-Depr							100.000%	30,900.00	276	-	-
303	Land and Land R	1972	46.00	40,170	Non-Depr							100.000%	40,170.00	276	-	-
303	Land and Land R	1972	46.00	31,518	Non-Depr							100.000%	31,518.00	276	-	-
303	Land and Land R	1971	47.00	6	Non-Depr							100.000%	6.15	289	-	-
303	Land and Land R	1985	33.00	2	Non-Depr							100.000%	2.33	77	-	-
303	Right-of-way	2001	17.00	1	Non-Depr							100.000%	1.42	24	-	-
303	Easement	2010	8.00	1	Non-Depr							100.000%	1.16	9	-	-
			0.01	193,451						0	0	100.00%	193,451	2,607	-	-

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
304	Building	1973	45.00	8,896,235	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	1,136,386.69	400,330,593	58,626,191	458,956,784
304.2	Water Intake Stru	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	Water Intake Line	1973	45.00	(16,210)	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	(3,838.00)	(729,439)	(226,288)	(955,727)
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
311	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
334	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	0	2010	8.00	-	R4.0	55.0	15	R4.0015	0.85036	46.77	54.77	85.393464%	-	-	-	-
304.2	0	2014	4.00	-	R4.0	55.0	7	R4.0007	0.93009	51.15	55.15	92.747053%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	0	2014	4.00	13,294	R4.0	55.0	7	R4.0007	0.93009	51.15	55.15	92.747053%	12,329.53	53,175	679,974	733,149
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
320	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
320	Liquefied Gas Ch	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
320	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
320	0	2016	2.00	4,284	R3.0	35.0	6	R3.0006	0.94112	32.94	34.94	94.275902%	4,038.51	8,567	141,105	149,673
320	0	1973	45.00	(6,808)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(491.27)	(306,342)	(23,827)	(330,169)
320	Chemical Feed Li	1973	45.00	(6,557)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(473.15)	(295,043)	(22,948)	(317,990)
320	2-2,800 Gallon Fi	2017	1.00	4,144	R3.0	35.0	3	R3.0003	0.97050	33.97	34.97	97.140406%	4,025.35	4,144	140,767	144,910
320	0	1973	45.00	(26,561)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(1,916.76)	(1,195,236)	(92,963)	(1,288,199)
320	1-Peristatic (Blue	2015	3.00	16,677	R3.0	35.0	9	R3.0009	0.91187	31.92	34.92	91.408935%	15,244.60	50,032	532,341	582,373

0	0.5	1	1a	4	5a	5b	5c	5d	5e	5f	5g	5h	6	7	8	9

Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
320	Chemical Feed Li	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
320	1-Peristatic (Blue	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
320	Chemical Feed Li	2004	14.00	29,070	R3.0	35.0	40	R3.0040	0.62327	21.81	35.81	60.904775%	17,705.02	406,980	634,017	1,040,997
320	Soda Ash Systen	2016	2.00	17,047	R3.0	35.0	6	R3.0006	0.94112	32.94	34.94	94.275902%	16,071.16	34,094	561,526	595,620
320	Soda Ash Systen	1973	45.00	(27,110)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(1,956.36)	(1,219,928)	(94,883)	(1,314,811)
320	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	Structure	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
320	Mixer	1973	45.00	(1,739)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(125.50)	(78,260)	(6,087)	(84,346)
320	Mixer	2018	0.00	1,080	R3.0	35.0	0	R3.0000	1.00000	35.00	35.00	100.000000%	1,080.00	-	37,800	37,800
304.2	Structure	2010	8.00	4,514,872	R4.0	55.0	15	R4.0015	0.85036	46.77	54.77	85.393464%	3,855,405.42	36,118,974	211,160,554	247,279,528
304.2	0	1973	45.00	(5,443,910)	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	(1,288,958.21)	(244,975,928)	(75,996,977)	(320,972,905)
311	Pumps	2012	6.00	13,340	R3.0	35.0	17	R3.0017	0.83474	29.22	35.22	82.964225%	11,067.56	80,041	389,799	469,840
311	0	1973	45.00	(21,389)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(1,543.57)	(962,525)	(74,863)	(1,037,388)
334	Meters and Mete	2015	3.00	6,498	R3.0	35.0	9	R3.0009	0.91187	31.92	34.92	91.408935%	5,939.75	19,494	207,416	226,910
320	WTP EquipmentF	2014	4.00	9,374	R3.0	35.0	11	R3.0011	0.89247	31.24	35.24	88.649262%	8,309.57	37,494	292,829	330,324
320	0	1973	45.00	(14,750)	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	(1,064.42)	(663,741)	(51,624)	(715,365)
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
311	0	1973	45.00	248,757	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	17,951.55	11,194,070	870,650	12,064,720
334	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
304.2	StructurePumpsN	2017	1.00	2,663,582	R4.0	55.0	2	R4.0002	0.98002	53.90	54.90	98.178506%	2,615,064.71	2,663,582	143,567,053	146,230,635
311	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
334	0	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	0	1973	45.00	-	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	-	-	-	-
304.2	StructurePumps	1973	45.00	(5,408)	R4.0	55.0	82	R4.0082	0.25380	13.96	58.96	23.677069%	(1,280.45)	(243,358)	(75,495)	(318,853)
311	0	2018	0.00	4,428	R3.0	35.0	0	R3.0000	1.00000	35.00	35.00	100.000000%	4,428.00	-	154,980	154,980
310	0	2015	3.00	558,458	R3.0	35.0	9	R3.0009	0.91187	31.92	34.92	91.408935%	510,480.28	1,675,373	17,825,971	19,501,345
339	Other Plant and M	2009	9.00	418,358	R3.0	55.0	16	R3.0016	0.84430	46.44	55.44	83.766234%	350,442.32	3,765,218	19,428,522	23,193,740
339	Other Plant and M	1973	45.00	(622,068)	R3.0	55.0	82	R3.0082	0.30136	16.57	61.57	26.912457%	(167,413.70)	(27,993,047)	(10,307,662)	(38,300,708)
347	0	2015	3.00	66,709	R3.0	55.0	5	R3.0005	0.95090	52.30	55.30	94.575045%	63,090.48	200,128	3,488,904	3,689,032
347	0	1973	45.00	(106,215)	R3.0	55.0	82	R3.0082	0.30136	16.57	61.57	26.912457%	(28,585.15)	(4,779,689)	(1,759,988)	(6,539,676)
344	Laboratory Equip	2017	1.00	9,529	R3.0	55.0	2	R3.0002	0.98032	53.92	54.92	98.179170%	9,355.97	9,529	513,830	523,360
344	0	2017	1.00	14,405	R3.0	55.0	2	R3.0002	0.98032	53.92	54.92	98.179170%	14,142.75	14,405	776,720	791,125
339	Other Plant and M	2015	3.00	3,216	R3.0	55.0	5	R3.0005	0.95090	52.30	55.30	94.575045%	3,041.86	9,649	168,215	177,864
339	0	1973	45.00	(5,124)	R3.0	55.0	82	R3.0082	0.30136	16.57	61.57	26.912457%	(1,379.08)	(230,594)	(84,910)	(315,503)
339	0	2017	1.00	3,920	R3.0	55.0	2	R3.0002	0.98032	53.92	54.92	98.179170%	3,848.49	3,920	211,359	215,279
339	0	1973	45.00	(6,203)	R3.0	55.0	82	R3.0082	0.30136	16.57	61.57	26.912457%	(1,669.41)	(279,140)	(102,785)	(381,925)
339	0	2015	3.00	2,978	R3.0	55.0	5	R3.0005	0.95090	52.30	55.30	94.575045%	2,816.54	8,934	155,755	164,689
339	0	1973	45.00	(4,743)	R3.0	55.0	82	R3.0082	0.30136	16.57	61.57	26.912457%	(1,276.46)	(213,435)	(78,592)	(292,027)
			15.4	11,205,461						33.16	48.56	64.08%	7,180,295	172,522,691	371,566,386	544,089,085

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
304.1	18' x 16' CMU Str	1973	45.00	6,328,090	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	808,337.09	284,764,041	41,702,112	326,466,153
304.1	1 - Door	1973	45.00	-	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	-	-	-	-
304.1	3 - Windows	1973	45.00	-	R4.0	45.0	100	R4.0100	0.14634	6.59	51.59	12.773793%	-	-	-	-
311	2 - Centrifugal Pu	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	8" Cast Iron Pipin	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	4" Cast Iron Pipin	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	2 - 8" Butterfly Va	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	1 - 8" Check Valv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	2 - 6" Butterfly Va	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	2 - 4" Check Valv	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	2 - 4" Butterfly Va	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
311	Electrical and HV	1973	45.00	-	R3.0	35.0	129	R3.0129	0.10010	3.50	48.50	7.216495%	-	-	-	-
			45	6,328,090						6.59	51.59	12.77%	808,337	284,764,041	41,702,112	326,466,153
330	2 - 2 MG Steel Ta	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	20" Screened Ro	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	Cage Ladder (ea	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	8" Steel Overflow	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	24" Roof Hatch (e	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
330	24" Shell Hatch ((	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	2 - 10' x 7'-6" x 6'	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	5' x 2'-6" Double I	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	12" Ductile Iron Ir	1973	45.00	8,017,566	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	2,538,591.63	360,790,488	167,166,259	527,956,747
330	6" Cast Iron Drair	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	2" Sump	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	1 - 12" Butterfly V	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
330	1 - 6" Butterfly Va	1973	45.00	-	R3.0	60.0	75	R3.0075	0.34751	20.85	65.85	31.662870%	-	-	-	-
			45	8,017,566						20.85	65.85	31.66%	2,538,592	360,790,488	167,166,259	527,956,747
331.1	15'-8.5x6'x6' Con	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	1-54"x48" Access	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	6" Ductile Iron Pi	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	2-6" Gate Valve	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	1-6" Flow Control	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	1-6' Backflow Pre	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	1-6" Flow Meter	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
331.1	Electric Unit Heat	2010	8.00	-	R3.0	60.0	13	R3.0013	0.87314	52.39	60.39	86.752774%	-	-	-	-
			0	-						0	0	0.00%	-	-	-	-

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	4' Ductile Iron Pip	1912	106.00	39,468	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	4,183,593	-	4,183,593
331.3	6' Ductile Iron Pip	1912	106.00	232,803	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	24,677,138	-	24,677,138
331.3	8' Ductile Iron Pip	1912	106.00	215,739	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	22,868,289	-	22,868,289
331.3	10' Ductile Iron P	1912	106.00	363,219	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	38,501,185	-	38,501,185
331.3	4' Gate Valve	1912	106.00	5,148	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	545,686	-	545,686
331.3	6' Gate Valve	1912	106.00	22,403	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	2,374,746	-	2,374,746
331.3	8' Gate Valve	1912	106.00	19,829	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	2,101,902	-	2,101,902
331.3	10' Gate Valve	1912	106.00	14,300	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	1,515,795	-	1,515,795
335	Fire Hydrant Ass	1912	106.00	178,091	R3.0	55.0	193	R3.0193	0.00000	0.00	106.00	0.000000%	-	18,877,688	-	18,877,688
331.1	Excavation And A	1912	106.00	256,494	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	27,188,383	-	27,188,383
331.1	Surface Restorati	1912	106.00	359,080	R3.0	60.0	177	R3.0177	0.00000	0.00	106.00	0.000000%	-	38,062,458	-	38,062,458
			106	1,706,574						0	106	0.00%	-	180,896,863	-	180,896,863
331.3	4' Ductile Iron Pip	1916	102.00	15,015	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	1,531,530	-	1,531,530
331.3	6' Ductile Iron Pip	1916	102.00	48,120	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	4,908,189	-	4,908,189
331.3	8' Ductile Iron Pip	1916	102.00	47,619	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	4,857,138	-	4,857,138
331.3	12' Ductile Iron P	1916	102.00	554,697	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	56,579,094	-	56,579,094
331.3	4' Gate Valve	1916	102.00	3,504	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	357,357	-	357,357
331.3	6' Gate Valve	1916	102.00	9,438	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	962,676	-	962,676
331.3	8' Gate Valve	1916	102.00	2,503	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	255,255	-	255,255

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	12' Gate Valve	1916	102.00	88,446	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	9,021,441	-	9,021,441
335	Fire Hydrant Ass	1916	102.00	207,035	R3.0	55.0	185	R3.0185	0.00000	0.00	102.00	0.000000%	-	21,117,601	-	21,117,601
331.1	Excavation And A	1916	102.00	152,463	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	15,551,261	-	15,551,261
331.1	Surface Restorati	1916	102.00	213,503	R3.0	60.0	170	R3.0170	0.00000	0.00	102.00	0.000000%	-	21,777,315	-	21,777,315
			102	1,342,342						0	102	0.00%	-	136,918,857	-	136,918,857
331.3	4' Ductile Iron Pip	1926	92.00	193,309	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	4,714.86	17,784,458	444,611	18,229,070
331.3	6' Ductile Iron Pip	1926	92.00	235,127	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	5,734.81	21,631,694	540,792	22,172,486
331.3	8' Ductile Iron Pip	1926	92.00	100,385	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	2,448.42	9,235,426	230,886	9,466,311
331.3	10' Ductile Iron P	1926	92.00	28,500	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	695.13	2,622,024	65,551	2,687,575
331.3	12' Ductile Iron P	1926	92.00	264,597	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	6,453.59	24,342,949	608,574	24,951,523
331.3	4' Gate Valve	1926	92.00	22,532	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	549.55	2,072,909	51,823	2,124,732
331.3	6' Gate Valve	1926	92.00	33,238	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	810.68	3,057,883	76,447	3,134,330
331.3	8' Gate Valve	1926	92.00	18,652	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	454.93	1,715,984	42,900	1,758,884
331.3	10' Gate Valve	1926	92.00	9,028	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	220.18	830,536	20,763	851,300
331.3	12' Gate Valve	1926	92.00	41,631	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	1,015.40	3,830,076	95,752	3,925,828
335	Fire Hydrant Ass	1926	92.00	196,731	R3.0	55.0	167	R3.0167	0.00641	0.35	92.35	0.378993%	745.60	18,099,267	68,856	18,168,123
331.1	Excavation And A	1926	92.00	281,199	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	6,858.50	25,870,262	646,757	26,517,019
331.1	Surface Restorati	1926	92.00	393,678	R3.0	60.0	153	R3.0153	0.03840	2.30	94.30	2.439024%	9,601.90	36,218,367	905,459	37,123,826
			92	1,818,607						2.09	94.09	2.22%	40,304	167,311,835	3,799,171	171,111,007

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	4" Ductile Iron Pi	1946	72.00	50,087	R3.0	60.0	120	R3.0120	0.12556	7.53	79.53	9.468125%	4,742.27	3,606,241	377,153	3,983,394
331.3	4" Gate Valve	1946	72.00	3,325	R3.0	60.0	120	R3.0120	0.12556	7.53	79.53	9.468125%	314.80	239,386	25,036	264,422
335	Fire Hydrant Ass	1946	72.00	10,618	R3.0	55.0	131	R3.0131	0.09481	5.21	77.21	6.747831%	716.51	764,525	55,322	819,847
354	Excavation And A	1946	72.00	37,592	R3.0	55.0	131	R3.0131	0.09481	5.21	77.21	6.747831%	2,536.63	2,706,612	195,853	2,902,465
354	Surface Restorati	1946	72.00	52,607	R3.0	55.0	131	R3.0131	0.09481	5.21	77.21	6.747831%	3,549.84	3,787,712	274,083	4,061,795
			72	154,229						6.01	78.01	7.69%	11,860	11,104,476	927,447	12,031,923
331	10" Ductile Iron P	1956	62.00	37,759	R3.0	60.0	103	R3.0103	0.18808	11.28	73.28	15.393013%	5,812.19	2,341,036	425,918	2,766,954
354	Excavation And A	1956	62.00	17,230	R3.0	55.0	113	R3.0113	0.14849	8.17	70.17	11.643152%	2,006.06	1,068,233	140,766	1,208,998
354	Surface Restorati	1956	62.00	24,135	R3.0	55.0	113	R3.0113	0.14849	8.17	70.17	11.643152%	2,810.10	1,496,384	197,185	1,693,568
			62	79,123						9.65	71.65	13.43%	10,628	4,905,653	763,869	5,669,520
331	4" Ductile Iron Pi	1966	52.00	8,823	R3.0	60.0	87	R3.0087	0.27078	16.25	68.25	23.809524%	2,100.81	458,817	143,380	602,198
331	6" Ductile Iron Pi	1966	52.00	9,593	R3.0	60.0	87	R3.0087	0.27078	16.25	68.25	23.809524%	2,283.99	498,824	155,882	654,706
331	4" Gate Valve	1966	52.00	1,899	R3.0	60.0	87	R3.0087	0.27078	16.25	68.25	23.809524%	452.22	98,765	30,864	129,629
331	6" Gate Valve	1966	52.00	2,605	R3.0	60.0	87	R3.0087	0.27078	16.25	68.25	23.809524%	620.13	135,437	42,324	177,761
331.1	Excavation And A	1966	52.00	13,007	R3.0	60.0	87	R3.0087	0.27078	16.25	68.25	23.809524%	3,096.84	676,349	211,359	887,709
331.1	Surface Restorati	1966	52.00	18,208	R3.0	60.0	87	R3.0087	0.27078	16.25	68.25	23.809524%	4,335.19	946,806	295,877	1,242,683
			52	54,135						16.25	68.25	23.81%	12,889	2,814,998	879,686	3,694,686

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	4" Ductile Iron Pi	1976	42.00	116,935	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	41,330.30	4,911,249	2,684,816	7,596,065
331.3	6" Ductile Iron Pi	1976	42.00	716,730	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	253,327.14	30,102,679	16,456,131	46,558,810
331.3	8" Ductile Iron Pi	1976	42.00	965,433	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	341,230.77	40,548,202	22,166,351	62,714,553
331.3	10" Ductile Iron P	1976	42.00	752,794	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	266,073.78	31,617,353	17,284,153	48,901,505
331.3	12" Ductile Iron P	1976	42.00	417,625	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	147,608.73	17,540,237	9,588,663	27,128,901
331.3	16" Ductile Iron P	1976	42.00	68,453	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	24,194.62	2,875,029	1,571,682	4,446,711
331.3	4" Gate Valve	1976	42.00	17,782	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	6,284.94	746,835	408,270	1,155,105
331.3	6" Gate Valve	1976	42.00	83,198	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	29,406.02	3,494,296	1,910,215	5,404,511
331.3	8" Gate Valve	1976	42.00	114,797	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	40,574.91	4,821,487	2,635,746	7,457,233
331.3	10" Gate Valve	1976	42.00	51,535	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	18,214.80	2,164,452	1,183,233	3,347,685
331.3	12" Gate Valve	1976	42.00	21,356	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	7,548.26	896,954	490,335	1,387,289
331.3	16" Gate Valve	1976	42.00	21,904	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	7,741.75	919,947	502,904	1,422,851
335	Fire Hydrant Ass	1976	42.00	438,504	R3.0	55.0	76	R3.0076	0.34069	18.74	60.74	30.852815%	135,290.76	18,417,159	8,217,561	26,634,720
331.1	Excavation And F	1976	42.00	1,208,755	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	427,232.33	50,767,705	27,753,012	78,520,716
331.1	Surface Restorati	1976	42.00	1,692,261	R3.0	60.0	70	R3.0070	0.38261	22.96	64.96	35.344828%	598,126.85	71,074,975	38,854,320	109,929,295
			42	6,688,061						22.68	64.68	35.05%	2,344,186	280,898,559	151,707,392	432,605,950
331.3	4" Ductile Iron Pi	1986	32.00	20,234	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	9,923.77	647,494	623,213	1,270,707
331.3	6" Ductile Iron Pi	1986	32.00	350,058	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	171,684.63	11,201,865	10,781,795	21,983,659
331.3	8" Ductile Iron Pi	1986	32.00	71,376	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	35,005.98	2,284,026	2,198,375	4,482,401
331.3	12" Ductile Iron P	1986	32.00	227,534	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	111,593.25	7,281,097	7,008,056	14,289,153
331.3	16" Ductile Iron P	1986	32.00	242,957	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	119,157.26	7,774,625	7,483,076	15,257,701

0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)

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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	4" Gate Valve	1986	32.00	6,632	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	3,252.47	212,213	204,255	416,468
331.3	6" Gate Valve	1986	32.00	38,586	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	18,924.44	1,234,758	1,188,455	2,423,213
331.3	8" Gate Valve	1986	32.00	17,833	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	8,746.29	570,667	549,267	1,119,934
331.3	12" Gate Valve	1986	32.00	46,115	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	22,616.86	1,475,676	1,420,339	2,896,015
331.3	16" Gate Valve	1986	32.00	195,991	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	96,122.85	6,271,704	6,036,515	12,308,219
335	Fire Hydrant Asse	1986	32.00	143,613	R3.0	55.0	58	R3.0058	0.47316	26.02	58.02	44.846605%	64,405.51	4,595,613	3,736,808	8,332,421
331.1	Excavation And A	1986	32.00	362,305	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	177,690.83	11,593,749	11,158,984	22,752,733
331.1	Surface Restorati	1986	32.00	507,224	R3.0	60.0	53	R3.0053	0.51325	30.80	62.80	49.044586%	248,766.04	16,231,177	15,622,508	31,853,684
			32	2,230,458						30.49	62.49	48.77%	1,087,890	71,374,664	68,011,646	139,386,308
331.3	6" Ductile Iron Pip	1996	22.00	469,716	R3.0	60.0	37	R3.0037	0.64975	38.99	60.99	63.928513%	300,282.63	10,333,758	18,314,238	28,647,996
331.3	8" Ductile Iron Pip	1996	22.00	359,358	R3.0	60.0	37	R3.0037	0.64975	38.99	60.99	63.928513%	229,732.13	7,905,873	14,011,363	21,917,235
331.3	6" Gate Valve	1996	22.00	72,054	R3.0	60.0	37	R3.0037	0.64975	38.99	60.99	63.928513%	46,063.08	1,585,189	2,809,387	4,394,577
331.3	8" Gate Valve	1996	22.00	63,692	R3.0	60.0	37	R3.0037	0.64975	38.99	60.99	63.928513%	40,717.25	1,401,221	2,483,345	3,884,566
335	Fire Hydrant Asse	1996	22.00	236,175	R3.0	55.0	40	R3.0040	0.62327	34.28	56.28	60.909737%	143,853.32	5,195,841	8,096,065	13,291,905
331.1	Excavation And A	1996	22.00	398,779	R3.0	60.0	37	R3.0037	0.64975	38.99	60.99	63.928513%	254,933.38	8,773,134	15,548,387	24,321,521
331.1	Surface Restorati	1996	22.00	558,291	R3.0	60.0	37	R3.0037	0.64975	38.99	60.99	63.928513%	356,906.99	12,282,397	21,767,757	34,050,154
			22	2,158,064						38.47	60.47	63.60%	1,372,489	47,477,413	83,030,542	130,507,954
331.3	6" Ductile Iron Pip	2006	12.00	33,921	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	27,178.14	407,048	1,640,744	2,047,793
331.3	8" Ductile Iron Pip	2006	12.00	2,111,082	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	1,691,453.00	25,332,980	102,113,018	127,445,998

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0	0.5	1	1a	4	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
331.3	10" Ductile Iron P	2006	12.00	117,831	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	94,409.07	1,413,970	5,699,476	7,113,445
331.3	12" Ductile Iron P	2006	12.00	1,101,071	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	882,206.53	13,212,853	53,258,809	66,471,662
331.3	16" Ductile Iron P	2006	12.00	236,931	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	189,835.58	2,843,177	11,460,374	14,303,552
331.3	6" Gate Valve	2006	12.00	4,278	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	3,427.81	51,339	206,937	258,276
331.3	8" Gate Valve	2006	12.00	322,690	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	258,547.81	3,872,284	15,608,531	19,480,815
331.3	10" Gate Valve	2006	12.00	10,864	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	8,704.13	130,362	525,468	655,831
331.3	12" Gate Valve	2006	12.00	103,218	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	82,700.95	1,238,616	4,992,657	6,231,273
331.3	16" Gate Valve	2006	12.00	92,351	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	73,994.07	1,108,213	4,467,022	5,575,235
335	Fire Hydrant Asse	2006	12.00	499,434	R3.0	55.0	22	R3.0022	0.78729	43.30	55.30	78.300181%	391,057.59	5,993,206	21,625,484	27,618,690
331.1	Excavation And A	2006	12.00	1,130,975	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	906,166.01	13,571,695	54,705,242	68,276,938
331.1	Surface Restorati	2006	12.00	1,583,363	R3.0	60.0	20	R3.0020	0.80619	48.37	60.37	80.122577%	1,268,631.34	19,000,357	76,587,274	95,587,632
			12	7,348,008						48.03	60.03	80.00%	5,878,312	88,176,100	352,891,036	441,067,140
331.3	2016 Pine/Harrisl	2016	2.00	1,719,633	R3.0	60.0	3	R3.0003	0.97050	58.23	60.23	96.679396%	1,662,530.93	3,439,266	100,134,238	103,573,504
331.3	2017 Mulberry/Be	2017	1.00	255,768	R3.0	60.0	2	R3.0002	0.98032	58.82	59.82	98.328318%	251,492.82	255,768	15,044,301	15,300,069
331.3	2017 Ugies Wate	2017	1.00	537,197	R3.0	60.0	2	R3.0002	0.98032	58.82	59.82	98.328318%	528,216.60	537,197	31,597,917	32,135,114
			1.68	2,512,598						58.42	60.1	97.20%	2,442,240	4,232,231	146,776,456	151,008,687
			38.18	26,092,200						31	69.17	50.59%	13,200,798	996,111,649	808,787,245	1,804,898,895
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
			0.01	193,451						0	0	100.00%	193,451	2,607	-	-
			15.4	11,205,461						33.16	48.56	64.08%	7,180,295	172,522,691	371,566,386	544,089,085
			45	6,328,090						6.59	51.59	12.77%	808,337	284,764,041	41,702,112	326,466,153
			45	8,017,566						20.85	65.85	31.66%	2,538,592	360,790,488	167,166,259	527,956,747

0 0.5 1 1a 4 (5a) (5b) (5c) (5d) (5e) (5f) (5g) (5h) (6) (7) (8) (9)

Pennsylvania-American Water Company
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(0)	(0.5)	(1)	(1a)	(4)	(5a)	(5b)	(5c)	(5d)	(5e)	(5f)	(5g)	(5h)	(6)	(7)	(8)	(9)
Account	Description	Placement Year	Age at July 1, 2018 Appraisal Date	Replacement Cost New (RCN)	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (RCN less Normal Depreciation)	RCN Weighted Age	RCN Weighted Normal Remaining Life	RCN Weighted Total Life Expectancy
			years	COR $s		years	% of NSL	Lookup	%	years	years	% of COR	CORLD $s	RCN $s * Years	RCN $s * Years	RCN $s * Years
Input	Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Lookup	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation	Calculation
Exeter Data	Exeter Data	Exeter Data	2018.00-[(1)+0.5]	Col (4)	AUS Input	AUS Input	(1a)/(5b)	(5a)&(5c)	Iowa Life Table	(5b)*(5e)	(1a)+((5f)	(5f)/(5g)	(4)*(5h)	(4)*(1a)	(4)*(5f)	(4)*(5g)
Account	Description	Year1	Age	RCN	Iowa	Life	AgeP	IowaLookup	IowaCondition	Rem Life	Total Life	Condition	RCNLD			
			0	-						0	0	0.00%	-	-	-	-
			38.18	26,092,200						31	69.17	50.59%	13,200,798	996,111,649	808,787,245	1,804,898,895
			35	51,836,769						26.8	61.8	46.15%	23,921,473	1,814,191,476	1,389,222,002	3,203,410,880

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach
Replacement Cost New less Depreciation Adjusted for External Obsolescence
(CORLD less EO)

Summary
Example Account 331
Detail (All Accounts & Summary)

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371
J. Weinert's E-Mail: weinertj@auswest.net

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(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Earliest Trend Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	(5a)&(5c)	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
36		37	38	39	40	41
303	Land			193,451	0.00%	193,451
304	Treatment			7,180,295	0.00%	7,180,295
311	Booster Station			808,337	0.00%	808,337
330	Storage			2,538,592	0.00%	2,538,592
331.1	Interconnection			-	0.00%	-
331.2	Distribution			13,200,798	0.00%	13,200,798
Total				**23,921,473**	**0.00%**	**23,921,473**

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(0)	(0.5)	(1)	(6)	(7)	(8)
Account	Description	Earliest Trend Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	(5a)&(5c)	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
331.3	4" Ductile Iron Pipe	1986	9,924	0.00%	9,924
331.3	6" Ductile Iron Pipe	1986	171,685	0.00%	171,685
331.3	8" Ductile Iron Pipe	1986	35,006	0.00%	35,006
331.3	12" Ductile Iron Pipe	1986	111,593	0.00%	111,593
331.3	16" Ductile Iron Pipe	1986	119,157	0.00%	119,157
331.3	4" Gate Valve	1986	3,252	0.00%	3,252
331.3	6" Gate Valve	1986	18,924	0.00%	18,924
331.3	8" Gate Valve	1986	8,746	0.00%	8,746
331.3	12" Gate Valve	1986	22,617	0.00%	22,617
331.3	16" Gate Valve	1986	96,123	0.00%	96,123
335	Fire Hydrant Assembly	1986	64,406	0.00%	64,406
331.1	Excavation And Aggregate Backfill	1986	177,691	0.00%	177,691
331.1	Surface Restoration	1986	248,766	0.00%	248,766
			1,087,890	**0.00%**	**1,087,890**

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
303	Land and Land Rigl	1972	-	0.00%	-
303	Land and Land Rigl	1972	-	0.00%	-
303	Land and Land Rigl	1972	6.00	0.00%	6.00
303	Land and Land Rigl	1972	41,406.00	0.00%	41,406.00
303	Land and Land Rigl	1972	49,440.00	0.00%	49,440.00
303	Land and Land Rigl	1972	30,900.00	0.00%	30,900.00
303	Land and Land Rigl	1972	40,170.00	0.00%	40,170.00
303	Land and Land Rigl	1972	31,518.00	0.00%	31,518.00
303	Land and Land Rigl	1971	6.15	0.00%	6.15
303	Land and Land Rigl	1985	2.33	0.00%	2.33
303	Right-of-way	2001	1.42	0.00%	1.42
303	Easement	2010	1.16	0.00%	1.16
			193,451	0.00%	193,451

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
304	Building	1973	1,136,386.69	0.00%	1,136,386.69
304.2	Water Intake Struct	1973	-	0.00%	-
304.2	Water Intake LineW	1973	(3,838.00)	0.00%	(3,838.00)
304.2	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
311	0	1973	-	0.00%	-
334	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
304.2	0	2010	-	0.00%	-
304.2	0	2014	-	0.00%	-
304.2	0	1973	-	0.00%	-
304.2	0	2014	12,329.53	0.00%	12,329.53
304.2	0	1973	-	0.00%	-
320	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
320	Liquefied Gas Chlo	1973	-	0.00%	-
320	0	1973	-	0.00%	-
320	0	2016	4,038.51	0.00%	4,038.51
320	0	1973	(491.27)	0.00%	(491.27)
320	Chemical Feed Lin	1973	(473.15)	0.00%	(473.15)
320	2-2,800 Gallon Firb	2017	4,025.35	0.00%	4,025.35
320	0	1973	(1,916.76)	0.00%	(1,916.76)
320	1-Peristatic (Blue V	2015	15,244.60	0.00%	15,244.60
320	Chemical Feed Lin	1973	-	0.00%	-
320	1-Peristatic (Blue V	1973	-	0.00%	-
320	Chemical Feed Lin	2004	17,705.02	0.00%	17,705.02

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
320	Soda Ash System	2016	16,071.16	0.00%	16,071.16
320	Soda Ash System	1973	(1,956.36)	0.00%	(1,956.36)
320	0	1973	-	0.00%	-
304.2	Structure	1973	-	0.00%	-
304.2	Structure	1973	-	0.00%	-
304.2	Structure	1973	-	0.00%	-
320	Mixer	1973	(125.50)	0.00%	(125.50)
320	Mixer	2018	1,080.00	0.00%	1,080.00
304.2	Structure	2010	3,855,405.42	0.00%	3,855,405.42
304.2	0	1973	(1,288,958.21)	0.00%	(1,288,958.21)
311	Pumps	2012	11,067.56	0.00%	11,067.56
311	0	1973	(1,543.57)	0.00%	(1,543.57)
334	Meters and Meters	2015	5,939.75	0.00%	5,939.75
320	WTP EquipmentPu	2014	8,309.57	0.00%	8,309.57
320	0	1973	(1,064.42)	0.00%	(1,064.42)
304.2	0	1973	-	0.00%	-
311	0	1973	17,951.55	0.00%	17,951.55
334	0	1973	-	0.00%	-
304.2	StructurePumpsMe	2017	2,615,064.71	0.00%	2,615,064.71
311	0	1973	-	0.00%	-
334	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
304.2	0	1973	-	0.00%	-
304.2	StructurePumps	1973	(1,280.45)	0.00%	(1,280.45)

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
311	0	2018	4,428.00	0.00%	4,428.00
310	0	2015	510,480.28	0.00%	510,480.28
339	Other Plant and Mi:	2009	350,442.32	0.00%	350,442.32
339	Other Plant and Mi:	1973	(167,413.70)	0.00%	(167,413.70)
347	0	2015	63,090.48	0.00%	63,090.48
347	0	1973	(28,585.15)	0.00%	(28,585.15)
344	Laboratory Equipm	2017	9,355.97	0.00%	9,355.97
344	0	2017	14,142.75	0.00%	14,142.75
339	Other Plant and Mi:	2015	3,041.86	0.00%	3,041.86
339	0	1973	(1,379.08)	0.00%	(1,379.08)
339	0	2017	3,848.49	0.00%	3,848.49
339	0	1973	(1,669.41)	0.00%	(1,669.41)
339	0	2015	2,816.54	0.00%	2,816.54
339	0	1973	(1,276.46)	0.00%	(1,276.46)
			7,180,295	0.00%	7,180,295

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
304.1	18' x 16' CMU Struc	1973	808,337.09	0.00%	808,337.09
304.1	1 - Door	1973	-	0.00%	-
304.1	3 - Windows	1973	-	0.00%	-
311	2 - Centrifugal Pum	1973	-	0.00%	-
311	8" Cast Iron Piping	1973	-	0.00%	-
311	4" Cast Iron Piping	1973	-	0.00%	-
311	2 - 8" Butterfly Valv	1973	-	0.00%	-
311	1 - 8" Check Valve	1973	-	0.00%	-
311	2 - 6" Butterfly Valv	1973	-	0.00%	-
311	2 - 4" Check Valve	1973	-	0.00%	-
311	2 - 4" Butterfly Valv	1973	-	0.00%	-
311	Electrical and HVA(	1973	-	0.00%	-
			808,337	0.00%	808,337
330	2 - 2 MG Steel Tan	1973	-	0.00%	-
330	20" Screened Roof	1973	-	0.00%	-
330	Cage Ladder (each	1973	-	0.00%	-
330	8" Steel Overflow F	1973	-	0.00%	-
330	24" Roof Hatch (ea	1973	-	0.00%	-
330	24" Shell Hatch (ea	1973	-	0.00%	-
330	2 - 10' x 7'-6" x 6'-6	1973	-	0.00%	-
330	5' x 2'-6" Double Le	1973	-	0.00%	-
330	12" Ductile Iron Infl	1973	2,538,591.63	0.00%	2,538,591.63

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
330	6" Cast Iron Drain I	1973	-	0.00%	-
330	2" Sump	1973	-	0.00%	-
330	1 - 12" Butterfly Val	1973	-	0.00%	-
330	1 - 6" Butterfly Valv	1973	-	0.00%	-
			2,538,592	0.00%	2,538,592
331.1	15'-8.5x6'x6' Concr	2010	-	0.00%	-
331.1	1-54"x48" Access I	2010	-	0.00%	-
331.1	6" Ductile Iron Pipir	2010	-	0.00%	-
331.1	2-6" Gate Valve	2010	-	0.00%	-
331.1	1-6" Flow Control V	2010	-	0.00%	-
331.1	1-6' Backflow Prev	2010	-	0.00%	-
331.1	1-6" Flow Meter	2010	-	0.00%	-
331.1	Electric Unit Heate	2010	-	0.00%	-
			-	0.00%	-
331.3	4' Ductile Iron Pipe	1912	-	0.00%	-

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.3	6' Ductile Iron Pipe	1912	-	0.00%	-
331.3	8' Ductile Iron Pipe	1912	-	0.00%	-
331.3	10' Ductile Iron Pip	1912	-	0.00%	-
331.3	4' Gate Valve	1912	-	0.00%	-
331.3	6' Gate Valve	1912	-	0.00%	-
331.3	8' Gate Valve	1912	-	0.00%	-
331.3	10' Gate Valve	1912	-	0.00%	-
335	Fire Hydrant Assen	1912	-	0.00%	-
331.1	Excavation And Ag	1912	-	0.00%	-
331.1	Surface Restoratio	1912	-	0.00%	-
			-	0.00%	-
331.3	4' Ductile Iron Pipe	1916	-	0.00%	-
331.3	6' Ductile Iron Pipe	1916	-	0.00%	-
331.3	8' Ductile Iron Pipe	1916	-	0.00%	-
331.3	12' Ductile Iron Pip	1916	-	0.00%	-
331.3	4' Gate Valve	1916	-	0.00%	-
331.3	6' Gate Valve	1916	-	0.00%	-
331.3	8' Gate Valve	1916	-	0.00%	-
331.3	12' Gate Valve	1916	-	0.00%	-
335	Fire Hydrant Assen	1916	-	0.00%	-
331.1	Excavation And Ag	1916	-	0.00%	-
331.1	Surface Restoratio	1916	-	0.00%	-
			-	0.00%	-

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.3	4' Ductile Iron Pipe	1926	4,714.86	0.00%	4,714.86
331.3	6' Ductile Iron Pipe	1926	5,734.81	0.00%	5,734.81
331.3	8' Ductile Iron Pipe	1926	2,448.42	0.00%	2,448.42
331.3	10' Ductile Iron Pipe	1926	695.13	0.00%	695.13
331.3	12' Ductile Iron Pipe	1926	6,453.59	0.00%	6,453.59
331.3	4' Gate Valve	1926	549.55	0.00%	549.55
331.3	6' Gate Valve	1926	810.68	0.00%	810.68
331.3	8' Gate Valve	1926	454.93	0.00%	454.93
331.3	10' Gate Valve	1926	220.18	0.00%	220.18
331.3	12' Gate Valve	1926	1,015.40	0.00%	1,015.40
335	Fire Hydrant Assen	1926	745.60	0.00%	745.60
331.1	Excavation And Ag	1926	6,858.50	0.00%	6,858.50
331.1	Surface Restoratior	1926	9,601.90	0.00%	9,601.90
			40,304	0.00%	40,304
331.3	4" Ductile Iron Pipe	1946	4,742.27	0.00%	4,742.27
331.3	4" Gate Valve	1946	314.80	0.00%	314.80
335	Fire Hydrant Assen	1946	716.51	0.00%	716.51
354	Excavation And Ag	1946	2,536.63	0.00%	2,536.63
354	Surface Restoratior	1946	3,549.84	0.00%	3,549.84
			11,860	0.00%	11,860

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Pennsylvania-American Water Company
Steelton Borough (Water) Authority
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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
331	10" Ductile Iron Pip	1956	5,812.19	0.00%	5,812.19
354	Excavation And Ag	1956	2,006.06	0.00%	2,006.06
354	Surface Restoratior	1956	2,810.10	0.00%	2,810.10
			10,628	0.00%	10,628
331	4" Ductile Iron Pipe	1966	2,100.81	0.00%	2,100.81
331	6" Ductile Iron Pipe	1966	2,283.99	0.00%	2,283.99
331	4" Gate Valve	1966	452.22	0.00%	452.22
331	6" Gate Valve	1966	620.13	0.00%	620.13
331.1	Excavation And Ag	1966	3,096.84	0.00%	3,096.84
331.1	Surface Restoratior	1966	4,335.19	0.00%	4,335.19
			12,889	0.00%	12,889
331.3	4" Ductile Iron Pipe	1976	41,330.30	0.00%	41,330.30
331.3	6" Ductile Iron Pipe	1976	253,327.14	0.00%	253,327.14
331.3	8" Ductile Iron Pipe	1976	341,230.77	0.00%	341,230.77
331.3	10" Ductile Iron Pip	1976	266,073.78	0.00%	266,073.78
331.3	12" Ductile Iron Pip	1976	147,608.73	0.00%	147,608.73
331.3	16" Ductile Iron Pip	1976	24,194.62	0.00%	24,194.62

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Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.3	4" Gate Valve	1976	6,284.94	0.00%	6,284.94
331.3	6" Gate Valve	1976	29,406.02	0.00%	29,406.02
331.3	8" Gate Valve	1976	40,574.91	0.00%	40,574.91
331.3	10" Gate Valve	1976	18,214.80	0.00%	18,214.80
331.3	12" Gate Valve	1976	7,548.26	0.00%	7,548.26
331.3	16" Gate Valve	1976	7,741.75	0.00%	7,741.75
335	Fire Hydrant Assen	1976	135,290.76	0.00%	135,290.76
331.1	Excavation And Ag	1976	427,232.33	0.00%	427,232.33
331.1	Surface Restoratio	1976	598,126.85	0.00%	598,126.85
			2,344,186	0.00%	2,344,186
331.3	4" Ductile Iron Pipe	1986	9,923.77	0.00%	9,923.77
331.3	6" Ductile Iron Pipe	1986	171,684.63	0.00%	171,684.63
331.3	8" Ductile Iron Pipe	1986	35,005.98	0.00%	35,005.98
331.3	12" Ductile Iron Pip	1986	111,593.25	0.00%	111,593.25
331.3	16" Ductile Iron Pip	1986	119,157.26	0.00%	119,157.26
331.3	4" Gate Valve	1986	3,252.47	0.00%	3,252.47
331.3	6" Gate Valve	1986	18,924.44	0.00%	18,924.44
331.3	8" Gate Valve	1986	8,746.29	0.00%	8,746.29
331.3	12" Gate Valve	1986	22,616.86	0.00%	22,616.86
331.3	16" Gate Valve	1986	96,122.85	0.00%	96,122.85
335	Fire Hydrant Assen	1986	64,405.51	0.00%	64,405.51
331.1	Excavation And Ag	1986	177,690.83	0.00%	177,690.83
331.1	Surface Restoratio	1986	248,766.04	0.00%	248,766.04
			1,087,890	0.00%	1,087,890

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
331.3	6" Ductile Iron Pipe	1996	300,282.63	0.00%	300,282.63
331.3	8" Ductile Iron Pipe	1996	229,732.13	0.00%	229,732.13
331.3	6" Gate Valve	1996	46,063.08	0.00%	46,063.08
331.3	8" Gate Valve	1996	40,717.25	0.00%	40,717.25
335	Fire Hydrant Assen	1996	143,853.32	0.00%	143,853.32
331.1	Excavation And Ag	1996	254,933.38	0.00%	254,933.38
331.1	Surface Restoratio	1996	356,906.99	0.00%	356,906.99
			1,372,489	0.00%	1,372,489
331.3	6" Ductile Iron Pipe	2006	27,178.14	0.00%	27,178.14
331.3	8" Ductile Iron Pipe	2006	1,691,453.00	0.00%	1,691,453.00
331.3	10" Ductile Iron Pip	2006	94,409.07	0.00%	94,409.07
331.3	12" Ductile Iron Pip	2006	882,206.53	0.00%	882,206.53
331.3	16" Ductile Iron Pip	2006	189,835.58	0.00%	189,835.58
331.3	6" Gate Valve	2006	3,427.81	0.00%	3,427.81
331.3	8" Gate Valve	2006	258,547.81	0.00%	258,547.81
331.3	10" Gate Valve	2006	8,704.13	0.00%	8,704.13
331.3	12" Gate Valve	2006	82,700.95	0.00%	82,700.95
331.3	16" Gate Valve	2006	73,994.07	0.00%	73,994.07
335	Fire Hydrant Assen	2006	391,057.59	0.00%	391,057.59
331.1	Excavation And Ag	2006	906,166.01	0.00%	906,166.01
331.1	Surface Restoratio	2006	1,268,631.34	0.00%	1,268,631.34

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(0) (0.5) (1) (6) (7) (8)

Account	Description	Placement Year	Preliminary Cost Approach	Economic Obsolescence	Fair Market Value
			CORLD $s	% of Preliminary Cost Approach	Appraisal Date Value $s
Input		Input	Calculation	Input	Calculation
Exeter Data	Exeter Data	Exeter Data	RCNLD	Economic Obsolescence Analysis	(6) * [1.00-(7)]
Account	Description	Year	Prelim RCNLD	EO%	FMV
			5,878,312	0.00%	5,878,312
331.3	2016 Pine/Harrisbu	2016	1,662,530.93	0.00%	1,662,530.93
331.3	2017 Mulberry/Bes:	2017	251,492.82	0.00%	251,492.82
331.3	2017 Ugies Water I	2017	528,216.60	0.00%	528,216.60
			2,442,240	0.00%	2,442,240
			13,200,798		13,200,798
36	37	38	39	40	41
			193,451	0.00%	193,451
			7,180,295	0.00%	7,180,295
			808,337	0.00%	808,337
			2,538,592	0.00%	2,538,592
			-	0.00%	-
			13,200,798	0.00%	13,200,798
			23,921,473	0.00%	23,921,473

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach
Depreciated Original Cost

Summary
Example Account 331
Detail (All Accounts & Summary)

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371
J. Weinert's E-Mail: weinertj@auswest.net

Pennsylvania-American Water Company
Steelton Borough (Water) Authority
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Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Earliest Trend Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	(4)*(5f)	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
43		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
303	Land			32,244			46				0	0	0	-	32,244	1,483,145	-	-
304	Treatment			7,580,743			7.25				44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368
311	Booster Station			896,330			45				6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
330	Storage			977,752			45				20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129	64,384,969
331.1	Interconnection			-			0				0	0	0	-	-	-	-	-
331.2	Distribution			10,252,837			16.79				44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635	628,298,948
Total				**19,739,906**			**15.85**				**41.69**	**57.47**	**0.2512**	**4,959,398**	**14,433,435**	**312,905,771**	**822,970,324**	**1,134,392,950**

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Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Earliest Trend Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	(4)*(5f)	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
331.3	4" Ductile Iron Pipe	1986	6,203	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	3,161	3,042	198,496	191,052	389,548
331.3	6" Ductile Iron Pipe	1986	107,314	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	54,682	52,632	3,434,048	3,305,271	6,739,319
331.3	8" Ductile Iron Pipe	1986	21,881	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	11,149	10,732	700,192	673,935	1,374,127
331.3	12" Ductile Iron Pipe	1986	69,753	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	35,543	34,210	2,232,096	2,148,392	4,380,488
331.3	16" Ductile Iron Pipe	1986	74,481	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	37,952	36,529	2,383,392	2,294,015	4,677,407
331.3	4" Gate Valve	1986	2,033	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	1,036	997	65,056	62,616	127,672
331.3	6" Gate Valve	1986	11,829	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	6,027	5,802	378,528	364,333	742,861
331.3	8" Gate Valve	1986	5,467	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	2,786	2,681	174,944	168,384	343,328
331.3	12" Gate Valve	1986	14,137	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	7,204	6,933	452,384	435,420	887,804
331.3	16" Gate Valve	1986	60,083	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	30,615	29,468	1,922,656	1,850,556	3,773,212
335	Fire Hydrant Assembly	1986	41,639	R3.0	55	32.00	58	R3.0058	0.47316	26.02	58.02	0.55153	22,965	18,674	1,332,448	1,083,447	2,415,895
331.1	Excavation And Aggregate Backfill	1986	127,752	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	65,096	62,656	4,088,064	3,934,762	8,022,826
331.1	Surface Restoration	1986	178,852	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	91,134	87,718	5,723,264	5,508,642	11,231,906
			721,424			**32.00**				**30.5**	**62.5**	0.51180	**369,350**	**352,074**	**23,085,568**	**22,020,825**	**45,106,393**
			632,827			32				30.52	62.52	0.512	323,990	308,837	20,250,464	19,316,482	39,566,946

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Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
303	Land and Land f	1972	-	Non-Depr	0	46.00						0	-	-	-	-	-
303	Land and Land f	1972	-	Non-Depr	0	46.00						0	-	-	-	-	-
303	Land and Land f	1972	1	Non-Depr	0	46.00						0	-	1	46	-	-
303	Land and Land f	1972	6,901	Non-Depr	0	46.00						0	-	6,901	317,446	-	-
303	Land and Land f	1972	8,240	Non-Depr	0	46.00						0	-	8,240	379,040	-	-
303	Land and Land f	1972	5,150	Non-Depr	0	46.00						0	-	5,150	236,900	-	-
303	Land and Land f	1972	6,695	Non-Depr	0	46.00						0	-	6,695	307,970	-	-
303	Land and Land f	1972	5,253	Non-Depr	0	46.00						0	-	5,253	241,638	-	-
303	Land and Land f	1971	1	Non-Depr	0	47.00						0	-	1	47	-	-
303	Land and Land f	1985	1	Non-Depr	0	33.00						0	-	1	33	-	-
303	Right-of-way	2001	1	Non-Depr	0	17.00						0	-	1	17	-	-
303	Easement	2010	1	Non-Depr	0	8.00						0	-	1	8	-	-
			32,244			46				0	0	0		32,244	1,483,145	-	-

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
304	Building	1973	1,260,090	R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226	1,099,126	160,964	56,704,050	8,303,993	65,008,043
304.2	Water Intake Str	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	Water Intake Lin	1973	(2,296)	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	(1,752)	(544)	(103,320)	(32,052)	(135,372)
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
311	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
334	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	0	2010	-	R4.0	55	8.00	15	R4.0015	0.85036	46.77	54.77	0.14607	-	-	-	-	-
304.2	0	2014	-	R4.0	55	4.00	7	R4.0007	0.93009	51.15	55.15	0.07253	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	0	2014	11,880	R4.0	55	4.00	7	R4.0007	0.93009	51.15	55.15	0.07253	862	11,018	47,520	607,662	655,182
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
320	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
320	Liquefied Gas C	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320	0	2016	3,996	R3.0	35	2.00	6	R3.0006	0.94112	32.94	34.94	0.05724	229	3,767	7,992	131,628	139,620
320	0	1973	(732)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(679)	(53)	(32,940)	(2,562)	(35,502)
320	Chemical Feed I	1973	(705)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(654)	(51)	(31,725)	(2,468)	(34,193)
320	2-2,800 Gallon F	2017	3,996	R3.0	35	1.00	3	R3.0003	0.9705	33.97	34.97	0.0286	114	3,882	3,996	135,744	139,740
320	0	1973	(2,856)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(2,650)	(206)	(128,520)	(9,996)	(138,516)
320	1-Peristatic (Blu	2015	15,120	R3.0	35	3.00	9	R3.0009	0.91187	31.92	34.92	0.08591	1,299	13,821	45,360	482,630	527,990

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
320	Chemical Feed I	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320	1-Peristatic (Blu	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
320	Chemical Feed I	2004	15,000	R3.0	35	14.00	40	R3.0040	0.62327	21.81	35.81	0.39095	5,864	9,136	210,000	327,150	537,150
320	Soda Ash Syste	2016	15,902	R3.0	35	2.00	6	R3.0006	0.94112	32.94	34.94	0.05724	910	14,992	31,804	523,812	555,616
320	Soda Ash Syste	1973	(2,915)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(2,705)	(210)	(131,175)	(10,203)	(141,378)
320	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2	Structure	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	Structure	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	Structure	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
320	Mixer	1973	(187)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(174)	(13)	(8,415)	(655)	(9,070)
320	Mixer	2018	1,080	R3.0	35	0.00	0	R3.0000	1	35	35	0	-	1,080	-	37,800	37,800
304.2	Structure	2010	3,580,390	R4.0	55	8.00	15	R4.0015	0.85036	46.77	54.77	0.14607	522,988	3,057,402	28,643,120	167,454,840	196,097,960
304.2	0	1973	(771,092)	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	(588,521)	(182,571)	(34,699,140)	(10,764,444)	(45,463,584)
311	Pumps	2012	8,640	R3.0	35	6.00	17	R3.0017	0.83474	29.22	35.22	0.17036	1,472	7,168	51,840	252,461	304,301
311	0	1973	(1,759)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(1,632)	(127)	(79,155)	(6,157)	(85,312)
334	Meters and Mete	2015	6,000	R3.0	35	3.00	9	R3.0009	0.91187	31.92	34.92	0.08591	515	5,485	18,000	191,520	209,520
320	WTP Equipment	2014	8,208	R3.0	35	4.00	11	R3.0011	0.89247	31.24	35.24	0.11351	932	7,276	32,832	256,418	289,250
320	0	1973	(1,586)	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	(1,472)	(114)	(71,370)	(5,551)	(76,921)
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
311	0	1973	20,457	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	18,981	1,476	920,565	71,600	992,165
334	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
304.2	StructurePumps	2017	2,548,882	R4.0	55	1.00	2	R4.0002	0.98002	53.9	54.9	0.01821	46,415	2,502,467	2,548,882	137,384,740	139,933,622
311	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
334	0	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-

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Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	0	1973	-	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	-	-	-	-	-
304.2	StructurePumps	1973	(766)	R4.0	55	45.00	82	R4.0082	0.2538	13.96	58.96	0.76323	(585)	(181)	(34,470)	(10,693)	(45,163)
311	0	2018	4,428	R3.0	35	0.00	0	R3.0000	1	35	35	0	-	4,428	-	154,980	154,980
310	0	2015	545,902	R3.0	35	3.00	9	R3.0009	0.91187	31.92	34.92	0.08591	46,898	499,004	1,637,706	17,425,192	19,062,898
339	Other Plant and	2009	302,500	R3.0	55	9.00	16	R3.0016	0.8443	46.44	55.44	0.16234	49,108	253,392	2,722,500	14,048,100	16,770,600
339	Other Plant and	1973	(66,889)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(48,888)	(18,001)	(3,010,005)	(1,108,351)	(4,118,356)
347	0	2015	60,480	R3.0	55	3.00	5	R3.0005	0.9509	52.3	55.3	0.05425	3,281	57,199	181,440	3,163,104	3,344,544
347	0	1973	(11,421)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(8,347)	(3,074)	(513,945)	(189,246)	(703,191)
344	Laboratory Equi	2017	9,288	R3.0	55	1.00	2	R3.0002	0.98032	53.92	54.92	0.01821	169	9,119	9,288	500,809	510,097
344	0	2017	14,040	R3.0	55	1.00	2	R3.0002	0.98032	53.92	54.92	0.01821	256	13,784	14,040	757,037	771,077
339	Other Plant and	2015	2,916	R3.0	55	3.00	5	R3.0005	0.9509	52.3	55.3	0.05425	158	2,758	8,748	152,507	161,255
339	0	1973	(551)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(403)	(148)	(24,795)	(9,130)	(33,925)
339	0	2017	3,780	R3.0	55	1.00	2	R3.0002	0.98032	53.92	54.92	0.01821	69	3,711	3,780	203,818	207,598
339	0	1973	(667)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(488)	(180)	(30,015)	(11,052)	(41,067)
339	0	2015	2,700	R3.0	55	3.00	5	R3.0005	0.9509	52.3	55.3	0.05425	146	2,554	8,100	141,210	149,310
339	0	1973	(510)	R3.0	55	45.00	82	R3.0082	0.30136	16.57	61.57	0.73088	(373)	(137)	(22,950)	(8,451)	(31,401)
			7,580,743			7.25				44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368

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Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
304.1	18' x 16' CMU S	1973	896,330	R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226	781,833	114,497	40,334,850	5,906,815	46,241,665
304.1	1 - Door	1973	-	R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226	-	-	-	-	-
304.1	3 - Windows	1973	-	R4.0	45	45.00	100	R4.0100	0.14634	6.59	51.59	0.87226	-	-	-	-	-
311	2 - Centrifugal P	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	8" Cast Iron Pipi	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	4" Cast Iron Pipi	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	2 - 8" Butterfly V	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	1 - 8" Check Val	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	2 - 6" Butterfly V	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	2 - 4" Check Val	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	2 - 4" Butterfly V	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
311	Electrical and H	1973	-	R3.0	35	45.00	129	R3.0129	0.1001	3.5	48.5	0.92784	-	-	-	-	-
			896,330			45				6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
330	2 - 2 MG Steel T	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	20" Screened Re	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	Cage Ladder (ea	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	8" Steel Overflo	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	24" Roof Hatch (	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-

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Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
330	24" Shell Hatch	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	2 - 10' x 7'-6" x 6	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	5' x 2'-6" Double	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	12" Ductile Iron I	1973	977,752	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	668,166	309,586	43,998,840	20,386,129	64,384,969
330	6" Cast Iron Dra	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	2" Sump	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	1 - 12" Butterfly	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
330	1 - 6" Butterfly V	1973	-	R3.0	60	45.00	75	R3.0075	0.34751	20.85	65.85	0.68337	-	-	-	-	-
			977,752			45				20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129	64,384,969
331.1	15'-8.5x6'x6' Cor	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	1-54"x48" Acces	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	6" Ductile Iron P	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	2-6" Gate Valve	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	1-6" Flow Contro	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	1-6' Backflow Pr	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	1-6" Flow Meter	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
331.1	Electric Unit Hea	2010	-	R3.0	60	8.00	13	R3.0013	0.87314	52.39	60.39	0.13247	-	-	-	-	-
			-			0				0	0	0	-	-	-	-	-

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Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	4' Ductile Iron Pi	1912	414	R3.0	60	106.00	177	R3.0177	0	0	106	1	414	-	43,884	-	43,884
331.3	6' Ductile Iron Pi	1912	2,442	R3.0	60	106.00	177	R3.0177	0	0	106	1	2,442	-	258,852	-	258,852
331.3	8' Ductile Iron Pi	1912	2,263	R3.0	60	106.00	177	R3.0177	0	0	106	1	2,263	-	239,878	-	239,878
331.3	10' Ductile Iron F	1912	3,810	R3.0	60	106.00	177	R3.0177	0	0	106	1	3,810	-	403,860	-	403,860
331.3	4' Gate Valve	1912	54	R3.0	60	106.00	177	R3.0177	0	0	106	1	54	-	5,724	-	5,724
331.3	6' Gate Valve	1912	235	R3.0	60	106.00	177	R3.0177	0	0	106	1	235	-	24,910	-	24,910
331.3	8' Gate Valve	1912	208	R3.0	60	106.00	177	R3.0177	0	0	106	1	208	-	22,048	-	22,048
331.3	10' Gate Valve	1912	150	R3.0	60	106.00	177	R3.0177	0	0	106	1	150	-	15,900	-	15,900
335	Fire Hydrant Ass	1912	1,221	R3.0	55	106.00	193	R3.0193	0	0	106	1	1,221	-	129,426	-	129,426
331.1	Excavation And	1912	4,253	R3.0	60	106.00	177	R3.0177	0	0	106	1	4,253	-	450,818	-	450,818
331.1	Surface Restora	1912	5,954	R3.0	60	106.00	177	R3.0177	0	0	106	1	5,954	-	631,124	-	631,124
			21,004			106				0	106	1	21,004	-	2,226,424	-	2,226,424
331.3	4' Ductile Iron Pi	1916	210	R3.0	60	102.00	170	R3.0170	0	0	102	1	210	-	21,420	-	21,420
331.3	6' Ductile Iron Pi	1916	673	R3.0	60	102.00	170	R3.0170	0	0	102	1	673	-	68,646	-	68,646
331.3	8' Ductile Iron Pi	1916	666	R3.0	60	102.00	170	R3.0170	0	0	102	1	666	-	67,932	-	67,932
331.3	12' Ductile Iron F	1916	7,758	R3.0	60	102.00	170	R3.0170	0	0	102	1	7,758	-	791,316	-	791,316
331.3	4' Gate Valve	1916	49	R3.0	60	102.00	170	R3.0170	0	0	102	1	49	-	4,998	-	4,998
331.3	6' Gate Valve	1916	132	R3.0	60	102.00	170	R3.0170	0	0	102	1	132	-	13,464	-	13,464
331.3	8' Gate Valve	1916	35	R3.0	60	102.00	170	R3.0170	0	0	102	1	35	-	3,570	-	3,570

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Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	12' Gate Valve	1916	1,237	R3.0	60	102.00	170	R3.0170	0	0	102	1	1,237	-	126,174	-	126,174
335	Fire Hydrant Ass	1916	1,825	R3.0	55	102.00	185	R3.0185	0	0	102	1	1,825	-	186,150	-	186,150
331.1	Excavation And	1916	3,362	R3.0	60	102.00	170	R3.0170	0	0	102	1	3,362	-	342,924	-	342,924
331.1	Surface Restora	1916	4,708	R3.0	60	102.00	170	R3.0170	0	0	102	1	4,708	-	480,216	-	480,216
			20,655			102				0	102	1	20,655	-	2,106,810	-	2,106,810
331.3	4' Ductile Iron Pi	1926	5,182	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	5,056	126	476,744	11,919	488,663
331.3	6' Ductile Iron Pi	1926	6,303	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	6,149	154	579,876	14,497	594,373
331.3	8' Ductile Iron Pi	1926	2,691	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	2,625	66	247,572	6,189	253,761
331.3	10' Ductile Iron F	1926	764	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	745	19	70,288	1,757	72,045
331.3	12' Ductile Iron F	1926	7,093	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	6,920	173	652,556	16,314	668,870
331.3	4' Gate Valve	1926	604	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	589	15	55,568	1,389	56,957
331.3	6' Gate Valve	1926	891	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	869	22	81,972	2,049	84,021
331.3	8' Gate Valve	1926	500	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	488	12	46,000	1,150	47,150
331.3	10' Gate Valve	1926	242	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	236	6	22,264	557	22,821
331.3	12' Gate Valve	1926	1,116	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	1,089	27	102,672	2,567	105,239
335	Fire Hydrant Ass	1926	3,661	R3.0	55	92.00	167	R3.0167	0.00641	0.35	92.35	0.99621	3,647	14	336,812	1,281	338,093
331.1	Excavation And	1926	11,825	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	11,537	288	1,087,900	27,198	1,115,098
331.1	Surface Restora	1926	16,555	R3.0	60	92.00	153	R3.0153	0.0384	2.3	94.3	0.97561	16,151	404	1,523,060	38,077	1,561,137
			57,427			92				2.18	94.18	0.9769	56,102	1,325	5,283,284	124,943	5,408,227

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(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	4" Ductile Iron P	1946	1,868	R3.0	60	72.00	120	R3.0120	0.12556	7.53	79.53	0.90532	1,691	177	134,496	14,066	148,562
331.3	4" Gate Valve	1946	124	R3.0	60	72.00	120	R3.0120	0.12556	7.53	79.53	0.90532	112	12	8,928	934	9,862
335	Fire Hydrant Ass	1946	260	R3.0	55	72.00	131	R3.0131	0.09481	5.21	77.21	0.93252	242	18	18,720	1,355	20,075
354	Excavation And	1946	1,402	R3.0	55	72.00	131	R3.0131	0.09481	5.21	77.21	0.93252	1,307	95	100,944	7,304	108,248
354	Surface Restora	1946	1,962	R3.0	55	72.00	131	R3.0131	0.09481	5.21	77.21	0.93252	1,830	132	141,264	10,222	151,486
			5,616			72				6.03	78.03	0.9229	5,183	433	404,352	33,881	438,233
331	10" Ductile Iron I	1956	3,737	R3.0	60	62.00	103	R3.0103	0.18808	11.28	73.28	0.84607	3,162	575	231,694	42,153	273,847
354	Excavation And	1956	1,245	R3.0	55	62.00	113	R3.0113	0.14849	8.17	70.17	0.88357	1,100	145	77,190	10,172	87,362
354	Surface Restora	1956	1,744	R3.0	55	62.00	113	R3.0113	0.14849	8.17	70.17	0.88357	1,541	203	108,128	14,248	122,376
			6,726			62				9.9	71.9	0.8627	5,803	923	417,012	66,573	483,585
331	4" Ductile Iron P	1966	1,101	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	839	262	57,252	17,891	75,143
331	6" Ductile Iron P	1966	1,197	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	912	285	62,244	19,451	81,695
331	4" Gate Valve	1966	237	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	181	56	12,324	3,851	16,175
331	6" Gate Valve	1966	325	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	248	77	16,900	5,281	22,181
331.1	Excavation And	1966	1,623	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	1,237	386	84,396	26,374	110,770
331.1	Surface Restora	1966	2,272	R3.0	60	52.00	87	R3.0087	0.27078	16.25	68.25	0.7619	1,731	541	118,144	36,920	155,064
			6,755			52				16.25	68.25	0.7619	5,147	1,608	351,260	109,769	461,029

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Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	4" Ductile Iron P	1976	22,214	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	14,362	7,852	932,988	510,033	1,443,021
331.3	6" Ductile Iron P	1976	136,157	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	88,032	48,125	5,718,594	3,126,165	8,844,759
331.3	8" Ductile Iron P	1976	183,403	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	118,579	64,824	7,702,926	4,210,933	11,913,859
331.3	10" Ductile Iron I	1976	143,008	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	92,462	50,546	6,006,336	3,283,464	9,289,800
331.3	12" Ductile Iron I	1976	79,336	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	51,295	28,041	3,332,112	1,821,555	5,153,667
331.3	16" Ductile Iron I	1976	13,004	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	8,408	4,596	546,168	298,572	844,740
331.3	4" Gate Valve	1976	3,378	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	2,184	1,194	141,876	77,559	219,435
331.3	6" Gate Valve	1976	15,805	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	10,219	5,586	663,810	362,883	1,026,693
331.3	8" Gate Valve	1976	21,808	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	14,100	7,708	915,936	500,712	1,416,648
331.3	10" Gate Valve	1976	9,790	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	6,330	3,460	411,180	224,778	635,958
331.3	12" Gate Valve	1976	4,057	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	2,623	1,434	170,394	93,149	263,543
331.3	16" Gate Valve	1976	4,161	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	2,690	1,471	174,762	95,537	270,299
335	Fire Hydrant Ass	1976	67,431	R3.0	55	42.00	76	R3.0076	0.34069	18.74	60.74	0.69147	46,627	20,804	2,832,102	1,263,657	4,095,759
331.1	Excavation And	1976	268,195	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	173,401	94,794	11,264,190	6,157,757	17,421,947
331.1	Surface Restora	1976	375,474	R3.0	60	42.00	70	R3.0070	0.38261	22.96	64.96	0.64655	242,763	132,711	15,769,908	8,620,883	24,390,791
			1,347,221			42				22.75	64.75	0.6488	874,075	473,146	56,583,282	30,647,635	87,230,917
331.3	4" Ductile Iron P	1986	6,203	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	3,161	3,042	198,496	191,052	389,548
331.3	6" Ductile Iron P	1986	107,314	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	54,682	52,632	3,434,048	3,305,271	6,739,319
331.3	8" Ductile Iron P	1986	21,881	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	11,149	10,732	700,192	673,935	1,374,127
331.3	12" Ductile Iron I	1986	69,753	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	35,543	34,210	2,232,096	2,148,392	4,380,488
331.3	16" Ductile Iron I	1986	74,481	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	37,952	36,529	2,383,392	2,294,015	4,677,407

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Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	4" Gate Valve	1986	2,033	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	1,036	997	65,056	62,616	127,672
331.3	6" Gate Valve	1986	11,829	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	6,027	5,802	378,528	364,333	742,861
331.3	8" Gate Valve	1986	5,467	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	2,786	2,681	174,944	168,384	343,328
331.3	12" Gate Valve	1986	14,137	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	7,204	6,933	452,384	435,420	887,804
331.3	16" Gate Valve	1986	60,083	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	30,615	29,468	1,922,656	1,850,556	3,773,212
335	Fire Hydrant Ass	1986	41,639	R3.0	55	32.00	58	R3.0058	0.47316	26.02	58.02	0.55153	22,965	18,674	1,332,448	1,083,447	2,415,895
331.1	Excavation And	1986	127,752	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	65,096	62,656	4,088,064	3,934,762	8,022,826
331.1	Surface Restora	1986	178,852	R3.0	60	32.00	53	R3.0053	0.51325	30.8	62.8	0.50955	91,134	87,718	5,723,264	5,508,642	11,231,906
			721,424			32				30.52	62.52	0.512	369,350	352,074	23,085,568	22,020,825	45,106,393
331.3	6" Ductile Iron P	1996	190,477	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	68,707	121,770	4,190,494	7,426,698	11,617,192
331.3	8" Ductile Iron P	1996	145,725	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	52,564	93,161	3,205,950	5,681,818	8,887,768
331.3	6" Gate Valve	1996	29,219	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	10,540	18,679	642,818	1,139,249	1,782,067
331.3	8" Gate Valve	1996	25,828	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	9,316	16,512	568,216	1,007,034	1,575,250
335	Fire Hydrant Ass	1996	96,674	R3.0	55	22.00	40	R3.0040	0.62327	34.28	56.28	0.3909	37,790	58,884	2,126,828	3,313,985	5,440,813
331.1	Excavation And	1996	194,242	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	70,065	124,177	4,273,324	7,573,496	11,846,820
331.1	Surface Restora	1996	271,939	R3.0	60	22.00	37	R3.0037	0.64975	38.99	60.99	0.36071	98,091	173,848	5,982,658	10,602,902	16,585,560
			954,104			22				38.51	60.51	0		607,031	20,990,288	36,745,180	57,735,468
331.3	6" Ductile Iron P	2006	19,687	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	3,913	15,774	236,244	952,260	1,188,504
331.3	8" Ductile Iron P	2006	1,225,236	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	243,540	981,696	14,702,832	59,264,665	73,967,497

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Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
331.3	10" Ductile Iron I	2006	68,387	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	13,593	54,794	820,644	3,307,879	4,128,523
331.3	12" Ductile Iron I	2006	639,043	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	127,023	512,020	7,668,516	30,910,510	38,579,026
331.3	16" Ductile Iron I	2006	137,511	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	27,333	110,178	1,650,132	6,651,407	8,301,539
331.3	6" Gate Valve	2006	2,483	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	494	1,989	29,796	120,103	149,899
331.3	8" Gate Valve	2006	187,284	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	37,226	150,058	2,247,408	9,058,927	11,306,335
331.3	10" Gate Valve	2006	6,305	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	1,253	5,052	75,660	304,973	380,633
331.3	12" Gate Valve	2006	59,906	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	11,908	47,998	718,872	2,897,653	3,616,525
331.3	16" Gate Valve	2006	53,599	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	10,654	42,945	643,188	2,592,584	3,235,772
335	Fire Hydrant Ass	2006	314,307	R3.0	55	12.00	22	R3.0022	0.78729	43.3	55.3	0.217	68,205	246,102	3,771,684	13,609,493	17,381,177
331.1	Excavation And	2006	838,380	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	166,645	671,735	10,060,560	40,552,441	50,613,001
331.1	Surface Restora	2006	1,173,731	R3.0	60	12.00	20	R3.0020	0.80619	48.37	60.37	0.19877	233,303	940,428	14,084,772	56,773,368	70,858,140
			4,725,859			12				48.03	60.03	0.2	945,089	3,780,770	56,710,308	226,996,263	283,706,571
331.3	2016 Pine/Harris	2016	1,614,679	R3.0	60	2.00	3	R3.0003	0.9705	58.23	60.23	0.03321	53,623	1,561,056	3,229,358	94,022,758	97,252,116
331.3	2017 Mulberry/B	2017	248,802	R3.0	60	1.00	2	R3.0002	0.98032	58.82	59.82	0.01672	4,160	244,642	248,802	14,634,534	14,883,336
331.3	2017 Ugies Wat	2017	522,565	R3.0	60	1.00	2	R3.0002	0.98032	58.82	59.82	0.01672	8,737	513,828	522,565	30,737,273	31,259,838
			2,386,046			1.68				58.42	60.1	0.0279	66,521	2,319,525	4,000,725	139,394,565	143,395,290
			10,252,837			16.79				44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635	628,298,948
43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
			32,244			46				0	0	0	-	32,244	1,483,145	-	-
			7,580,743			7.25				44.92	52.17	0.1504	1,140,472	6,440,271	54,929,623	340,537,745	395,467,368
			896,330			45				6.59	51.59	0.8723	781,833	114,497	40,334,850	5,906,815	46,241,665
			977,752			45				20.85	65.85	0.6834	668,166	309,586	43,998,840	20,386,129	64,384,969

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Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
As of July 1, 2018

Determination of the Depreciated Original Cost

(1)	(2)	(3)	(4)	(5)	(6)	(6a)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Account	Description	Placement Year	Original Costs	Retirement Dispersion Iowa-type	Normal Service Life (NSL)	Age at July 1, 2018 Appraisal Date	Age as % of NSL	Iowa Lookup	Iowa Condition Percent of Percent New	Normal Remaining Life	Total Life Expectancy	Theoretical Reserve Percent	Theoretical Reserve	Depreciated Original Cost	OC Weighted Age	OC Weighted Normal Remaining Life	OC Weighted Total Life Expectancy
Input	Input	Input	Input														
Exeter Data	Exeter Data	Exeter Data	Exeter Data	AUS Input	AUS Input	2018.00-[(1)+0.5]	(6a) / (6)	(5)&(7)	Iowa Life Table	(6)*(9)	(6a)+((10)	(1-0)-(1-0)*((10)/(11))	(4)/(12)	(4)-(13)	(4)*(6a)	(4)*(10)	(4)*(11)
Acct	Descrip	Year	Original Cost	Iowa	Life	age	AgeP	IowaLookup	IowaCondition	Rem Life	Total Lif	Theo%	Theo Reserve	Theo Reserve	OC wtd Age	OC wtd Rem Life	OC wtd Total Life
			-			0				0	0	0	-	-	-	-	-
			10,252,837			16.79				44.49	61.28	0.2311	2,368,927	7,536,837	172,159,313	456,139,635	628,298,948
			19,739,906			15.85				41.69	57.47	0.2512	4,959,398	14,433,435	312,905,771	822,970,324	1,134,392,950

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach
Costing & Depreciation Parameters

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Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
July 1, 2018

Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(3a)	(3b)	(3c)	(3d)	(3e)	(4a)	(4b)	(5)	(6a)	(6b)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
		Index Series	Table	Line Reference	Lookup	AUS Input		years	years	Table	Life
	Non-Depreciable										
303.00	**Land & Land Rights**	USBLS	PPI	1	USBLS1	1.000	**Non-Depr**	**0**	0%	**Non-Depr**	**0**
303.10	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	**Non-Depr**	**0**	0%	**Non-Depr**	**0**
303.20	Land & Land Rights - Distribution	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.30	Land & Land Rights - Pumping	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.40	Land & Land Rights - Treatment	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.50	Land & Land Rights - Right-of-Way	USBLS	PPI	3	USBLS3	1.000	Non-Depr	0	0%	Non-Depr	0
304.00	**Stuctures & Improvements**	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.10	Stuctures & Improvements - Pumping	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Stuctures & Improvements - Treatment	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Stuctures & Improvements - Storage	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
306.00	**Water Intake Structure**	HW	W-1	2	HWW-12	1.000	**R3.0**	**35**	0%	MACRS	25
306.10	Water Intake Structure	HW	W-1	2	HWW-12	1.000	R3.0	35	0%	MACRS	25
309.00	**Piping**	HW	W-1	17	HWW-117	1.000	**R3.0**	**35**	0%	MACRS	25
309.10	Piping	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25
310.00	**Power Generation**	USBLS	PPI	4	USBLS4	1.000	**R3.0**	**35**	0%	MACRS	25
310.10	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25
311.00	**Pumping**	HW	W-1	9	HWW-19	1.000	**R3.0**	**35**	0%	MACRS	25
311.10	Pumping	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25
320.00	**Treatment Chemical Treatment**	HW	W-1	17	HWW-117	1.000	**R3.0**	**35**	0%	MACRS	25
320.10	Treatment Chemical Treatment	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25
330.00	**Distribution Reservoirs**	HW	W-1	23	HWW-123	1.000	R3.0	60	0%	MACRS	25
330.10	Distribution Reservoirs	HW	W-1	23	HWW-123	1.000	R3.0	60	0%	MACRS	25
331.00	**Mains Distribution**	HW	W-1	44	HWW-144	1.000	R3.0	60	0%	MACRS	25
331.10	Distribution - Mains	HW	W-1	44	HWW-144	1.000	R3.0	60	0%	MACRS	25
331.200	Distribution - Mains - PVC	HW	W-1	38	HWW-138	1.000	R3.0	60	0%	MACRS	25
331.300	Distribution - Mains - Ductle Iron	HW	W-1	35	HWW-135	1.000	R3.0	60	0%	MACRS	25
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HWW-145	1.000	R3.0	65	0%	MACRS	25
334.00	**Meters & Installations**	HW	W-1	40	HWW-140	1.000	**R3.0**	**35**	0%	MACRS	25
334.10	Meters & Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
336.00	**Backflow Preventer**	HW	W-1	40	HWW-140	1.000	**R3.0**	**35**	0%	MACRS	25
336.10	Backflow Preventer	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
339.00	**Other Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
339.10	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
344.00	**Laboratory Equipment**	HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
344.10	Laboratory Equipment	HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
347.00	**Miscellaneous Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
347.10	Miscellaneous Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
348.00	**Other Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
348.10	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
335.00	**Hydrants**	HW	W-1	42	HWW-142	1.000	R3.0	55	0%	MACRS	25
335.10	Hydrants	HW	W-1	42	HWW-142	1.000	R3.0	55	0%	MACRS	25
354.00	**Restoration**	HW	W-1	35	HWW-135	1.000	**R3.0**	**55**	0%	MACRS	25
354.10	Restoration	HW	W-1	35	HWW-135	1.000	R3.0	55	0%	MACRS	25
364.00	**Metering and Meter Installatons**	HW	W-1	40	HWW-140	1.000	**R3.0**	**35**	0%	MACRS	25
364.10	Metering	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
364.20	Meter Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
371.00	**Pumping Equipment**	HW	W-1	9	HWW-19	1.000	**R3.0**	**35**	0%	MACRS	25
371.10	Pumping Equipment	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25
380.00	**Treatment and Disposal Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	45	0%	MACRS	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HWW-117	1.000	R3.0	45	0%	MACRS	25
390.00	**General Plant**						**R3.0**	**12**		MACRS	15
390.10	Office Furniture and Equipment	AUS	T-1	15	AUST-115	1.000	R3.0	12	0%	MACRS	12
391.10	Transportation Equipment	AUS	T-1	4	AUST-14	1.000	R3.0	10	0%	MACRS	10
392.10	Stores Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15
396.10	Communications Equipment	USBLS	PPI	2	USBLS2	1.000	R3.0	12	0%	MACRS	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20

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As of July 2018

Cost Approach
Cost Indices

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Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

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As of July 2018

Cost Approach
Hy Whitman Index of Public Utility Construction Costs
Water Industry – Northeastern United States

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Bulletin No. 187

1912 to January 1, 2018

The Handy-Whitman Index® of Public Utility Construction Costs™

Trends of Construction Costs

COMPILED & PUBLISHED BY

Whitman, Requardt & Associates, LLP

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TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

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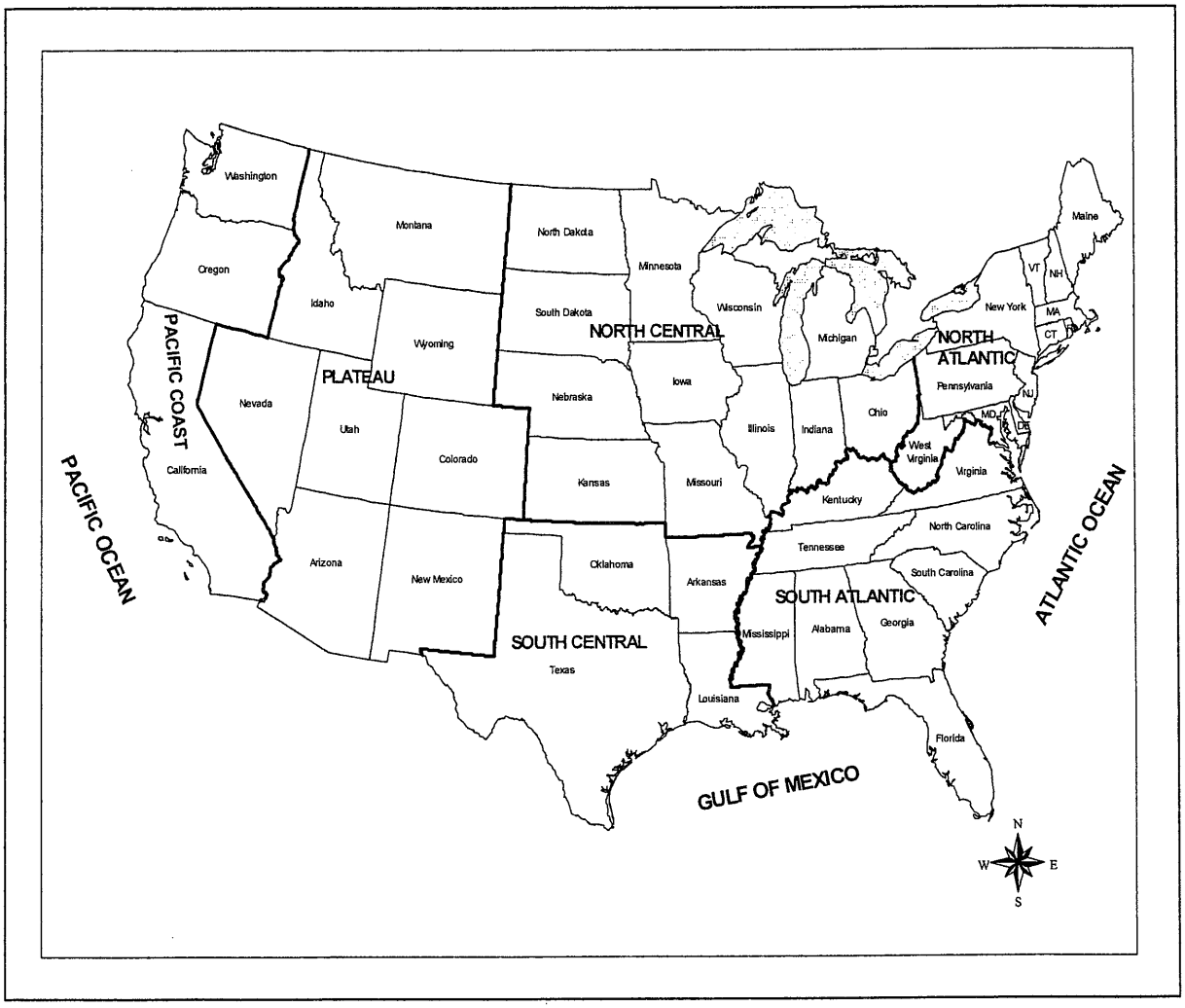
GEOGRAPHIC REGIONS



Tradition of Quality

The Handy-Whitman Index of Public Utility Construction Costs has been published continuously since 1924. Formerly the Handy Index, Bulletin Nos. 1 through 15 were developed by William W. Handy of Baltimore who had wide valuation experience in public utilities. *He believed that valuation studies should not be confined to rate cases but should be kept alive to the benefit of the utility industry.* He began publishing index numbers for electric and gas construction cost trends. Carrying on with the *tradition of quality*, after Mr. Handy's death, we continued publication for his estate beginning with Bulletin 16. Then, January 1, 1950, Whitman, Requardt and Associates, LLP purchased rights to the publication and have since been the sole publishers.

The name Handy-Whitman Index was adopted for Bulletin No. 53 and succeeding issues to combine the names of Mr. Handy and Ezra B. Whitman, a well-known valuation engineer. In 1957 an index of water utility construction costs was added. Mr. Whitman was a consultant on the publication of the Index until his death in 1963.

Whitman, Requardt and Associates, LLP

Ezra B. Whitman, a well-known valuation engineer was one of the founders of our firm. Major Whitman, as he was known from his World War I service, had already made a name for himself. Prior to the founding of the firm in 1915, Major Whitman had been President and Chief Engineer of the Water Board of the City of Baltimore. He designed the first rapid sand filtration plant serving a major city while he was the Baltimore Water Engineer. He was also president of the American Society of Civil Engineers and of the American Institute of Consulting Engineers and a chairman of the Public Service Commission of Maryland.

The Handy-Whitman Index is prepared especially for electric, gas and water utilities and is the only known publication of its kind available to the public. The list of subscribers is international and includes operating utilities, regulatory bodies, valuation engineers, equipment industries, insurance companies and reference libraries.

Tradition of Quality Continued

Since 1915, Whitman, Requardt and Associates, LLP, has been an independent consulting engineering firm organized to serve government, industry and private enterprise.

The firm has steadily expanded its engineering capabilities, providing complete services for civil, sanitary, structural, mechanical and electrical engineering and architectural projects from job inception through construction management. Construction cost data from utility projects of all types are available from design and valuation assignments. The staff is composed of specialists in these and related disciplines who bring a diverse professional and academic expertise to each assignment. A full-time staff is maintained specifically for preparing the Handy-Whitman Index.

Methods of Preparation of Indexes

An index number is a percentage ratio between the cost of an item at any stated time and its cost at a base period, or:

$$\text{Index Number} = \frac{\text{cost at stated time}}{\text{cost at base period}} \times 100$$

Index numbers have been prepared for many items, including wage rates, cost-of-living, material and equipment costs, and financial transactions. In the Handy-Whitman Index, index numbers have been developed for Building Construction, Electric Utility Construction, Gas Utility Construction and Water Utility Construction. Prices of basic materials such as cement, sand, gravel, cast iron pipe, wire, etc., are obtained from publications such as Engineering News-Record and checked against prices actually being paid for such materials. Labor cost trends are computed from labor rates obtained from sources such as the Construction Labor Research Council. Prices and cost trends of equipment are obtained from nationally recognized manufacturers, and operating utilities.

Handy-Whitman Index numbers are developed from wage rates and prices prevailing on January 1 and July 1 each year. The index numbers are generally based on 1973 = 100, although those items of recent origin are based on a later year.

The proportions of basic materials, labor, equipment and other cost components used in the Handy-Whitman Index are based on analyses developed during valuation and design assignments and on data furnished by utilities and industrial sources willing to assist with the Index. These data are reviewed continuously, and weightings and components are revised as required. This review assures that the indexes published reflect current construction practice.

Geographic Regions

To reflect differing cost trends throughout the 48 contiguous states, the index has been divided into six geographical regions of similar characteristics. They are shown on the accompanying map.

Use of Index Numbers

Handy-Whitman Index numbers have been widely used to trend earlier valuations and original cost records to estimate reproduction cost at prices prevailing at a certain date. The use of indexes for an appropriate property item or group will provide a reliable guide to changes in cost. Cost trends are given for all the important items of property. The electric and gas groups are arranged by the Federal Energy Regulatory Commission Uniform System of Accounts. The water property accounts are arranged to follow the classification of the National Association of Regulatory Utility Commissioners and the American Water Works Association.

The Handy-Whitman Index will furnish a yardstick for the fluctuations in value of property which will be satisfactory for many purposes. In rate cases, when a more exact determination of value is desired, however, the Index must be used carefully. Average prices and cost trends are used to develop the Index, and any direct application of cost trends without checking with actual local experience may not be accepted without controversy. When local experience is compared with the index and the correlation between the two trends is determined, the result is satisfactory. Costs trended by such a method are used to assist in establishing a rate base.

Indexes in these bulletins are used to trend earlier valuations or original cost records for insurance purposes.

The Handy-Whitman Index has a general application in valuations of all types of property. The building construction cost trends may be used wherever similar items of property are to be compared. Many of the other trends may be used for related items in other industries because of their similarity.

State-of-the-art changes often affect costs independently of inflation. New regulatory and environmental requirements, changes in work rules and improved design standards, for instance, increase construction costs even though the price of wages, materials and equipment may be static. Trended construction costs will not reflect such changes. However, trended costs are a reasonably accurate measure of the cost of reproducing actual plant.

Although every effort is made to maintain accuracy, Whitman, Requardt and Associates, LLP disclaim any responsibility for the use of these indexes, because local conditions may vary.

No guarantee or warranty of any kind is made in the sale of the Handy-Whitman Index. Published numbers are occasionally subject to change based upon receipt of new or different information. These numbers will be bolded.

Further inquiries on electric, gas and water indexes should be addressed to Whitman, Requardt and Associates, LLP.

Total Electric Plant and Function

Three indexes are provided for total plant. The first is for all steam generation and the other two for weighted combinations of steam and nuclear, and steam and hydro generation. Indexes are also provided for each function.

Indexes are not maintained for plant accounts 323,324,325,341,345 and 346. We believe that indexes for comparable accounts in other functions are sufficiently accurate for these accounts.

The indexes for total nuclear production and total other production incorporate comparable indexes from the steam production function for the accounts not listed.

Value of Index Numbers

We believe that present-day reproduction cost of any property can be calculated more accurately using index numbers than by repricing a complete inventory.

Trending the controlling items of property in any utility by the index method saves time and effort in arriving at a valuation. Analyzing and determining cost trends for all of the great numbers of articles of plant that represent only a very small proportion of the value of the utility is not necessary. They may be assumed to follow in general the trend of the controlling items, and the fluctuations in value above or below the trends of the controlling items will tend to offset each other and have a very slight effect on the total value.

Comments on Bulletin No. 187

During the twelve month period ending January 1, 2018, the average index of all geographical regions for Total Gas Plant increased 2.9%. and the comparable index for Electric Plant-All Steam Generation increased 2.0%.

May 2018
Whitman, Requardt and Associates, LLP

Cost Trends Of

Water Utility Construction

COST TREND TABLES
1912 to January 1, 2018

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	7	7	7	7	9	13	15	15	17	16	16	16	16	16
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	8	8	8	9	11	16	17	18	20	18	18	18	19	18
9	Electric Pumping Equipment	311	-	-	15	15	17	20	22	24	24	23	21	22	23	23
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	8	8	8	9	11	16	17	18	20	18	18	18	19	18
16	Large Treatment Plant Equip.	320	9	9	9	9	11	14	16	17	20	19	18	18	20	20
17	Small Treatment Plant Equip.	320	10	10	10	10	13	17	19	19	22	20	20	20	21	20
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	4	4	4	12	15	17	19	20	15	13	12	13	13	13
24	Elevated Steel Tanks	330	4	4	4	11	14	16	18	19	16	13	11	12	11	10
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	9	10	8	9	11	16	19	20	22	22	20	21	22	21
35	Cast Iron Mains	331	9	10	9	9	12	18	20	22	25	24	22	23	24	23
36	Cement-Asbestos Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	Steel Mains	331	6	7	6	7	8	11	13	13	14	15	14	14	14	15
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	6	6	5	6	6	9	10	11	12	13	12	12	13	13
40	Meters	334	23	23	23	23	26	29	35	37	37	37	37	37	37	37
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		14	16	13	14	26	38	31	29	29	24	25	26	24	23
47	Clarifier Equipment-Installed		-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	Filter Gallery Piping-Installed		8	8	8	8	10	14	16	18	20	18	17	18	19	19
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	17	17	17	17	17	16	14	14	15	15	15	17	17	17
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	19	18	18	18	17	16	15	15	16	16	16	18	18	18
9	Electric Pumping Equipment	311	23	23	23	22	22	22	22	23	24	24	25	26	26	26
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	19	18	18	18	17	16	15	15	16	16	16	18	18	18
16	Large Treatment Plant Equip.	320	20	20	20	20	20	19	17	17	18	18	18	20	20	20
17	Small Treatment Plant Equip.	320	20	20	20	20	20	19	17	17	19	19	19	21	21	21
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	12	12	12	12	11	10	9	9	12	11	12	14	14	14
24	Elevated Steel Tanks	330	11	10	10	10	10	9	8	8	10	10	11	12	13	13
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	21	21	20	20	20	20	18	18	19	19	20	21	22	22
35	Cast Iron Mains	331	23	21	20	21	21	20	18	18	20	20	21	23	24	24
36	Cement-Asbestos Mains	331	-	-	-	-	-	-	-	-	-	-	31	32	32	33
37	Steel Mains	331	15	15	15	16	16	16	14	13	14	14	14	16	16	16
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	13	13	13	14	14	14	13	11	12	13	13	14	14	14
40	Meters	334	37	37	37	37	37	37	37	35	26	26	26	31	32	32
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		23	22	22	22	21	20	20	20	21	21	23	26	25	25
47	Clarifier Equipment-Installed		-	-	-	-	-	-	-	-	-	-	-	17	23	24
48	Filter Gallery Piping-Installed		19	18	18	18	18	18	15	16	18	18	18	19	20	20
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	17	18	20	20	20	21	23	27	31	32	33	35	36	38
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	18	19	20	21	21	22	24	28	32	35	36	38	38	39
9	Electric Pumping Equipment	311	26	27	27	27	27	27	31	39	43	45	49	55	55	55
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	18	19	20	21	21	22	24	28	32	35	36	38	38	39
16	Large Treatment Plant Equip.	320	21	22	23	24	24	25	28	32	35	36	38	40	41	42
17	Small Treatment Plant Equip.	320	21	22	24	24	24	25	28	33	37	39	41	43	43	44
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	14	16	16	13	14	16	20	26	29	27	28	30	31	32
24	Elevated Steel Tanks	330	12	15	15	14	15	14	17	23	26	25	26	28	29	31
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	-	-	-	-	-	-	-	-	-	-	-	42	43	45
28	Steel Mains	331	-	-	-	-	-	-	-	-	-	-	-	40	40	43
29	Concrete Cylinder Mains	331	-	-	-	-	-	-	-	-	-	-	-	44	45	47
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	23	23	24	25	25	26	29	35	41	42	43	45	47	48
35	Cast Iron Mains	331	24	25	27	27	28	28	32	39	46	46	48	50	51	53
36	Cement-Asbestos Mains	331	33	34	36	36	37	37	44	49	59	61	62	64	65	67
37	Steel Mains	331	16	17	18	18	18	19	21	24	28	29	31	32	34	36
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	14	15	16	16	17	17	19	22	25	27	28	29	31	33
40	Meters	334	33	35	37	37	37	37	40	42	48	52	59	61	61	65
41	Meter Installations	334	-	-	-	-	-	-	-	-	-	29	31	34	35	36
42	Hydrants Installed	335	-	-	-	-	-	-	-	-	-	35	37	41	41	43
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		25	27	28	28	28	30	33	38	44	45	45	49	49	50
47	Clarifier Equipment-Installed		25	26	27	27	27	29	32	37	43	43	44	46	46	49
48	Filter Gallery Piping-Installed		21	21	22	22	22	23	25	30	35	37	37	39	40	41
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	39	41	44	47	49	51	52	53	55	56	57	59	61	64
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	41	43	46	49	50	52	53	53	54	55	56	57	59	61
9	Electric Pumping Equipment	311	55	56	63	69	73	74	74	71	71	71	73	74	78	81
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	41	43	46	49	50	52	53	53	54	55	56	57	59	61
16	Large Treatment Plant Equip.	320	44	45	48	50	52	54	55	56	58	59	60	62	64	67
17	Small Treatment Plant Equip.	320	46	47	50	53	54	56	58	58	60	60	62	63	66	68
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	32	33	38	42	37	36	35	35	35	41	44	45	46	47
24	Elevated Steel Tanks	330	31	33	35	38	38	38	38	37	36	37	38	38	41	44
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	47	50	52	56	57	61	62	63	64	65	66	67	69	71
28	Steel Mains	331	44	46	49	52	55	57	57	58	59	60	61	63	65	67
29	Concrete Cylinder Mains	331	48	50	52	54	56	59	60	60	61	62	62	64	66	70
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	51	53	57	60	63	65	68	69	71	72	73	74	75	76
35	Cast Iron Mains	331	56	59	62	66	68	72	73	75	77	79	79	80	80	81
36	Cement-Asbestos Mains	331	68	70	75	78	81	84	86	86	87	89	88	81	82	82
37	Steel Mains	331	38	40	43	46	48	51	53	55	56	58	60	63	65	66
38	PVC Mains	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Services Installed	333	35	36	39	41	44	46	48	50	51	53	55	58	60	63
40	Meters	334	67	70	77	78	78	78	78	78	84	87	87	93	101	101
41	Meter Installations	334	38	40	44	45	46	48	51	52	54	55	57	59	62	65
42	Hydrants Installed	335	44	44	48	50	51	53	54	55	56	57	58	58	61	64
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		52	53	57	58	58	59	60	61	61	62	65	66	67	68
47	Clarifier Equipment-Installed		50	49	53	55	57	58	58	59	60	60	63	65	66	67
48	Filter Gallery Piping-Installed		44	46	48	50	53	54	56	57	58	59	60	61	63	65
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	67	72	78	86	94	100	115	127	133	139	148	164	179	189
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	64	69	75	84	92	100	117	127	130	137	148	163	181	191
9	Electric Pumping Equipment	311	81	84	89	93	96	100	122	155	174	184	192	205	222	245
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	64	69	75	84	92	100	117	127	130	137	148	163	181	191
16	Large Treatment Plant Equip.	320	69	73	79	89	96	100	118	134	144	152	162	175	191	208
17	Small Treatment Plant Equip.	320	70	74	80	90	96	100	120	139	150	160	172	186	204	223
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	49	53	75	82	85	100	140	159	171	172	173	178	191	208
24	Elevated Steel Tanks	330	48	55	71	80	86	100	152	183	182	183	195	206	228	250
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	74	78	84	91	96	100	129	137	142	150	158	166	180	196
28	Steel Mains	331	69	74	80	88	96	100	113	125	133	141	152	166	180	199
29	Concrete Cylinder Mains	331	72	78	80	88	95	100	113	134	138	140	148	162	176	189
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	77	80	84	94	98	100	110	146	154	162	173	185	202	219
35	Cast Iron Mains	331	82	83	88	97	99	100	143	158	163	167	178	185	202	218
36	Cement-Asbestos Mains	331	82	85	88	97	98	100	127	148	159	167	176	202	212	234
37	Steel Mains	331	68	72	78	88	97	100	115	128	139	151	164	179	197	212
38	PVC Mains	331	-	-	-	-	-	-	25	100	104	108	113	122	132	138
39	Services Installed	333	66	72	79	89	96	100	115	123	130	139	145	160	175	184
40	Meters	334	101	106	108	108	106	100	93	93	98	101	105	108	122	127
41	Meter Installations	334	68	73	79	89	97	100	113	120	131	147	152	162	177	189
42	Hydrants Installed	335	68	72	80	90	96	100	123	143	157	167	182	194	207	222
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		69	74	82	93	98	100	139	174	195	218	246	290	350	406
47	Clarifier Equipment-Installed		68	72	82	93	98	100	140	167	181	199	210	232	272	310
48	Filter Gallery Piping-Installed		68	72	78	90	97	100	119	130	136	144	151	158	171	185
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	197	206	217	227	234	238	248	255	258	262	270	282	295	302
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	198	206	218	225	233	239	251	265	271	274	281	294	308	316
9	Electric Pumping Equipment	311	260	271	277	282	284	299	311	330	349	355	368	386	428	442
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	198	206	218	225	233	239	251	265	271	274	281	294	308	316
16	Large Treatment Plant Equip.	320	227	242	251	262	269	276	286	301	313	322	332	342	348	357
17	Small Treatment Plant Equip.	320	243	259	268	279	286	293	303	317	328	334	343	354	360	366
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	210	182	184	181	184	196	220	216	229	253	261	248	246	250
24	Elevated Steel Tanks	330	244	197	200	198	207	219	260	268	278	285	277	249	242	252
5	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	208	222	225	236	235	242	253	266	273	279	284	295	305	305
28	Steel Mains	331	215	223	230	234	232	241	255	272	279	287	293	302	316	324
29	Concrete Cylinder Mains	331	203	213	218	232	239	243	258	269	277	288	295	303	311	317
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	231	239	244	254	255	263	280	295	301	307	311	321	327	332
35	Cast Iron Mains	331	223	245	253	264	263	269	282	296	304	313	320	329	339	341
36	Cement-Asbestos Mains	331	253	244	249	255	259	275	315	340	338	332	319	335	338	354
37	Steel Mains	331	233	228	231	237	242	248	265	277	281	288	295	302	304	311
38	PVC Mains	331	137	151	149	151	150	160	197	217	211	200	183	193	191	204
39	Services Installed	333	198	207	215	221	226	230	245	258	262	272	283	292	300	307
40	Meters	334	128	141	148	135	135	137	140	150	159	162	196	195	175	200
41	Meter Installations	334	207	230	239	247	255	259	269	282	294	310	320	337	347	358
42	Hydrants Installed	335	245	264	270	285	296	307	320	343	363	372	378	385	391	398
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		458	496	506	540	560	575	579	580	565	528	539	555	562	566
47	Clarifier Equipment-Installed		356	389	398	431	442	446	451	455	442	416	435	458	492	514
48	Filter Gallery Piping-Installed		201	217	223	234	237	243	251	266	279	289	297	309	319	321
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
								2001		2002		2003		2004	
			1996	1997	1998	1999	2000	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Source of Supply Plant**														
2	Collecting & Impounding Res.	305	309	317	318	318	326	328	338	338	346	344	345	364	370
3															
4															
5															
6															
7	**Pumping Plant**														
8	Structures & Improvements	304	321	331	337	343	362	370	380	382	390	393	388	405	418
9	Electric Pumping Equipment	311	450	473	489	505	530	531	531	516	533	534	546	547	569
10															
11															
12															
13															
14	**Water Treatment Plant**														
15	Structures & Improvements	304	321	331	337	343	362	370	380	382	390	393	388	405	418
16	Large Treatment Plant Equip.	320	367	380	391	401	413	419	429	435	445	448	449	461	462
17	Small Treatment Plant Equip.	320	375	389	401	410	424	431	440	444	454	456	457	470	476
18															
19															
20															
21															
22	**Transmission Plant**														
23	Steel Reservoirs	330	251	255	268	268	270	270	275	275	275	275	275	278	313
24	Elevated Steel Tanks	330	268	273	283	288	299	305	314	429	429	429	429	438	481
25	Concrete Reservoirs	330	-	-				-	-	-	-	-	-	-	-
26															
27	Cast Iron Mains	331	311	320	323	328	348	355	365	368	387	390	381	387	386
28	Steel Mains	331	329	337	342	351	377	384	392	394	400	404	395	421	437
29	Concrete Cylinder Mains	331	324	331	338	345	372	395	405	409	416	420	411	417	423
30															
31															
32															
33	**Distribution Plant**														
34	Mains-Average All Types	331	339	347	355	361	377	383	392	395	406	407	403	415	426
35	Cast Iron Mains	331	348	358	364	370	390	396	406	409	424	426	422	430	428
36	Cement-Asbestos Mains	331	364	372	375	382	405	418	423	429	448	450	441	450	454
37	Steel Mains	331	316	322	334	339	346	352	359	361	363	364	363	378	413
38	PVC Mains	331	211	216	216	219	231	241	241	246	254	256	250	258	259
39	Services Installed	333	321	323	330	334	348	352	355	354	361	363	365	377	386
40	Meters	334	207	197	197	198	205	206	206	207	207	207	207	207	207
41	Meter Installations	334	375	381	387	392	406	412	418	421	428	436	437	449	455
42	Hydrants Installed	335	418	475	493	508	526	538	554	557	566	569	568	576	583
43															
44															
45	**Miscellaneous Items**														
46	Flocculating Equipment-Installed		579	603	622	642	652	667	670	676	685	687	688	724	754
47	Clarifier Equipment-Installed		540	562	572	579	593	599	602	609	617	623	625	646	649
48	Filter Gallery Piping-Installed		328	337	344	349	363	369	379	384	400	406	404	417	415
49															
50															
51															
52															
53															
54															
55															
56															

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS											
			2005		2006		2007		2008		2009		2010	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Source of Supply Plant**													
2	Collecting & Impounding Res.	305	388	394	400	405	413	439	457	466	470	465	475	478
3														
4														
5														
6														
7	**Pumping Plant**													
8	Structures & Improvements	304	442	447	456	464	481	494	516	543	551	536	552	558
9	Electric Pumping Equipment	311	604	611	620	619	639	628	640	666	679	688	707	701
10														
11														
12														
13														
14	**Water Treatment Plant**													
15	Structures & Improvements	304	442	447	456	464	481	494	516	543	551	536	552	558
16	Large Treatment Plant Equip.	320	480	482	499	500	516	533	566	582	614	616	631	638
17	Small Treatment Plant Equip.	320	498	502	520	518	539	559	602	624	666	669	686	693
18														
19														
20														
21														
22	**Transmission Plant**													
23	Steel Reservoirs	330	329	338	348	375	494	537	537	722	722	722	722	722
24	Elevated Steel Tanks	330	524	524	524	596	657	657	680	866	866	866	866	867
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-
26														
27	Cast Iron Mains	331	411	415	442	451	480	484	510	534	578	576	601	601
28	Steel Mains	331	509	508	530	539	528	527	543	606	605	585	593	609
29	Concrete Cylinder Mains	331	436	440	454	459	460	462	468	475	502	502	494	495
30														
31														
32														
33	**Distribution Plant**													
34	Mains-Average All Types	331	462	464	485	494	524	523	550	588	624	608	617	623
35	Cast Iron Mains	331	457	460	483	492	525	528	556	579	625	624	647	648
36	Cement-Asbestos Mains	331	480	483	538	546	599	597	621	632	691	678	638	649
37	Steel Mains	331	459	460	467	477	494	487	514	582	595	559	565	575
38	PVC Mains	331	277	278	321	321	365	361	372	374	419	408	353	363
39	Services Installed	333	404	407	421	459	478	481	501	511	534	534	545	554
40	Meters	334	207	207	235	248	260	262	373	373	373	373	374	376
41	Meter Installations	334	466	467	482	530	549	552	572	573	597	598	612	623
42	Hydrants Installed	335	597	597	613	647	663	669	693	699	732	731	740	721
43														
44														
45	**Miscellaneous Items**													
46	Flocculating Equipment-Installed		801	801	852	852	869	983	1187	1373	1645	1645	1699	1744
47	Clarifier Equipment-Installed		709	709	729	729	760	892	920	944	997	997	991	1001
48	Filter Gallery Piping-Installed		438	438	468	470	500	501	530	543	589	590	613	614
49														
50														
51														
52														
53														
54														
55														
56														

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			2011		2012		2013		2014		2015		2016		2017	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	492	495	501	502	507	505	515	517	526	521	526	532	543	549
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	571	583	597	600	618	608	621	630	642	646	655	659	672	671
9	Electric Pumping Equipment	311	708	760	780	785	800	844	856	900	928	931	990	1013	1052	1135
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	571	583	597	600	618	608	621	630	642	646	655	659	672	671
16	Large Treatment Plant Equip.	320	642	653	669	680	689	697	713	725	736	737	755	758	774	785
17	Small Treatment Plant Equip.	320	706	712	740	754	764	779	800	813	832	840	861	864	881	897
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	771	771	795	810	778	780	715	742	742	742	742	774	784	784
24	Elevated Steel Tanks	330	1079	1079	1059	1082	1089	1099	1131	1131	1131	1131	1131	1143	1161	1161
25	Concrete Reservoirs	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26																
27	Cast Iron Mains	331	602	610	634	669	691	684	712	743	733	744	754	759	793	785
28	Steel Mains	331	644	659	711	708	724	704	694	708	712	713	697	705	723	726
29	Concrete Cylinder Mains	331	510	517	523	526	547	534	535	547	562	575	591	592	601	592
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	633	644	669	690	698	693	720	733	736	738	747	750	774	772
35	Cast Iron Mains	331	654	660	681	716	733	730	759	781	780	785	795	797	832	826
36	Cement-Asbestos Mains	331	658	683	716	721	712	707	704	721	724	731	741	743	751	746
37	Steel Mains	331	593	606	633	637	638	631	665	665	673	670	678	681	697	701
38	PVC Mains	331	369	389	412	412	391	392	383	383	387	387	388	388	387	387
39	Services Installed	333	568	574	589	600	602	602	603	605	617	616	622	617	638	651
40	Meters	334	379	379	379	379	380	381	381	381	400	400	403	403	404	418
41	Meter Installations	334	635	635	646	673	677	677	688	688	702	702	709	709	722	733
42	Hydrants Installed	335	730	731	757	758	774	784	807	849	877	930	971	972	980	981
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		1823	1848	1904	1973	1978	2015	2041	2078	2167	2177	2192	2192	2198	2213
47	Clarifier Equipment-Installed		1056	1060	1077	1102	1105	1136	1154	1162	1184	1188	1229	1272	1311	1315
48	Filter Gallery Piping-Installed		620	620	641	666	677	680	713	728	727	728	735	738	772	772
49																
50																
51																
52																
53																
54																
55																
56																

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COST TRENDS OF WATER UTILITY CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	NARUC	COST INDEX NUMBERS													
			2018		2019		2020		2021		2022		2023		2024	
			Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	**Source of Supply Plant**															
2	Collecting & Impounding Res.	305	559													
3																
4																
5																
6																
7	**Pumping Plant**															
8	Structures & Improvements	304	687													
9	Electric Pumping Equipment	311	1146													
10																
11																
12																
13																
14	**Water Treatment Plant**															
15	Structures & Improvements	304	687													
16	Large Treatment Plant Equip.	320	797													
17	Small Treatment Plant Equip.	320	911													
18																
19																
20																
21																
22	**Transmission Plant**															
23	Steel Reservoirs	330	801													
24	Elevated Steel Tanks	330	1181													
25	Concrete Reservoirs	330	-													
26																
27	Cast Iron Mains	331	810													
28	Steel Mains	331	733													
29	Concrete Cylinder Mains	331	620													
30																
31																
32																
33	**Distribution Plant**															
34	Mains-Average All Types	331	790													
35	Cast Iron Mains	331	855													
36	Cement-Asbestos Mains	331	763													
37	Steel Mains	331	704													
38	PVC Mains	331	397													
39	Services Installed	333	661													
40	Meters	334	434													
41	Meter Installations	334	750													
42	Hydrants Installed	335	1012													
43																
44																
45	**Miscellaneous Items**															
46	Flocculating Equipment-Installed		2223													
47	Clarifier Equipment-Installed		1369													
48	Filter Gallery Piping-Installed		801													
49																
50																
51																
52																
53																
54																
55																
56																

Cost Trends Of

Building Construction

COST TREND TABLES
1912 to January 1, 2018

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS															
		1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	8	8	8	8	12	18	19	19	20	15	14	17	17	17	17	16
3	Brick Building Construction	8	8	8	9	11	15	17	19	21	17	16	18	19	18	18	18
4	Structural Steel Erected	9	9	9	8	16	29	26	22	22	16	15	19	19	17	17	16
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7																	
8	**Building Material**																
9	Ready-Mix Concrete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Lumber for Reinf. Concrete	7	7	7	7	9	13	19	19	20	14	13	15	19	19	15	15
11	Steel Bars for Reinf. Concrete	15	15	15	17	34	47	37	35	37	24	22	28	29	27	25	24
12	Common Brick	10	10	10	14	16	19	20	27	34	31	30	33	30	28	28	28
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	**Labor**																
16	Building Trades Labor	6	6	6	6	6	7	8	10	11	11	11	12	13	14	15	15
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	5	5	5	5	5	6	8	10	11	9	9	10	11	11	11	11
19	Common Labor	4	4	4	4	5	5	8	10	11	9	8	9	9	9	9	9
20	Electricians	5	5	5	6	6	6	8	9	10	11	11	11	12	13	14	14
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	6	6	6	6	6	7	8	9	9	11	11	12	12	13	14	14
23																	

Line	CONSTRUCTION, MATERIAL, AND LABOR	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
1	**Building Construction**																
2	Reinf. Conc. Bldg. Construction	16	16	15	14	12	13	15	15	15	16	16	16	17	18	20	20
3	Brick Building Construction	18	17	17	16	14	14	16	16	16	17	17	17	17	19	20	20
4	Structural Steel Erected	16	16	15	13	11	12	14	15	15	17	15	15	15	19	20	20
5	Reinf. Concrete (Ready-Mix)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Reinf. Concrete (Plant-Mix)	16	16	15	14	12	13	15	15	15	17	17	17	17	18	19	19
7																	
8	**Building Material**																
9	Ready-Mix Concrete	-	-	-	-	-	-	32	32	32	33	33	32	31	31	32	33
10	Lumber for Reinf. Concrete	15	15	14	12	10	12	16	13	13	15	15	15	16	19	21	22
11	Steel Bars for Reinf. Concrete	24	25	22	20	20	21	24	23	25	31	29	28	27	28	28	28
12	Common Brick	25	23	20	20	19	19	22	20	20	20	20	20	20	21	22	22
13	Concrete Block	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14																	
15	**Labor**																
16	Building Trades Labor	15	15	15	15	14	12	13	13	13	15	15	15	16	17	18	18
17	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Labor for Reinf. Concrete	11	11	10	10	9	9	11	11	11	12	13	13	14	14	14	15
19	Common Labor	9	9	9	9	8	6	8	9	9	10	10	11	11	12	12	13
20	Electricians	14	15	15	16	16	14	14	14	15	16	16	17	17	18	19	19
21	Pipefitters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Plumbers	14	15	15	15	13	13	14	14	14	15	16	16	17	17	18	18
23																	

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1913=100)

	CONSTRUCTION MATERIAL AND LABOR	COST INDEX NUMBERS															
		1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
1	Building Construction																
2	Reinf. Conc. Bldg. Construction	20	20	24	28	32	34	36	37	30	40	42	44	48	52	53	55
3	Brick Building Construction	21	21	24	28	32	34	35	35	30	39	41	43	46	49	50	52
4	Structural Steel Erected	20	20	24	30	37	39	41	43	43	47	48	50	50	60	60	60
5	Reinf. Concrete (Ready-Mix)									35	37	39	41	43	46	48	50
6																	
7	Building Material																
8	Ready-Mix Concrete	33	33	35	39	44	45	46	47	39	50	54	57	60	63	66	66
9	Lumber for Reinf. Concrete	23	23	29	33	38	38	37	37	28	36	39	42	44	45	44	47
10	Steel Bars for Reinf. Concrete	26	28	30	34	37	42	45	47	42	51	53	56	64	66	70	72
11	Common Brick	23	27	31	33	38	42	42	47	47	48	50	53	52	53	54	54
12	Concrete Block						50	58	62	53	62	62	67	67	70	69	73
13																	
14	Labor																
15	Building Trades Labor	18	19	21	23	26	27	28	30	31	32	34	36	37	39	41	42
16	Heavy Constr. Trades Labor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Labor for Reinf. Concrete	15	16	18	22	24	25	26	27	29	30	32	33	35	37	39	41
18	Common Labor	13	14	17	19	21	23	24	25	27	28	30	31	33	35	37	38
19	Electricians	19	19	20	23	25	27	28	30	32	33	34	35	37	38	41	42
20	Pipefitters						26	27	28	29	31	32	33	34	35	39	41
21	Plumbers	18	18	19	22	25	27	28	29	30	32	33	35	37	38	40	41
22																	

	CONSTRUCTION MATERIAL AND LABOR	COST INDEX NUMBERS															
		1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
1	Building Construction																
2	Reinf. Conc. Bldg. Construction	58	54	53	55	57	58	59	62	65	70	75	81	91	100	121	132
3	Brick Building Construction	52	52	52	54	56	57	59	61	64	68	74	84	91	100	118	127
4	Structural Steel Erected	60	62	62	62	63	63	66	66	69	73	73	83	89	100	130	161
5	Reinf. Concrete (Ready-Mix)	51	52	53	54	55	57	59	61	64	69	77	88	94	100	111	115
6	Reinf. Concrete (Plant-Mix)	49	48	50	51	52	53	56	58	61	66	75	83	91	100	108	115
7																	
8	Building Material																
9	Ready-Mix Concrete	66	66	66	65	64	64	65	65	68	73	82	91	94	100	112	122
10	Lumber for Reinf. Concrete	47	39	41	40	39	38	41	42	46	52	58	63	75	100	93	91
11	Steel Bars for Reinf. Concrete	72	72	72	72	74	81	82	81	81	81	84	91	91	100	157	156
12	Common Brick	56	56	56	57	58	58	60	62	65	65	68	78	84	100	123	126
13	Concrete Block	68	70	70	70	70	67	70	72	75	77	81	90	98	100	109	112
14																	
15	Labor																
16	Building Trades Labor	45	46	48	50	52	54	56	59	62	68	76	87	96	100	106	115
17	Heavy Constr. Trades Labor	-	45	47	48	50	53	56	58	61	67	76	86	96	100	107	116
18	Labor for Reinf. Concrete	43	45	47	49	51	53	56	58	62	67	77	88	96	100	106	116
19	Common Labor	42	44	45	47	49	52	55	58	61	66	75	86	97	100	109	117
20	Electricians	45	45	48	49	51	53	55	57	60	64	72	82	91	100	108	117
21	Pipefitters	41	44	45	45	48	50	52	55	57	62	70	85	97	100	107	114
22	Plumbers	43	44	46	48	49	51	53	56	58	64	71	86	96	100	107	114
23																	

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line	CONSTRUCTION, MATERIAL, AND LABOR	COST INDEX NUMBERS														
		1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1988	1989	1990	1991
1	**Building Construction**															
2	Reinf. Conc. Bldg. Construction	134	139	150	167	184	190	189	196	211	222	229	246	258	262	257
3	Brick Building Construction	130	136	148	164	183	192	197	206	217	225	233	252	265	271	272
4	Structural Steel Erected	153	154	170	193	225	227	202	202	225	240	249	272	286	286	261
5	Reinf. Concrete (Ready-Mix)	124	131	140	154	166	176	191	201	210	220	225	238	244	251	260
7																
8	**Building Material**															
9	Ready-Mix Concrete	126	133	143	163	185	207	226	227	235	248	245	254	244	250	255
10	Lumber for Reinf. Concrete	106	118	130	148	139	138	135	143	144	140	140	143	148	147	145
11	Steel Bars for Reinf. Concrete	145	147	166	206	215	216	203	190	198	202	205	227	232	222	199
12	Common Brick	130	136	159	190	232	247	255	257	256	246	258	292	320	320	316
13	Concrete Block	116	120	139	185	210	228	260	260	262	278	285	285	301	288	288
14																
15	**Labor**															
16	Building Trades Labor	122	129	135	143	152	164	184	199	212	221	229	245	256	268	285
17	Heavy Constr. Trades Labor	123	131	137	146	155	165	184	199	210	220	229	244	255	264	279
18	Labor for Reinf. Concrete	122	130	137	147	157	166	184	198	210	220	227	242	253	262	277
19	Common Labor	124	133	141	152	163	172	190	204	214	223	231	243	254	265	280
20	Electricians	124	129	135	143	150	164	186	207	224	234	239	261	271	280	298
21	Pipefitters	122	131	135	143	154	170	192	207	219	228	236	248	263	276	290
22	Plumbers	122	131	136	141	152	168	191	205	217	226	235	242	257	279	294
23																

Line	CONSTRUCTION, MATERIAL, AND LABOR	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001		2002		2003	
											Jan 1	Jul 1	Jan 1	Jul 1	Jan 1	Jul 1
1	**Building Construction**															
2	Reinf. Conc. Bldg. Construction	262	279	298	305	311	322	324	330	342	345	357	358	364	364	363
3	Brick Building Construction	278	290	304	310	315	328	337	345	359	364	374	377	384	385	385
4	Structural Steel Erected	260	278	305	317	325	334	336	344	360	363	373	377	373	375	373
5	Reinf. Concrete (Ready-Mix)	268	279	291	296	304	312	320	327	336	340	351	357	366	367	368
6	Reinf. Concrete (Plant-Mix)	247	265	281	279	286	298	296	299	304	305	321	316	328	322	323
7																
8	**Building Material**															
9	Ready-Mix Concrete	257	262	270	281	295	286	301	307	315	321	328	351	346	355	357
10	Lumber for Reinf. Concrete	150	193	227	196	206	218	186	182	168	158	199	159	173	149	144
11	Steel Bars for Reinf. Concrete	194	212	234	236	236	250	246	229	225	218	230	218	223	220	239
12	Common Brick	315	310	313	315	311	335	369	384	412	424	427	427	426	426	427
13	Concrete Block	288	263	262	258	258	285	306	332	354	360	362	377	381	383	383
14																
15	**Labor**															
16	Building Trades Labor	296	307	318	326	331	344	353	362	376	384	392	401	413	419	419
17	Heavy Constr. Trades Labor	291	300	311	319	325	337	348	358	372	377	387	393	405	406	406
18	Labor for Reinf. Concrete	289	297	308	314	320	333	343	354	366	373	382	390	403	402	402
19	Common Labor	293	303	315	315	327	338	349	359	376	380	391	394	402	403	403
20	Electricians	309	324	336	343	353	365	377	390	401	407	412	431	442	449	449
21	Pipefitters	305	317	323	335	342	352	361	374	388	399	410	417	425	425	425
22	Plumbers	305	320	330	339	348	355	363	368	385	395	406	412	427	434	434
23																

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COST TRENDS OF BUILDING CONSTRUCTION

NORTH ATLANTIC REGION (1973=100)

Line No.	CONSTRUCTION MATERIAL AND LABOR	COST INDEX NUMBERS															
		2004		2005		2006		2007		2008		2009		2010		2011	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Building Construction																
2	Reinf. Conc. Bldg. Construction	394	402	413	422	434	436	446	447	493	501	505	486	497	498	515	515
3	Brick Building Construction	407	412	425	434	440	445	457	472	492	497	506	491	500	507	521	518
4	Structural Steel (erected)	429	434	443	452	462	471	490	503	550	565	555	509	511	514	531	552
5	Reinf. Concrete (Ready-Mix)	386	383	402	409	414	418	434	446	469	476	484	464	500	506	516	519
6																	
7	Building Material																
8	Ready-Mix Concrete	355	354	371	371	371	379	392	425	425	437	429	430	430	437	441	439
9	Lumber for Reinf. Concrete	175	186	182	215	190	195	150	161	157	162	162	159	158	149	147	152
10	Steel Bars for Reinf. Concrete	276	280	348	360	324	361	389	430	398	400	364	326	359	416	417	406
11	Common Brick	427	429	429	439	439	439	437	437	460	460	460	455	452	452	459	459
12	Concrete Block	398	399	400	400	402	459	400	399	399	399	399	399	435	432	430	432
13																	
14	Labor																
15	Building Trades Labor	437	450	458	458	478	478	499	499	507	507	508	530	572	572	590	590
16	Heavy Constr. Trades Labor	420	420	446	446	469	469	485	485	517	517	542	542	564	564	584	584
17	Labor for Reinf. Concrete	425	425	439	439	452	452	470	470	502	502	541	541	562	562	570	570
18	Common Labor	410	410	420	420	436	436	455	455	486	486	520	520	572	572	590	590
19	Electricians	467	467	497	497	512	512	543	543	563	563	582	582	613	613	632	632
20	Pipefitters	464	464	488	488	514	514	528	528	549	549	580	580	607	607	642	642
21	Plumbers	450	450	469	469	502	502	520	520	545	545	580	580	547	597	616	616

Line No.	CONSTRUCTION MATERIAL AND LABOR	2012		2013		2014		2015		2016		2017		2018		2019	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Building Construction																
2	Reinf. Conc. Bldg. Construction	524	527	537	539	546	549	557	560	552	558	560	576	589			
3	Brick Building Construction	530	532	542	539	559	552	585	580	586	589	604	608	633			
4	Structural Steel (erected)	538	548	556	557	561	567	568	555	549	556	561	569	579			
5	Reinf. Concrete (Ready-Mix)	525	526	527	527	541	543	550	554	564	567	581	585	602			
6	Reinf. Concrete (Plant-Mix)	464	467	470	468	482	483	497	500	497	505	519	527	541			
7																	
8	Building Material																
9	Ready-Mix Concrete	440	441	436	436	441	452	455	464	471	471	481	485	488			
10	Lumber for Reinf. Concrete	159	165	170	162	174	170	180	182	178	204	226	240	244			
11	Steel Bars for Reinf. Concrete	391	391	365	356	365	373	368	326	288	307	346	349	342			
12	Common Brick	448	451	458	457	449	449	617	617	618	618	636	637	725			
13	Concrete Block	428	428	445	445	444	499	505	485	483	429	427	411	411			
14																	
15	Labor																
16	Building Trades Labor	607	607	619	619	636	636	646	646	660	660	678	678	696			
17	Heavy Constr. Trades Labor	596	596	605	605	620	620	640	640	659	659	673	673	696			
18	Labor for Reinf. Concrete	591	591	598	598	616	616	633	633	651	651	666	666	690			
19	Common Labor	604	604	604	604	620	620	641	641	661	661	674	674	705			
20	Electricians	665	665	674	674	691	691	702	702	724	724	731	731	755			
21	Pipefitters	658	658	668	668	694	694	704	704	717	717	738	738	755			
22	Plumbers	623	623	634	634	655	655	668	668	674	674	696	696	716			
23																	

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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
1	Boilers	6	6	6	7	8	15	17	15	16	14	12	14	15	15
2	Coal & Ash Handling Equipment	12	12	12	12	19	31	29	20	28	24	21	23	23	21
3	Pumps	9	9	9	12	14	16	18	18	18	17	16	16	16	17
4	Steam Pipe	17	17	17	12	18	39	44	35	37	35	34	36	37	37
5	Cranes	6	6	6	7	7	7	7	8	8	9	9	9	9	10
6	Regulators	32	32	32	32	32	39	47	45	49	50	49	50	53	52
7	Switchboards	20	20	20	20	21	23	26	35	44	49	43	40	43	43
8	Power Transformers	23	23	23	23	23	32	41	41	49	48	42	43	46	46
9	Oil Swatches	27	27	27	27	27	30	38	45	49	53	50	50	51	51
10	Motors	21	21	21	21	21	28	31	37	42	43	34	29	29	29
11	Line Transformers	48	48	48	48	48	51	69	72	77	79	69	67	69	68
12	Meters-Electric	37	37	37	37	37	41	46	51	53	57	53	50	50	48
13	Treated Pine Poles	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Standard Cross Arms	7	7	7	7	7	9	10	12	12	11	12	12	12	13
15	Standard Galv. Steel Guy Wire	12	12	12	14	15	19	22	23	22	22	21	21	20	20
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Mercury Luminaires w/Standard	-	-	-	-	-	-	-	-	-	-	-	-	27	26
19	Power Wire & Control Cable	23	23	23	30	36	42	48	51	49	37	29	33	31	34
20	Overhead Conductor-Transmission	28	26	23	25	45	49	54	53	51	31	28	32	31	32
21	Underground Conductor-Transmission	15	13	12	12	19	22	25	27	26	21	21	26	23	23
22	Overhead Conductor-Distribution	25	23	20	23	40	43	48	47	45	28	25	28	28	29
23	Underground Conductor-Distribution	16	15	14	14	22	25	28	30	29	22	22	28	25	25
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	7	7	7	7	11	13	20	21	21	20	17	17	18	18
26	Turbo-Generators	9	9	9	9	13	13	17	18	21	23	20	19	19	19
27															
28	Gas Compressors	18	18	18	18	18	19	25	25	27	26	25	25	25	25
29	Gas Transmission Line Pipe	23	24	23	24	34	44	44	45	44	43	40	41	43	43
30	Steel Distribution Pipe	15	16	16	17	24	36	40	36	34	32	28	30	31	31
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Meters-Gas	17	18	18	18	19	23	33	33	32	33	30	30	28	27
33	House Regulators	24	25	25	25	26	31	47	46	45	45	41	41	39	37
34															
35	Cast Iron Pipe	16	17	16	17	23	40	44	48	53	44	39	45	47	40
36	Cast Iron Fittings	10	10	10	13	13	24	27	25	34	29	25	25	25	27
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	Chemical Feeders-Large	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	Gate Valves	15	15	15	17	17	17	24	24	30	28	25	29	29	27
41	Meter Yokes	24	24	24	24	24	24	29	29	31	31	29	29	29	29
42	Corporation Stops	27	27	27	27	27	27	25	25	25	25	25	25	24	24
43	Curb Stops	20	20	20	20	20	20	22	22	22	22	22	22	21	21
44	Hydrants	23	23	23	23	23	23	23	24	27	27	23	26	27	26
45	Meters-Water	23	23	23	23	26	29	35	37	37	37	37	37	37	37
46															
47															
48															
49															
50	Construction Equipment	-	-	-	11	15	19	26	28	30	22	19	23	21	22
51															
52															
53															
54															
55															
56															

UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line No.	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS														
		1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
1	Boilers	15	15	14	14	14	14	12	12	15	15	16	18	19	20	
2	Coal & Ash Handling Equipment	21	20	20	20	19	17	16	17	20	20	20	21	20	20	
3	Pumps	19	19	19	20	20	19	18	18	19	19	19	21	22	23	
4	Steam Pipe	37	37	37	36	36	36	35	37	33	34	32	36	35	35	
5	Cranes	10	10	11	11	11	11	10	10	10	10	10	10	10	11	
6	Scrubbers	42	41	40	41	42	43	42	43	46	46	46	52	53	53	
7	Switchboards	49	48	48	48	48	47	45	45	48	48	48	52	53	53	
8	Power Transformers	46	45	44	42	40	40	39	40	46	47	47	50	52	52	
9	Oil Switches	51	49	48	54	52	52	51	55	59	59	59	62	65	65	
10	Motors	29	28	28	29	29	29	28	30	33	32	32	33	32	32	
11	Line Transformers	63	59	58	62	60	59	57	59	61	62	62	64	67	67	
12	Meters-Electric	49	48	48	48	48	48	48	50	54	55	55	55	55	55	
13	Treated Pine Poles	28	27	26	25	24	25	24	25	25	26	25	24	23	25	
14	Standard Cross Arms	10	9	9	9	9	8	8	9	10	11	11	12	12	12	
15	Standard Pole Steel Cap Wire	19	17	16	16	15	14	14	15	17	17	17	18	19	18	
16	Wood Conduit															
17	Fixture Equipment															
18	Insulated Underground Standard	26	25	26	27	28	29	29	29	30	30	30	30	30	30	
19	Bared Wire & Control Cable	23	30	27	28	26	24	19	23	25	27	29	35	29	30	
20	Overhead Conductor Aluminum	29	27	27	30	28	27	19	23	28	27	29	32	28	27	
21	Underground Conductor Aluminum	22	21	23	27	29	29	19	21	27	29	25	27	29	34	
22	Overhead Conductor Distribution	26	24	28	32	27	18	17	20	25	24	26	28	28	28	
23	Underground Conductor Distribution	24	23	25	29	29	30	30	27	25	26	27	29	29	26	
24	Service Cable															
25	Conductors & Tubes	18	16	15	19	20	19	16	19	21	24	24	27	27	27	
26	Turbo-Generators	19	19	20	21	22	22	20	22	25	25	26	29	30	30	
27																
28	Gas Compressors	24	23	24	24	24	24	24	24	24	24	23	23	23	23	
29	Gas Transmission Line Pipe	43	43	43	43	43	43	42	35	35	35	35	35	34	34	
30	Steel Distribution Pipe	31	31	31	31	30	30	29	26	29	29	26	28	28	25	
31	Plastic Pipe															
32	Meters-Gas	27	27	27	27	27	26	25	25	25	25	25	26	26	26	
33	House Regulators	37	36	36	36	37	36	35	34	34	34	34	35	37	40	
34																
35	Cast Iron Pipe	30	30	29	30	30	30	30	30	30	35	36	39	39	38	
36	Cast Iron Fittings	27	25	25	25	24	24	19	20	22	23	23	23	24	24	
37	Ductile Iron Pipe															
38	Chemical Feeders-Small	19	19	22	22	20	17	17	17	17	17	17	17	17	17	
39	Chemical Feeders-Large										12	12	13	13	13	
40	Gate Valves	26	26	28	28	28	24	23	23	22	23	23	25	26	26	
41	Meter Valves	28	29	29	29	29	29	28	28	28	28	28	28	29	29	
42	Corporation Stops	24	24	24	24	24	24	24	22	21	21	21	21	21	21	
43	Curb Stops	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
44	Hydrants	24	24	25	25	25	25	25	23	20	22	22	24	25	25	
45	Meters-Water	37	37	37	37	37	37	37	35	26	26	26	31	32	32	
46																
47																
48																
49																
50	Construction Equipment	21	22	21	22	22	20	19	19	20	21	21	23	23	23	
51																
52																
53																
54																
55																
56																

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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
1	Boilers	20	21	21	21	21	21	22	25	31	36	37	41	41	43
2	Coal & Ash Handling Equipment	20	23	25	25	24	24	29	35	42	44	47	50	51	55
3	Pumps	22	23	24	24	24	24	26	32	35	37	40	47	47	48
4	Steam Pipe	35	35	35	35	35	35	37	42	45	50	52	53	53	55
5	Cranes	11	11	11	11	12	17	20	23	26	29	31	33	35	38
6	Regulators	53	53	53	53	52	51	57	63	65	69	70	74	74	81
7	Switchboards	53	53	51	50	45	44	50	58	59	59	62	72	72	77
8	Power Transformers	52	52	51	49	46	45	50	60	62	67	70	78	78	83
9	Oil Switches	65	65	65	65	59	58	67	78	79	79	89	102	102	110
10	Motors	31	32	33	33	31	32	37	45	46	49	53	63	63	66
11	Line Transformers	67	69	68	64	64	64	72	90	93	96	100	113	113	121
12	Meters-Electric	55	55	55	55	55	55	61	69	74	80	80	80	78	81
13	Treated Pine Poles	23	24	27	28	33	39	37	41	43	43	42	44	46	49
14	Standard Cross Arms	13	16	17	19	22	23	25	35	37	34	36	41	42	42
15	Standard Galv. Steel Guy Wire	17	17	17	18	18	18	19	29	35	38	40	42	43	51
16	Fibre Conduit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Plastic Conduit	-	-	-	-	-	-	-	-	-	-	-	-	179	170
18	Mercury Luminaires w/Standard	30	30	31	31	31	31	32	40	44	48	47	53	52	51
19	Power Wire & Control Cable	31	39	40	40	40	40	48	56	65	66	66	75	77	74
20	Overhead Conductor-Transmission	29	28	31	32	32	32	40	48	52	48	52	59	63	69
21	Underground Conductor-Transmission	25	29	30	29	28	28	34	41	50	56	56	59	61	59
22	Overhead Conductor-Distribution	26	25	27	28	28	28	35	43	46	43	46	52	56	61
23	Underground Conductor-Distribution	27	31	32	32	31	31	36	44	54	59	59	63	64	64
24	Service Cable	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Condensers & Tubes	27	27	27	27	26	27	30	32	33	36	37	40	40	43
26	Turbo-Generators	30	30	30	30	30	31	36	44	47	49	49	54	54	58
27															
28	Gas Compressors	24	25	27	27	26	28	31	31	35	40	40	41	42	43
29	Gas Transmission Line Pipe	34	34	34	34	34	34	36	41	44	48	50	51	52	54
30	Steel Distribution Pipe	25	25	25	25	25	25	28	33	37	41	43	46	47	52
31	Plastic Pipe	-	-	-	-	-	-	-	-	-	-	-	-	175	175
32	Meters-Gas	26	26	26	26	26	26	33	41	42	45	48	55	55	55
33	House Regulators	48	48	48	48	48	48	53	63	64	68	69	74	74	74
34															
35	Cast Iron Pipe	39	39	40	39	39	40	45	58	69	68	67	73	73	73
36	Cast Iron Fittings	24	26	27	27	27	28	33	42	49	48	48	54	56	59
37	Ductile Iron Pipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Chemical Feeders-Small	17	17	17	17	17	18	22	26	31	34	38	40	40	40
39	Chemical Feeders-Large	13	14	15	15	16	19	20	24	29	35	40	42	42	42
40	Gate Valves	26	28	29	29	29	29	34	39	42	45	52	57	57	57
41	Meter Yokes	29	29	30	30	30	31	37	39	40	39	41	48	48	48
42	Corporation Stops	22	22	23	23	23	24	31	36	37	37	37	45	45	45
43	Curb Stops	22	23	23	23	23	25	31	36	38	37	38	45	45	45
44	Hydrants	25	27	27	27	27	27	32	36	39	43	50	55	55	55
45	Meters-Water	33	35	37	37	37	37	40	42	48	52	59	61	61	65
46															
47															
48															
49															
50	Construction Equipment	24	25	28	29	29	29	34	37	39	40	42	45	46	49
51															
52															
53															
54															
55															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line No.	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS														
		1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
1	Boilers	46	47	51	61	63	65	65	66	66	66	68	70	71	74
2	Coal & Ash Handling Equipment	56	58	68	76	77	79	78	72	72	72	73	73	74	76
3	Pumps	49	50	55	56	58	62	63	68	69	69	70	70	74	77
4	Steam Pipe	56	57	61	67	69	71	71	71	71	71	73	73	75	78
5	Cranes	40	43	45	47	49	52	54	55	55	55	56	56	58	60
6	Turbogenerators	85	85	98	105	106	106	106	96	96	96	97	94	97	84
7	Switchgear	79	83	96	103	106	106	98	91	78	77	77	79	82	90
8	Power Transformers	85	87	100	103	107	103	95	89	84	96	83	84	87	91
9	Oil Switches	110	100	115	124	136	132	109	75	73	64	70	82	80	88
10	Towers	67	68	79	89	93	96	92	87	86	85	85	87	87	88
11	Line Transformers	123	123	127	135	130	125	125	110	107	100	100	101	104	105
12	Meters-Circuit	83	78	82	87	86	92	90	91	90	89	89	88	88	89
13	Treated Pole Poles	53	54	55	59	60	57	57	56	56	56	56	56	58	61
14	Standard Cross Arms	42	42	48	50	47	46	46	44	44	44	44	45	44	46
15	Standard Guys, Steel Guy Wire	54	55	58	62	60	63	63	60	60	61	61	63	63	67
16	Poles Cedar							89	86	86	86	86	86	86	91
17	Poles Essential	170	167	139	139	134	134	134	130	146	146	143	139	141	130
18	Meters-Commercial-Standard	59	59	60	64	66	66	66	67	67	66	67	68	72	72
19	Power Wire & Cable-Cable	41	46	72	65	50	50	50	50	50	50	54	55	67	72
20	Overhead Conductor-Transmission	67	73	80	81	79	73	73	73	74	69	69	73	76	79
21	Underground Conduit-Transmission	60	62	72	65	61	65	66	64	65	65	66	70	72	79
22	Overhead Conductor-Distribution	59	61	72	63	58	62	64	62	62	62	64	71	75	78
23	Underground Conduit-Distribution	64	71	78	69	67	70	71	69	67	66	74	80	85	85
24	Service Cable			99	89	79	69	68	69	67	62	66	68	71	74
25	Conductors & Wires	44	45	48	53	50	56	56	56	56	57	61	65	71	75
26	Trolley Construction	58	64	72	80	84	89	90	73	70	70	70	71	72	73
27															
28	Gas Compressors	84	86	89	94	95	63	63	64	64	64	68	73	74	79
29	Gas Transmission Line Pipe	55	56	59	65	67	69	69	69	69	69	71	71	71	72
30	Steel Distribution Pipe	69	70	66	68	69	71	71	71	74	75	77	75	74	73
31	Plastic Pipe	154	147	146	142	140	139	137	133	132	132	129	128	126	126
32	Meters-Gas	55	56	63	66	73	71	72	73	79	79	78	79	84	85
33	Meter Regulators	77	74	74	76	80	80	80	81	82	80	82	86	86	90
34															
35	Cast Iron Pipe	79	80	86	91	95	95	95	95	95	95	95	95	95	95
36	Cast Iron Fittings	62	64	67	69	72	74	74	74	73	72	72	72	72	75
37	Ductile Iron Pipe									96	96	96	96	96	96
38	Chemical Feeders-Small	40	41	45	46	49	54	60	60	65	65	69	69	73	77
39	Chemical Feeders-Large	42	44	51	61	68	68	68	68	71	72	73	70	72	79
40	Gate Valves	55	56	57	59	58	58	58	59	62	63	62	62	66	72
41	Meter Valves	51	57	64	61	59	59	62	63	65	66	66	70	75	77
42	Corporation Stops	46	54	59	56	59	60	62	62	65	65	66	71	79	81
43	Curb Stops	46	54	59	59	59	60	62	63	65	65	67	73	79	82
44	Hydrants	55	57	58	59	59	59	59	59	59	59	59	59	61	66
45	Meters-Water	67	70	77	78	78	78	78	78	84	87	87	93	101	101
46															
47															
48															
49															
50	Construction Equipment	49	51	55	59	62	64	65	67	67	68	70	71	73	76
51															
52															
53															
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56															

M UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1	Boilers	76	78	83	89	94	100	119	147	159	172	186	203	221	245
2	Coal & Ash Handling Equipment	79	84	88	93	95	100	124	150	154	162	175	192	213	225
3	Pumps	78	80	85	89	93	100	127	164	177	183	195	212	235	259
4	Steam Pipe	78	82	86	92	96	100	112	131	143	155	178	206	223	230
5	Cranes	68	72	78	82	88	100	122	139	147	171	186	215	237	267
6	Rectifiers	84	87	90	92	97	100	128	150	165	170	174	179	189	206
7	Switchboards	92	93	94	96	97	100	131	196	212	222	234	238	261	295
8	Power Transformers	93	93	97	95	93	100	129	157	162	172	182	193	210	223
9	Oil Switches	96	92	93	93	95	100	123	140	143	174	186	195	203	229
10	Motors	89	94	100	104	100	100	110	135	167	186	186	168	195	210
11	Line Transformers	109	106	105	104	100	100	116	132	136	147	158	166	165	194
12	Meters-Electric	92	95	98	101	101	100	103	126	135	140	144	148	144	160
13	Treated Pipe Poles	62	66	69	73	77	100	150	208	192	190	206	234	265	289
14	Standard Cross Arms	44	50	63	60	58	100	162	157	146	155	161	223	244	252
15	Standard Galv. Steel Guy Wire	63	69	72	86	97	100	133	152	151	162	178	209	224	240
16	Line Conductor	72	76	85	82	85	100	119	130	133	149	173	205	218	235
17	Plastic Conduit	116	105	100	98	100	100	118	133	129	142	161	187	199	190
18	Mercury Luminaires w/Standard	73	76	94	101	102	100	125	173	199	211	234	265	268	314
19	Power Wire & Control Cable	81	86	84	74	86	100	115	95	97	95	101	109	135	142
20	Overhead Conductor-Transmission	75	84	97	107	103	100	121	167	204	220	199	261	232	250
21	Underground Conductor-Transmission	76	82	86	83	87	100	149	142	142	154	148	188	238	269
22	Overhead Conductor-Distribution	75	84	97	107	102	100	121	166	203	220	192	240	246	257
23	Underground Conductor-Distribution	76	86	94	92	100	100	135	150	132	140	140	196	251	222
24	Service Cable	91	77	92	90	99	100	105	124	126	131	179	183	221	217
25	Conduccts & Tubes	80	84	89	94	99	100	109	128	142	157	171	189	208	229
26	Turbo-Generators	72	75	81	89	96	100	111	121	144	158	170	188	206	230
27															
28	Gas Compressors	84	88	91	91	90	100	120	150	161	172	188	213	237	265
29	Gas Transmission Line Pipe	75	80	83	89	98	100	122	145	172	187	212	225	253	290
30	Steel Distribution Pipe	73	76	82	89	97	100	127	142	155	170	194	213	235	254
31	Plastic Pipe	123	111	98	96	100	100	112	116	120	125	129	142	162	142
32	Meters-Gas	88	89	94	100	100	100	111	128	131	136	139	143	149	158
33	House Regulators	81	83	92	98	100	100	106	125	132	136	144	170	201	210
34															
35	Cast Iron Pipe	95	95	96	100	100	100	153	178	180	183	195	201	217	235
36	Cast Iron Fittings	77	80	87	99	99	100	144	142	148	152	163	173	194	209
37	Ductile Iron Pipe	96	96	97	100	100	100	155	182	186	189	201	207	215	228
38	Chemical Feeders-Small	81	81	86	90	92	100	126	186	209	230	249	257	287	316
39	Chemical Feeders-Large	80	81	87	92	94	100	125	177	194	195	204	212	232	249
40	Gate Valves	74	79	79	91	96	100	127	160	191	197	220	252	270	289
41	Meter Yokes	79	87	93	95	95	100	132	139	160	227	246	262	296	320
42	Corporation Stops	85	90	96	99	99	100	126	133	133	136	139	152	168	178
43	Curb Stops	86	90	96	99	99	100	126	133	136	140	146	161	173	187
44	Hydrants	71	76	84	94	95	100	145	185	214	229	261	279	293	315
45	Meters-Water	101	107	106	108	106	100	95	93	98	101	105	108	122	127
46															
47															
48															
49															
50	Construction Equipment	80	84	88	93	95	100	117	141	153	164	178	197	222	246
51															
52															
53															
54															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS														
		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
1	Boilers	266	278	283	292	298	307	330	344	364	380	385	404	413	423
2	Coal & Ash Handling Equipment	224	229	240	246	250	255	270	289	296	300	302	308	318	325
3	Pumps	276	281	284	292	296	300	310	324	342	355	361	391	406	419
4	Steam Pipe	254	226	215	213	215	231	271	264	241	229	222	199	199	216
5	Cranes	302	328	344	384	411	425	442	458	474	482	490	537	598	615
6	Regulators	216	225	227	229	231	236	259	240	253	257	259	256	268	241
7	Switchboards	338	317	330	333	350	342	366	398	429	439	449	499	496	572
8	Power Transformers	234	226	229	237	242	253	264	291	327	337	345	360	371	388
9	Oil Switches	299	280	275	271	268	270	336	380	402	411	399	358	369	395
10	Motors	234	250	260	261	257	260	285	339	385	357	348	376	470	495
11	Lined Transformers	308	310	311	312	313	311	312	321	324	322	325	326	330	325
12	Meters-Electric	185	201	208	202	207	205	187	175	174	186	190	189	184	169
13	Treated Pine Poles	291	290	296	283	289	284	289	300	318	325	332	367	416	445
14	Standard Cross Arms	249	250	245	250	235	226	250	291	333	366	381	409	441	464
15	Standard Cable, Steel City Wire	254	230	227	233	233	235	249	263	259	252	251	253	258	255
16	Fiber Conduit	175	180	231	225	224	225	301	430	379	360	230	198	222	228
17	Plastic Conduit	158	183	198	189	188	199	280	409	366	348	289	237	251	260
18	Mercury Luminaires w/Standard	333	335	335	336	339	331	331	334	346	353	361	359	408	430
19	Power Wire & Control Cable	132	131	123	107	110	125	137	139	126	130	126	119	121	127
20	Overhead Conductor - Transmission	247	278	246	242	242	218	359	366	295	372	379	334	352	399
21	Underground Conductor - Transmission	270	266	276	282	277	281	298	328	405	461	469	477	427	485
22	Overhead Conductor - Distribution	252	268	259	249	244	239	249	266	254	263	266	302	341	386
23	Underground Conductor - Distribution	206	201	196	202	210	222	222	243	264	258	259	254	253	263
24	Service Cable	207	198	228	209	194	201	250	285	271	264	258	227	240	271
25	Conduits & Tubes	247	256	257	247	252	259	263	265	268	270	270	255	268	308
26	Turbo-Generators	282	290	306	290	290	274	292	302	306	312	315	325	333	343
27															
28	Gas Compressors	280	284	295	301	305	307	325	354	371	368	405	438	446	469
29	Gas Transmission Line Pipe	315	271	262	254	268	292	301	298	268	257	250	233	235	245
30	Steel Distribution Pipe	269	230	223	222	237	250	291	316	338	323	323	327	370	383
31	Plastic Pipe	132	149	157	146	146	159	218	283	283	290	275	230	235	244
32	Meters-Gas	148	146	147	158	166	165	170	177	185	190	190	191	189	190
33	House Regulators	217	221	230	229	236	243	247	255	269	280	283	297	305	302
34															
35	Cast Iron Pipe	233	254	247	265	244	244	266	282	276	275	275	273	278	266
36	Cast Iron Fittings	216	232	229	240	259	269	296	317	324	324	324	350	377	370
37	Ductile Iron Pipe	228	262	249	281	246	246	275	276	271	271	271	271	273	256
38	Chemical Feeders-Small	343	353	358	366	373	379	398	440	424	430	432	444	452	453
39	Chemical Feeders-Large	273	286	294	306	324	343	353	379	402	418	423	438	437	477
40	Gate Valves	321	358	375	395	417	441	468	517	530	540	548	561	524	540
41	Meter Valves	336	389	389	383	394	399	445	470	478	507	516	551	566	603
42	Corporation Stops	169	200	207	212	220	220	240	254	257	273	279	305	308	318
43	Curb Stops	198	210	220	225	233	233	254	270	273	289	296	321	330	346
44	Hydrants	352	384	385	414	439	466	486	521	558	560	560	559	561	577
45	Meters-Water	128	141	142	135	135	137	140	143	152	160	175	195	175	200
46															
47															
48															
49															
50	Construction Equipment	263	269	273	276	280	286	295	281	298	320	316	324	331	333
51															
52															
53															
54															
55															
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UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
						2000		2001		2002		2003		2004	
		1996	1997	1998	1999	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	433	443	452	460	464	466	471	474	478	481	483	490	493	519
2	Coal & Ash Handling Equipment	328	333	344	351	350	354	355	356	360	357	360	362	365	399
3	Pumps	440	476	496	510	520	531	530	530	506	531	531	548	549	555
4	Steam Pipe	215	204	190	183	176	180	177	166	169	166	166	158	158	173
5	Cranes	615	656	689	728	742	749	749	749	749	749	749	749	749	817
6	Regulators	234	232	234	237	241	243	241	240	239	238	255	254	255	258
7	Switchboards	620	656	662	689	720	738	800	805	841	893	939	979	1035	1059
8	Power Transformers	370	371	400	400	400	400	400	400	400	377	377	374	376	513
9	Oil Switches	399	409	415	415	411	408	409	409	405	398	396	391	385	382
10	Motors	475	467	476	497	531	534	534	534	539	540	543	543	543	602
11	Line Transformers	219	206	210	210	208	208	211	217	221	224	223	229	217	240
12	Meters-Electric	172	187	193	181	172	172	186	205	229	242	252	252	295	295
13	Treated Pine Poles	463	473	471	473	464	472	474	493	496	508	508	518	514	541
14	Standard Cross Arms	466	477	443	413	411	416	425	437	448	431	420	423	376	379
15	Standard Galv. Steel Guy Wire	261	280	314	313	313	319	319	231	213	222	222	228	228	276
16	Fibre Conduit	204	209	199	225	258	240	246	217	222	293	293	238	238	239
17	Plastic Conduit	252	256	251	266	281	273	298	285	295	327	328	302	312	312
18	Mercury Luminaires w/Standard	460	471	469	472	474	478	486	492	499	526	566	573	573	579
19	Power Wire & Control Cable	121	121	119	112	106	109	114	107	105	105	96	99	105	105
20	Overhead Conductor-Transmission	402	405	420	354	335	419	419	428	428	402	402	402	410	463
21	Underground Conductor-Transmission	487	487	487	493	480	482	495	459	459	462	462	462	462	539
22	Overhead Conductor-Distribution	386	387	399	345	331	397	398	405	405	382	384	385	395	443
23	Underground Conductor-Distribution	266	263	265	268	262	270	277	250	250	246	239	240	236	262
24	Service Cable	267	264	264	249	249	263	264	264	266	254	260	264	274	300
25	Condensers & Tubes	305	306	309	290	283	283	287	286	289	292	291	305	314	400
26	Turbo-Generators	348	364	369	371	385	385	391	360	375	378	387	395	401	387
27															
28	Gas Compressors	461	470	478	480	481	484	484	485	494	496	495	496	501	502
29	Gas Transmission Line Pipe	269	272	273	267	270	261	261	258	256	255	256	257	257	400
30	Steel Distribution Pipe	376	388	389	399	430	427	427	422	423	418	423	424	521	576
31	Plastic Pipe	249	251	252	255	256	256	292	292	304	304	305	305	316	316
32	Meters-Gas	192	196	196	191	201	202	202	210	215	197	197	197	180	183
33	House Regulators	303	303	307	306	306	307	301	313	320	318	318	321	311	322
34															
35	Cast Iron Pipe	268	279	281	285	287	292	292	299	299	299	299	299	308	287
36	Cast Iron Fittings	368	379	379	378	378	378	378	378	400	496	510	496	496	519
37	Ductile Iron Pipe	251	268	270	279	283	292	292	292	292	292	292	292	292	269
38	Chemical Feeders-Small	462	476	514	522	523	554	554	561	567	561	561	561	579	603
39	Chemical Feeders-Large	493	506	537	569	569	560	560	576	612	612	612	612	612	600
40	Gate Valves	553	592	611	630	645	646	668	691	691	691	691	691	691	703
41	Meter Yokes	670	673	677	679	684	701	708	708	708	708	726	740	740	769
42	Corporation Stops	329	329	329	329	329	341	341	341	341	341	353	353	353	367
43	Curb Stops	361	361	361	361	361	374	374	374	374	374	387	387	387	403
44	Hydrants	625	795	840	874	899	901	935	970	970	970	970	970	970	981
45	Meters-Water	207	197	197	198	200	206	206	206	207	207	207	207	207	207
46															
47															
48															
49															
50	Construction Equipment	336	351	380	385	387	390	390	391	390	397	398	403	403	412
51															
52															
53															
54															
55															
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M UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS											
		2005		2006		2007		2008		2009		2010	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	535	550	565	578	590	604	595.6	616	620	599	608	620
2	Coal & Ash Handling Equipment	426	426	425.8	431	441	457	478	537	543	535	499	503
3	Pumps	567	575	582.7	602	620	640	643.2	663	672	675	702	704
4	Steam Pipe	270	286	292	292	307	304	324.2	400	454	413	376	417
5	Cranes	817	817	816.8	817	817	817	816.8	899	899	899	899	899
6	Accumulators	271	279	290.3	345	360	375	401.1	427	389	390	402	408
7	Switchboards	1114	1173	1227	1340	1447	1586	1791	1954	2087	2218	2373	2504
8	Power Transformers	540	545	545.7	591	648	671	694.3	725	746	745	780	788
9	Oil Switches	329	389	412	429	429	436	436.7	455	460	461	469	475
10	Motors	691	695	685.7	656	683	691	634.2	674	696	719	717	695
11	Line Transformers	550	558	598.8	645	597	605	614.8	585	634	660	586	617
12	Meters-Electric	276	286	276	283	283	291	291.7	293	295	265	307	307
13	Treated Pine Poles	541	554	562.3	601	600	604	610.9	643	653	665	672	686
14	Standard Cross Arms	440	435	434.1	456	467	471	467.5	486	518	501	482	465
15	Standard Guy, Steel Guy Wire	302	307	309.7	290	323	318	350.8	381	548	536	550	405
16	Lines-Overhead	384	394	422.2	432	460	390	414.3	420	468	408	380	380
17	Plastic Conduit	354	354	441.5	447	527	495	574.5	526	609	609	461	463
18	Metering Instruments w/Standard	601	618	657.4	774	805	836	839.2	899	1024	1053	1057	979
19	Power Wire & Control Cable	132	137	159.5	187	265	263	262.7	290	226	234	215	230
20	Overhead Conductor-Transmission	491	540	633.5	698	742	730	860.5	985	985	555	709	714
21	Underground Conductor-Transmission	536	550	614.6	645	615	615	676.7	927	919	929	905	895
22	Overhead Conductor-Distribution	467	515	600.3	698	692	715	793.2	898	898	529	661	682
23	Underground Conductor-Distribution	296	308	342.9	343	457	459	496.5	541	631	669	515	516
24	Service Cable	313	347	398	396	432	439	471.9	510	511	390	430	460
25	Conductors & Tubes	429	435	417.3	465	466	506	496.3	603	516	462	472	525
26	Turbo-Generators	411	400	401.8	424	440	452	457	530	468	417	439	488
27													
28	Gas Compressors	606	586	535.9	544	557	574	580.5	609	621	626	623	631
29	Gas Transmission Line Pipe	449	452	440.9	460	525	492	502	604	609	510	442	506
30	Steel Distribution Pipe	875	855	824.4	954	829	839	932.6	1122	1019	925	911	987
31	Plastic Pipe	351	351	392	393	509	509	541.2	541	644	644	464	464
32	Meters-Gas	185	184	187.6	197	205	231	240.8	250	261	252	257	232
33	House Regulators	326	339	343.8	356	377	377	387.2	392	412	400	406	414
34													
35	Cast Iron Pipe	341	341	343.9	346	402	402	420.9	468	541	541	563	563
36	Cast Iron Fittings	520	520	660.6	690	706	720	782.9	832	897	909	986	987
37	Ductile Iron Pipe	274	274	283.5	283	327	327	365	365	485	485	531	521
38	Chemical Feeders-Small	640	661	660.2	596	640	676	816.6	819	831	880	880	880
39	Chemical Feeders-Large	536	576	586.2	544	531	570	676.1	663	654	700	700	700
40	Gate Valves	718	718	718.4	720	720	720	735.9	756	759	759	756	778
41	Meter Yokes	769	794	793.6	1111	1111	1169	1169	1169	1202	1202	1202	1241
42	Corporation Stops	367	367	367.2	527	527	527	526.9	527	527	527	527	542
43	Curb Stops	403	403	402.7	577	577	577	577.2	577	577	577	577	582
44	Hydrants	989	989	989.2	1097	1097	1116	1133	1133	1155	1155	1150	1081
45	Meters-Water	207	207	234.7	248	260	262	373.1	373	373	373	374	376
46													
47													
48													
49													
50	Construction Equipment	427	443	448.3	461	463	470.6	473.7	483	499	502	502	501
51													
52													
53													
54													
55													
56													

M

UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		2011		2012		2013		2014		2015		2016		2017	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	624	634	649	649	669	653	661	665	669	691	697	698	700	681
2	Coal & Ash Handling Equipment	522	536	550	559	562	563	580	581	584	583	582	584	589	595
3	Pumps	706	756	781	787	799	846	859	922	958	963	1043	1076	1120	1244
4	Steam Pipe	419	448	438	455	439	425	429	431	417	416	404	411	421	415
5	Cranes	899	899	899	899	899	965	965	1007	1007	1007	1007	1007	1007	1007
6	Regulators	410	418	415	428	422	428	441	425	416	406	396	403	412	416
7	Switchboards	2616	2757	2879	3034	3173	3319	3471	3594	3757	3760	3931	3930	4109	4300
8	Power Transformers	804	814	818	826	815	814	813	816	812	801	795	798	822	827
9	Oil Switches	480	483	483	485	485	488	498	500	500	502	502	501	501	503
10	Motors	713	770	777	782	804	837	849	851	859	857	869	869	893	883
11	Line Transformers	630	650	673	690	737	756	799	819	854	856	884	882	918	946
12	Meters-Electric	295	294	288	291	295	298	303	305	307	307	307	298	298	298
13	Treated Pine Poles	664	678	687	697	700	700	675	675	670	658	676	678	670	730
14	Standard Cross Arms	446	446	452	453	464	466	440	434	458	448	457	458	456	451
15	Standard Galv. Steel Guy Wire	405	405	404	423	423	488	458	486	486	486	486	486	515	515
16	Fibre Conduit	390	390	419	419	417	417	497	497	475	475	430	430	412	412
17	Plastic Conduit	468	468	521	521	477	477	478	478	479	479	468	468	452	452
18	Mercury Luminaires w/Standard	990	1034	1052	1079	1061	1077	990	993	981	1018	986	981	998	942
19	Power Wire & Control Cable	245	251	268	270	271	270	267	254	258	253	224	221	225	228
20	Overhead Conductor-Transmission	675	782	650	659	701	729	729	740	743	743	777	777	740	740
21	Underground Conductor-Transmission	973	971	977	1016	1026	1052	1083	1093	1095	1103	1108	1108	1113	1180
22	Overhead Conductor-Distribution	672	772	647	656	686	710	716	735	747	750	768	768	741	745
23	Underground Conductor-Distribution	563	577	621	647	617	654	631	645	622	637	589	589	539	562
24	Service Cable	516	579	497	505	502	512	530	562	592	600	580	578	580	593
25	Condensers & Tubes	527	575	580	566	567	528	536	549	547	551	520	535	536	510
26	Turbo-Generators	474	501	498	487	564	480	478	483	485	551	538	561	579	506
27															
28	Gas Compressors	633	656	662	677	674	692	693	707	713	720	722	727	728	735
29	Gas Transmission Line Pipe	510	525	586	616	542	535	626	627	616	589	535	544	570	601
30	Steel Distribution Pipe	1081	1123	1350	1327	1305	1276	1253	1266	1243	1189	1088	1116	1175	1247
31	Plastic Pipe	470	470	535	535	464	464	403	403	403	403	403	403	394	394
32	Meters-Gas	252	256	261	271	271	272	341	342	372	372	388	388	442	442
33	House Regulators	425	430	432	438	443	443	454	454	469	469	481	481	487	487
34															
35	Cast Iron Pipe	550	550	565	676	688	697	770	779	758	748	731	731	809	808
36	Cast Iron Fittings	961	961	1091	1120	1148	1168	1230	1395	1278	1322	1380	1418	1478	1478
37	Ductile Iron Pipe	500	500	524	524	545	545	575	575	579	579	600	600	622	622
38	Chemical Feeders-Small	907	908	1068	1086	1092	1203	1249	1249	1316	1404	1471	1471	1496	1589
39	Chemical Feeders-Large	633	715	753	770	774	803	805	805	805	805	842	842	863	891
40	Gate Valves	762	762	755	755	770	790	803	824	814	814	868	868	825	825
41	Meter Yokes	1241	1241	1323	1594	1594	1594	1594	1594	1594	1594	1594	1594	1594	1706
42	Corporation Stops	542	542	542	723	723	723	723	723	723	723	723	723	723	723
43	Curb Stops	582	582	582	739	739	739	739	739	780	780	780	780	780	780
44	Hydrants	1089	1089	1132	1132	1166	1189	1221	1339	1418	1591	1694	1694	1681	1681
45	Meters-Water	379	379	379	379	380	381	381	381	400	400	403	403	404	418
46															
47															
48															
49															
50	Construction Equipment	505	516	527	539	547	552	554	562	564	568	570	574	575	579
51															
52															
53															
54															
55															
56															

M UTILITY PLANT MATERIALS

ALL REGIONS (1973=100)

Line No.	CONSTRUCTION AND EQUIPMENT	COST INDEX NUMBERS													
		2018		2019		2020		2021		2022		2023		2024	
		Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
1	Boilers	682													
2	Coal & Ash Handling Equipment	306													
3	Pumps	1248													
4	Steam Pipe	407													
5	Cranes	1041													
6	Regulators	1209													
7	Switchgears	4161													
8	Power Transformers	808													
9	Coil Windings	705													
10	Boilers	1 9891													
11	Line Transformers	989													
12	Meters, Electric	3041													
13	Treated Pine Poles	665													
14	Standard Steel Arms	3509													
15	Standard Copp. Steel Guy Wire	5175													
16	Rigid Conduit	5111													
17	Plastic Conduit	5115													
18	Telecom. Transformers w/Standard	963													
19	Power Wire & Cable Cable	2366													
20	Overhead Conductor Transmission	9700													
21	Underground Conductor Transmission	12 5													
22	Overhead Conductor Distribution	7855													
23	Underground Conductor Distribution	5631													
24	Bare Case Cable	4306													
25	Condensers & Tubes	5146													
26	Turbo-Generators	5507													
27															
28	Gas Compressors	7447													
29	Gas Transmission Line Pipe	6152													
30	Steel Dist. Main Pipe	4248													
31	Plastic Pipe	4100													
32	Meters-Gas	8752													
33	House Regulators	5537													
34															
35	Cast Iron Pipe	8670													
36	Cast Iron Fittings	11 3													
37	Ductile Iron Pipe	7135													
38	Chemical Feeders-Small	3618													
39	Chemical Feeders-Large	9008													
40	Gate Valves	7711													
41	Meter Boxes	1706													
42	Corporation Stops	7253													
43	Curb Stops	7800													
44	Hydrants	1735													
45	Meters-Water	4374													
46															
47															
48															
49															
50	Construction Equipment	5800													
51															
52															
53															
54															
55															
56															

BULLETIN NO. 188

1912 to July 1, 2018

THE

HANDY-WHITMAN INDEX

Of

Public Utility Construction Costs©

TRENDS OF CONSTRUCTION COSTS

Preliminaries

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HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

BUILDING INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	611	476	570	470	510	588
3	647	537	625	544	609	636
4	617	558	596	543	568	594
5	609	482	574	448	464	603
6	561	413	523	392	441	542
9	488	624	586	579	550	571
10	309	299	332	292	330	308
11	393	398	395	391	387	402
12	725	1126	890	1033	1409	753
13	443	473	446	573	385	394
16	696	459	610	448	481	673
17	696	484	614	448	471	657
18	690	470	609	426	465	657
19	705	469	616	438	468	669
20	753	459	635	482	479	736
21	755	514	637	509	557	748
22	716	492	612	508	555	759

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

MATERIAL INDEXES 7/1/18

LINE	INDEX
1	707
2	608
3	1345
4	462
5	1083
6	430
7	4629
8	879
9	507
10	917
11	1008
12	304
13	668
14	450
15	515
16	511
17	514
18	1008
19	253
20	838
21	1271
22	801
23	572
24	544
25	569
26	537
28	759
29	693
30	1382
31	410
32	477
33	533
35	868
36	1481
37	715
38	1707
39	920
40	789
41	1706
42	723
43	780
44	1759
45	434
50	575

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

ELECTRIC INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
1	772	678	728	677	696	758
2	768	678	725	678	0	759
3	766	670	725	676	680	735
6	744	671	707	655	693	730
7	714	594	680	538	662	708
8	631	538	602	592	535	613
9	743	682	716	642	694	731
10	0	0	0	676	0	0
11	719	609	662	599	630	705
12	663	614	633	596	619	642
13	1236	1139	1179	1140	1163	1240
14	790	706	734	688	712	778
17	686	634	650	624	647	735
18	578	533	564	488	520	573
19	652	584	621	586	600	647
22	586	507	566	489	533	558
23	714	594	680	538	662	708
24	570	475	549	466	506	543
25	541	512	528	511	512	536
28	977	922	964	942	927	911
29	702	622	669	622	640	696
30	990	968	977	964	966	975
33	788	663	753	658	658	742
34	856	799	828	784	807	861
35	647	546	613	520	557	626
36	684	547	626	557	555	673
37	724	629	780	642	637	717
38	711	536	639	531	533	691
39	1205	1089	1173	1127	1118	1181
42	799	702	752	710	724	792
43	868	741	765	648	768	795
44	669	513	604	520	521	655
45	936	757	869	791	784	893
46	668	497	605	489	498	653
47	779	675	741	694	690	772
48	974	935	959	942	939	973
49	770	713	750	716	718	764
50	637	472	570	483	482	624
51	496	413	463	417	418	488
52	384	330	360	334	334	378
53	803	714	773	721	716	801
54	740	662	712	669	666	738
55	843	745	811	750	747	841

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

GAS INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
1	871	764	823	761	785	865
4	704	614	683	642	658	726
5	658	551	610	558	587	655
14	549	434	507	410	445	524
25	684	602	646	594	600	669
26	619	488	578	465	488	605
27	682	602	644	594	595	667
29	740	677	711	669	688	727
30	838	749	790	751	764	839
42	619	488	578	465	488	605
43	911	871	886	872	879	911
44	933	842	886	844	860	943
45	579	510	547	506	518	567
46	740	677	711	669	688	727
47	815	712	759	715	730	813
48	814	719	763	720	734	813
49	759	633	699	623	629	744
50	665	500	587	488	513	646
51	477	477	477	477	477	477
52	1011	985	979	957	991	1077
53	533	533	533	533	533	533
54	985	866	946	919	951	1051

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS BULLETIN 188

WATER INDEXES 7/1/18

LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	570	475	549	466	506	543
8	706	587	673	574	653	700
9	1216	1216	1216	1216	1216	1216
15	706	587	673	574	653	700
16	809	714	770	718	729	823
17	930	852	901	861	871	949
23	820	820	820	820	820	820
24	1200	1200	1200	1200	1200	1200
27	814	766	794	777	787	831
28	770	695	734	723	710	768
29	626	561	600	564	573	627
34	797	725	758	702	720	783
35	858	824	849	800	816	856
36	765	614	670	592	623	651
37	717	611	666	604	619	715
38	397	343	375	341	347	384
39	667	509	603	516	519	640
40	434	434	434	434	434	434
41	750	602	690	615	626	732
42	1021	953	978	962	963	1038
46	2258	2230	2248	2270	2252	2314
47	1394	1285	1375	1304	1347	1412
48	802	645	748	683	727	836

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach
AUS Telephone Plant Indices – General Plant
General Plant – Northeastern United States

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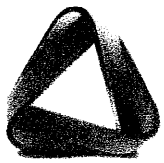

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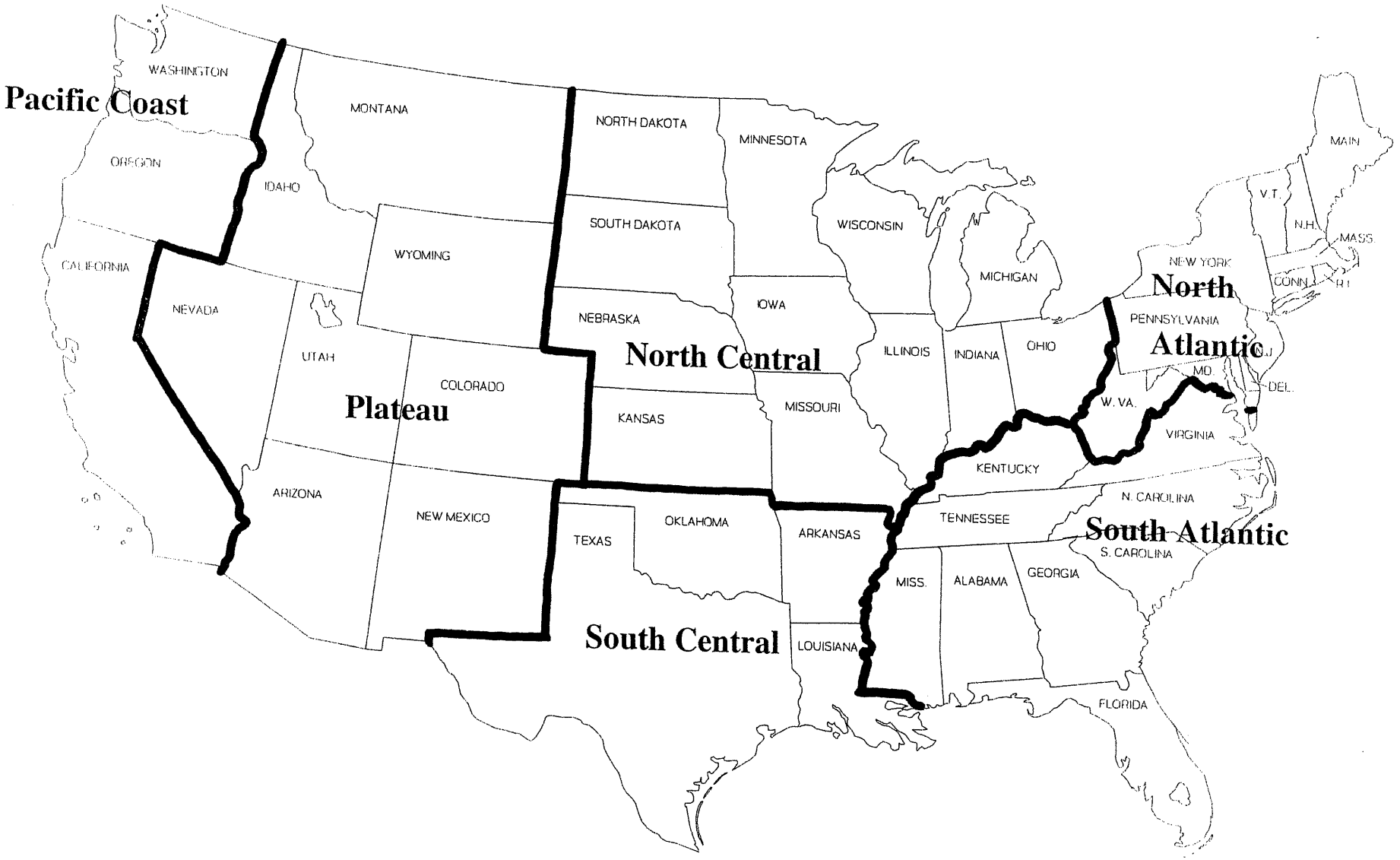
Pacific Coast
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SOUTH DAKOTA
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KANSAS
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TEXAS
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MISSOURI
ARKANSAS
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CONN.
R.I.
MASS.
V.T.
N.H.
MAIN
North Atlantic
South Atlantic

FOREWORD

The AUS Telephone Plant Index, which follows this foreword was first introduced in 1977 by Associated Utility Services, Inc., and published as part of the Handy-Whitman Index of Public Utility Construction Costs through 1989. In 1990 AUS Consultants, the successor company to Associated Utility Services, Inc., decided to publish the Telephone Plant Index under the name C.A. Turner Utility Reports publication division. In 2005 the index changed its name from C.A. Turner Telephone Plant Index to AUS Telephone Plant Index.

The 1990 AUS Telephone Plant Index (TPI) was the first nationally available TPI based on the Federal Communication Commission (FCC) Uniform System of Accounts (USOA) Part 32. The prior published TPI, also prepared by AUS staff, was based on the earlier USOA Part 31 Standards.

Telephone Plant Index Description

The TPI consists of a separate cost index series for each of six geographic regions shown on the map at page iv. These regions are designated: North Atlantic, South Atlantic, North Central, South Central, Plateau, and Pacific Coast. The regional designation are the same as those used in the prior issues of the cost index and are based on similarity of characteristics among the contiguous 48 states.

Each cost index series within a region consists of one index labeled "Total Plant Account" and up to 31 individual cost index series for the individual plant account identified in the left hand columns.

The Base Year for each cost index is 1973=100. Some plant accounts will not show an index number of 100 at year 1973 due to a subsequent adjustment for FCC Part 31 to Part 32, changes explained later in this foreword. In a few accounts the item described in the account was not included in the index series until after 1973 and the base year is considered the first year of entry.

The index for most plant accounts begins with a single entry in year 1946 and continues with a single number for each year through 1973. Beginning in 1974 there are two index numbers for each year; one for January 1 and one for July 1. These numbers represent the prevailing wages and material prices and weightings at that point in time.

Index History

An index is a tool for identifying the relative price change of an item, or group of items over an identified period of time. Price indexes have been in use for many years for a variety of reasons. One example is an index developed in the eighteenth century by an Italian named Carli to determine the effect of the discovery of America upon the level of prices in Italy of three commodities between the years 1500 and 1750. In the current century, numerous organizations, including the United States Bureau of Statistic, have developed a variety of indexes ranging from the cost of basic commodities to manufactured goods and building construction cost.

Interest in telephone utility cost indexes has varied over time depending on the need to develop reproduction cost values for utility properties. Previous uses of cost indexes included such things as the determination trended original cost in fair value rate jurisdictions and current cost pricing for FASB-33 financial accounting disclosures. Due to changes in rate regulation proceedings and financial disclosure requirements, the need in these two specific areas has declined. Other areas in which reproduction cost indexes were utilized included insurance valuations, property tax valuations, retirement accounting and cost forecasting, etc.

Most recently, interest in cost indexes for the telecommunication industry has increased due to the possible implementation of price cap regulation. This form of regulation incorporates the use of changes in price levels by regulators to set rates. Under one proposal, customer tariff prices are adjusted to give consideration to productivity improvements, therefore, the development of the construction cost indexes will have an indirect bearing on the level of the company revenue requirements.

Index Design

The telephone plant index was designed as a product which could be utilized by any of the various telephone operating companies to develop the reproduction cost of the company's property at the selected test year date. Due to the variation of many design construction specifics from one company to another, it is impossible to produce an index which will exactly mirror the construction cost changes for each company. In circumstances where companies desire a more specific reproduction cost of their property, a custom index should be prepared or, alternately, the company's property should be inventoried and unit priced. Such unit cost work efforts, of course, will be significantly more expensive and time consuming to complete.

As indicated, the telephone plant index is a standard index which is published on a semi-annual basis. The yearly average index is calculated via a 1-2-1 weighting process which is the sum of 25% of the January index, 50 of the July index, and 25% of the succeeding year's January index.

In general terms, the telephone plant index was constructed around the FCC Part 32 system of accounts to aid companies in ease of application of the published index. Each embedded property account was reviewed to determine the components which comprise the large segment of the property investment in each account. In this manner, the resulting telephone plant index was a reasonable proxy for determining the reproduction cost of the embedded investment of the independent telephone industry.

With the exception of the General Support Asset Group, the FCC Part 32 based indexes were adjusted for all index years 1987 and prior to compensate for the change in overhead capitalization policies effective with the new regulations. That is, under FCC Part 31 regulation, a greater level of overheads were previously incorporated in the plant in service investments contained on the company's books and records. The adjusted indexes for the years 1946 through 1987, when applied to the company's original costs, will produce the applicable reproduction cost under FCC Part 32 accounting treatment. The index adjustment for Part 31 to Part 32 accounting results in the plant accounts not having an index number of 100 at the 1973 base year.

The AUS Telephone Plant Index was designed around thirty-six component indexes representing the basic components of material and labor which make up the construction of the various telephone plant accounts. The components include such items as Buildings, Switching Equipment, Circuit Equipment, Poles, Cable, Wire Vehicles, Tools, Furniture, Installer Labor and Lineman Labor, etc. The components were composited together into account level indexes based upon material and labor weights derived from a study of independent telephone construction cost experience.

Introduction of new technologies into a reproduction cost index required the review of composite weight included in development of the account level index to reflex the new mix of property.

The goal of the telephone plant index was to produce a product which when utilized together with each companies' books and records would produce a reproduction cost value.

The AUS Telephone Plant Index does not reflect replacement cost inasmuch as it was designed to produce the reproduction cost (the cost in today's dollars to reproduce the company's embedded plant in service).

Index Functions

The AUS Telephone Plant Index series was initially prepared to address a very specific function. That is, it was designed to enable companies to produce trended original cost values to the historical original cost of plant in service on the companies' books and records. This trended original cost is a general representation of the cost to reconstruct the property in question at the price level of the selected period. If a company desires a more specific estimate of reconstruction, the property specific indexes can be developed giving consideration to the actual history of the company's wages and material cost in comparison to the labor and material costs. For an even more specific cost estimated to rebuild the plant in serve, engineering estimated can be completed based upon the property inventory and the current unit costs for constructing the various plant categories.

In summary, the index was designed to be applied on a vintage and account level basis to determine the reproduction cost of local distribution companies' plant in service, as of the selected price level.

A tool can be utilized correctly only within the boundaries for which the product was originally designed. Uses above and beyond the scope of the original design may or may not produce reliable results. That is, the use of a generalized index to prepare a reproduction cost will provide general results within the range of reasonableness. If more specific or exact results are required, alternative methods or procedures (i.e., custom indexes or specific detail pricing) should be employed.

An effort has been made to carefully construct an index which produces a reasonable proxy of reproduction cost for the telephone plant or local distribution companies giving consideration to the fact that there are variances in material and labor costs, as well as, construction methods and practices from one company to another. Nevertheless, we believe that there is sufficient similarity in the cost trends to make the AUS Telephone Plant Index a useful tool when carefully applied to a company's historical cost base.

North Atlantic

LINE NO	PLANT IN SERVICE DESCRIPTION	FCC Acct	COST INDEX NUMBER 1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	LINE NO
1	Total Plant		85	89	91	91	92	95	96	96	94	94	97	97	96	96	97	96	1
2																			2
3																			3
4	Motor Vehicles	2112	57	57	63	67	67	70	74	74	74	77	81	84	87	89	88	87	4
5	Aircraft	2113	56	56	62	66	66	69	73	73	73	75	80	83	86	88	86	86	5
6	Special Purpose Vehicles	2114	30	34	38	41	42	46	47	48	49	51	56	60	62	65	66	67	6
7	Garage Work Equipment	2115	36	38	42	44	46	51	51	52	53	56	61	65	67	69	70	70	7
8	Other Work Equipment	2116	50	50	52	54	55	59	59	61	62	64	67	70	71	74	75	77	8
9																			9
10																			10
11	Buildings	2121	24	28	32	34	35	37	38	39	41	42	46	49	50	52	53	52	11
12	Furniture	2122	43	43	46	47	50	56	56	57	57	60	64	68	70	70	71	71	12
13	Office Equipment	2123	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	13
14	General Purpose Computer	2124	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	14
15																			15
16																			16
17	Analog Electronic Switching	2211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
18	Digital Electronic Switching	2212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
19																			19
20																			20
21	Electro Mechanical Switching	2215	36	48	49	57	62	64	67	66	64	65	68	70	69	72	70	72	21
22																			22
23	Operator Systems	2220	37	50	51	59	64	67	69	68	66	67	70	72	71	73	71	74	23
24																			24
25																			25
26	Radio System—Analog																		26
27	Radio Systems—Digital	22311	51	57	62	63	63	66	64	60	58	58	49	49	46	47	36	36	27
28	Circuit Equipment—Analog	22312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	Circuit Equipment—Digital	22321	347	392	417	411	410	423	410	401	348	311	319	317	303	299	312	297	29
30		22322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
31																			31
32	Public Telephone Term Eq	2351	148	151	145	145	148	154	143	144	146	158	159	164	164	164	165	165	32
33																			33
34																			34
35	Poles	2411	33	37	39	41	42	45	47	49	51	50	54	58	59	59	60	61	35
36	Aerial Cable—Metallic	24211	44	47	49	49	51	58	61	64	64	68	74	72	70	71	72	70	36
37	Aerial Cable—Fiber	24212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
38	Underground Cable—Metallic	24221	48	52	54	53	55	64	67	71	69	75	82	78	75	76	78	75	38
39	Underground Cable—Fiber	24222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
40	Buried Cable—Metallic	24231	50	54	56	55	57	66	70	74	72	78	85	81	77	78	80	76	40
41	Buried Cable—Fiber	24232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
42	Submarine Cable—Metallic	24241	43	45	48	48	50	56	59	62	61	65	71	69	68	69	71	70	42
43	Submarine Cable—Fiber	24242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	Intra Building Cable—Metallic	24261	43	47	49	48	50	58	61	64	63	68	74	71	69	70	72	70	44
45	Intra Building Cable—Fiber	24262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	Aerial Wire	2431	33	36	38	38	40	45	47	50	50	55	58	57	57	59	61	62	46
47	Conduit Systems	2441	54	55	57	59	60	63	64	64	65	65	67	69	71	72	73	74	47
48																			48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	Submarine Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	Intra Building Cable-FTTP (Dist.)	24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																			54

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AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	COST INDEX NUMBER																							LINE NO
	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 Jan 1	1974 July 1	1975 Jan 1	1975 July 1	1976 Jan 1	1976 July 1	1977 Jan 1	1977 July 1	1978 Jan 1	1978 July 1	1979 Jan 1	1979 July 1	
1	95	94	94	94	95	96	96	97	101	101	102	105	108	113	116	116	117	120	122	123	125	128	131	135	1
2																									2
3																									3
4	87	86	86	85	85	86	88	89	92	97	99	100	102	105	116	116	123	124	131	132	140	143	149	155	4
5	85	85	84	84	84	84	86	88	91	96	99	100	102	109	119	123	128	131	136	140	146	151	157	163	5
6	67	68	70	72	74	77	81	85	89	93	96	100	103	114	130	141	147	151	158	162	171	177	187	195	6
7	71	71	72	73	76	79	82	85	90	94	96	100	114	118	134	139	143	147	153	159	165	172	180	189	7
8	78	79	79	79	81	85	88	93	98	100	100	100	100	111	118	122	119	122	124	130	131	137	141	147	8
9																									9
10																									10
11	53	54	56	57	59	61	64	68	74	84	91	100	107	119	125	128	126	131	132	136	140	148	154	163	11
12	71	71	72	72	73	77	80	83	89	91	93	100	103	114	130	128	129	135	136	144	149	155	160	171	12
13	89	90	90	90	91	92	93	93	96	97	99	100	101	105	109	111	110	112	111	113	114	118	119	123	13
14	89	90	90	90	91	92	93	93	96	97	99	100	100	100	102	103	100	100	98	90	90	90	90	90	14
15																									15
16																									16
17	0	0	0	0	0	0	0	0	0	0	0	104	103	106	110	111	111	113	113	113	115	119	122	125	17
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105	105	100	95	95	95	96	96	18
19																									19
20																									20
21	71	76	78	75	72	71	75	81	84	88	98	104	106	110	115	120	124	127	132	136	140	145	151	156	21
22																									22
23	73	77	79	76	72	71	76	81	85	89	98	104	106	108	111	114	117	119	121	122	125	128	132	136	23
24																									24
25																									25
26																									26
27	46	49	52	60	58	63	62	66	78	97	102	104	102	102	102	102	97	98	103	104	106	106	103	103	27
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	273	234	228	214	224	210	173	159	163	128	108	104	105	108	111	112	111	111	115	118	118	119	120	122	29
30	0	0	0	0	0	0	0	0	0	0	0	104	104	104	105	105	110	116	121	126	126	127	123	120	30
31																									31
32	165	165	166	130	122	123	120	118	108	107	108	107	106	107	110	109	109	111	112	114	116	119	123	127	32
33																									33
34																									34
35	62	63	65	66	68	71	76	79	83	88	97	107	119	131	144	157	158	160	164	169	176	183	196	208	35
36	70	70	70	73	77	81	84	88	96	97	100	107	114	125	129	126	130	135	140	144	148	152	158	170	36
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
38	74	73	72	75	80	84	87	91	100	99	100	107	114	127	130	125	129	134	138	143	145	149	155	168	38
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
40	76	74	73	77	81	85	88	91	101	99	100	107	114	128	131	124	128	133	138	142	144	147	153	167	40
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
42	70	70	71	73	77	81	84	88	95	96	101	107	113	123	128	126	131	136	141	145	150	154	160	171	42
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	70	70	70	73	77	81	84	88	96	96	100	107	114	125	129	126	130	136	140	145	148	152	158	170	44
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	63	65	66	70	73	75	78	84	91	93	100	107	114	125	130	131	134	139	142	146	145	150	158	172	46
47	74	77	78	79	82	84	84	87	89	94	102	107	111	117	127	130	135	139	144	150	159	163	169	180	47
48																									48
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																									54

AUS TELEPHONE INDEX BULLETIN NO. 58

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	PLANT IN SERVICE DESCRIPTION	FCC Acct	COST INDEX NUMBER																LINE NO
			1980		1981		1982		1983		1984		1985		1986		1987		
			Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	
1	Total Plant		140	146	146	149	150	152	156	159	156	154	156	158	156	154	154	155	1
2																			2
3																			3
4	Motor Vehicles	2112	162	167	178	186	195	195	201	199	203	204	206	210	215	215	227	220	4
5	Aircraft	2113	170	180	195	205	215	217	224	223	227	228	230	234	238	237	233	231	5
6	Special Purpose Vehicles	2114	206	220	231	245	254	263	266	270	271	274	274	277	278	281	283	287	6
7	Garage Work Equipment	2115	200	213	223	234	241	248	250	251	253	257	260	263	264	267	268	270	7
8	Other Work Equipment	2116	153	165	170	181	183	189	189	189	189	190	192	197	199	202	204	205	8
9																			9
10																			10
11	Buildings	2121	176	183	188	193	192	198	200	206	210	218	223	224	228	234	234	239	11
12	Furniture	2122	174	182	187	199	210	213	215	222	224	229	232	238	242	245	248	252	12
13	Office Equipment	2123	125	130	132	136	137	140	140	143	142	142	140	142	143	143	143	146	13
14	General Purpose Computer	2124	90	90	90	90	87	83	76	69	59	48	48	48	48	47	47	47	14
15																			15
16																			16
17	Analog Electronic Switching	2211	130	140	149	163	168	175	183	188	193	199	202	204	205	208	210	210	17
18	Digital Electronic Switching	2212	96	96	97	97	94	90	84	77	67	57	57	57	57	56	56	56	18
19																			19
20																			20
21	Electro Mechanical Switching	2215	167	188	199	213	219	226	232	248	268	277	282	281	283	286	287	287	21
22																			22
23	Operator Systems	2220	146	157	166	176	180	185	191	197	204	211	213	215	216	218	219	219	23
24																			24
25																			25
26																			26
27	Radio System—Analog	22311	100	100	101	102	90	91	94	94	79	80	80	81	77	78	82	82	27
28	Radio Systems—Digital	22312	0	0	0	0	0	0	115	115	115	117	119	121	122	124	126	124	28
29	Circuit Equipment—Analog	22321	125	130	129	128	130	132	121	154	153	152	153	152	147	144	145	146	29
30	Circuit Equipment—Digital	22322	114	107	100	93	93	94	95	96	89	82	80	78	68	59	49	39	30
31																			31
32	Public Telephone Term Eq	2351	132	141	145	150	158	167	190	196	201	206	210	212	213	217	219	218	32
33																			33
34																			34
35	Poles	2411	220	232	240	249	254	259	263	268	272	273	280	283	287	292	295	297	35
36	Aerial Cable—Metallic	24211	182	193	191	197	202	204	208	213	211	209	219	231	227	223	225	228	36
37	Aerial Cable—Fiber	24212	0	0	0	0	0	0	136	138	132	127	119	111	108	105	108	110	37
38	Underground Cable—Metallic	24221	181	192	187	191	195	196	199	203	197	193	204	217	212	205	206	209	38
39	Underground Cable—Fiber	24222	0	0	0	0	0	0	130	131	125	119	110	101	98	94	97	100	39
40	Buried Cable—Metallic	24231	180	192	186	189	192	193	195	199	192	187	198	212	205	198	198	201	40
41	Buried Cable—Fiber	24232	0	0	0	0	0	0	129	131	124	118	109	100	97	93	96	98	41
42	Submarine Cable—Metallic	24241	181	192	193	199	205	209	214	219	219	218	227	238	237	235	238	240	42
43	Submarine Cable—Fiber	24242	0	0	0	0	0	0	147	149	145	141	134	128	126	124	127	130	43
44	Intra Building Cable—Metallic	24261	182	193	191	197	202	205	209	214	211	210	220	231	228	224	226	230	44
45	Intra Building Cable—Fiber	24262	0	0	0	0	0	0	136	138	132	127	119	111	108	105	108	111	45
46	Aerial Wire	2431	182	191	198	206	210	214	219	225	232	239	243	248	250	252	253	253	46
47	Conduit Systems	2441	188	196	203	211	219	220	228	240	246	253	257	262	267	271	276	278	47
48																			48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	Submarine Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	Intra Building Cable-FTTP (Dist.)	24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																			54

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NORTH ATLANTIC REGION 1973=100

LINE NO	COST INDEX NUMBER																							LINE NO
	1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		
	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	
1	150	153	158	165	164	165	167	165	165	165	167	168	169	170	174	178	182	182	184	185	186	184	184	181	1
2																									2
3																									3
4	221	222	231	229	236	232	244	241	254	251	258	261	267	271	275	270	279	276	277	271	270	263	273	266	4
5	234	234	234	240	246	254	261	271	274	284	285	291	297	300	304	312	318	322	326	328	327	328	329	330	5
6	289	293	298	309	312	319	325	328	333	337	343	348	348	351	353	360	362	368	370	374	377	382	383	388	6
7	273	279	286	294	298	305	309	316	318	322	324	328	332	336	338	345	349	354	356	359	361	364	366	368	7
8	206	210	215	218	221	228	230	234	235	240	240	243	244	250	250	254	254	258	258	260	260	262	263	265	8
9																									9
10																									10
11	242	254	257	268	268	272	272	274	270	279	283	290	295	306	310	310	311	312	323	329	331	338	341	343	11
12	255	263	269	274	278	284	287	290	291	294	296	299	302	309	309	315	320	322	326	328	330	330	330	333	12
13	147	149	151	153	154	154	152	153	153	156	154	155	155	155	154	156	155	156	155	157	156	157	156	157	13
14	45	43	37	31	30	29	26	24	23	21	21	21	21	21	21	20	17	15	14	14	14	14	13	13	14
15																									15
16																									16
17	204	207	210	212	214	211	212	214	213	213	213	216	215	216	213	212	211	204	204	200	196	194	193	192	17
18	52	50	45	40	39	38	36	33	32	31	31	31	32	32	32	31	28	27	26	26	26	26	25	25	18
19																									19
20																									20
21	278	284	289	291	291	292	296	302	303	304	309	317	316	324	329	327	334	333	336	339	331	336	338	342	21
22																									22
23	213	216	217	218	218	218	220	223	224	224	227	231	231	236	238	236	239	240	239	239	234	237	237	239	23
24																									24
25																									25
26																									26
27	80	80	81	81	81	82	81	82	84	85	86	87	87	87	89	89	91	91	91	93	94	95	95	96	27
28	117	117	117	118	118	118	116	116	117	118	119	120	119	120	120	121	121	122	123	125	125	123	123	124	28
29	140	141	142	144	145	144	145	146	147	147	147	149	150	150	152	149	149	146	146	145	143	143	142	143	29
30	36	35	35	35	35	34	34	34	37	38	39	39	39	39	37	37	37	38	35	36	36	36	36	35	30
31																									31
32	205	209	212	214	216	213	213	215	214	214	213	216	215	216	213	212	211	204	204	200	196	195	194	192	32
33																									33
34																									34
35	278	285	291	295	300	304	310	315	319	327	331	338	352	365	368	369	379	385	400	402	406	413	418	421	35
36	226	237	257	275	273	277	282	277	279	275	281	282	283	282	294	310	319	323	325	328	333	324	322	314	36
37	94	87	85	89	89	89	90	90	89	90	89	89	88	87	88	89	90	91	91	92	93	94	94	95	37
38	210	221	244	265	261	265	270	261	263	256	262	260	260	257	270	289	299	304	305	308	312	299	297	285	38
39	84	75	73	77	76	76	77	77	76	76	75	74	73	72	72	73	74	75	75	76	76	77	77	77	39
40	204	215	240	262	257	261	265	256	257	249	256	253	252	249	262	283	293	298	298	301	306	291	288	275	40
41	82	73	71	75	74	74	75	75	74	74	73	72	71	69	70	71	72	73	73	74	74	75	75	41
42	235	244	260	274	274	277	283	278	282	279	285	286	287	288	298	310	319	323	324	327	332	325	325	319	42
43	114	107	106	111	111	111	113	113	113	114	113	114	113	113	114	115	118	119	119	120	121	122	123	123	43
44	227	238	257	275	273	277	282	277	279	275	281	282	282	282	293	309	318	323	324	328	333	324	322	314	44
45	95	87	85	90	89	89	90	91	90	90	89	89	88	87	88	89	91	92	92	93	94	94	95	95	45
46	249	261	270	278	279	283	290	291	293	298	302	305	307	312	320	324	329	332	334	337	341	344	342	342	46
47	269	277	301	309	311	309	316	308	307	310	314	320	325	331	336	340	345	347	350	353	355	358	362	366	47
48																									48
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
54																									54

AUS TELEPHONE INDEX BULLETIN NO. 58

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX
NORTH ATLANTIC REGION 1973=100

LINE NO	PLANT IN SERVICE DESCRIPTION	FCC Acct	COST INDEX NUMBER																LINE NO
			2000		2001		2002		2003		2004		2005		2006		2007		
			Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	
1	Total Plant		182	185	188	190	191	193	194	197	201	206	210	213	227	244	244	249	1
2																			2
3																			3
4	Motor Vehicles	2112	275	269	276	266	270	263	264	257	268	266	272	261	262	258	264	257	4
5	Aircraft	2113	334	343	351	359	362	364	369	377	387	393	408	417	424	438	447	450	5
6	Special Purpose Vehicles	2114	388	392	392	392	392	398	400	404	404	413	428	445	449	462	465	472	6
7	Garage Work Equipment	2115	369	372	373	377	376	376	377	378	379	387	393	403	408	416	422	430	7
8	Other Work Equipment	2116	266	267	268	273	271	272	271	273	273	275	276	278	278	275	278	279	8
9																			9
10																			10
11	Buildings	2121	353	359	364	374	377	384	385	385	407	412	425	431	441	443	457	472	11
12	Furniture	2122	335	337	338	341	341	341	344	346	346	350	360	368	372	376	380	386	12
13	Office Equipment	2123	156	157	157	158	159	158	158	157	159	160	158	162	161	161	160	161	13
14	General Purpose Computer	2124	12	11	9	9	7	7	6	4.8	3.4	3.4	3.3	3.3	3.0	2.8	2.6	2.7	14
15																			15
16																			16
17	Analog Electronic Switching	2211	193	193	193	190	189	190	189	190	189	190	190	189	187	193	196	186	17
18	Digital Electronic Switching	2212	25	24	22	23	23	23	21	22	22	22	22	22	22	23	23	23	18
19																			19
20																			20
21	Electro Mechanical Switching	2215	344	348	350	358	366	376	379	386	391	395	403	405	414	421	430	432	21
22																			22
23	Operator Systems	2220	241	242	243	247	251	257	258	261	264	266	271	272	276	282	287	287	23
24																			24
25																			25
26																			26
27	Radio System—Analog	22311	96	96	96	95	95	95	95	95	95	96	95	95	94	97	98	94	27
28	Radio Systems—Digital	22312	125	125	126	127	128	127	125	125	125	126	127	127	128	129	130	130	28
29	Circuit Equipment—Analog	22321	143	144	144	142	143	143	143	144	143	145	145	145	144	148	150	144	29
30	Circuit Equipment—Digital	22322	36	36	36	37	37	38	38	39	38	38	39	39	39	40	40	41	30
31																			31
32	Public Telephone Term Eq	2351	193	193	193	191	190	190	190	191	190	191	190	189	187	193	195	186	32
33																			33
34																			34
35	Poles	2411	421	429	434	446	451	459	463	472	477	490	495	503	502	521	526	529	35
36	Aerial Cable—Metallic	24211	313	322	328	333	335	338	340	349	357	371	379	386	430	486	477	492	36
37	Aerial Cable—Fiber	24212	96	98	100	102	104	105	105	108	110	112	114	116	118	119	121	122	37
38	Underground Cable—Metallic	24221	281	289	295	299	298	299	299	307	314	326	334	340	394	461	448	466	38
39	Underground Cable—Fiber	24222	78	80	82	83	84	86	85	87	89	91	92	94	95	96	98	98	39
40	Buried Cable—Metallic	24231	271	278	284	287	285	289	286	293	300	312	320	326	383	456	441	460	40
41	Buried Cable—Fiber	24232	76	77	79	80	81	83	82	84	85	87	89	90	91	92	93	94	41
42	Submarine Cable—Metallic	24241	320	327	334	338	341	343	346	353	362	372	379	384	417	459	454	466	42
43	Submarine Cable—Fiber	24242	125	127	130	132	134	136	136	138	141	144	146	148	149	150	153	154	43
44	Intra Building Cable—Metallic	24261	313	322	328	333	335	338	340	349	357	370	378	385	429	483	474	489	44
45	Intra Building Cable—Fiber	24262	97	99	101	103	104	106	106	108	110	113	115	117	118	120	121	122	45
46	Aerial Wire	2431	348	355	362	368	372	377	381	391	399	412	419	427	446	466	465	472	46
47	Conduit Systems	2441	375	380	391	395	403	412	418	422	432	442	453	458	474	478	495	493	47
48																			48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	100	97	95	92	89	88	87	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	0	0	0	0	0	0	100	102	105	104	103	103	102	51
52	Submarine Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	100	99	98	98	97	96	96	52
53	Intra Building Cable-FTTP (Dist.)	24263	0	0	0	0	0	0	0	0	0	100	100	100	100	100	101	103	53
54																			54

SCHEDULE No. T-1

AUS TELEPHONE PLANT INDEX

NORTH ATLANTIC REGION 1973=100

LINE NO	COST INDEX NUMBER																						LINE NO
	2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018			
	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	Jan 1	July 1	
1	251	256	245	248	258	260	279	282	282	282	285	283	284	285	289	287	283	282	288	290	298	302	1
2																							2
3																							3
4	263	257	272	273	274	269	272	273	280	279	286	282	291	287	291	295	299	298	305	301	307	304	4
5	461	471	495	480	485	490	497	502	514	520	523	528	532	537	541	543	543	547	548	553	557	562	5
6	476	485	499	504	503	503	507	518	529	541	548	555	557	564	566	570	572	576	577	581	583	578	6
7	435	445	457	457	456	458	462	474	479	485	489	494	497	503	505	509	510	513	514	519	522	533	7
8	281	286	290	286	286	288	288	290	291	294	295	296	304	307	309	315	318	322	322	324	327	331	8
9																							9
10																							10
11	492	497	506	494	506	507	521	518	530	532	542	539	550	552	585	580	586	589	604	608	633	633	11
12	389	402	417	415	418	420	415	429	433	437	433	437	439	450	449	454	454	455	457	461	464	480	12
13	162	171	184	171	169	169	170	171	173	173	164	165	166	166	171	172	172	172	173	171	171	169	13
14	2.7	2.6	2.6	2.1	2.01	1.98	1.97	1.49	0.82	0.66	0.67	0.50	0.57	0.60	0.55	0.63	0.64	0.65	0.73	0.71	0.67	0.64	14
15																							15
16																							16
17	180	179	178	178	177	177	174	175	174	174	174	175	176	176	176	176	177	177	177	179	177	179	17
18	24	24	25	25	25	25	25	25	26	26	26	27	27	27	27	28	28	28	28	29	29	29	18
19																							19
20																							20
21	439	445	456	458	460	469	474	481	486	478	484	491	497	495	499	499	496	497	502	502	509	506	21
22																							22
23	288	292	297	299	300	305	307	311	313	309	312	317	320	319	322	322	320	321	324	325	328	327	23
24																							24
25																							25
26																							26
27	91	90	90	90	89	89	88	89	88	88	88	88	89	89	89	89	89	89	89	90	90	90	27
28	131	132	134	134	135	137	138	138	137	138	138	138	138	138	139	140	140	140	140	141	141	142	28
29	140	139	139	139	138	138	137	138	137	137	137	138	139	139	140	140	141	141	141	142	142	143	29
30	41	41	41	41	40	40	40	41	41	42	42	42	43	43	44	44	44	45	45	45	46	46	30
31																							31
32	180	179	177	178	177	177	174	175	173	174	173	174	175	175	176	176	177	177	177	179	177	179	32
33																							33
34																							34
35	537	547	554	563	570	578	576	587	594	600	603	607	605	616	620	621	629	633	634	652	643	652	35
36	494	507	461	473	506	509	573	582	577	576	582	572	573	573	578	570	555	551	566	568	591	601	36
37	123	124	126	127	128	130	131	133	135	136	137	138	140	142	143	144	146	148	149	151	153	155	37
38	465	481	421	435	475	476	555	562	554	552	556	544	542	540	544	533	513	506	523	524	549	559	38
39	100	100	102	103	103	105	106	108	109	110	111	112	113	114	116	116	118	119	120	122	123	125	39
40	459	475	410	425	467	467	553	560	550	547	552	538	536	533	537	524	501	493	511	511	538	547	40
41	95	96	97	98	99	100	101	103	104	105	106	107	108	109	111	111	113	114	115	116	118	120	41
42	468	479	447	458	484	486	535	541	539	540	545	539	541	542	547	544	534	532	546	548	567	575	42
43	155	157	159	161	163	164	166	168	170	172	173	174	177	179	181	183	185	187	189	191	194	196	43
44	491	504	459	471	504	507	570	578	573	573	578	569	569	570	575	567	553	549	564	566	588	598	44
45	124	125	127	128	129	131	132	134	135	137	138	139	141	142	144	145	147	148	150	152	154	156	45
46	475	488	469	478	496	501	519	528	525	527	531	530	533	538	543	543	540	541	551	556	569	578	46
47	502	507	525	530	516	521	526	532	545	550	549	552	559	565	571	577	581	586	591	596	611	618	47
48																							48
49	82	77	75	73	65	58	55	53	52	50	50	50	50	50	50	49	50	49	49	50	50	51	49
50	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52	53	50
51	92	82	78	74	71	68	66	63	61	59	57	54	54	55	54	54	54	53	53	54	54	55	51
52	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52	53	52
53	104	105	90	75	68	61	54	47	43	39	39	39	39	39	38	38	39	44	43	43	43	43	53
54																							54

AUS TELEPHONE INDEX BULLETIN NO. 58

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach
United States Bureau of Labor Statistics Cost Indices
General Inflation Indices
Communications Equipment Indices

Professional Labor Indices

AUS Consultants
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8555 West Forest Home Avenue
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Databases, Tables & Calculators by Subject

Change Output Options: From: 1913 To: 2018 GO
☐ include graphs ☑ include annual averages More Formatting Options

Data extracted on: September 26, 2018 (12:20:46 PM)

CPI-All Urban Consumers (Current Series)

Series Id: CUUR0000SA0
Not Seasonally Adjusted
Series Title: All items in U.S. city average, all urban consumers, not seasonally adjusted
Area: U.S. city average
Item: All items
Base Period: 1982-84=100

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
1913	9.8	9.8	9.8	9.8	9.7	9.8	9.9	9.9	10.0	10.0	10.1	10.0	9.9		
1914	10.0	9.9	9.9	9.8	9.9	9.9	10.0	10.2	10.2	10.1	10.2	10.1	10.0		
1915	10.1	10.0	9.9	10.0	10.1	10.1	10.1	10.1	10.1	10.2	10.3	10.3	10.1		
1916	10.4	10.4	10.5	10.6	10.7	10.8	10.8	10.9	11.1	11.3	11.5	11.6	10.9		
1917	11.7	12.0	12.0	12.6	12.8	13.0	12.8	13.0	13.3	13.5	13.5	13.7	12.8		
1918	14.0	14.1	14.0	14.2	14.5	14.7	15.1	15.4	15.7	16.0	16.3	16.5	15.1		
1919	16.5	16.2	16.4	16.7	16.9	16.9	17.4	17.7	17.8	18.1	18.5	18.9	17.3		
1920	19.3	19.5	19.7	20.3	20.6	20.9	20.8	20.3	20.0	19.9	19.8	19.4	20.0		
1921	19.0	18.4	18.3	18.1	17.7	17.6	17.7	17.7	17.5	17.5	17.4	17.3	17.9		
1922	16.9	16.9	16.7	16.7	16.7	16.7	16.8	16.6	16.6	16.7	16.8	16.9	16.8		
1923	16.8	16.8	16.8	16.9	16.9	17.0	17.2	17.1	17.2	17.3	17.3	17.3	17.1		
1924	17.3	17.2	17.1	17.0	17.0	17.0	17.1	17.0	17.1	17.2	17.2	17.3	17.1		
1925	17.3	17.2	17.3	17.2	17.3	17.5	17.7	17.7	17.7	17.7	18.0	17.9	17.5		
1926	17.9	17.9	17.8	17.9	17.8	17.7	17.5	17.4	17.5	17.6	17.7	17.7	17.7		
1927	17.5	17.4	17.3	17.3	17.4	17.6	17.3	17.2	17.3	17.4	17.3	17.3	17.4		
1928	17.3	17.1	17.1	17.1	17.2	17.1	17.1	17.1	17.3	17.2	17.2	17.1	17.1		
1929	17.1	17.1	17.0	16.9	17.0	17.1	17.3	17.3	17.3	17.3	17.3	17.2	17.1		
1930	17.1	17.0	16.9	17.0	16.9	16.8	16.6	16.5	16.6	16.5	16.4	16.1	16.7		
1931	15.9	15.7	15.6	15.5	15.3	15.1	15.1	15.1	15.0	14.9	14.7	14.6	15.2		
1932	14.3	14.1	14.0	13.9	13.7	13.6	13.6	13.5	13.4	13.3	13.2	13.1	13.7		
1933	12.9	12.7	12.6	12.6	12.6	12.7	13.1	13.2	13.2	13.2	13.2	13.2	13.0		
1934	13.2	13.3	13.3	13.3	13.3	13.4	13.4	13.4	13.6	13.5	13.5	13.4	13.4		
1935	13.6	13.7	13.7	13.8	13.8	13.7	13.7	13.7	13.7	13.7	13.8	13.8	13.7		
1936	13.8	13.8	13.7	13.7	13.7	13.8	13.9	14.0	14.0	14.0	14.0	14.0	13.9		
1937	14.1	14.1	14.2	14.3	14.4	14.4	14.5	14.5	14.6	14.6	14.5	14.4	14.4		
1938	14.2	14.1	14.1	14.2	14.1	14.1	14.1	14.1	14.1	14.0	14.0	14.0	14.1		
1939	14.0	13.9	13.9	13.8	13.8	13.8	13.8	13.8	14.1	14.0	14.0	14.0	13.9		
1940	13.9	14.0	14.0	14.0	14.0	14.1	14.0	14.0	14.0	14.0	14.0	14.1	14.0		
1941	14.1	14.1	14.2	14.3	14.4	14.7	14.7	14.9	15.1	15.3	15.4	15.5	14.7		
1942	15.7	15.8	16.0	16.1	16.3	16.3	16.4	16.5	16.5	16.7	16.8	16.9	16.3		
1943	16.9	16.9	17.2	17.4	17.5	17.5	17.4	17.3	17.4	17.4	17.4	17.4	17.3		
1944	17.4	17.4	17.4	17.5	17.5	17.6	17.7	17.7	17.7	17.7	17.7	17.8	17.6		
1945	17.8	17.8	17.8	17.8	17.9	18.1	18.1	18.1	18.1	18.1	18.1	18.2	18.0		
1946	18.2	18.1	18.3	18.4	18.5	18.7	19.8	20.2	20.4	20.8	21.3	21.5	19.5		
1947	21.5	21.5	21.9	21.9	21.9	22.0	22.2	22.5	23.0	23.0	23.1	23.4	22.3		
1948	23.7	23.5	23.4	23.8	23.9	24.1	24.4	24.5	24.5	24.4	24.2	24.1	24.1		
1949	24.0	23.8	23.8	23.9	23.8	23.9	23.7	23.8	23.9	23.7	23.8	23.6	23.8		

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2013	230.280	232.166	232.773	232.531	232.945	233.504	233.596	233.877	234.149	233.546	233.069	233.049	232.957	232.366	233.548
2014	233.916	234.781	236.293	237.072	237.900	238.343	238.250	237.852	238.031	237.433	236.151	234.812	236.736	236.384	237.088
2015	233.707	234.722	236.119	236.599	237.805	238.638	238.654	238.316	237.945	237.838	237.336	236.525	237.017	236.265	237.769
2016	236.916	237.111	238.132	239.261	240.229	241.018	240.628	240.849	241.428	241.729	241.353	241.432	240.007	238.778	241.237
2017	242.839	243.603	243.801	244.524	244.733	244.955	244.786	245.519	246.819	246.663	246.669	246.524	245.120	244.076	246.163
2018	247.867	248.991	249.554	250.546	251.588	251.989	252.006	252.146						250.089	

Databases, Tables & Calculators by Subject

Change Output Options: From: 1985 To: 2018 GO

☐ include graphs ☑ include annual averages More Formatting Options

Data extracted on: September 26, 2018 (12:27:36 PM)

PPI Industry Data

Series Id: PCU3342--3342--
Series Title: PPI industry group data for Communications equipment mfg, not seasonally adjusted
Industry: Communications equipment mfg
Product: Communications equipment mfg
Base Date: 198512

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985												100.0	
1986	100.7	100.7	101.1	101.1	101.3	101.3	102.5	102.2	102.8	102.9	102.9	102.9	101.9
1987	103.6	103.4	103.4	103.4	103.4	103.0	103.6	103.6	103.4	103.6	103.7	103.8	103.5
1988	104.3	104.3	103.3	103.5	103.7	103.2	103.8	103.8	103.9	104.1	104.3	104.3	103.9
1989	105.0	105.0	104.9	105.2	105.3	105.5	106.5	106.3	106.3	106.4	106.4	106.5	105.8
1990	107.6	107.2	107.1	107.2	107.2	107.3	107.6	107.5	107.6	107.7	107.8	107.9	107.5
1991	108.0	108.0	108.2	108.4	108.4	108.4	108.7	108.7	108.7	108.7	108.9	108.9	108.5
1992	109.4	109.5	109.7	109.7	109.7	109.8	109.6	109.8	109.8	109.9	109.9	110.1	109.7
1993	111.0	111.3	111.4	111.1	111.1	111.2	111.6	112.0	112.0	112.6	112.3	112.6	111.7
1994	113.3	113.5	113.8	113.7	113.7	113.4	113.4	113.2	113.2	113.0	112.9	112.8	113.3
1995	114.0	114.0	114.1	114.3	114.3	113.8	113.7	113.8	113.8	113.8	113.7	113.6	113.9
1996	114.6	114.7	114.7	114.8	114.7	114.7	114.9	115.1	115.1	115.3	115.6	115.6	115.0
1997	115.7	115.8	115.4	115.5	115.7	115.7	116.0	115.7	115.8	115.8	115.7	115.7	115.7
1998	115.9	115.8	115.5	115.1	114.7	114.7	114.9	114.8	114.8	114.8	114.7	114.1	115.0
1999	114.5	113.8	113.8	113.5	113.4	113.1	113.2	113.2	111.9	112.1	111.9	111.3	113.0
2000	111.4	110.9	110.7	110.4	110.1	110.1	110.2	110.2	110.3	110.2	110.2	110.2	110.4
2001	110.4	110.4	110.4	108.5	108.6	108.5	108.1	107.6	107.8	107.8	107.7	107.7	108.6
2002	107.5	106.6	106.5	105.7	105.6	105.3	104.3	104.5	104.5	103.6	103.5	102.8	105.0
2003	102.7	101.9	102.8	102.7	102.6	102.1	101.0	101.1	101.4	100.5	100.9	100.9	101.7
2004	100.7	98.6	98.6	98.5	98.6	98.2	97.9	98.3	97.9	97.3	97.9	97.8	98.4
2005	97.5	97.3	97.4	97.5	97.4	97.2	97.1	97.0	96.6	96.6	96.5	96.4	97.0
2006	95.7	96.1	95.9	96.0	96.0	96.1	95.8	96.0	96.1	95.8	95.8	95.3	95.9
2007	95.5	95.7	95.9	95.8	95.8	95.8	95.8	95.8	95.8	95.9	95.8	95.8	95.8
2008	96.2	96.9	96.8	96.9	97.2	97.1	97.3	97.3	97.3	97.2	97.4	97.4	97.1
2009	97.5	97.2	97.2	97.2	97.1	97.1	97.2	97.1	97.2	97.2	97.2	97.2	97.2
2010	97.2	97.1	97.1	96.9	96.8	96.7	97.0	96.9	96.8	96.8	96.9	96.9	96.9
2011	96.8	96.7	96.8	96.4	96.4	96.2	96.3	96.4	96.4	95.9	95.9	95.9	96.3
2012	96.0	96.0	96.0	96.0	96.1	96.1	96.0	95.9	95.0	94.8	94.8	94.8	95.6
2013	95.0	95.1	95.1	95.3	95.2	95.5	95.5	95.6	95.8	95.4	95.4	95.5	95.4
2014	95.5	95.7	95.7	95.7	95.6	95.7	95.7	95.4	95.6	95.7	95.5	95.7	95.6
2015	95.8	95.8	95.9	95.9	96.1	96.1	96.0	95.9	95.4	95.7	95.7	95.6	95.8
2016	95.5	95.7	95.6	95.7	95.6	95.4	95.3	95.4	95.2	94.5	94.7	93.9	95.2
2017	94.1	93.9	94.1	94.0	93.8	93.9	93.9	93.6	93.3	93.2	93.5	93.4	93.7
2018	93.3	93.4	93.2	93.1	93.1(P)	93.1(P)	93.2(P)	92.9(P)					

P : Preliminary. All indexes are subject to revision four months after original publication.

BLS
Technical Labor
ecu11122I

Year	Qtr1	Qtr2	Qtr3	Qtr4	Average	Index 1996=100	Splice Factor
1985				86.1	86	65	
1986	87.1	87.8	88.6	89.3	88	66	
1987	90.3	90.8	92.1	92.9	92	69	
1988	94.3	95.4	96.9	97.5	96	72	
1989	99	100	101.8	102.9	101	76	
1990	104.9	105.8	107.5	108.7	107	80	
1991	110.1	111.1	112.8	113.9	112	84	
1992	115.3	116.4	118	119	117	88	
1993	120.4	121.3	122.2	122.9	122	92	
1994	124.6	125.3	126.3	126.8	126	95	
1995	127.7	128.4	129.3	129.9	129	97	
1996	131.6	132.6	133.3	133.7	133	100	
1997	134.6	135.9	136.7	137.8	136	102	
1998	138.8	140.1	141.6	142.6	141	106	
1999	142.9	144.1	145.2	146.7	145	109	
2000	148.4	150.7	152.2	153.7	151	114	
2001	156.3	157.5	159.2	160.3	158	119	
2002	161.5	162.5	163.6	164.4	163	123	
2003	166.5	167.7	169.4	170.5	169	127	
2004	173.4	174.7	176.8	178.1	176	132	1.353152
2005	178.1				178	134	1.353152
2006							1.353152
2007							1.353152
2008							1.353152
2009							1.353152
2010							1.353152
2011							1.353152
2012							1.353152
2013							1.353152
2014							1.353152
2015							1.353152
2016							1.353152
2017							1.353152
2018							1.353152

Professional scientific technical
CIU2015400000000I

Qtr1	Qtr2	Qtr3	Qtr4	Average	Splice Factor
88.2	88.9	89.9	90.3	89.325	
90.3	91	91.2	91.2	90.925	
92.2	92.9	94.1	94.8	93.5	
96.1	97.1	98.2	98.8	97.55	
99.7	99.6	99.5	100	99.7	
101.5	102.7	103.6	104.4	103.05	
106	107.5	108.4	109.1	107.75	
111.1	111.9	112.8	113.9	112.425	
114.3	114.1	114.3	114.5	114.3	
115.2	115.7	116.4	117.2	116.125	
118.2	119.2	119.2	119.8	119.1	
120.7	121	121.3	121.9	121.225	
122.6	123.4	123.7	124	123.425	0.970427
124				124	0.970427
124				124	0.970427
124				124	0.970427
124				124	0.970427
124				124	0.970427

Professional & Related Occupations
CIU2010000120000I

Qtr1	Qtr2	Qtr3	Qtr4	Average	Splice Factor
118.9	119.5	120.2	120.5	119.775	0.970427
121	121.9	122.5	122.9	122.075	0.970427
				124.3	0.970427
				126.325	0.970427
127.8	128.7	129.1	129.6	128.8	0.970427
130.8	131.6	131.6	131.6	131.4	0.970427

Professional Labor

Year	Index	Qtr1	Qtr2	Qtr3	Qtr4
1985	65				
1986	66				
1987	69				
1988	72				
1989	76				
1990	80				
1991	84				
1992	88				
1993	92				
1994	95				
1995	97				
1996	100				
1997	102				
1998	106				
1999	109				
2000	114				
2001	119				
2002	123				
2003	127				
2004	132				
2005	135				
2006	139				
2007	146				
2008	152				
2009	155				
2010	157				
2011	161				
2012	164				
2013	167				
2014	170				
2015	173				
2016	176				
2017	179	177.6102	177.4724	177.8857	178.9906
2018	183	182.1644	182.4417	182.7193	182.9975

Databases, Tables & Calculators by Subject

Change Output Options: From: 2001 To: 2018 GO

☐ include graphs

More Formatting Options

Data extracted on: September 26, 2018 (1:00:53 PM)

Employment Cost Index (NAICS)

Series Id: CIU2010000120000I (B)
Not seasonally adjusted
Series Title: Total compensation for Private industry workers in Professional and related, Index
Ownership: Private industry workers
Component: Total compensation
Occupation: Professional and related occupations
Industry: All workers
Subcategory: All workers
Area: United States (National)
Periodicity: Index number

Download: xlsx

Year	Qtr1	Qtr2	Qtr3	Qtr4
2001	84.1	85.0	86.0	86.5
2002	87.3	87.9	88.5	89.1
2003	90.3	91.0	92.0	92.6
2004	94.1	94.8	95.8	96.5
2005	98.0	98.8	99.5	100.0
2006	101.0	101.8	103.1	103.9
2007	104.9	105.9	106.7	107.3
2008	108.3	109.0	109.9	110.3
2009	111.0	111.1	111.4	111.4
2010	112.2	112.6	113.3	113.5
2011	114.6	115.1	115.4	115.7
2012	116.8	117.3	117.7	118.2
2013	118.9	119.5	120.2	120.5
2014	121.0	121.9	122.5	122.9
2015	123.7	124.1	124.5	124.9
2016	125.7	126.2	126.7	126.7
2017	127.8	128.7	129.1	129.6
2018	130.8	131.6		

B : Includes wages, salaries, and employer costs for employee benefits.

Databases, Tables & Calculators by Subject

Change Output Options: From: 1947 To: 2018 GO
☐ include graphs ☑ include annual averages More Formatting Options

Data extracted on: September 26, 2018 (12:29:26 PM)

PPI Industry Data

Series Id: PCU335312335312
Series Title: PPI industry data for Motor and generator mfg, not seasonally adjusted
Industry: Motor and generator mfg
Product: Motor and generator mfg
Base Date: 198306

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1947	21.2	21.2	21.3	21.4	23.3	23.6	23.5	23.5	23.5	23.5	23.5	23.5	22.7
1948	23.1	23.0	22.9	22.9	22.6	22.6	23.1	23.2	23.3	23.5	23.5	23.5	23.1
1949	23.6	23.6	23.5	23.5	23.3	23.0	22.9	22.8	22.8	22.8	22.8	22.8	23.1
1950	22.8	22.7	23.1	23.2	23.2	23.3	23.5	25.1	25.2	25.6	25.8	27.4	24.3
1951	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
1952	28.1	28.1	28.1	28.0	28.0	27.8	27.8	27.7	27.7	27.4	27.4	27.5	27.8
1953	27.5	27.6	27.7	27.7	28.2	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.3
1954	28.6	28.6	28.6	28.5	28.5	28.5	28.4	28.3	28.3	28.0	28.0	28.0	28.4
1955	28.0	27.8	27.7	27.7	27.8	27.8	28.0	28.0	28.8	28.8	29.2	29.1	28.2
1956	29.1	29.2	29.2	30.0	30.4	30.4	30.6	30.7	31.3	31.5	32.2	32.3	30.6
1957	32.3	32.3	32.4	32.5	32.5	32.4	32.8	32.8	33.0	32.9	32.9	33.0	32.6
1958	33.0	33.1	33.1	33.4	33.5	33.7	33.7	33.7	33.9	33.8	33.5	33.5	33.5
1959	33.5	33.5	33.5	33.5	33.6	33.4	33.4	33.2	33.2	33.1	33.1	33.1	33.3
1960	33.3	33.6	33.6	33.6	32.6	32.7	32.5	32.5	32.4	32.4	32.4	32.4	32.8
1961	32.4	32.6	32.6	31.3	30.8	30.8	30.6	30.2	30.0	30.0	30.0	30.0	30.9
1962	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.8
1963	29.6	29.5	29.5	29.5	29.5	29.9	30.0	30.0	30.0	30.0	30.0	30.0	29.8
1964	29.8	29.8	29.8	29.9	29.5	28.9	28.9	29.0	28.7	28.8	28.7	28.7	29.2
1965	28.7	28.8	28.8	28.8	28.8	28.7	28.6	28.6	28.6	28.6	28.8	28.8	28.7
1966	28.8	29.1	29.1	29.2	29.2	29.2	29.4	29.4	29.4	29.4	30.2	30.3	29.4
1967	30.7	30.8	30.7	30.7	30.7	30.9	30.9	30.9	30.9	30.9	31.2	31.4	30.9
1968	31.4	31.5	31.5	31.3	31.3	31.4	31.4	31.6	31.8	31.9	32.0	32.3	31.6
1969	32.3	32.4	32.6	32.7	33.0	33.0	33.1	33.4	33.8	34.0	34.5	34.6	33.3
1970	34.7	35.1	35.5	35.7	35.9	36.2	36.4	36.6	36.6	36.7	36.7	36.7	36.1
1971	36.7	37.0	36.9	37.0	37.0	37.0	37.0	37.3	37.3	37.2	37.3	37.3	37.1
1972	37.4	37.4	37.4	37.6	37.9	38.1	38.2	38.2	38.5	38.3	38.5	38.5	38.0
1973	38.6	38.6	38.7	38.8	39.6	39.8	39.8	39.8	39.9	40.0	40.2	40.4	39.5
1974	40.8	41.4	41.5	41.7	42.6	43.5	45.4	45.9	47.3	48.1	50.5	50.6	44.9
1975	51.8	52.1	52.3	52.7	53.3	53.9	54.9	54.9	54.9	55.7	56.0	56.1	54.0
1976	57.9	58.2	58.2	58.5	58.4	58.8	59.3	59.4	60.1	60.5	60.5	60.6	59.2
1977	60.8	61.3	61.4	61.4	61.5	61.6	62.0	62.5	62.9	64.8	64.8	64.9	62.5
1978	65.5	65.6	65.8	66.9	67.3	67.5	67.6	67.7	67.9	68.0	69.1	69.9	67.4
1979	70.2	70.6	70.7	70.8	71.3	71.9	72.8	73.1	73.9	74.8	74.9	75.0	72.5
1980	77.3	78.8	79.8	80.9	80.9	81.8	83.5	84.0	84.5	85.0	85.1	85.6	82.3
1981	88.2	89.0	89.1	89.5	89.7	90.4	91.6	93.3	94.1	94.4	94.4	94.4	91.5
1982	95.0	95.2	95.3	95.5	94.5	94.6	95.0	95.6	96.2	96.5	97.1	98.1	95.7
1983	99.1	99.8	99.8	100.4	100.5	100.0	103.0	103.0	103.1	103.1	103.2	103.2	101.5

P : Preliminary. All indexes are subject to revision four months after original publication.

Databases, Tables & Calculators by Subject

Change Output Options: From: 1985 To: 2018 GO
☐ include graphs ☑ include annual averages More Formatting Options

Data extracted on: September 26, 2018 (1:42:30 PM)

PPI Industry Data

Series Id: PCU3342903342901
Series Title: PPI industry data for Other communications equipment mfg-Alarm systems, including electric sirens and horns, not seasonally adjusted
Industry: Other communications equipment mfg
Product: Alarm systems, including electric sirens and horns
Base Date: 198512

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1985												100.0	
1986	100.0	100.0	100.0	100.0	100.0	100.0	100.1	100.1	100.1	100.1	100.1	100.1	100.0
1987	100.1	100.1	100.1	99.6	99.6	99.7	100.7	100.5	100.5	100.5	100.0	100.0	100.1
1988	99.8	100.8	101.7	102.1	102.1	102.1	102.1	102.1	102.1	101.4	101.4	101.4	101.6
1989	101.5	101.8	101.8	105.2	105.2	105.2	105.2	105.2	105.2	105.4	104.8	104.8	104.3
1990	104.8	105.4	105.4	105.4	105.2	105.2	105.2	100.6	100.9	100.9	100.9	100.9	103.4
1991	100.9	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	101.6	101.9
1992	102.9	102.1	102.1	102.2	102.4	102.3	102.3	102.3	101.8	101.5	102.0	102.1	102.2
1993	103.1	103.0	103.0	103.6	103.1	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2
1994	103.2	104.0	105.0	103.9	103.9	104.7	104.7	104.5	104.5	104.7	103.7	103.7	104.2
1995	104.6	106.4	106.4	106.6	107.1	106.9	106.9	106.6	106.6	106.6	106.7	107.0	106.5
1996	107.3	107.7	107.7	107.8	107.8	107.9	108.0	108.8	109.4	109.3	109.1	109.2	108.3
1997	109.4	109.4	109.4	109.4	109.2	109.5	109.5	109.4	109.4	109.4	109.4	109.3	109.4
1998	111.3	111.4	111.5	111.0	111.3	111.3	111.6	111.6	111.6	111.6	110.7	110.7	111.3
1999	110.7	110.7	110.7	110.7	108.6	108.6	108.6	108.6	109.0	108.9	109.1	109.1	109.4
2000	109.1	109.1	108.6	108.6	108.5	108.0	108.2	108.2	108.2	108.3	108.3	108.3	108.4
2001	108.1	108.1	108.1	108.2	108.2	108.2	108.2	108.2	110.5	110.5	110.5	111.0	109.0
2002	110.3	110.3	110.5	110.6	110.6	110.3	110.3	110.3	110.3	110.3	110.6	110.6	110.4
2003	110.6	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8	110.8
2004	110.8	110.2	110.0	110.0	110.1	110.1	110.1	110.1	110.1	110.1	108.2	108.2	109.8
2005	108.2	108.2	108.2	111.4	111.4	111.4	111.4	111.4	111.4	111.4	111.6	111.6	110.6
2006	111.8	111.8	111.8	114.0	113.5	113.5	113.5	113.5	113.5	113.5	113.5	113.5	113.1
2007	113.0	113.0	113.0	113.0	113.3	113.3	113.3	113.3	115.2	115.0	115.0	115.0	113.8
2008	115.8	115.8	115.8	115.8			115.9	116.2	116.3	116.3	116.3	116.3	
2009	116.3	116.3	116.4	116.4	116.4	116.4	116.4	116.4	117.8	117.7	117.7	117.7	116.8
2010	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.9	117.9	117.9	117.9	117.8
2011	117.9	118.0	118.0	118.0	118.0	118.0	118.0	118.4	119.3	119.1	119.1	119.0	118.4
2012	119.4	119.7	119.7	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9
2013	119.9	119.9	120.6	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	121.5
2014	122.0	122.0	122.0	122.0	122.0	122.0	122.4	122.4	122.4	122.4	122.4	122.4	122.2
2015	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4
2016	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4
2017	122.4	122.4	122.4	122.6	122.6	122.6	122.6	122.6	122.6	122.6	122.6	122.6	122.6
2018	120.7				120.7(P)								

P : Preliminary. All indexes are subject to revision four months after original publication.

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Depreciation & Obsolescence

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DEPRECIATION AND FUNCTIONAL OBSOLESCENCE

An important step in the appraisal of property using the cost approach is the determination of the depreciation or condition of the property. Depreciation in this appraisal was segregated into normal (mostly physical) depreciation, functional obsolescence, and economic obsolescence (addressed based on the income and market approaches). The normal depreciation was determined based on the age of the property and its normal service life; while, functional obsolescence was based on the impact on the property's remaining life caused by factors such as changing technology, service requirements, and competition.

Depreciation - The depreciation was determined based on the property's age and it normal service life using the following formula:

$$\text{Condition} = \frac{\text{Remaining Life}}{\text{Age + Remaining Life}}$$

or

$$\text{Depreciation} = \frac{\text{Age}}{\text{Age + Remaining Life}}$$

Where: Remaining Life = f(Age, Survival Characteristic, Normal Service life)

Functional Obsolescence - The obsolescence inherent in the property was determined using the above described normal service life in comparison to the property's service life is adjusted for functional factors. The obsolescence was quantified base on the difference between the property's normal service life and its functional service life. The following formula was used to calculate the obsolescence:

$$\text{Obsolescence} = \frac{\text{Normal Service Life - Functional Service Life}}{\text{Normal Service Life}}$$

Service Lives - (normal versus functional) - The service life of property is that period of time in which it provides the service to which it was designed and placed into service. In most industrial properties there is a difference between a property's normal or physical life and its functional life. A piece of equipment may physically last for an extended period; however, as that property ages changing technology, improvements or enhancement in similar equipment, functional and or service requirements change resulting in decreased utility of the existing equipment, and therefore decrease in value to it owner, this additional deterioration over that defined by the equipment's normal life is functional obsolescence.

Water Industry Service Lives

The service lives used in the depreciation and functional obsolescence calculations were developed based on the property and its use, AUS Consultants' experience in developing depreciation studies for the water and wastewater industries. The following

table details the lives used in the depreciation portion of the replacement cost new less depreciation analysis:

Pennsylvania-American Water Company
Steelton Borough (Water) Authority
Water System
Investor-Owned Utility
July 1, 2018

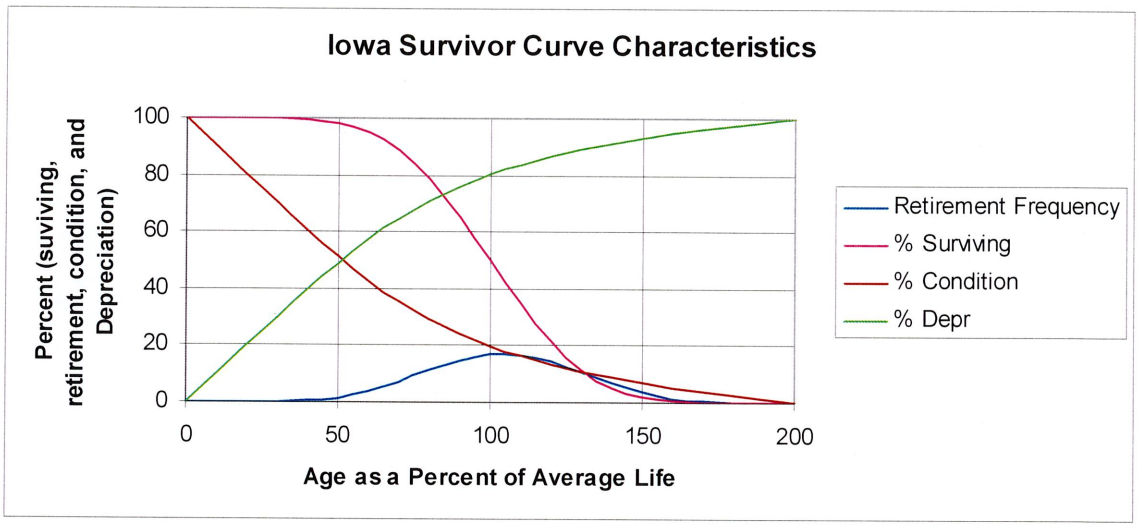
Summary of Account Costing and Depreciation Parameters Used in the Depreciation Original Cost and the Depreciated Replacement Cost New Studies

(1)	(2)	(3)					(4)		(5)	(6)	
		(3a)	(3b)	(3c)	(3d)	(3e)	(4a)	(4b)		(6a)	(6b)
Account Number	Description	Costing Parameters				Reproduction to Replacement Cost Factor	Iowa Survivor / Retirement Curve	Normal Service Life	Economic Obsolescence	Tax Depreciation	
		Index Series	Table	Line Reference	Lookup	AUS Input		years	years	Table	Life
303.00	**Land & Land Rights**	USBLS	PPI	1	USBLS1	1.000	**Non-Depr**	**0**	0%	**Non-Depr**	**0**
303.10	Land & Land Rights	USBLS	PPI	1	USBLS1	1.000	**Non-Depr**	**0**	0%	**Non-Depr**	**0**
303.20	Land & Land Rights - Distribution	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.30	Land & Land Rights - Pumping	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.40	Land & Land Rights - Treatment	USBLS	PPI	1	USBLS1	1.000	Non-Depr	0	0%	Non-Depr	0
303.50	Land & Land Rights - Right-of-Way	USBLS	PPI	3	USBLS3	1.000	Non-Depr	0	0%	Non-Depr	0
304.00	**Stuctures & Improvements**	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.10	Stuctures & Improvements - Pumping	HW	W-1	8	HWW-18	1.000	R4.0	45	0%	MACRS	25
304.20	Stuctures & Improvements - Treatment	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
304.30	Stuctures & Improvements - Storage	HW	W-1	15	HWW-115	1.000	R4.0	55	0%	MACRS	25
306.00	**Water Intake Structure**	HW	W-1	2	HWW-12	1.000	**R3.0**	**35**	0%	MACRS	25
306.10	Water Intake Structure	HW	W-1	2	HWW-12	1.000	R3.0	35	0%	MACRS	25
309.00	**Piping**	HW	W-1	17	HWW-117	1.000	**R3.0**	**35**	0%	MACRS	25
309.10	Piping	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25
310.00	**Power Generation**	USBLS	PPI	4	USBLS4	1.000	**R3.0**	**35**	0%	MACRS	25
310.10	Power Generation	USBLS	PPI	4	USBLS4	1.000	R3.0	35	0%	MACRS	25
311.00	**Pumping**	HW	W-1	9	HWW-19	1.000	**R3.0**	**35**	0%	MACRS	25
311.10	Pumping	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25
320.00	**Treatment Chemical Treatment**	HW	W-1	17	HWW-117	1.000	**R3.0**	**35**	0%	MACRS	25
320.10	Treatment Chemical Treatment	HW	W-1	17	HWW-117	1.000	R3.0	35	0%	MACRS	25
330.00	**Distribution Reservoirs**	HW	W-1	23	HWW-123	1.000	R3.0	60	0%	MACRS	25
330.10	Distribution Reservoirs	HW	W-1	23	HWW-123	1.000	R3.0	60	0%	MACRS	25
331.00	**Mains Distribution**	HW	W-1	44	HWW-144	1.000	R3.0	60	0%	MACRS	25
331.10	Distribution - Mains	HW	W-1	44	HWW-144	1.000	R3.0	60	0%	MACRS	25
331.200	Distribution - Mains - PVC	HW	W-1	38	HWW-138	1.000	R3.0	60	0%	MACRS	25
331.300	Distribution - Mains - Ductle Iron	HW	W-1	35	HWW-135	1.000	R3.0	60	0%	MACRS	25
331.40	Distribution - Mains - Cast Iron	HW	W-1	45	HWW-145	1.000	R3.0	65	0%	MACRS	25
334.00	**Meters & Installations**	HW	W-1	40	HWW-140	1.000	**R3.0**	**35**	0%	MACRS	25
334.10	Meters & Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
336.00	**Backflow Preventer**	HW	W-1	40	HWW-140	1.000	**R3.0**	**35**	0%	MACRS	25
336.10	Backflow Preventer	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
339.00	**Other Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
339.10	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
344.00	**Laboratory Equipment**	HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
344.10	Laboratory Equipment	HW	W-1	17	HWW-139	1.000	R3.0	55	0%	MACRS	25
347.00	**Miscellaneous Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
347.10	Miscellaneous Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
348.00	**Other Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
348.10	Other Equipment	HW	W-1	17	HWW-117	1.000	R3.0	55	0%	MACRS	25
335.00	**Hydrants**	HW	W-1	42	HWW-142	1.000	R3.0	55	0%	MACRS	25
335.10	Hydrants	HW	W-1	42	HWW-142	1.000	R3.0	55	0%	MACRS	25
354.00	**Restoration**	HW	W-1	35	HWW-135	1.000	**R3.0**	**55**	0%	MACRS	25
354.10	Restoration	HW	W-1	35	HWW-135	1.000	R3.0	55	0%	MACRS	25
364.00	**Metering and Meter Installatons**	HW	W-1	40	HWW-140	1.000	**R3.0**	**35**	0%	MACRS	25
364.10	Metering	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
364.20	Meter Installations	HW	W-1	40	HWW-140	1.000	R3.0	35	0%	MACRS	25
371.00	**Pumping Equipment**	HW	W-1	9	HWW-19	1.000	**R3.0**	**35**	0%	MACRS	25
371.10	Pumping Equipment	HW	W-1	9	HWW-19	1.000	R3.0	35	0%	MACRS	25
380.00	**Treatment and Disposal Equipment**	HW	W-1	17	HWW-117	1.000	R3.0	45	0%	MACRS	25
380.10	Treatment and Disposal Equipment	HW	W-1	17	HWW-117	1.000	R3.0	45	0%	MACRS	25
390.00	**General Plant**						**R3.0**	**12**		MACRS	15
390.10	Office Furniture and Equipment	AUS	T-1	15	AUST-115	1.000	R3.0	12	0%	MACRS	12
391.10	Transportation Equipment	AUS	T-1	4	AUST-14	1.000	R3.0	10	0%	MACRS	10
392.10	Stores Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0	MACRS	25
393.10	Tools, Shop, & Garage Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	35	0%	MACRS	25
394.10	Laboratory Equipment	AUS	T-1	7	AUST-17	1.000	R3.0	20	0%	MACRS	20
395.10	Power Operated Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	15	0%	MACRS	15
396.10	Communications Equipment	USBLS	PPI	2	USBLS2	1.000	R3.0	12	0%	MACRS	12
397.10	Miscellaneous Equipment	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
398.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20
399.10	Not Used	AUS	T-1	8	AUST-18	1.000	R3.0	20	0%	MACRS	20

Iowa Survivor Curves

The Iowa Survivor Curves recommended in this appraisal are used to determine the remaining life of the property, and therefore its condition, recognizing the properties' service life and age. The Iowa Survivor Curves allows the appraiser to recognize the property being studied (mains, treatment and pumping plant equipment etc placed in a particular year, say1985) is part of a larger group of property, i.e., all the property i.e., mains, treatment and pumping plant equipment, etc. As such, the service lives which we refer to in our appraisal are an average service lives for the group, i.e., the average life of all mains, treatment and pumping plant equipment, etc. The Iowa Survivor curve allows the appraiser to calculate the remaining life, and therefore condition, of a subset

of the group (the mains placed in 1985) based on the groups': (1) Iowa Survivor Curve, (2) Service Life and the (3) age of property at the appraisal date. An Iowa Survivor Curves depicts how property from a group survives and retires about that groups' average life.

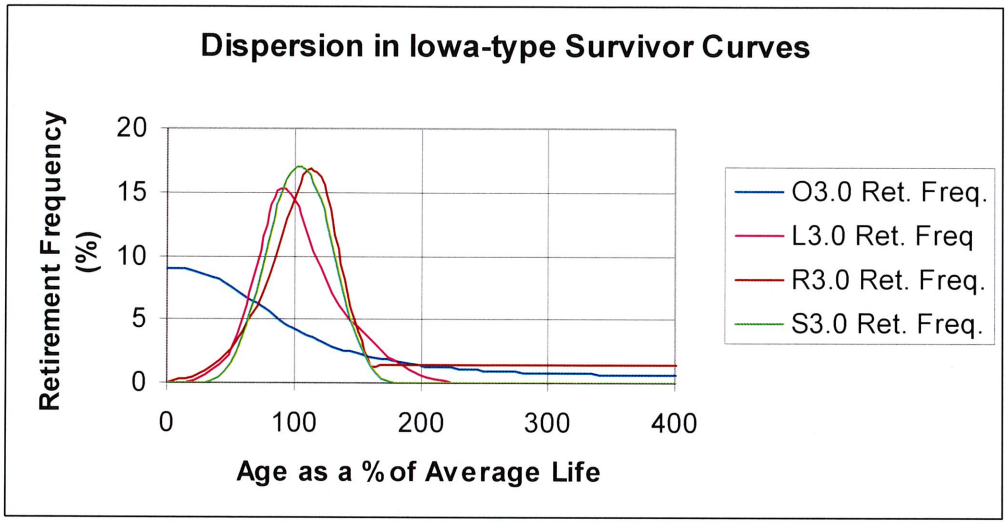


The above figure depicts a typical Iowa-type survivor curve, an S3.0 Iowa-type survivor curve. In this case the survivor curve has been generalized to a service life of 100% of the property's average life, in this generalized form the survivor curve statistics can be utilized with any individual service life in the age-life service life and depreciation calculations. There are four characteristics displayed in the above chart depicting the manner in which property survives and retires about the group's average life, those characteristics are: the retirement frequency (blue), the percent surviving (red), the percent condition (brown) and the percent depreciated (green). The retirement frequency represents the retirement of individual property items about the group's average service life. As can be seen the retirements are distributes about the group's average life with some items retiring before the average life and some items retiring at or after the group's service life. The group's survivor curve is developed from subtracting the retirements as they occur as the property ages. The depreciation curve depicts how much of the property group's life has been consumed; while, the condition curve depict how much of the property group's life remains. The condition and depreciation curves are complementary in that condition equals 100% minus depreciation and vice versa.

The theory of Iowa Survivor Curves was presented in the 1920s and 30s by Robley Winfrey based on research at Iowa State University (then the Iowa Engineering Experiment Station). Winfrey's research was first published in Bulletin 103 - Life Characteristics of Physical Property and Bulletin 125 - Statistical Analysis of Industrial Property Retirements. (Incidentally, both publications are out of print, I have a copy of Bulletin 125 but not Bulletin 103, I'm still trying to get a copy of that piece of depreciation literature.). Bulletin 125 was updated in 1967 by Professor Harold Cowles of Iowa State University's Department of Industrial Engineering. In conducting his research, Winfrey collected data on industrial property survival and retirement from various sources and

analyzed that data as a function of property's age at retirement and ultimately the property groups' service life when all the property in the group was fully retired.

Winfrey discovered the industrial property's survival and retirement fits three basic patterns with relationship to the property's average life:



Symmetrically moded (S-type Iowa Survivor Curves) (green) – The S-type Iowa Survivor Curve is one wherein the property's retirements are symmetrically distributed about the mode. Mode in statistics is defined as the highest frequency, in this case retirement frequency. Thus, an S-type Iowa curve is like a normal curve; however, its shape is not identical to a normal distribution function.

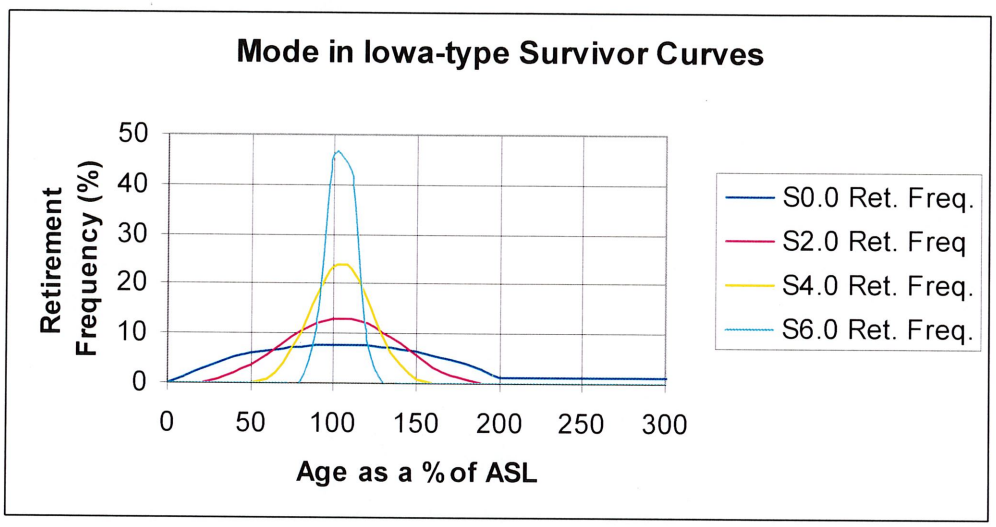
Right moded (R-type Iowa Curves) (brown) – the R-type Iowa curve has its mode skewed to the right of the property's average life; therefore, the retirements tend to be distributed later in the property's life and there are less retirements earlier in the property's life.

Left moded (L-type Iowa Curve) (red) – The L-type Iowa curve has its mode skewed to the left of the property's average life; therefore, the retirements tend to be distributed earlier in the property's life and there are less retirements later in the property's life.

In the utility industry, the plant, i.e., mains, treatment and pumping plant equipment tends to have a R-type survival/retirement dispersion as it is designed to provide service over extended periods, requiring little maintenance, and it designers have significant experience in designing and placing such property.

In conjunction with the above described R-, S-, and L-type survival/retirement patterns, Winfrey determine that there were several patterns of the manner in which the retirements' peakedness occur around the average life. In this case, Winfrey described the peakedness of the property retirements with peakedness enumerations of 0, 1, 2, 3, 4, 5, and 6. The low peakedness numbers 0 and 1 represent low levels of retirements being distributed over the property entire life, while high peakedness numbers, 5 and 6 represent retirement patterns where the majority or all the retirement occur tightly

grouped around the property's average life. Peakedness numbers 2, 3, and 4 are middle of the road, so to speak, in terms of peakedness.



Origin moded (O-type) survivor curve (blue) – Harold Cowles in his 1967 update of Bulletin 125 introduced the O-type survivor curve with the mode of the curve at the origin or at age equal to zero (0) years. This class of Iowa curves was over looked by Winfrey possibly because it made little intuitive sense that industrial retirement of property would have their maximum retirement frequency at age equal to zero. However, Cowles felt for completeness they should be included. O-type survivor curves do reflect the survival pattern of intangible assets.

Iowa-type survivor curves are parametric, as opposed to formalistic, in that they were derived from empirical survival/retirement data which Winfrey collected. There are Iowa curve equations are presented in Bulletin 125; however, in most cases users reference standardized Iowa Survivor Curve tables. The Iowa-type survivor curves used in this appraisal have been generalized to a service life of 100% of the property's average life. By generalizing the service life to 100% of average life these tables can be used to generate survival and retirement statistics for property of any service life.

It should be apparent that Iowa-types survivor curves are valid for any type property as the curves only depict how that property survives and retires about the average life of a group of similar property.

Generalized Iowa-type Survivor Curves

As was discussed earlier, most users of the Iowa-type survivor curves use standardized tables of Iowa curves. The most usable form of these standardized tables are tables which have been generalized to a standard life of 100% of the property's average life. Based on these generalized tables the user can determine the property's remaining life by knowing the Iowa-type survivor curve (mode and peakedness characteristics), the property's (group's) service life, and the specific property's (for which the remaining life

is desired) age. The following table reflects how the remaining life, as well as its condition, is determined:

Year	Study Date	Age	Iowa Curve	Service Life	Age % of ASL	Iowa Lookup	Iowa Condition	Remaining Life	Total Life	Condition
				ASL						
		years		years	%			years	years	%
Input		Calc	Input	Input	Calc	Calc	lookup	Calc	Calc	Calc
1970	2006	35.5	R3.0	25	142	R3.0142	0.066388	1.7	37.2	4.47%
1980	2006	25.5	R3.0	25	102	R3.0102	0.192543	4.8	30.3	15.88%
1990	2006	15.5	R3.0	25	62	R3.0062	0.442050	11.1	26.6	41.62%
2000	2006	5.5	R3.0	25	22	R3.0022	0.787294	19.7	25.2	78.16%
2004	2006	1.5	R3.0	25	6	R3.0006	0.941117	23.5	25.0	94.01%
2005	2006	0.5	R3.0	25	2	R3.0002	0.980320	24.5	25.0	98.00%

The above table was developed with reference to the standardized Iowa Survivor curves contained and represent a R3.0 25-year Iowa curve and life table. The standardized Iowa Curves are located in tab database. In order to reference the proper line of the Iowa Curve data the user looks up that data by reference to the property's age as percent of the service life (age % of ASL column) and the Iowa Survivor curve (Iowa Curve column), combining these two criteria the Iowa Lookup column will get the user to the proper Iowa Curve data.

In the above calculation the Iowa-type survivor curve is R3, the service life of the group is 25 years, and its age is defined by property's accounting records which specifies the investment in property by account (A group in service life terms) and by the year of installation of that property. The age is dependent upon the appraisal year (study date) and the year of placement. It is customary to assume that the property placed in any particular placement year was placed continuously during that year and therefore its age is best represented as if that investment was placed in the middle of the year, i.e., July 1; hence, the adoption of the "mid-year" convention where all property is treated as if placed the mid-year.

Service Life and Survival / Retirement Pattern

The service life and survival/retirement pattern are determined by an analysis of historical survival and retirement experience of the company's property. This historical experience must be adjusted for factor which are known to be impacting the property's service life but may not exhibited their effect on the property's retirement. Here it is important that a distinction is made between industrial property's physical service life and its functional service life. While physically a type of property may be deployed and remain in use for many years, over those years, factors of changing technology, consumers demand and patterns, and even regulation, lessen the property functional life when compared to its physical life. In an industry such as the communications industry, function obsolescence is the primary driver of depreciation.

The following table details the impact of the above described lives on the condition calculations:

Year	Study Date	Age	Iowa Curve	Service Life	Age % of ASL	Iowa Lookup	Iowa Condition	Remaining Life	Total Life	Condition
				ASL						
		years		years	%			years	years	%
Input		Calc	Input	Input	Calc	Calc	lookup	Calc	Calc	Calc
1970	2006	35.5	R3.0	30	118	R3.0118	0.131771	4.0	39.5	10.02%
1979	2006	26.5	R3.0	30	88	R3.0088	0.264919	7.9	34.4	23.07%
1981	2006	24.5	R3.0	25	98	R3.0098	0.211333	5.3	29.8	17.74%
1989	2006	16.5	R3.0	25	66	R3.0066	0.411848	10.3	26.8	38.42%
1990	2006	15.5	R3.0	20	78	R3.0078	0.327281	6.5	22.0	29.69%
2000	2006	5.5	R3.0	20	28	R3.0028	0.731331	14.6	20.1	72.67%
2004	2006	1.5	R3.0	20	8	R3.0008	0.921605	18.4	19.9	92.47%
2005	2006	0.5	R3.0	20	3	R3.0003	0.970499	19.4	19.9	97.49%

Pennsylvania-American Water Company's Utility Valuation Experts' (UVE) Valuation of Steelton Borough (Water) Authority Dauphin County, Pennsylvania

Appraisal Work Papers
As of July 2018

Cost Approach

Depreciation Parameters
R3.0 & R4.0 Iowa-type Survivor Curves

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371
J. Weinert's E-Mail: weinertj@auswest.net

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0000	R3.0	0	0.015479	100	100	0
R3.0001	R3.0	1	0.01684	99.98452	99.015404	0.984596193
R3.0002	R3.0	2	0.018295	99.967682	98.031998	1.968000412
R3.0003	R3.0	3	0.019851	99.949387	97.04985	2.950147629
R3.0004	R3.0	4	0.021511	99.929535	96.069031	3.930968285
R3.0005	R3.0	5	0.023281	99.90802	95.089607	4.910391808
R3.0006	R3.0	6	0.025166	99.884743	94.111656	5.888344765
R3.0007	R3.0	7	0.02717	99.859581	93.135246	6.864753723
R3.0008	R3.0	8	0.0293	99.832405	92.160454	7.839542389
R3.0009	R3.0	9	0.03156	99.803108	91.18737	8.812632561
R3.0010	R3.0	10	0.033958	99.771545	90.216057	9.783946037
R3.0011	R3.0	11	0.036495	99.737587	89.246597	10.7534008
R3.0012	R3.0	12	0.03918	99.701096	88.279083	11.72091484
R3.0013	R3.0	13	0.042019	99.661911	87.313591	12.68640614
R3.0014	R3.0	14	0.045014	99.619896	86.350212	13.64978981
R3.0015	R3.0	15	0.048176	99.574883	85.389023	14.61097908
R3.0016	R3.0	16	0.051506	99.526703	84.430107	15.56988907
R3.0017	R3.0	17	0.055012	99.475197	83.473572	16.52643204
R3.0018	R3.0	18	0.0587	99.420189	82.519478	17.48052025
R3.0019	R3.0	19	0.062574	99.361488	81.567932	18.43206596
R3.0020	R3.0	20	0.066643	99.298912	80.619019	19.38097954
R3.0021	R3.0	21	0.07091	99.232269	79.672829	20.32717323
R3.0022	R3.0	22	0.075379	99.161362	78.729446	21.2705574
R3.0023	R3.0	23	0.080064	99.085983	77.788956	22.21104431
R3.0024	R3.0	24	0.08496	99.00592	76.851456	23.14854431
R3.0025	R3.0	25	0.090077	98.920959	75.91703	24.08296585
R3.0026	R3.0	26	0.095426	98.830879	74.985771	25.01422882
R3.0027	R3.0	27	0.101003	98.735451	74.057762	25.94223976
R3.0028	R3.0	28	0.106819	98.634453	73.133087	26.86691475
R3.0029	R3.0	29	0.112879	98.527634	72.21183	27.78816986
R3.0030	R3.0	30	0.119187	98.414757	71.294083	28.70591927
R3.0031	R3.0	31	0.125748	98.295563	70.379921	29.62007904
R3.0032	R3.0	32	0.132568	98.169815	69.469429	30.53056717
R3.0033	R3.0	33	0.139652	98.037247	68.562691	31.43730545
R3.0034	R3.0	34	0.147004	97.897598	67.659782	32.34021378
R3.0035	R3.0	35	0.154631	97.750595	66.760788	33.23921204
R3.0036	R3.0	36	0.162534	97.595963	65.865768	34.13423157

Iowa Curves

	1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0037	R3.0	37	0.170721	97.433426	64.974808	35.02519226
R3.0038	R3.0	38	0.179194	97.262711	64.087982	35.91202164
R3.0039	R3.0	39	0.187962	97.083511	63.205349	36.79465103
R3.0040	R3.0	40	0.197024	96.895554	62.326984	37.67301559
R3.0041	R3.0	41	0.206389	96.698524	61.452961	38.54703903
R3.0042	R3.0	42	0.216061	96.492134	60.583336	39.41666412
R3.0043	R3.0	43	0.226044	96.276077	59.71817	40.28182983
R3.0044	R3.0	44	0.23634	96.050034	58.857533	41.1424675
R3.0045	R3.0	45	0.246962	95.81369	58.001484	41.99851608
R3.0046	R3.0	46	0.257909	95.566734	57.150078	42.84992218
R3.0047	R3.0	47	0.269187	95.308823	56.303375	43.69662476
R3.0048	R3.0	48	0.280803	95.039635	55.46143	44.5385704
R3.0049	R3.0	49	0.292764	94.758835	54.624298	45.3757019
R3.0050	R3.0	50	0.305077	94.466072	53.792038	46.20796204
R3.0051	R3.0	51	0.317745	94.160995	52.964703	47.03529739
R3.0052	R3.0	52	0.330783	93.843246	52.142345	47.85765457
R3.0053	R3.0	53	0.34419	93.512466	51.325016	48.67498398
R3.0054	R3.0	54	0.35798	93.168274	50.512779	49.48722076
R3.0055	R3.0	55	0.372163	92.810295	49.705685	50.29431534
R3.0056	R3.0	56	0.386746	92.438133	48.90379	51.09621048
R3.0057	R3.0	57	0.40174	92.051384	48.107155	51.89284515
R3.0058	R3.0	58	0.417155	91.649643	47.315838	52.68416214
R3.0059	R3.0	59	0.433006	91.232491	46.5299	53.4701004
R3.0060	R3.0	60	0.449305	90.799484	45.749409	54.25059128
R3.0061	R3.0	61	0.46606	90.350182	44.97443	55.02556992
R3.0062	R3.0	62	0.483288	89.884117	44.205036	55.79496384
R3.0063	R3.0	63	0.501001	89.400833	43.441299	56.55870056
R3.0064	R3.0	64	0.519216	88.899834	42.683296	57.3167038
R3.0065	R3.0	65	0.537946	88.380615	41.931114	58.0688858
R3.0066	R3.0	66	0.557201	87.842667	41.184837	58.81516266
R3.0067	R3.0	67	0.577002	87.285469	40.444557	59.55544281
R3.0068	R3.0	68	0.597356	86.708466	39.710369	60.28963089
R3.0069	R3.0	69	0.61828	86.111107	38.982372	61.01762772
R3.0070	R3.0	70	0.639786	85.492828	38.260674	61.73932648
R3.0071	R3.0	71	0.66188	84.853043	37.545387	62.45461273
R3.0072	R3.0	72	0.684575	84.191162	36.836624	63.16337585
R3.0073	R3.0	73	0.707868	83.506592	36.134506	63.86549377

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0074	R3.0	74	0.731787	82.798721	35.439156	64.56084442
R3.0075	R3.0	75	0.756307	82.066933	34.750706	65.24929047
R3.0076	R3.0	76	0.781439	81.310631	34.069286	65.93070984
R3.0077	R3.0	77	0.807169	80.52919	33.395039	66.60496521
R3.0078	R3.0	78	0.833493	79.722023	32.728092	67.27190399
R3.0079	R3.0	79	0.860388	78.888527	32.068596	67.93140411
R3.0080	R3.0	80	0.887836	78.028137	31.416693	68.58330536
R3.0081	R3.0	81	0.915805	77.140305	30.772522	69.22747803
R3.0082	R3.0	82	0.944262	76.224495	30.136234	69.8637619
R3.0083	R3.0	83	0.973166	75.280235	29.507971	70.49202728
R3.0084	R3.0	84	1.00246	74.307068	28.887875	71.11212158
R3.0085	R3.0	85	1.032092	73.304611	28.276087	71.7239151
R3.0086	R3.0	86	1.061992	72.272522	27.672745	72.32725525
R3.0087	R3.0	87	1.092078	71.210526	27.077982	72.92201996
R3.0088	R3.0	88	1.122272	70.118446	26.49193	73.5080719
R3.0089	R3.0	89	1.152474	68.996178	25.914705	74.08529663
R3.0090	R3.0	90	1.182581	67.843704	25.346432	74.65357208
R3.0091	R3.0	91	1.212479	66.661125	24.78721	75.21279144
R3.0092	R3.0	92	1.242044	65.448639	24.237146	75.76285553
R3.0093	R3.0	93	1.271142	64.206596	23.696331	76.30367279
R3.0094	R3.0	94	1.299636	62.935455	23.164841	76.8351593
R3.0095	R3.0	95	1.327378	61.635818	22.642744	77.35725403
R3.0096	R3.0	96	1.354211	60.308441	22.130102	77.86989594
R3.0097	R3.0	97	1.379982	58.954231	21.626959	78.37303925
R3.0098	R3.0	98	1.404515	57.574249	21.133345	78.86665344
R3.0099	R3.0	99	1.427653	56.169735	20.649277	79.35072327
R3.0100	R3.0	100	1.449223	54.742081	20.174763	79.82523346
R3.0101	R3.0	101	1.46906	53.292858	19.709789	80.29020691
R3.0102	R3.0	102	1.486988	51.823799	19.254333	80.7456665
R3.0103	R3.0	103	1.502857	50.336811	18.808352	81.19165039
R3.0104	R3.0	104	1.516493	48.833954	18.371788	81.62821198
R3.0105	R3.0	105	1.527763	47.317459	17.944567	82.05543518
R3.0106	R3.0	106	1.536522	45.789696	17.526602	82.4733963
R3.0107	R3.0	107	1.542639	44.253174	17.117785	82.88221741
R3.0108	R3.0	108	1.546003	42.710537	16.717993	83.28200531
R3.0109	R3.0	109	1.546521	41.164532	16.327087	83.6729126
R3.0110	R3.0	110	1.544108	39.618011	15.94491	84.05509186

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0111	R3.0	111	1.53871	38.073902	15.571287	84.42871094
R3.0112	R3.0	112	1.530281	36.535194	15.206026	84.79397583
R3.0113	R3.0	113	1.518814	35.004913	14.848918	85.1510849
R3.0114	R3.0	114	1.504311	33.486099	14.499736	85.50026703
R3.0115	R3.0	115	1.48681	31.981789	14.158234	85.84176636
R3.0116	R3.0	116	1.466368	30.494978	13.824153	86.17584991
R3.0117	R3.0	117	1.443057	29.02861	13.497217	86.50278473
R3.0118	R3.0	118	1.416993	27.585552	13.177128	86.82286835
R3.0119	R3.0	119	1.388291	26.16856	12.863578	87.1364212
R3.0120	R3.0	120	1.357119	24.78027	12.556236	87.44376373
R3.0121	R3.0	121	1.32364	23.423151	12.254765	87.74523163
R3.0122	R3.0	122	1.288039	22.09951	11.958811	88.0411911
R3.0123	R3.0	123	1.250527	20.811472	11.668006	88.3319931
R3.0124	R3.0	124	1.211323	19.560944	11.381974	88.61802673
R3.0125	R3.0	125	1.170654	18.349621	11.100332	88.89966583
R3.0126	R3.0	126	1.12876	17.178967	10.822688	89.17731476
R3.0127	R3.0	127	1.085877	16.050207	10.548649	89.45134735
R3.0128	R3.0	128	1.042247	14.96433	10.277822	89.7221756
R3.0129	R3.0	129	0.998112	13.922083	10.009819	89.99018097
R3.0130	R3.0	130	0.953699	12.923971	9.744257	90.25574493
R3.0131	R3.0	131	0.909233	11.970272	9.4807682	90.5192337
R3.0132	R3.0	132	0.86492	11.061039	9.2189999	90.78099823
R3.0133	R3.0	133	0.820961	10.196119	8.9586191	91.04138184
R3.0134	R3.0	134	0.777531	9.3751583	8.6993198	91.30068207
R3.0135	R3.0	135	0.734788	8.5976267	8.4408312	91.55916595
R3.0136	R3.0	136	0.69287	7.8628387	8.1829081	91.8170929
R3.0137	R3.0	137	0.651897	7.1699691	7.9253459	92.07465363
R3.0138	R3.0	138	0.611965	6.5180721	7.6679811	92.33201599
R3.0139	R3.0	139	0.57315	5.9061069	7.410696	92.58930206
R3.0140	R3.0	140	0.535511	5.3329573	7.1534119	92.84658813
R3.0141	R3.0	141	0.499088	4.7974458	6.8960929	93.10390472
R3.0142	R3.0	142	0.463903	4.298358	6.638751	93.36125183
R3.0143	R3.0	143	0.429969	3.834455	6.381434	93.61856842
R3.0144	R3.0	144	0.397285	3.4044859	6.124229	93.87577057
R3.0145	R3.0	145	0.365845	3.007201	5.8672543	94.13274384
R3.0146	R3.0	146	0.335636	2.641356	5.6106529	94.38934326
R3.0147	R3.0	147	0.306641	2.3057201	5.3545909	94.64540863

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R3.0148	R3.0	148	0.278862	1.999079	5.099246	94.90075684
R3.0149	R3.0	149	0.252277	1.720217	4.8448219	95.15517426
R3.0150	R3.0	150	0.226885	1.46794	4.591516	95.40848541
R3.0151	R3.0	151	0.202693	1.241055	4.3395143	95.66048431
R3.0152	R3.0	152	0.17971	1.038362	4.0890002	95.91100311
R3.0153	R3.0	153	0.15796	0.858652	3.840153	96.15984344
R3.0154	R3.0	154	0.137469	0.700692	3.5931401	96.40686035
R3.0155	R3.0	155	0.118275	0.563223	3.3480971	96.65190125
R3.0156	R3.0	156	0.100417	0.444948	3.1051631	96.89483643
R3.0157	R3.0	157	0.083942	0.344531	2.86448	97.13552094
R3.0158	R3.0	158	0.068893	0.260589	2.6261499	97.37384796
R3.0159	R3.0	159	0.055316	0.191696	2.3902581	97.60974121
R3.0160	R3.0	160	0.043249	0.13638	2.1569581	97.84304047
R3.0161	R3.0	161	0.032716	0.0931315	1.926362	98.07363892
R3.0162	R3.0	162	0.023736	0.0604152	1.698779	98.30122375
R3.0163	R3.0	163	0.016303	0.0366793	1.47451	98.52548981
R3.0164	R3.0	164	0.010391	0.020376	1.254269	98.74572754
R3.0165	R3.0	165	0.005943	0.0099847	1.039243	98.96075439
R3.0166	R3.0	166	0.002865	0.0040413	0.83229	99.16770935
R3.0167	R3.0	167	0.00101	0.0011767	0.641307	99.35869598
R3.0168	R3.0	168	0.000166	0.0001662	0.499982	99.50001526
R3.0169	R3.0	169	0	0	0	100
R4.0000	R4.0	0	0.000828	100	100	0
R4.0001	R4.0	1	0.000963	99.999168	99.00132	0.998683929
R4.0002	R4.0	2	0.001114	99.998207	98.002266	1.997736931
R4.0003	R4.0	3	0.001289	99.997093	97.003319	2.99668026
R4.0004	R4.0	4	0.001486	99.995804	96.004593	3.995406151
R4.0005	R4.0	5	0.001711	99.994316	95.006012	4.993987083
R4.0006	R4.0	6	0.001964	99.992607	94.007629	5.992369652
R4.0007	R4.0	7	0.002254	99.990646	93.009468	6.990531921
R4.0008	R4.0	8	0.002577	99.988388	92.011551	7.988448143
R4.0009	R4.0	9	0.002943	99.985817	91.013908	8.986088753
R4.0010	R4.0	10	0.003354	99.982872	90.016579	9.98342514
R4.0011	R4.0	11	0.003816	99.979515	89.019577	10.98042107
R4.0012	R4.0	12	0.004333	99.9757	88.022957	11.97704315
R4.0013	R4.0	13	0.00491	99.971367	87.026749	12.97325039
R4.0014	R4.0	14	0.005556	99.966461	86.030998	13.96899986

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0015	R4.0	15	0.006274	99.960907	85.035751	14.96424675
R4.0016	R4.0	16	0.007075	99.954628	84.041061	15.95893955
R4.0017	R4.0	17	0.007961	99.947556	83.046974	16.95302773
R4.0018	R4.0	18	0.008948	99.93959	82.053551	17.94644928
R4.0019	R4.0	19	0.010038	99.930641	81.060852	18.93914795
R4.0020	R4.0	20	0.011243	99.920609	80.068947	19.93105507
R4.0021	R4.0	21	0.012573	99.909363	79.077896	20.92210007
R4.0022	R4.0	22	0.014037	99.89679	78.087791	21.91221046
R4.0023	R4.0	23	0.015652	99.882751	77.098694	22.90130615
R4.0024	R4.0	24	0.017422	99.867104	76.110695	23.88930321
R4.0025	R4.0	25	0.019363	99.849678	75.123886	24.87611008
R4.0026	R4.0	26	0.021491	99.830315	74.138367	25.86163521
R4.0027	R4.0	27	0.023816	99.808823	73.154221	26.84577942
R4.0028	R4.0	28	0.026358	99.785011	72.171562	27.82843781
R4.0029	R4.0	29	0.029126	99.758652	71.190498	28.80950165
R4.0030	R4.0	30	0.032143	99.729523	70.211143	29.7888546
R4.0031	R4.0	31	0.035422	99.69738	69.23362	30.76638222
R4.0032	R4.0	32	0.038982	99.661957	68.258049	31.74195099
R4.0033	R4.0	33	0.042844	99.622978	67.284561	32.71543884
R4.0034	R4.0	34	0.047025	99.580132	66.313293	33.68670273
R4.0035	R4.0	35	0.051542	99.533112	65.344391	34.65561295
R4.0036	R4.0	36	0.056425	99.481567	64.377983	35.62201309
R4.0037	R4.0	37	0.061689	99.42514	63.414238	36.58576202
R4.0038	R4.0	38	0.067358	99.363449	62.453297	37.54670334
R4.0039	R4.0	39	0.073454	99.296097	61.495323	38.50467682
R4.0040	R4.0	40	0.080002	99.222641	60.540478	39.45952225
R4.0041	R4.0	41	0.087027	99.142639	59.588928	40.41107178
R4.0042	R4.0	42	0.094549	99.055611	58.640839	41.35916138
R4.0043	R4.0	43	0.102598	98.961067	57.696388	42.30361176
R4.0044	R4.0	44	0.111198	98.858467	56.755749	43.24425125
R4.0045	R4.0	45	0.120373	98.747269	55.819096	44.18090439
R4.0046	R4.0	46	0.130148	98.626892	54.886612	45.11338806
R4.0047	R4.0	47	0.140551	98.49675	53.958477	46.04152298
R4.0048	R4.0	48	0.151608	98.356194	53.03487	46.96512985
R4.0049	R4.0	49	0.163342	98.20459	52.115971	47.88402939
R4.0050	R4.0	50	0.17578	98.041245	51.201969	48.79803085
R4.0051	R4.0	51	0.188947	97.865463	50.293037	49.70696259

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0052	R4.0	52	0.202866	97.676521	49.389355	50.61064529
R4.0053	R4.0	53	0.217559	97.473656	48.491104	51.50889587
R4.0054	R4.0	54	0.232654	97.256096	47.598461	52.40153885
R4.0055	R4.0	55	0.249758	97.023438	46.711594	53.28840637
R4.0056	R4.0	56	0.266512	96.773682	45.830666	54.16933441
R4.0057	R4.0	57	0.284517	96.507172	44.955853	55.04414749
R4.0058	R4.0	58	0.3034	96.222656	44.087299	55.91270065
R4.0059	R4.0	59	0.323171	95.91925	43.22517	56.77482986
R4.0060	R4.0	60	0.343842	95.596085	42.369606	57.63039398
R4.0061	R4.0	61	0.365426	95.252243	41.520748	58.47925186
R4.0062	R4.0	62	0.387929	94.886818	40.678726	59.3212738
R4.0063	R4.0	63	0.411355	94.498886	39.843666	60.15633392
R4.0064	R4.0	64	0.435709	94.087532	39.015678	60.98432159
R4.0065	R4.0	65	0.460985	93.651825	38.19487	61.80513
R4.0066	R4.0	66	0.487181	93.190834	37.381332	62.6186676
R4.0067	R4.0	67	0.514286	92.703659	36.575153	63.42484665
R4.0068	R4.0	68	0.542285	92.189369	35.776402	64.22359467
R4.0069	R4.0	69	0.571165	91.647087	34.985134	65.01486206
R4.0070	R4.0	70	0.600901	91.07592	34.201405	65.79859924
R4.0071	R4.0	71	0.631463	90.475021	33.425236	66.57476807
R4.0072	R4.0	72	0.662824	89.843559	32.656651	67.34335327
R4.0073	R4.0	73	0.694943	89.180733	31.895649	68.10434723
R4.0074	R4.0	74	0.727777	88.485786	31.142221	68.85778046
R4.0075	R4.0	75	0.761278	87.758011	30.396338	69.60366058
R4.0076	R4.0	76	0.795393	86.996735	29.657949	70.34204865
R4.0077	R4.0	77	0.830056	86.20134	28.926994	71.07300568
R4.0078	R4.0	78	0.865204	85.371284	28.203388	71.7966156
R4.0079	R4.0	79	0.900763	84.506081	27.487024	72.5129776
R4.0080	R4.0	80	0.936655	83.605316	26.777782	73.22222137
R4.0081	R4.0	81	0.97279	82.668663	26.075516	73.92448425
R4.0082	R4.0	82	1.009202	81.695877	25.380054	74.61994171
R4.0083	R4.0	83	1.046485	80.686668	24.691248	75.30875397
R4.0084	R4.0	84	1.085589	79.64019	24.009125	75.99087524
R4.0085	R4.0	85	1.127481	78.554596	23.334009	76.66599274
R4.0086	R4.0	86	1.172955	77.427116	22.666513	77.33348846
R4.0087	R4.0	87	1.222555	76.254166	22.007483	77.99251556
R4.0088	R4.0	88	1.276553	75.031609	21.357924	78.64207458

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0089	R4.0	89	1.334905	73.755058	20.718931	79.28106689
R4.0090	R4.0	90	1.397342	72.420151	20.091623	79.9083786
R4.0091	R4.0	91	1.463254	71.022812	19.477079	80.5229187
R4.0092	R4.0	92	1.531871	69.559555	18.876282	81.12371826
R4.0093	R4.0	93	1.602235	68.027687	18.290085	81.70991516
R4.0094	R4.0	94	1.67327	66.425446	17.719196	82.2808075
R4.0095	R4.0	95	1.743798	64.752182	17.16416	82.83583832
R4.0096	R4.0	96	1.812611	63.008381	16.625351	83.37464905
R4.0097	R4.0	97	1.878502	61.19577	16.10298	83.89701843
R4.0098	R4.0	98	1.940306	59.317268	15.597109	84.40289307
R4.0099	R4.0	99	1.996924	57.376961	15.107644	84.89235687
R4.0100	R4.0	100	2.047356	55.380035	14.634375	85.36562347
R4.0101	R4.0	101	2.090724	53.33268	14.176971	85.82302856
R4.0102	R4.0	102	2.126279	51.241959	13.735006	86.26499176
R4.0103	R4.0	103	2.153455	49.115677	13.307965	86.69203186
R4.0104	R4.0	104	2.171804	46.962223	12.895275	87.1047287
R4.0105	R4.0	105	2.181072	44.790421	12.496299	87.50370026
R4.0106	R4.0	106	2.181142	42.609348	12.110361	87.88964081
R4.0107	R4.0	107	2.172064	40.428204	11.736752	88.26324463
R4.0108	R4.0	108	2.154024	38.256142	11.37474	88.6252594
R4.0109	R4.0	109	2.127339	36.102116	11.023578	88.97642517
R4.0110	R4.0	110	2.092451	33.974777	10.682514	89.31748962
R4.0111	R4.0	111	2.049888	31.882328	10.350797	89.64920044
R4.0112	R4.0	112	2.000286	29.832439	10.027679	89.97232056
R4.0113	R4.0	113	1.94433	27.832153	9.71243	90.28756714
R4.0114	R4.0	114	1.882747	25.887823	9.4043379	90.59566498
R4.0115	R4.0	115	1.816296	24.005075	9.1027164	90.89728546
R4.0116	R4.0	116	1.745761	22.18878	8.8069038	91.19309235
R4.0117	R4.0	117	1.671897	20.443018	8.516284	91.48371887
R4.0118	R4.0	118	1.595454	18.771122	8.2302752	91.76972198
R4.0119	R4.0	119	1.51714	17.175669	7.9483428	92.05165863
R4.0120	R4.0	120	1.437624	15.658528	7.6700058	92.3299942
R4.0121	R4.0	121	1.357518	14.220904	7.3948388	92.60516357
R4.0122	R4.0	122	1.277373	12.863386	7.1224761	92.87752533
R4.0123	R4.0	123	1.197688	11.586013	6.852612	93.14738464
R4.0124	R4.0	124	1.118879	10.388325	6.5850129	93.41498566
R4.0125	R4.0	125	1.041318	9.2694464	6.3195138	93.68048859

Iowa Curves

1	2	3	4	5	6	7
Lookup	Iowa Curve	Age as % of Service Life	Percent Retired	Percent Surviving of Original Placement	Percent Condition of Survivors	Theoretical Depreciation Reserve Percent
R4.0126	R4.0	126	0.965304	8.2281284	6.056006	93.94399261
R4.0127	R4.0	127	0.891089	7.2628241	5.7944579	94.20554352
R4.0128	R4.0	128	0.818876	6.3717351	5.5348883	94.46511078
R4.0129	R4.0	129	0.748836	5.5528588	5.2773809	94.7226181
R4.0130	R4.0	130	0.68111	4.8040233	5.0220637	94.97793579
R4.0131	R4.0	131	0.61582	4.1229129	4.769114	95.23088837
R4.0132	R4.0	132	0.553078	3.507093	4.5187402	95.48126221
R4.0133	R4.0	133	0.493008	2.954015	4.2715211	95.72847748
R4.0134	R4.0	134	0.435735	2.4610071	4.027349	95.97264862
R4.0135	R4.0	135	0.3814	2.0252719	3.7864599	96.21353912
R4.0136	R4.0	136	0.330168	1.643872	3.549021	96.45098114
R4.0137	R4.0	137	0.282216	1.313704	3.3315156	66.68484497
R4.0138	R4.0	138	0.237738	1.0314879	3.0849781	96.9150238
R4.0139	R4.0	139	0.196928	0.79375	2.8585811	97.14141846
R4.0140	R4.0	140	0.15997	0.596822	2.6360509	97.36395264
R4.0141	R4.0	141	0.127022	0.436852	2.4174759	97.58252716
R4.0142	R4.0	142	0.098187	0.30983	2.202934	97.79706573
R4.0143	R4.0	143	0.073496	0.211643	1.992503	98.00749969
R4.0144	R4.0	144	0.0529	0.138147	1.786284	98.2137146
R4.0145	R4.0	145	0.036261	0.0852467	1.584401	98.41559601
R4.0146	R4.0	146	0.023346	0.048986	1.38709	98.61290741
R4.0147	R4.0	147	0.013831	0.0256397	1.194826	98.80517578
R4.0148	R4.0	148	0.007295	0.011809	1.0086401	98.99136353
R4.0149	R4.0	149	0.003234	0.0045142	0.830607	99.16939545
R4.0150	R4.0	150	0.001074	0.0012803	0.665729	99.33427429
R4.0151	R4.0	151	0.0002	0.0002061	0.529278	99.47071838
R4.0152	R4.0	152	6.05E-06	6.045E-06	0.500083	99.49991608
R4.0153	R4.0	153	0	0	0	100

Iowa Curves