

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

In re: Application of Pennsylvania-American Water Company under Section 1102(a) of the Pennsylvania Public Utility Code, 66 Pa C.S. § 1102(a), for approval of (1) the transfer, by sale, to Pennsylvania-American Water Company, of substantially all of the assets, properties and rights related to the wastewater collection and treatment system owned by the York City Sewer Authority and operated by the City of York, (2) the rights of Pennsylvania-American Water Company to begin to offer or furnish wastewater service to the public in the City of York, Pennsylvania, and to three bulk service interconnection points located in North York Borough, Manchester Township and York Township, York County, Pennsylvania, and (3) the rights of Pennsylvania-American Water Company to begin to offer or furnish Industrial Pretreatment Program wastewater service to qualifying industrial customers in Manchester Township, Spring Garden Township and West Manchester Township, York County, Pennsylvania

Docket No. A-2021-3024681 *et al.*

**DIRECT TESTIMONY OF
JEROME C. WEINERT, PE, ASA, CDP
UTILITY VALUATION EXPERT
SELECTED BY
PENNSYLVANIA-AMERICAN WATER COMPANY**

Date: July 1, 2021

PAWC Statement No. 4

DIRECT TESTIMONY OF JEROME C. WEINERT

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS FOR THE RECORD**

2 **A.** My name is Jerome C. Weinert. My business address is 8555 West Forest Home Avenue,
3 Suite 201, Greenfield, WI 53228.

4
5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 I am a Principal and Director of AUS Consultants, Inc. (“AUS Consultants”). This
7 testimony was prepared by me.

8
9 **Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND INDICATE IF YOU ARE**
10 **REGISTERED AS A UTILITY VALUATION EXPERT WITH THE**
11 **PENNSYLVANIA PUBLIC UTILITY COMMISSION.**

12 **A.** My curriculum vitae (“CV”) is attached to my report and this testimony. **PAWC Exhibit**
13 **JCW-1.** AUS Consultants is a registered Utility Valuation Expert with the Pennsylvania
14 Public Utility Commission (“PUC” or “Commission”). We obtained that registration in
15 2016 and were most recently informed of our renewal by the PUC’s Secretary on January
16 12, 2021.

17
18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

19 **A.** This direct testimony provides clarification and explanation of the appraisal I provided to
20 Pennsylvania-American Water Company (“PAWC”), the Acquiring Utility pursuant to 66
21 Pa. C.S. § 1329(a)(5) and in accordance with the Uniform Standards of Professional
22 Appraisal Practice (“USPAP”) (2020-2021 Edition), which is the most-recent edition.

23

DIRECT TESTIMONY OF JEROME C. WEINERT

1 **Q. ARE YOU ADVOCATING FOR ANY PARTY OR OUTCOME?**

2 **A.** No. The Ethics Rule of the USPAP, applicable here pursuant to 66 Pa. C.S. § 1329(a)(3),
3 requires that I perform the appraisal with impartiality, objectivity, and independence, and
4 without accommodation of personal interests. In addition, the USPAP Ethics Rule requires
5 that I not perform the assignment with bias, that I must not advocate the cause or interest
6 of any party or issue and that I must not accept an assignment that includes the reporting
7 of predetermined opinions and conclusions.

8

9 **Q. DO YOU HAVE ANY AFFILIATION WITH EITHER THE SELLING UTILITY**
10 **OR THE ACQUIRING PUBLIC UTILITY OR ENTITY?**

11 **A.** No. Other than the current assignment to provide the subject appraisal, and similar
12 assignments from PAWC to provide appraisals of other utility systems, I have no business
13 or personal relationships with any party to the proposed acquisition.

14

15 **Q. WHAT IS YOUR FEE ARRANGEMENT TO DELIVER THE APPRAISAL?**

16 **A.** A copy of the fee arrangement is included with the Application as **Appendix A-7.1**. In
17 summary, AUS Consultants are to receive \$25,000 plus expenses in compensation for our
18 appraisal.

19

20 **Q. WILL YOU RECEIVE THAT FEE REGARDLESS OF WHETHER THE**
21 **COMMISSION APPROVES THE PROPOSED TRANSACTION OR WHETHER**
22 **IT CLOSES?**

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1 **A.** Yes. 66 Pa. C.S. § 1329(a)(3) mandates that I comply with the USPAP when developing
2 my appraisal. Under the USPAP, I cannot perform the appraisal with bias and acceptance
3 of a fee contingent on a particular outcome like closing or Commission approval would
4 violate that Ethics Rule.

5
6 **Q.** **HAVE YOU PREPARED ANY EXHIBITS, SCHEDULES, OR APPENDICES TO**
7 **ACCOMPANY YOUR DIRECT TESTIMONY?**

8 **A.** Yes. The appraisal I submitted to the Acquiring Utility pursuant to Section 1329(a)(5) is
9 included in the Application as **Appendix A-5.1**. The appraisal includes a narrative and
10 supporting exhibits in sections. All were prepared under my supervision and control. Also,
11 as stated above, attached to this testimony as **PAWC Exhibit JCW-1** is my CV.

12
13 **Q.** **PLEASE SUMMARIZE YOUR RESULTS OF THE APPLICATION OF THE**
14 **COST, MARKET, AND INCOME APPROACHES TO VALUATION.**

15 **A.** The summary results of the cost, income, and market approaches is presented below.

16

Appraisal Approach	Value Indicator	Weight	Wtd Value Indicator
Cost	236,987,901	50%	118,493,951
Income	249,288,076	40%	99,715,230
Market	221,275,603	10%	22,127,560
Appraisal Conclusion			240,336,741

17

18
19 **Q.** **PLEASE DESCRIBE ANY ASSUMPTIONS, EXTRAORDINARY**
20 **ASSUMPTIONS, HYPOTHETICAL CONDITIONS, OR LIMITING**
21 **CONDITIONS THAT YOU APPLIED TO THE VALUATION.**

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1 **A.** The major assumptions and limiting conditions used in preparing our appraisal of the York
2 wastewater collection and treatment system owned by the York City Sewer Authority
3 (“Authority”) and operated by the City of York (the “City”) (collectively referred to as
4 “York”) are described in our appraisal report “Fair Market Appraisal Report of York City
5 Sewer Authority’s (PA) Wastewater Collection System and Treatment, as of April 6,
6 2021.” Beyond the above-described assumptions, there are no extraordinary¹ or
7 hypothetical² assumptions (as defined in the 2020-2021 edition of USPAP).

8
9 **Q. HOW WAS EACH ASSUMPTION USED AND WHAT WAS ITS RESULT?**

10 **A.** The assumptions are detailed in my appraisal report and are discussed further in this
11 testimony.

12
13 **Q. HOW DID YOU DEVELOP THE WEIGHTING APPLIED TO EACH APPROACH**
14 **IN YOUR APPRAISAL AND WHY ARE THE INDIVIDUAL WEIGHTS YOU**
15 **CHOSE APPROPRIATE FOR THIS PROPOSED TRANSACTION?**

16 **A.** For the cost approach I chose a weighting of 50%. It is my opinion that this weighting is
17 appropriate for the cost approach because the major purpose of this appraisal is to be an
18 input to the Commission’s establishment of cost for future ratemaking and the cost
19 approach conclusion is directly reflective of the property cost.

¹ Extraordinary assumption: _ an assignment-specific assumption as of the effective date regarding uncertain information used in an analysis which, if found to be false, could alter the appraiser’s opinions or conclusions. 2020-2021 USPAP at page 4.
² Hypothetical condition: _ a condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results but used for the purpose of analysis. 2020-2021 USPAP at page 4.

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1 For the market approach, I chose a weighting of 10%. It is my opinion that this
2 weighting is appropriate for the market approach because while the market approach
3 provides some information as to the value of the property, establishing comparability
4 between the individual sales to the subject property is difficult and uncertain therefore
5 requiring less weight of the market approach and the 10% weight accomplishes that
6 objective.

7 For the income approach, I chose a weighting of 40%. It is my opinion that this
8 weighting is appropriate for the income approach because the income approach reflects the
9 value of the property's return to the property's owner. The 40% weight accomplishes that
10 objective.

11
12 **Q. DID YOU CONDUCT AN ON-SITE INSPECTION OF THE SELLING UTILITY**
13 **ASSETS, AND IF SO, WHAT WAS ITS RESULT ON THE APPRAISAL?**

14 **A.** Yes, AUS Consultants' staff did conduct physical inspections of the York treatment plant.
15 The physical inspection confirmed the condition of the facilities.

16
17 **Q. WHAT UTILITY EARNINGS REPORT WAS USED TO CREATE THE CAPITAL**
18 **STRUCTURE USED IN YOUR APPRAISAL?**

19 **A.** I used a market required capital structure based on an analysis of the market capital
20 structure analysis (detailed in the Cost of Capital / Required Return portion of our appraisal
21 report). Information used in developing the market capital structure was obtained from
22 financial statistics reported in Value Line Investment Survey for the water / wastewater
23 industry published in their April 9, 2021 issue.

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1 **Q. WHAT CAPITAL STRUCTURE WAS USED IN YOUR APPRAISAL?**

2 **A.** The capital structure used in my appraisal is included below.

Water and Wastewater Cost of Capital Second Quarter 2021 (04-01-2021)								
As an Investor-Owned Utility								
Weighted Cost of Capital (Discount Rate)	(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)
	Portion of Capital	Type of Data	Capital Cost	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost	
	AUS input		AUS Input				(2)*(3)*(4a)	
Debt	29%	Market	3.52%	Market	28.89%	71.11%	0.73%	
Equity	71%	Market	9.85%	Market	0.0%	100.0%	6.99%	
Total Capital r	100.0%						7.72%	
Growth (g)							1.82%	
Rate without Growth: $[(1+r)/(1+g)]-1$							5.79%	

3

4

5 **Cost Approach**

6 **Q. REGARDING YOUR APPLICATION OF THE COST APPROACH, WHAT**
 7 **METHOD DID YOU USE TO DETERMINE THE COST APPROACH RESULT**
 8 **(E.G., ORIGINAL COST, REPLACEMENT COST, REPRODUCTION COST)?**

9 **A.** I used the replacement cost method.

10

11 **Q. PLEASE EXPLAIN WHY YOU CHOSE THE REPLACEMENT COST METHOD.**

12 **A.** I chose the replacement cost method because it is considered the proper starting point for
 13 a cost approach. The replacement costs reflects the appraisal date costs of providing the
 14 property's functionality and capacity using recognized technologies, materials, and labor
 15 costs.

16

17 **Q. WHAT INDEX DID YOU USE FOR THAT METHOD?**

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1 **A.** I used the Handy Whitman Index of Public Utility Construction Costs for the Water
2 Industry (Northeastern US Region), AUS Telephone Index (General Plant), and various
3 United States Bureau of Labor Statistics cost index series.

4
5 **Q.** **UNDER YOUR APPLICATION OF THE COST APPROACH WHAT ASSETS DID**
6 **YOU VALUE OR TREND DIFFERENTLY FROM OTHER ASSETS AND WHY**
7 **WAS THAT NECESSARY?**

8 **A.** I costed each property account with cost trends appropriate for the property contained in
9 the account. As such, the costing of each property account may differ from account to
10 account. It is my opinion that an accurate appraisal requires each property account be
11 costed with cost trends reflective of the property contained in the account. For the assets
12 associated with Land and Land Rights appraisal date costs were estimated. For the land
13 associated with the York wastewater treatment plant, appraisal date prices per acre were
14 developed based on recent sales around or near the plant's site. The appraisal date cost of
15 obtaining and recording an easement with the Register of Deeds was based on the time and
16 cost associated with developing the easement, contacting the property owner and recording
17 the easement.

18
19 York's property as detailed in the Buchart Horn Engineers "Engineer's Assessment" of
20 \$155,875,776 was determined to have a replacement cost new of \$474,152,569
21 summarized as follows:

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Pennsylvania American Water Company The York City Sewer Authority Wastewater System Wastewater Collection & Treatment System Investor-Owned Utility As of April 6, 2021								
Replacement Cost New (RCN)								
(1)	(2)	(3)	(9)	(10)	(13)	(14)	(15)	(16)
Account	Account	Asset Description	Original Cost	Costing Parameter	Cost Translator	Reproduction Cost New (RCN)	Reproduction Cost New (RCN) to Replacement Cost New (COR)	Replacement Cost New (COR)
			OC \$a			RCN \$a	COR \$a / RCN \$a	COR \$a
Input	Input	Input	Input	Input	Calculation	Calculation	Input	Calculation
Eng Assmnt	AUS Input	City of York Wastewater Assets Detail by Buchart Horn Engineers	Eng Assmnt	AUS Input			AUS Input	Col (14) * (15)
NARUC Code	NARUC Code	Asset Description	Original Cost	Cost Index Table	Translator	RCN	COR / RCN Factor	COR
353.00	353.00	Land & Land Rights - Land	40,501.00	USBLS3	4.42	179,118	19.69	3,527,270
353.05	353.05	Land & Land Rights - Easements	94,374.54	USBLS3	18.29	1,726,290	1.04	1,794,835
354.30	354.30	Structures & Improvements - Pumping	141,754.43	HWW-18	4.21	596,786	1.00	596,786
354.40	354.40	Structures & Improvements - Treatment	85,546,239.79	HWW-115	2.73	233,812,447	1.00	233,812,447
355.30	355.30	Generating Equipment - Pumping	15,032.64	USBLS4	2.71	40,784	1.00	40,784
360.21	360.21	Collection Sewers - Force - Mains	42,592.47	HWW-144	3.90	166,068	1.00	166,068
361.00	361.00	Mains Gravity	25,712,768.07	HWW-144	3.33	88,834,842	1.00	88,834,842
361.70	361.70	Collection Sewers - Gravity - Manholes	5,351,533.58	HWW-145	6.08	32,534,869	1.00	32,534,869
363.00	363.00	Service Laterals	2,039,891.94	HWW-139	21.62	44,097,551	1.00	44,097,551
364.00	364.00	Flow Measuring Devices	90,155.20	HWW-140	1.58	142,103	1.00	142,103
371.20	371.20	Pumping Equipment	36,252.00	HWW-19	9.88	358,069	1.00	358,069
380.00	380.00	Treatment and Disposal Equipment	34,672,151.67	HWW-117	1.93	66,780,665	1.00	66,780,665
390.00	390.00	Office Furniture and Equipment	60,303.60	AUST-115	1.10	66,154	1.00	66,154
391.00	391.00	Transportation Equipment	436,060.94	AUST-14	1.28	556,990	1.00	556,990
394.00	394.00	Laboratory Equipment	596,164.28	AUST-17	1.41	843,136	1.00	843,136
		Grand Total	155,875,776.15	-	3.02	470,735,872	1.01	474,152,569

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2

These results are detailed in the Application **Appendix A-5.1** (AUS Appraisal) under the Cost Approach section.

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4

5

Q. UNDER YOUR APPLICATION OF THE COST APPROACH, WHAT YEAR-END DATE DID YOU USE FOR CALCULATING THE DEPRECIATION OR CONDITION OF THE PROPERTY?

7

8

A. I used the date of April 6, 2021.

9

10

Q. HOW DID YOU DETERMINE THE DEPRECIATION PARAMETERS OF SURVIVAL/RETIREMENT CHARACTERISTICS AND SERVICE LIVES FOR THE UTILITY PROPERTY UNDER THE COST APPROACH?

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1 **A.** I determined those parameters based on our review of the depreciation studies filed by
 2 PAWC in support of its depreciation parameters (Iowa-type Survival Characteristics and
 3 Service Lives) and the resultant depreciation expense and rate base (net book) in its recent
 4 General Rate Cases (R-2017-2595853 and R-2020-3019369) and AUS Consultants’
 5 experience in preparing depreciation studies for the water and wastewater industry and our
 6 experience appraising water and wastewater properties. The following table summarizes
 7 those studies and AUS Consultants’ review of the depreciation parameters:

Summary of PAWC Depreciation Studies Prepared for Rate Case

Account	Account Description	Iowa Curves		Service Life		Remaining Life	
		12/31/2016	12/31/2019	12/31/2016	12/31/2019	12/31/2016	12/31/2019
				years	years	years	years
354.20	STRUCTURES AND IMPROVEMENTS - COLLECTION	R3	R3	45	45	39.1	33.3
354.30	STRUCTURES AND IMPROVEMENTS - SPP	R2.5	S0	50	55	45.2	32.6
354.40	STRUCTURES AND IMPROVEMENTS - TDP	R2	S0	65	55	56.6	31.7
354.70	STRUCTURES AND IMPROVEMENTS - GENERAL	S1	S1	35	35	33.3	23.2
355.00	POWER GENERATION EQUIPMENT	R2.5	S0.5	35	35	29.7	19.3
360.10	COLLECTION SEWERS - FORCE MAINS	S2	R3	70	75	53.1	52.5
361.10	COLLECTION SEWERS - GRAVITY MAINS	R2.5	R2.5	70	80	56.9	54.8
361.20	MANHOLES	S1.5	S2.5	50	50	41.3	32.2
363.00	SERVICES	R3	R3	38	47	22.9	30.2
364.00	FLOW MEASURING DEVICES	L3	L2.5	20	15	13.3	5.1
365.00	FLOW MEASURING INSTALLATIONS	S1.5	S2	30	25	23.1	10.8
370.00	RECEIVING WELLS	R3	R3	50	50	42.7	33.7
371.00	PUMPING EQUIPMENT	S0	S0.5	40	30	35.5	18.2
380.00	TREATMENT EQUIPMENT	5-R2	S1.5	45	35	37.1	20.1
381.00	PLANT SEWERS	R3	R3	50	50	43.1	32.7
382.00	OUTFALL SEWER LINES	R3	R3	50	50	37.8	28.3
389.10	OTHER PLANT AND MISCELLANEOUS EQUIPMENT - INTANGIBLES	S2.5	S2.5	20	20	13.6	11.3
389.60	OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	SQ	SQ	20	5	12.3	3.5
390.00	OFFICE FURNITURE AND EQUIPMENT	L4	SQ	15	20	9.5	10.1
391.00	TRANSPORTATION EQUIPMENT	SQ	L4	25	14	19.9	9.8
392.00	STORES EQUIPMENT	SQ	SQ	20	25	16.4	17.2
393.00	TOOLS, SHOP AND GARAGE EQUIPMENT	SQ	SQ	15	20	11.3	15.4
394.00	LABORATORY EQUIPMENT	L2.5	SQ	16	15	8.7	10.4
395.00	POWER OPERATED EQUIPMENT	SQ	R2	15	22	10.3	13.2
396.00	COMMUNICATION EQUIPMENT	SQ	SQ	15	15	9.6	6.9
397.00	MISCELLANEOUS EQUIPMENT		SQ		15		12.8
398.00	OTHER TANGIBLE PLANT		SQ		25		21.5

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10

11 **Q. WHY ARE THOSE PARAMETERS APPROPRIATE?**

12 **A.** Those parameters are appropriate because the parameters reflect the actual service life
 13 experienced by PAWC in serving wastewater customers in the Commonwealth of

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1 Pennsylvania and which were adjudicated by the PUC in the 2017 General Rate Cases and
 2 in the 2020 General Rate Cases (Docket Nos. R-2017-2595853 and R-2020-3019369). The
 3 parameters in the following table also reflect AUS Consultants' experience of the survival
 4 / retirement characteristics of normal and functional service lives of wastewater properties:

**Pennsylvania American Water Company
 The York City Sewer Authority Wastewater System
 Wastewater Collection & Treatment System
 Investor-Owned Utility
 April 6, 2021**

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

(1)	(2)	(4)	(4a)	(4b)	(5)	(6)	(6a)	(6b)
Account Number	Description	Survivor / Retirement Curve	Iowa	Normal Service Life	Economic Obsolescence	Tax Depreciation	Table	Life
				years	% of CORLD			
353.00	Land & Land Rights - Land	ZNonDep		0.00	0.00%	Non-Depr		0.00
353.05	Land & Land Rights - Easements	ZNonDep		0.00	0.00%	Non-Depr		0.00
354.30	Structures & Improvements - Pumping	R4.0		45.00	0.00%	MACRS		25.00
354.40	Structures & Improvements - Treatment	R4.0		55.00	0.00%	MACRS		25.00
355.30	Generating Equipment - Pumping	R3.0		35.00	0.00%	MACRS		25.00
360.21	Collection Sewers - Force - Mains	R3.0		75.00	0.00%	MACRS		25.00
361.00	Mains Gravity	R2.5		80.00	0.00%	MACRS		25.00
361.70	Collection Sewers - Gravity - Manholes	S2.0		75.00	0.00%	MACRS		25.00
363.00	Service Laterals	R3.0		50.00	0.00%	MACRS		25.00
364.00	Flow Measuring Devices	S2.0		30.00	0.00%	MACRS		25.00
371.20	Pumping Equipment	R3.0		35.00	0.00%	MACRS		25.00
380.00	Treatment and Disposal Equipment	R2.0		45.00	0.00%	MACRS		25.00
390.00	Office Furniture and Equipment	R3.0		12.00	0.00%	MACRS		12.00
391.00	Transportation Equipment	R3.0		15.00	0.00%	MACRS		10.00
394.00	Laboratory Equipment	R3.0		20.00	0.00%	MACRS		20.00

5
 6
 7 Also, due the age of York's early property installations the maximum depreciation was
 8 limited to 85% of the cost new.

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1 Q. WHAT WAS THE RESULT OF THE APPLICATION OF THE DEPRECIATION
 2 PARAMETERS TO THE PREVIOUSLY DESCRIBED REPLACEMENT COST
 3 NEW OF \$474,152,569?

4 A. With the application of the above-described depreciation parameters, the replacement cost
 5 new of \$474,152,569 results in a replacement cost new less depreciation of \$218,366,227
 6 determined as follows:

Pennsylvania American Water Company The York City Sewer Authority Wastewater System Wastewater Collection & Treatment System Investor-Owned Utility As of April 6, 2021									
Replacement Cost New less Depreciation (RCNLD)									
(18)	(19)	(21)	(22)	(23)	(24)	(28)	(29)	(30)	(31)
Account	Description	Age at April 6, 2021 Appraisal Date	Replacement Cost New (COR)	Retirement Dispersion lowa-type	Normal Service Life (NSL)	Normal Remaining Life	Total Life Expectancy	Condition	Preliminary Cost Approach (COR less Normal Depreciation)
		years	COR\$		years	years	years	% of COR	CORLD\$
Input	Input	Calculation	Calculation	Input	Input	Calculation	Calculation	Calculation	Calculation
Eng Assmt	City of York Wastewater Assets Detail by Buchheit Horn Engineers		Col (18)	AUS Input	AUS Input		Col (21) + (28)	Col (28) / (29)	Col (22) * (30)
Account	Description	Age	RCN	lowa	NL	Rem Life	Total Life	Condition	CORLD
353.00	Land & Land Rights - Land	73.39	3,527,270	ZNonDep	-	-	-	-	3,527,270
353.05	Land & Land Rights - Easements	93.94	1,794,835	ZNonDep	-	-	-	-	1,794,835
354.30	Structures & Improvements - Pumping	40.50	596,786	R4.0	45.00	9.04	49.54	45.00	108,901
354.40	Structures & Improvements - Treatment	33.18	233,812,447	R4.0	55.00	25.40	58.57	55.00	106,434,616
355.30	Generating Equipment - Pumping	40.50	40,784	R3.0	35.00	5.25	45.75	35.00	6,118
360.21	Collection Sewers - Force - Mains	40.50	166,068	R3.0	75.00	37.88	78.38	75.00	80,258
361.00	Mains Gravity	42.65	88,834,842	R2.5	80.00	44.32	86.97	80.00	46,659,867
361.70	Collection Sewers - Gravity - Manholes	65.46	32,534,869	S2.0	75.00	25.66	91.12	75.00	9,902,159
363.00	Service Laterals	76.98	44,097,551	R3.0	50.00	8.44	85.42	50.00	7,389,193
364.00	Flow Measuring Devices	13.75	142,103	S2.0	30.00	18.72	32.47	30.00	85,852
371.20	Pumping Equipment	47.62	358,069	R3.0	35.00	7.11	54.73	35.00	71,710
380.00	Treatment and Disposal Equipment	18.98	66,780,665	R2.0	45.00	29.75	48.74	45.00	41,866,791
390.00	Office Furniture and Equipment	6.50	66,154	R3.0	12.00	6.06	12.56	12.00	31,919
391.00	Transportation Equipment	26.49	556,990	R3.0	15.00	2.67	29.17	15.00	97,104
394.00	Laboratory Equipment	19.09	843,136	R3.0	20.00	7.54	26.63	20.00	309,634
Grand Total		39.75	474,152,569		58.42	27.62	66.47	0.46	218,366,227

7
 8 The above replacement cost new less depreciation represents the cost approach of the
 9 tangible assets of York's wastewater system. In addition to the above-described tangible
 10 assets are intangible assets, in York City's case which consist of its wastewater treatment
 11 contracts with the following communities:³

³ The contract with the Borough of West York has been assigned to The York Water Company.

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York City Wastewater System

Municipality	Residential	Commercial / Industrial	Total	2020 Budget Revenues
Collection & Treatment				
City of York	17,360	1,302	18,662	13,733
Treatment Contracts				
Manchester Township	3,834	129	3,963	975,132
North York	718	64	782	131,363
Spring Garden Township	3,463	235	3,698	1,073,344
Springettsbury Township				273,842
West Manchester Township	2,180	318	2,498	976,106
West York Borough	1,510	160	1,670	889,714
York Township	3,012	205	3,217	1,035,977
Treatment Only	14,717	1,111	15,828	5,355,478
Treatment Only	32,077	2,413	34,490	8,297,434

Note: Customers as of 12-31-2018

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These contracts represent value assets which are included in the overall income and market approaches which are not specifically addressed in the cost approach of the tangible assets; therefore, in order to make the cost approach comparable to the income and market approaches these intangible assets were separately appraised and included in the cost approach totals. AUS Consultants developed both a market and income approach estimate to the value of the above contracts; however, AUS Consultants relied upon the income approach.

Income Approach to Treatment Contracts – AUS Consultants developed an income approach analysis of the wastewater treatment contracts using the 2020 budget estimate of the revenues and expenses of the wastewater treatment contracts in order to develop the estimated operating income as a surrogate for the cash flows associated with the wastewater treatment contracts. The estimated cash flows were next discounted to appraisal date values using the cost of capital of 5.79% (i.e., the cost of capital of 7.72%

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with the embedded growth rate of 1.82% removed; the development of which is described in the Cost of Capital section of the workpapers). The income approach to the wastewater treatment contracts was developed as follows:

Pennsylvania American Water Company						
The York City Sewer Authority Wastewater System						
Wastewater Collection & Treatment System						
Investor-Owned Utility						
As of April 6, 2021						
Income Approach to Treatment Agreements Valuation						
Municipality	2019 YTD Projected		2020 Proposed Budget	Expenses	Operating Income	Value Capitalized @ 5.79%
Manchester Township						
Treatment Charge	934,716		975,132			
Sewer charge	1,348		-			
Subtotal Manchester Twp	936,064		975,132	778,813	196,319	3,390,656
North York Borough						
Treatment Charge	162,028		131,363			
Sewer charge	1,698		-			
Subtotal North York Borough	163,726		131,363	104,916	26,447	456,770
Spring Garden Township						
Treatment Charge	1,254,860		1,073,344			
Sewer charge	12,122		-			
Subtotal Spring Garden Twp	1,266,982		1,073,344	857,252	216,092	3,732,159
Springettsbury Township						
Treatment Charge	230,000		230,000			
Sewer charge	66,968		43,842			
Subtotal Springettbury Twp	296,968		273,842	218,711	55,131	952,176
West Manchester Township						
Treatment Charge	1,165,146		976,106			
Sewer charge	12,909		-			
Subtotal West Manchester Twp	1,178,055		976,106	779,591	196,515	3,394,041
West York Borough						
Treatment Charge	939,536		889,714			
Sewer charge	6,073		-			
Subtotal West York Borough	945,609		889,714	710,592	179,122	3,093,644
York Township						
Treatment Charge	1,220,088		1,035,977			
Sewer charge	11,480		-			
Subtotal York Township	1,231,568		1,035,977	827,408	208,569	3,602,228
York City						
Treatment Charge	3,298,215		2,941,956			
Sewer charge						
Subtotal York City	3,298,215		2,941,956	2,349,665		
Total Revenues						
Treatment Charge	9,204,589		8,253,592	6,626,949		
Sewer charge	112,598		43,842			
Total Revenues	9,317,187		8,297,434	6,626,949		18,621,674

Based on the Market Approach analysis of the wastewater treatment contracts of \$33,523,704 and the Income Approach analysis of the wastewater treatment contracts of

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1 \$18,621,674 the value of the treatment contracts was determined to be \$18,621,674 which
2 was included in the final cost approach to value as follows:
3

The York City Sewer Authority Wastewater System		
Wastewater Collection & Treatment System		
Investor-Owned Utility		
As of April 6, 2021		
	Column Reference in OCLD & RCNLD	Amount in \$s
Depreciated Replacement Cost (RCNLD)		
Original Cost (OC)	(9)	155,875,776
Replacement Cost New (RCN)	(16)	474,152,569
Replacement Cost New less Depreciation (RCNLD)	(31)	218,366,227
Intangible Assets - Treatment Contracts		18,621,674
Fair Market Value (FMV)	(41)	236,987,901

4
5
6 This conclusion was tested for economic obsolescence based on the results of the income
7 and market approaches which will be described in the remainder of this testimony. Based
8 on our review of the preliminary cost approach and the results of the income and market
9 approaches, no economic obsolescence exists at the preliminary cost approach conclusion
10 of \$236,987,901; therefore, the final cost approach conclusion was determined to be
11 \$236,987,901. These results are detailed in the Application **Appendix A-5.1**. (AUS
12 Appraisal) under the Cost Approach section.

1 **Market Approach**

2 **Q. REGARDING YOUR APPLICATION OF THE MARKET APPROACH, WHAT**
3 **METHODS DID YOU USE TO DETERMINE THE MARKET APPROACH**
4 **RESULT?**

5 **A.** I used the comparable sales of water and wastewater properties in the Commonwealth of
6 Pennsylvania subsequent to the passage of Section 1329 and financial market value ratios
7 of publicly traded water and wastewater companies as reported in the April 9, 2021 issue
8 of Value Line Investment Survey.

9

10 **Q. WHAT ASSUMPTIONS, ANALYSES, AND/OR ADJUSTMENTS DID YOU**
11 **MAKE UNDER EACH METHOD?**

12 **A.** Under the comparable sales method, it is my opinion that sales amount to depreciated
13 replacement cost is the best indicator in arriving at the appraised value of physical assets
14 operating as a wastewater collection system. Under the financial ratios method, I believe
15 that an accurate result depends on using the weighted mean of the ratio of the market debt
16 and equity to book debt and equity.

17

18 **Q. WHAT WERE THE RESULTS OF EACH ANALYSIS YOU PERFORMED?**

19 **A.** The comparable sales analysis produced a result of \$221,275,603 detailed as follows:

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Pennsylvania American Water Company The York City Sewer Authority Wastewater System Wastewater Collection & Treatment System Investor-Owned Utility As of April 6, 2021						
Comparable Sales Approach						
Market Sales Data						
Central Tendency and Reliability Analysis						
Market Sales Analysis - PP/OCLD			Market Sales Analysis - PP/CORLD			
	Simple	Weighted		Simple	Weighted	
Mean	1.7594	1.8494	Mean	0.8087	0.9337	
Standard Deviation	0.5882	0.4204	Standard Deviation	0.1746	0.1695	
Median	1.49	1.4355	Median	0.8229	0.7558	
Mode	1.4418	1.4418	Mode	0.6918	0.6918	
Conclusion		1.8494	AUS Input	Conclusion	0.9337	AUS Input
The York City Sewer Authority Wastewater System OCLD		115,727,779	Cost Approach - OCLD	The York City Sewer Authority Wastewater System CORLD	236,987,901	Cost Approach - CORLD
Market Value Indication		214,026,955		Market Value Indication	221,275,603	
Market Sales Analysis - PP/Customer			Financial Basis¹			
	Simple	Weighted			Market Value per Share to Book Value per Share	
Water Treatment & Distribution						
Mean	6,123	10,962		Market to Book (equity)	3.40	
Standard Deviation		4,613		Market to Book (equity and debt)	2.11	
Median	5,021	4,963		Use (equity and debt)	2.11	AUS Input
Wastewater Collection & Treatment						
Mean	9,579	16,785	AUS Input			
Standard Deviation						
Median	8,754					
Wastewater Collection						
Mean	6,507					
Standard Deviation						
Median	6,636					
Wastewater Treatment Only						
Mean	3,072					
Standard Deviation						
Median	2,118					
The York City Sewer Authority Wastewater System Customers		13,733	AUS Input	The York City Sewer Authority Wastewater System OCLD	97,106,105	Cost Approach - OCLD
Wastewater Collection & Treatment PP/Customer		8,754	AUS Input			
Collection and Treatment Customers Market Value		120,218,682		Market Value Indication	204,893,882	
Treatment Only Market Value Indication						
Treatment Only PP/customer		2,118	AUS Input			
York's Treatment Only Customers		34,490	AUS Input			
Market Value Indication Treatment Only		73,049,820				
Total Market Value Indication		193,268,502				
Market Sales Analysis - PP/Cash Flows (EBITDA Period 1-5)			Market Sales Analysis - PP/Cash Flows (EBITDA Period 1-13)			
	Simple	Weighted		Simple	Weighted	
Mean	17.48	15.32		Mean	11.62	11.45
Standard Deviation	5.71	5.10		Standard Deviation	2.67	2.14
Median	17.41	18.13		Median	11.65	12.07
Mode	Not Applicable	Not Applicable		Mode	Not Applicable	Not Applicable
Forecast				Forecast		
Conclusion		18.00	AUS Input	Conclusion	12.00	AUS Input
The York City Sewer Authority Wastewater System Cash Flows		13,874,600	Income Approach	The York City Sewer Authority Wastewater System Cash Flows	18,001,021	Income Approach
Market Value Indication		249,742,796		Market Value Indication	216,012,253	
Summary of Market Analyses						
Indicators						
OCLD		214,026,955				
CORLD		221,275,603				
Customers		193,268,502				
Cash Flows						
EBITDA Periods 1-5		249,742,796				
EBITDA Periods 1-13		216,012,253				
Value Line		204,893,882				
Mean		216,536,665				
Median		215,019,604				
Conclusion		221,275,603				

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1 **Q. WHAT WAS YOUR MARKET APPROACH RESULT?**

2 **A.** I used the results of \$221,275,603 because I believe those results represent an accurate
3 assessment and it was based on the relationship of market comparable sales to the
4 replacement cost new less depreciation of those properties. These results are detailed in
5 the Application **Appendix A-5.1** (AUS Appraisal) under the Market Approach section.

6

7 **Q. WHAT WAS THE CALCULATION YOU USED TO DETERMINE YOUR**
8 **OVERALL MARKET APPROACH RESULTS?**

9 **A.** I used the weighted mean of the purchase price to replacement cost new less depreciation.

10

11 **Q. WHAT COMPARABLE TRANSACTIONS OR COMPARABLE SALES DID YOU**
12 **EVALUATE TO DEVELOP YOUR MARKET APPROACH?**

13 **A.** I examined the following transactions to develop the result of my market approach:

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Pennsylvania American Water Company The York City Sewer Authority Wastewater System Wastewater Collection & Treatment System Investor-Owned Utility As of April 6, 2021									
Comparable Sales Approach									
Market Sales Data									
RowID	Approximate Date	Buyer	Seller	County	Type of Facility	Initial Purchase Price	Final Purchase Price ¹	Number of Total Customers	Relationship to the passage of Section 1329
1	9/1/2016	PA American Water	City of McKeesport	Allegheny	Wastewater Collection and Treatment	156,000,000	159,000,000	21,953	Post
2	8/1/2016	Aqua PA	New Garden Twp. SA	Chester	Wastewater Collection and Paid for and Owned Treatment	29,500,000	29,500,000	2,106	Post
3	11/16/2016	Aqua PA	Umerick Township	Montgomery	Wastewater Collection and Treatment System	75,100,000	64,373,378	5,434	Post
4	12/10/2017	Aqua PA	East Bradford Township	Chester	Wastewater Collection and paid for treatment	5,000,000	5,000,000	1,248	Post
5	4/20/2018	SUEZ	Mahoning	Carbon	Water Distribution System	4,734,800	4,734,800	1,186	Post
6	4/20/2018	SUEZ	Mahoning	Carbon	Wastewater Collection	4,765,200	4,765,200	1,451	Post
7	6/1/2018	Aqua PA	Cheltenham	Montgomery	Wastewater Collection	50,250,000	50,250,000	10,500	Post
8	11/14/2018	PA American Water	Steelton	Dauphin	Water Distribution and Treatment	22,500,000	21,750,000	2,325	Post
9	1/1/2017	PA American Water	Sadsbury	Chester	Wastewater Collection	9,250,000	8,600,000	998	Post
10	5/28/2018	PA American Water	Exeter	Berks	Wastewater Collection and Treatment	96,000,000	93,500,000	9,000	Post
11	10/29/2018	Aqua PA	East Norriton	Montgomery	Wastewater Collection	21,000,000	21,000,000	4,950	Post
12	9/30/2018	PA American	Xane	McKean	Wastewater Collection and Treatment	17,560,000	17,560,000	2,006	Post
13	12/10/2019	PA American	Royersford	Montgomery	Wastewater Collection and Treatment	13,000,000	13,000,000	1,596	Post
14	12/17/2019	PA American	Valley	Chester	Water Treatment and Distribution System	7,325,000	7,325,000	1,459	Post
15	12/17/2019	PA American	Valley	Chester	Wastewater Collection System	13,950,000	13,950,000	1,644	Post
16	12/31/2019	Aqua PA	Delaware County Regional	Delaware	Wastewater Collection and Treatment	276,500,000	276,500,000	16,473	Post
17	4/28/2020	PA American Water	Upper Pottsgrove	Montgomery	Wastewater Collection	13,750,000	13,750,000	1,428	Post
18	9/17/2020	Aqua PA	Lower Makefield	Bucks	Wastewater Collection and Purchased Treatment Capacity	53,000,000	53,000,000	11,151	Post

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1 **Income Approach**

2 **Q. REGARDING YOUR APPLICATION OF THE INCOME APPROACH, WHAT**
3 **METHOD DID YOU USE TO DETERMINE THE INCOME APPROACH**
4 **RESULT?**

5 **A.** I used the discounted cash flow method.

6

7 **Q. WHAT ASSUMPTIONS DID YOU EMPLOY TO DEVELOP YOUR INCOME**
8 **APPROACH RESULT?**

9 **A.** Under the income approach, it is my opinion that the results of the future operations of the
10 York wastewater collection and treatment system must be considered. I believe that an
11 accurate result depends on adjusting recent results of the system's operation to better reflect
12 how those results will migrate over future periods under the operation as a rate regulated
13 wastewater system regulated by the PUC.

14

15 **Q. WHAT DISCOUNT RATE DID YOU USE TO CALCULATE YOUR INCOME**
16 **APPROACH?**

17 **A.** I used a discount rate of 7.72% and 5.79% capitalization rate.

18

19 **Q. PLEASE EXPLAIN HOW YOU DEVELOPED THE DISCOUNT RATE.**

20 **A.** In each case, the discount rate was a market discount rate at the appraisal date and was
21 determined using the weighted average cost of capital ("WACC") of both debt and equity.
22 The inputs to the WACC determination, capital structure, cost of debt, cost of equity, and
23 income tax rate (state and federal) were determined based on an analysis of Value Line

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1 Investment Surveys and the Ibbotson Stock, Bonds, Bills, and Inflation (“Ibbotson SBBI”)
2 2021 Edition (SBBI activity over the period 1926 through 2020). The cost of debt was
3 determined at April 2021, based on the Value Line Selected Yields publication. The cost
4 of equity was based on the capital asset pricing model (“CAPM”) and the Dividend Growth
5 Model (“DGM”), two recognized cost of equity estimating models and the PUC’s Bureau
6 of Technical Utility Services’ Report on the Quarterly Earnings of Jurisdictional Utilities
7 for the Year-End December 31, 2020. The above-described data for the York appraisal
8 can be found in the exhibits to my appraisal report in the section entitled Cost of Capital /
9 Required Return.

10
11 **Q. WHAT CAPITAL STRUCTURE INPUTS DIFFER FROM THOSE IDENTIFIED**
12 **IN CAPITAL STRUCTURE SET FORTH EARLIER IN YOUR TESTIMONY?**

13 **A.** None. As described in the previous discussion of the capital structure, we utilized a market
14 required capital structure based on analysis of the water / wastewater industry’s market
15 capital structure as defined by analysis of market financials published in Value Line
16 Investment Survey (April 9, 2021). The theory in appraisal is to estimate the value of a
17 property in an arm’s length transaction wherein the purchaser finances the purchase with
18 capital (debt and equity) available in the financial markets at the appraisal date. Those are
19 the current (appraisal date) financial markets.

20
21 **Q. WHAT IS THE SOURCE AND BASIS OF THE ALTERNATIVE INPUT YOU**
22 **PROPOSE IN THE INCOME APPROACH?**

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1 **A.** As discussed above, we used Value Line Investment Survey to develop a market required
2 capital structure. Please see Application **Appendix A-5.1** (AUS Appraisal) Income
3 Approach section for the cost of capital of the Income Approach and Cost of Capital /
4 Required Return section for the basis of the Cost of Capital / Required Return.

5
6 **Q.** **IF YOU USED A TERMINAL VALUE IN YOUR DISCOUNTED CASH FLOW**
7 **ANALYSIS WHAT IS THE NUMBER OF YEARS OVER WHICH THE CASH**
8 **FLOWS ARE CONSIDERED?**

9 **A.** I considered those cash flows over 19 periods with period 20 representing all future periods.

10

11 **Q.** **WHAT IS THE BASIS FOR USING THIS NUMBER OF YEARS?**

12 **A.** It is my opinion that the use of 19 periods is a reasonable number of periods for the forecast
13 revenues and expenses to stabilize.

14

15 **Q.** **WHAT IS YOUR INCOME APPROACH CONCLUSION?**

16 **A.** AUS Consultants' income approach conclusion was determined to be \$249,288,076
17 detailed as follows:

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York City Wastewater System					
Municipality	Residential	Commercial / Industrial	Total	Revised City of York Customers at Appraisal Date	2020 Budget Revenues
Collection & Treatment					
City of York	17,360	1,302	18,662	13,733	2,941,956
Treatment Contracts					
Manchester Township	3,834	129	3,963		975,132
North York	718	64	782		131,363
Spring Garden Township	3,463	235	3,698		1,073,344
Springettsbury Township					273,842
West Manchester Township	2,180	318	2,498		976,106
West York Borough	1,510	160	1,670		889,714
York Township	3,012	205	3,217		1,035,977
Treatment Only	14,717	1,111	15,828		5,355,478
Treatment Only	32,077	2,413	34,490		8,297,434

Note: Customers as of 12-31-2018

1

2

I also used past and budgeted results from operations to establish forecasted operating results.

3

4

5

Q. DID YOU MAKE ANY UPDATES TO YOUR APPRAISAL AFTER IT WAS SUBMITTED TO THE BUYER, AND IF SO, WHAT WAS THE UPDATE, WHEN WAS IT MADE, AND WHY WAS IT NECESSARY?

6

7

8

A. Yes, AUS Consultants completed a preliminary appraisal estimate on March 25, 2021. On May 24, 2021, I was requested to prepare the final appraisal once the Engineer's Assessment was completed.

9

10

11

12

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

13

A. It does. However, by filing this direct testimony I understand that I may have the opportunity to submit additional testimony responsive to challenges to my appraisal.

14

Curriculum Vitae (CV) of Jerome C. Weinert, P.E., CDP, ASA

Mr. Weinert is currently Principal and Director of AUS Consultants, Depreciation and Valuation. He has forty-nine (2021-1972) years' experience in valuation and depreciation consulting and management. AUS, with offices across the country, has provided consulting services to the regulated utility industry nationally for over thirty-nine years. A partial list of services provided includes valuations depreciation studies, rate of return studies, cost of service studies, and rate design.

Prior to joining AUS in 1987, Mr. Weinert was employed by American Appraisal Associates, Inc. (American) for sixteen years in their Regulated Industries Group. He held various positions at American, the last being supervising appraiser. Among his other valuation responsibilities, he directed the firm's utility industry capital recovery studies and AUS Consultant's valuation of communication company assets and businesses.

Mr. Weinert graduated from the Milwaukee School of Engineering with a Bachelor of Science degree in Mechanical Engineering and received a master's in business administration from Marquette University. He is a registered professional engineer (1976) (by examination) in the state of Wisconsin as well as a senior member (1982) of the American Society of Appraisers in the public utility valuation field. This latter designation is obtained by written examination primarily in the areas of utility valuation, depreciation, and the economics of regulated firms. He is also a Certified Depreciation Professional (1997) (CDP) and founding member of the Society of Depreciation Professionals and the Society's 1995 President and sponsor of the Society's Certification and re-certification program as such Mr. Weinert developed these programs and oversaw their initial introduction into the Society. He also worked in conjunction with Society members in the development of the Society's training programs which as of 2003 has become the only such formalized depreciation training program in the North America and is an instructor in several of its courses.

During his professional career related to valuations and depreciation matters Mr. Weinert has testified before various courts and public service commissions on these subjects. He has also assisted numerous utilities in preparing capital recovery plans which specifically address the issues of plant replacement. Mr. Weinert has also presented expert testimony on valuation matters. Mr. Weinert has testified before the Pennsylvania Public Utility Commission on regulatory matters associated with Pennsylvania Section 1329 matters. On matters related to eminent domain issues, Mr. Weinert has presented expert testimony in the Massachusetts Superior Court, the Court of Common Pleas, Fayette County, Ohio, the New Hampshire Public Utilities Commission, the Twentieth Judicial Court (deposition only) in Charlotte County, Florida, the Nineteenth Judicial Circuit Court in St. Lucie County, Florida (deposition only). In regard to ad valorem taxation, Mr. Weinert has presented study results to the New York State Board of Equalization and Assessment (now the New York Office of Real Property Services (NY ORPS)), pertaining to useful life and net salvage values for all types of utility property subject to the Board's mass appraisal model. Mr. Weinert has appeared before the Valuation Adjustment Board in Florida for Duval, Hillsborough, Okeechobee, and Palm Beach counties, the Twelfth Judicial Circuit Sarasota County, Florida, the California Board of Equalization and Assessment, the Arizona Board of Assessment, the Missouri Board of Taxation, the Colorado and Texas Departments of Review, the Massachusetts Tax Appeal Court, the Superior Court of the State of Arizona in the County of Maricopa, the State Tax Appeal Board of the State of Montana, the New York City Tax Commission and the Public Utility Commission of Pennsylvania Section 1329 hearings (8).

Mr. Weinert has appeared before regulatory bodies in Alaska, Arkansas, Illinois, Indiana, Iowa, Missouri, Nevada, Nebraska, North Carolina, Ohio, Oregon, Pennsylvania, and South Carolina in support of rate-base valuation determination and capital recovery. He has presented testimony on depreciation matters

before the Canadian Radio-Television and Telecommunications Commission (CRTC) and the United States Federal Energy Regulatory Commission (FERC). In terms of water and wastewater acquisitions and applications for regulatory approval of rate base Mr. Weinert has testified for two investor-owned acquisitions of municipal wastewater authorities one representing the municipality and secondly for the acquiring investor-owned utility. He has submitted study results to the State Commissions of Alabama, Alaska, Arkansas, Idaho, Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, North Carolina, Oregon, Pennsylvania, South Carolina, Washington, and Wisconsin, and the Federal Communications Commission.

Mr. Weinert has presented papers on valuation and depreciation topics to professional and utility industry trade organizations. He also directed AUS Consultants' semi-annual week-long depreciation training programs (1988-1997). These specialized training courses, offered at basic and advanced levels, teach depreciation study techniques to public utility and public service commission staff specialists. The training includes depreciation theory and concepts and hands-on experience with personal computer-based analytical depreciation programs.

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
2021				
AT&T Communications	North America	2020	2021	Ad Valorem Tax Appraisal
AT&T Communications	California	2020	2021	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2020	2021	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2020	2021	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2020	2021	Ad Valorem Tax Appraisal
Verizon New York, Inc.	New York	2020	2021	Ad Valorem Tax Appraisal
Lower Makefield	Lower Makefield Wastewater	2020	2021	Fair Market Value 1329
Pennsylvania American Water Company	Brentwood Borough Wastewater	2020	2021	Fair Market Value 1329
2020				
AT&T Communications	North America	2019	2020	Ad Valorem Tax Appraisal
AT&T Communications	California	2019	2020	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2019	2020	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2019	2020	Ad Valorem Tax Appraisal
Verizon New York, Inc.	New York	2019	2020	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2019	2020	Ad Valorem Tax Appraisal
East Norriton Township, PA	East Norriton Wastewater	2019	2020	Fair Market Value 1329
Pennsylvania American Water Company	Kane Wastewater	2019	2020	Fair Market Value 1329
Pennsylvania American Water Company	Royersford Wastewater	2019	2020	Fair Market Value 1329
Pennsylvania American Water Company	Valley Wastewater	2019	2020	Fair Market Value 1329
Pennsylvania American Water Company	Valley Water	2019	2020	Fair Market Value 1329
Lehigh County Authority	Allentown Water & Sewer	2020	2020	Financing
Pennsylvania American Water Company	Upper Pottsgrove wastewater	2020	2020	Fair Market Value 1329
2019				
AT&T Communications	North America	2018	2019	Ad Valorem Tax Appraisal
AT&T Communications	California	2018	2019	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2018	2019	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2018	2019	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2018	2019	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2018	2019	Ad Valorem Tax Appraisal
Cheltenham Township, PA	Cheltenham Wastewater	2018	2019	Fair Market Value 1329
Pennsylvania American Water Company	Steelton Water	2018	2019	Fair Market Value 1329
Pennsylvania American Water Company	Exeter Wastewater	2018	2019	Fair Market Value 1329
2018				
AT&T Communications	North America	2017	2018	Ad Valorem Tax Appraisal
AT&T Communications	California	2017	2018	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2017	2018	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2017	2018	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2017	2018	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2017	2018	Ad Valorem Tax Appraisal
Level 3 Communications, LLC	North America	2017	2018	Ad Valorem Tax Appraisal
Level 3 Communications, LLC	California	2017	2018	Ad Valorem Tax Appraisal
CenturyLink Communications, LLC	North America	2017	2018	Ad Valorem Tax Appraisal
CenturyLink Communications, LLC	California	2017	2018	Ad Valorem Tax Appraisal
East Bradford Township, PA	East Bradford Wastewater	2018	2018	Fair Market Value 1329

QUALIFICATIONS 3

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
Pennsylvania American Water Company	Sadsbury Wastewater	2017	2018	Fair Market Value Appraisal
Pennsylvania American Water Company Appraisal	Kane Wastewater	2017	2018	Fair Market Value
2017				
AT&T Communications	North America	2016	2017	Ad Valorem Tax Appraisal
AT&T Communications	California	2016	2017	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2016	2017	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2016	2017	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2016	2017	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2016	2017	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2016	2017	Ad Valorem Tax Appraisal
Level 3 Communications	North America	2016	2017	Ad Valorem Tax Appraisal
Level 3 Communications	California	2016	2017	Ad Valorem Tax Appraisal
Whitpain Township, PA	Whitpain Wastewater	2016	2017	Appraisal for Planning
Plymouth Township, PA	Plymouth Wastewater	2016	2017	Appraisal for Planning
East Norriton Township, PA	East Norriton Wastewater	2016	2017	Appraisal for Planning
Pennsylvania American Water Company	Sadsbury Wastewater	2016	2017	Fair Market Value Appraisal
Pennsylvania American Water Company	McKeesport Wastewater	2016	2017	Fair Market Value Appraisal
Intermountain Gas Company	Idaho	2016	2017	Depreciation Study
2016				
AT&T Communications	North America	2015	2016	Ad Valorem Tax Appraisal
AT&T Communications	California	2015	2016	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2015	2016	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2015	2016	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2015	2016	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2015	2016	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2015	2016	Ad Valorem Tax Appraisal
Level 3 Communications	North America,	2015	2016	Ad Valorem Tax Appraisal
Level 3 Communications	California	2015	2016	Ad Valorem Tax Appraisal
New Garden Township, PA	New Garden Wastewater	2016	2016	Fair Market Value Appraisal
2015				
AT&T Communications	North America	2014	2015	Ad Valorem Tax Appraisal
AT&T Communications	California	2014	2015	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2014	2015	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2014	2015	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2014	2015	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2014	2015	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2014	2015	Ad Valorem Tax Appraisal
Level 3 Communications	North America,	2014	2015	Ad Valorem Tax Appraisal
Level 3 Communications	California	2014	2015	Ad Valorem Tax Appraisal
Verizon Wireless	Nationwide	2014	2015	Ad Valorem Tax Appraisal
2014				
AT&T Communications	North America	2013	2014	Ad Valorem Tax Appraisal
AT&T Communications	California	2013	2014	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2013	2014	Ad Valorem Tax Appraisal

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
AT&T - Indiana Bell Telephone Company	Indiana	2013	2014	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2013	2014	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2013	2014	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2013	2014	Ad Valorem Tax Appraisal
Level 3 Communications	North America,	2013	2014	Ad Valorem Tax Appraisal
Level 3 Communications	California	2013	2014	Ad Valorem Tax Appraisal
Cascade Natural Gas Corporation	Oregon & Washington	2013	2014	Depreciation Study
Intermountain Gas Company	Idaho	2013	2014	Depreciation Study
Virgin Islands Telephone Corporation	US Virgin Islands	2013	2014	Depreciation Study
Verizon Wireless	Nationwide	2013	2014	Ad Valorem Tax Appraisal

2013

AT&T Communications	North America	2012	2013	Ad Valorem Tax Appraisal
AT&T Communications	California	2012	2013	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2012	2013	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2012	2013	Ad Valorem Tax Appraisal
AT&T - Michigan Bell Telephone Company	Michigan	2012	2013	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2012	2013	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2012	2013	Ad Valorem Tax Appraisal
Verizon Communications	New England - Mass	2012	2013	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2012	2013	Ad Valorem Tax Appraisal
Level 3 Communications	North America,	2012	2013	Ad Valorem Tax Appraisal
	California			
Sprint Nextel Corporation	North America	2012	2013	Ad Valorem Tax Appraisal
Verizon Wireless	Palm Beach, Florida	2012	2013	Ad Valorem Tax Appraisal
Verizon Communications	New England Mass	2002-2007	2013	Ad Valorem Tax Appraisal

2012

AT&T Communications	North America	2011	2012	Ad Valorem Tax Appraisal
AT&T Communications	California	2011	2012	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2011	2012	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2011	2012	Ad Valorem Tax Appraisal
AT&T - Michigan Bell Telephone Company	Michigan	2011	2012	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2011	2012	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2011	2012	Ad Valorem Tax Appraisal
Verizon Communications	New England - Mass	2011	2012	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2011	2012	Ad Valorem Tax Appraisal
Level 3 Communications	North America,	2011	2012	Ad Valorem Tax Appraisal
	California			
Sprint Nextel Corporation	North America	2011	2012	Ad Valorem Tax Appraisal
Verizon Wireless	Palm Beach, Florida	2011	2012	Ad Valorem Tax Appraisal
MetroPCS	Palm Beach, Florida	2011	2012	Ad Valorem Tax Appraisal
Verizon Communications	Florida - revised	2008	2012	Ad Valorem Tax Appraisal
Verizon Wireless	Palm Beach, Florida	2012	2012	Ad Valorem Tax Appraisal

2011

AT&T Communications	North America	2010	2011	Ad Valorem Tax Appraisal
AT&T Communications	California	2010	2011	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2010	2011	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2010	2011	Ad Valorem Tax Appraisal

QUALIFICATIONS 5

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
AT&T - Michigan Bell Telephone Company	Michigan	2010	2011	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2010	2011	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2010	2011	Ad Valorem Tax Appraisal
Verizon Communications	New England - Mass	2010	2011	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2010	2011	Ad Valorem Tax Appraisal
Level 3 Communications	North America, California	2010	2011	Ad Valorem Tax Appraisal
Global Crossing	North America	2010	2011	Ad Valorem Tax Appraisal
Intermountain Gas Company	Idaho	2010	2011	Depreciation Study
Sprint Nextel Corporation	North America	2010	2011	Ad Valorem Tax Appraisal
Verizon Wireless	Palm Beach, Florida	2010	2011	Ad Valorem Tax Appraisal
MetroPCS	Palm Beach, Florida	2010	2011	Ad Valorem Tax Appraisal
Verizon Communications	Florida - revised	2008	2011	Ad Valorem Tax Appraisal
Intermountain Gas Company	Idaho	2010	2011	Depreciation Study
Virgin Islands Telephone Corporation	US Virgin Islands	2010	2011	Technical Update of Depreciat
			Study	
2010				
AT&T Communications	North America	2009	2010	Ad Valorem Tax Appraisal
AT&T Communications	California	2009	2010	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2009	2010	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2009	2010	Ad Valorem Tax Appraisal
AT&T - Michigan Bell Telephone Company	Michigan	2009	2010	Ad Valorem Tax Appraisal
AT&T - Southwestern Bell Telephone Company	Arkansas, Kansas, Missouri, Oklahoma, Texas	2009	2010	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2009	2010	Ad Valorem Tax Appraisal
Embarq Missouri, Inc.	Missouri	2009	2010	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2009	2010	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2009	2010	Ad Valorem Tax Appraisal
Verizon Communications	New England - Mass	2009	2010	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2009	2010	Ad Valorem Tax Appraisal
Level 3 Communications	North America, California	2009	2010	Ad Valorem Tax Appraisal
Global Crossing	North America	2009	2010	Ad Valorem Tax Appraisal
MetroPCS	Palm Beach, Florida	2009	2010	Ad Valorem Tax Appraisal
2009				
AT&T Communications	North America	2008	2009	Ad Valorem Tax Appraisal
AT&T Communications	California	2008	2009	Ad Valorem Tax Appraisal
AT&T Communications	Florida	2008	2009	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2008	2009	Ad Valorem Tax Appraisal
AT&T - Michigan Bell Telephone Company	Michigan	2008	2009	Ad Valorem Tax Appraisal
AT&T - Wisconsin Bell Telephone Company	Wisconsin	2008	2009	Ad Valorem Tax Appraisal
AT&T - Southwestern Bell Telephone Company	Arkansas, Kansas, Missouri, Oklahoma, Texas	2008	2009	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2008	2009	Ad Valorem Tax Appraisal
Embarq Texas, Inc.	Texas	2008	2009	Ad Valorem Tax Appraisal
Embarq Missouri, Inc.	Missouri	2008	2009	Ad Valorem Tax Appraisal
Embarq Northwest	Washington	2008	2009	Ad Valorem Tax Appraisal

QUALIFICATIONS 6

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
Embarq Virginia	Virginia	2008	2009	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2008	2009	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2008	2009	Ad Valorem Tax Appraisal
Verizon Communications	New England - Mass	2008	2009	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2008	2009	Ad Valorem Tax Appraisal
Level 3 Communications	North America, California, Michigan & Arizona	2008	2009	Ad Valorem Tax Appraisal
Global Crossing	North America	2008	2009	Ad Valorem Tax Appraisal
AboveNet, Inc	North America/California	2003	2009	Ad Valorem Tax Appraisal
Verizon Wireless	Ohio Properties	2004-2005	2009	Ad Valorem Tax Appraisal
Virgin Islands Telephone Corporation	US Virgin Islands	2008	2009	Depreciation Study
Sprint Nextel Corporation	North America	2008	2009	Ad Valorem Tax Appraisal
2008				
AT&T Communications	North America	2007	2008	Ad Valorem Tax Appraisal
AT&T Communications	California	2007	2008	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2007	2008	Ad Valorem Tax Appraisal
AT&T - Michigan Bell Telephone Company	Michigan	2007	2008	Ad Valorem Tax Appraisal
AT&T - Wisconsin Bell Telephone Company	Wisconsin	2007	2008	Ad Valorem Tax Appraisal
AT&T - Southwestern Bell Telephone Company	Arkansas, Kansas, Missouri, Oklahoma, Texas	2007	2008	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2007	2008	Ad Valorem Tax Appraisal
Embarq Texas, Inc.	Texas	2007	2008	Ad Valorem Tax Appraisal
Embarq Missouri, Inc.	Missouri	2007	2008	Ad Valorem Tax Appraisal
Embarq Northwest	Washington	2007	2008	Ad Valorem Tax Appraisal
Embarq Virginia	Virginia	2007	2008	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2007	2008	Ad Valorem Tax Appraisal
Verizon Communications	California	2007	2008	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2007	2008	Ad Valorem Tax Appraisal
Verizon Communications	New England Mass	2002-2007	2008	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2007	2008	Ad Valorem Tax Appraisal
Level 3 Communications	North America, California, Michigan & Arizona	2007	2008	Ad Valorem Tax Appraisal
Global Crossing	North America	2007	2007	Ad Valorem Tax Appraisal
Intermountain Gas Company	Idaho	2007	2008	Depreciation Study
2007				
AT&T Communications	North America	2006	2007	Ad Valorem Tax Appraisal
AT&T Communications	California	2006	2007	Ad Valorem Tax Appraisal
AT&T - Indiana Bell Telephone Company	Indiana	2006	2007	Ad Valorem Tax Appraisal
AT&T - Michigan Bell Telephone Company	Michigan	2006	2007	Ad Valorem Tax Appraisal
AT&T - Wisconsin Bell Telephone Company	Wisconsin	2006	2007	Ad Valorem Tax Appraisal
Embarq Florida, Inc.	Florida	2006	2007	Ad Valorem Tax Appraisal
Embarq Texas, Inc.	Texas,	2006	2007	Ad Valorem Tax Appraisal
Embarq Missouri, Inc.	Missouri	2006	2007	Ad Valorem Tax Appraisal
Embarq North Carolina	North Carolina	2006	2007	Ad Valorem Tax Appraisal
Embarq Virginia	Virginia	2006	2007	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2006	2007	Ad Valorem Tax Appraisal
Verizon Communications	California	2006	2007	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2006	2007	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	North America	2006	2007	Ad Valorem Tax Appraisal

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Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
Qwest Communications Corporation	North America California	2006	2007	Ad Valorem Tax Appraisal
Level 3 Communications	North America, California, Michigan, & Arizona	2006	2007	Ad Valorem Tax Appraisal
Level 3 Communications	Arizona	2002 - 2006	2007	Ad Valorem Tax Appraisal
Global Crossing	North America	2006	2007	Ad Valorem Tax Appraisal
Alaska Communications System, Inc. (ACS)	ACS of Alaska ACS of Anchorage ACS of Fairbanks ACS of the Northland ACS Holdings	2006	2007	Depreciation Studies
Intermountain Gas Company	Idaho	2006	2007	Depreciation Study
2006				
AT&T Communications	Palm Beach Florida	2000 - 2003	2006	Ad Valorem Tax Appraisal
AT&T Communications	North America	2005	2006	Ad Valorem Tax Appraisal
AT&T Communications	California	2005	2006	Ad Valorem Tax Appraisal
Sprint Florida, Inc.	Florida	2005	2006	Ad Valorem Tax Appraisal
Sprint Texas, Inc.	Texas,	2005	2006	Ad Valorem Tax Appraisal
Sprint Missouri, Inc.	Missouri	2005	2006	Ad Valorem Tax Appraisal
Sprint North Carolina	North Carolina	2005	2006	Ad Valorem Tax Appraisal
Sprint Virginia	Virginia	2005	2006	Ad Valorem Tax Appraisal
Embarq Nevada	Nevada	2005	2006	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2005	2006	Ad Valorem Tax Appraisal
Verizon Communications	California	2005	2006	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2005	2006	Ad Valorem Tax Appraisal
Verizon Business (formerly MCI)	Massachusetts	2002-2--5	2006	Ad Valorem Tax Appraisal
Level 3 Communications	North America	2005	2006	Ad Valorem Tax Appraisal
Level 3 Communications	Arizona	2002-2006	2006	Ad Valorem Tax Appraisal
Global Crossing	North America	2005	2006	Ad Valorem Tax Appraisal
Indianapolis Power & Light	IPL	2005	2006	Depreciation Study
2005				
AT&T Communications	North America	2004	2005	Ad Valorem Tax Appraisal
AT&T Communications	California	2004	2005	Ad Valorem Tax Appraisal
Sprint Florida, Inc.	Florida	2004	2005	Ad Valorem Tax Appraisal
Sprint PCS	North America	2004	2005	Ad Valorem Tax Appraisal
Verizon Communications	Florida	2004	2005	Ad Valorem Tax Appraisal
Verizon Communications	California	2004	2005	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2004	2005	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	2004	2005	Ad Valorem Tax Appraisal
Level 3 Communications	North America	2004	2005	Ad Valorem Tax Appraisal
Global Crossing	North America	2004	2005	Ad Valorem Tax Appraisal
Global Crossing	New York Special Franchise Property	2003 & 2004	2005	Ad Valorem Tax Appraisal
Indianapolis Power & Light	IPL	2004	2005	Depreciation Study
2004				
Sprint Florida, Inc.	Florida	2003	2004	Ad Valorem Tax Appraisal
Verizon Communications	California	2003	2004	Ad Valorem Tax Appraisal

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
Verizon Communications	Northwest	2003	2004	Ad Valorem Tax Appraisal
Verizon Communications	New England	2003	2004	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	2003	2004	Ad Valorem Tax Appraisal
Level 3 Communications	North America	2003	2004	Ad Valorem Tax Appraisal
Global Crossing	North America	2003	2004	Ad Valorem Tax Appraisal
Sprint PCS	Cost Indexes	2003	2004	Ad Valorem Tax Appraisal
AT&T Communications	North America	2003	2004	Ad Valorem Tax Appraisal
AT&T Communications	California	2003	2004	Ad Valorem Tax Appraisal
Intermountain Gas Company	Idaho	2003	2004	Depreciation Study
2003				
Sprint Florida, Inc.	Florida	2002	2003	Ad Valorem Tax Appraisal
Verizon Communications	California	2002	2003	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2002	2003	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	2002	2003	Ad Valorem Tax Appraisal
Level 3 Communications	North America	2002	2003	Ad Valorem Tax Appraisal
Sprint PCS	Cost Indexes	2002	2003	Ad Valorem Tax Appraisal
AT&T Communications	North America	2002	2003	Ad Valorem Tax Appraisal
AT&T Communications	California	2002	2003	Ad Valorem Tax Appraisal
Global Crossing	North America	2002	2003	Ad Valorem Tax Appraisal
Verizon Wireless	Broward County, FL	1998 through 2002	2003	Ad Valorem Tax Appraisal
2002				
Sprint Florida, Inc.	Florida	2001	2002	Ad Valorem Tax Appraisal
Verizon Communications	California	2001	2002	Ad Valorem Tax Appraisal
Verizon Communications	Northwest	2001	2002	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	2001	2002	Ad Valorem Tax Appraisal
Level 3 Communications	North America	2001	2002	Ad Valorem Tax Appraisal
Global Crossing	North America	2001	2002	Ad Valorem Tax Appraisal
AT&T Wireless	Plymouth, MI	2001	2002	Ad Valorem Tax Appraisal
Sprint PCS	Cost Indexes	2001	2002	Ad Valorem Tax Appraisal
AT&T Communications	North America	2001	2002	Ad Valorem Tax Appraisal
Intermountain Gas Company	Idaho	2001	2002	Depreciation Study
AT&T Communications	California	2001	2002	Ad Valorem Tax Appraisal
2001				
Verizon	Verizon - New York	2001	2001-2	Functional Obsolescence & Useful Life studies for valuation
Sprint Florida, Inc.	Sprint Florida, Inc.	2000	2001	Ad Valorem Tax Appraisal
Verizon Communications	California	2000	2001	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	2000	2001	Ad Valorem Tax Appraisal
Global Crossing	North America	2000	2001	Ad Valorem Tax Appraisal
Sprint PCS	Cost Indexes	2000	2001	Ad Valorem Tax Appraisal
Sprint Corporation	Centel - Nevada	2000	2001-2	Depreciation Study
Alaska Communications System, Inc. (ACS)	ACS of Alaska	2000	2001	Depreciation Study
	ACS of Anchorage			
	ACS of Fairbanks			
	ACS of the Northland			
	ACS Holdings			

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
2000				
Sprint PCS Telus Communications	BTS Equipment Telus - Alberta & British Columbia	2000 2000	2000 2000	Economic Life Study Depreciation study Phase III Price Caps
Sprint Florida, Inc.	Florida	1999	2000	Ad Valorem Tax Appraisal
Verizon Communications	California	1999	2000	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	1999	2000	Ad Valorem Tax Appraisal
1999				
Sprint Corporation	Centel - Nevada	1998	1999	Depreciation Study
Intermountain Gas Company	Intermountain Gas Company	1998	1999	Depreciation Study
Sprint Florida, Inc.	Florida	1998	1999	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	1998	1999	Ad Valorem Tax Appraisal
1998				
Frontier Corporation	Frontier Telephone of Rochester	1998	1997	Valuation depreciation Lives and Net Salvage Parameters
Pacific Telecom, Inc.	Telephone Utilities of Washington	1997	1998	Depreciation Study
Sprint Florida, Inc.	Florida	1997	1998	Ad Valorem Tax Appraisal
Verizon Communications	Florida	1997	1998	Ad Valorem Tax Appraisal
Sprint Communications, LP	North America	1997	1998	Ad Valorem Tax Appraisal
Sprint Corporation	United Telephone Company of South Carolina	1998	1998	Depreciation Expense Universal Service Fund
Sprint Corporation	Carolina Telephone and Telegraph and Central Telephone of North Carolina	1998	1998	Depreciation Expense Universal Service Fund
Telus Communications	Telus - Edmonton (TCE)	1997	1998	Depreciation Study Phase II Price Caps
1997				
Sprint Corporation	Centel - Nevada	1997	1997	Unbundling/ Inter-connection Depreciation Study
Pacific Telecom, Inc.	Telephone Utilities of Oregon	1996	1997	Depreciation Study
Pacific Telecom, Inc.	Telephone Utilities of Alaska 1996 And the Northland		1997	Depreciation Study
Telus Communications	Telus - TCI formerly AGT	1996	1997	Depreciation Study Phase II Price Caps
Indianapolis Power & Light	IPL	1996	1997	Depreciation Study
Sprint Florida, Inc.	Florida	1996	1997	Ad Valorem Tax Appraisal

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
Verizon Communications	Florida	1996	1997	Ad Valorem Tax Appraisal
Pacific Telecom, Inc.	Eagle Telephone (Colorado)	1996	1997	Depreciation Study
1996				
Intermountain Gas Company	Intermountain Gas Company	1995	1996	Depreciation Study
Sprint Florida, Inc.	Florida	1995	1996	Ad Valorem Tax Appraisal
Century Telephone	Century Telephone of Ohio, Inc.	1995	1996	Depreciation Study
Telus Communications	AGT Limited (Alberta Government Telephones)	1995	1996	Depreciation Study
Johnson County Kansas Office of the Assessor	Useful Life of Computer Equipment	1995	1995	Useful/Market Life Analysis
Milwaukee Metropolitan Sewerage District	Milwaukee Metropolitan Sewerage District	1995	1996	Depreciation Study
Sprint Corporation	Long Distance Division	1995	1995	Depreciation/Recovery Status Study
Sprint Corporation	Cellular Division	1995	1995	Depreciation/Recovery Status Study
Pacific Telecom, Inc.	Alascom, Inc.	1994	1995	Depreciation Study
Pacific Telecom, Inc.	Telephone Utilities of the Northland	1993	1994	Depreciation Study
	Telephone Utilities of Alaska	1993	1994	Depreciation Study
Indiana Energy	Indiana Gas Company	1993	1994	Depreciation Study
Columbia Gas Transmission	Gas Pipeline Property in Sullivan County, NY	1993	1993	Useful Life Study
United Telephone - Midwest Group	United Telephone Company of Missouri	1993	1993	Modernization/ Depreciation Study
Intermountain Gas Co.	Intermountain Gas Co.	1992	1993	Depreciation Study
Pacific Telecom, Inc.	Alascom, Inc.	1992	1993	Depreciation Study
	Telephone Utilities of Oregon, Inc.	1991	1992	Depreciation Study
	Telephone Utilities of Washington, Inc.	1991	1992	Depreciation Study
Small Telephone Company Coalition	Oregon Small Telephone Companies	1991	1992	Depreciation Support

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
United Telephone Systems	United Telephone Co. of Pennsylvania	1991	1992	Instructional Depreciation Study
New York State Division of Equalization and Assessment	Electric, Gas, Water, Telephone, Pipeline, Steam, CATV	1991	1992	Useful Lives and Net Salvage Values
Rochester Telephone Company	Enterprise Telephone	1991	1992	Study Review
Indiana Energy	Indiana Gas/Richmond Gas/Terre Haute Gas	1990	1991	Depreciation Study
American Electric Power	Indiana/Michigan Power Co.	1990	1991	Depreciation Study
Rochester Telephone Company	Rochester Telephone Co.	1990	1991	Study Review
United Telephone Systems	United Telephone Co. of Florida	1990	1991	Instructional Depreciation Study
United Telephone Systems	United Telephone Co. of Oregon	1989	1990	Study Review
Telephone and Data Systems, Inc.	Quincy Telephone Company	1990	1991	Depreciation Study
Telephone and Data Systems, Inc.	Wolverine Telephone Company	1989	1990	Depreciation Study
Indiana Energy	Indiana Gas Company, Inc.	1989	1990	Depreciation Study
Intermountain Gas Co.	Intermountain Gas Co.	1989	1990	Remaining Life/Net Salvage Support
North-West Telephone Company	North-West Telephone Company	1989	1990	Study Review
United Telephone System	United of Texas	1989	1990	Instructional Depreciation Study
	United of Missouri	1989	1990	Instructional Depreciation Study
Milwaukee Water	Milwaukee Water	1989	1990	Depreciation Study
Indiana Natural Gas Corp.	Indiana Natural Gas Corp.	1989	1990	Depreciation Study
Pacific Telecom	Telephone Utilities of the Northland	1989	1990	Depreciation Study

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Year</u>	<u>Study Performed</u>	<u>Year</u>	<u>Activity</u>
	Telephone Utilities of Alaska	1989		1990	Depreciation Study
	Alascom	1989		1990	Depreciation Study
	Telephone Utilities of Washington, Inc.	1988		1989	Depreciation Study
WICOR	Wisconsin Gas Company	1988		1989	Depreciation Study
ALLTEL	ALLTEL - Kentucky, Inc.	1987		1989	Depreciation Study
	ALLTEL - Ohio, Inc.	1988		1989	Depreciation Study
	Western Reserve Telephone Company	1988		1989	Depreciation Study
Milwaukee Metropolitan Sewer District	Milwaukee Metropolitan Sewer District	1988		1989	Depreciation Study
United Telephone Company	United of Ohio Telephone Company	1988 1988		1989 1989	ELG Support ELG Support
United Telecom	U.S. Sprint	1988		1988	Useful Life Study
Pacific Telecom	Telephone Utilities of Oregon	1987		1988	Depreciation Study
	Telephone Utilities of Eastern Oregon	1987		1988	Depreciation Study
	Rose Valley Telephone Company	1987		1988	Depreciation Study
United Telephone	United of Minnesota	1987		1988	Capital Planning Support
Wisconsin Southern Gas	Wisconsin Southern Gas	1987		1988	Depreciation Study
Pacific Telecom	Glacier State Telephone Company	1986		1987	Depreciation Study
	Sitka Telephone Co.	1986		1987	Depreciation Study
	Juneau-Douglas Tel Company	1986		1987	Depreciation Study
Pacific Telecom	Telephone Utilities of Alaska	1986		1987	Depreciation Study
	Alascom	1986		1987	Depreciation Study

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Year</u>	<u>Study Performed</u>	<u>Year</u>	<u>Activity</u>
Lincoln Telecommunications	Lincoln Telephone and Telegraph Company	1986	1987		Digital Switching Service Life
Northwest Natural Gas Corporation	Northwest Natural Gas Corporation	1985	1986		Depreciation Study
ALLTEL	Western Reserve Telephone Company	1984	1985		Depreciation Study
	ALLTEL - Ohio	1984	1985		Depreciation Study
	ALLTEL - Alabama	1984	1985		Depreciation Study
Gulf Telephone Co.	Gulf Telephone Company	1984	1985		Depreciation Study
United Telephone Systems, Inc.	United of Iowa	1984	1985		Depreciation Study
	United of Arkansas	1984	1985		Depreciation Study
Pacific Telecom	Telephone Utilities of Washington	1983	1984		Depreciation Study
	Telephone Utilities of Eastern Oregon	1983	1984		Depreciation Study
Pacific Telecom	Telephone Utilities of Oregon	1983	1984		Depreciation Study
	Northwestern Telephone Systems, Inc., Oregon	1983	1984		Depreciation Study
	Rose Valley Telephone Company	1983	1984		Depreciation Study
United Telecommunications	All United Telephone Companies	1983	1984		Capital Recovery Strategy
Lincoln Telecommunications	Lincoln Telephone & Telegraph Company	1983	1984		Depreciation Study
ALLTEL	ALLTEL - Mississippi	1982	1983		Depreciation Study
	ALLTEL - Michigan	1982	1983		Depreciation Study
North Carolina Natural Gas Corp.	North Carolina Natural Gas Corporation	1982	1983		Depreciation Study
Mid Continent Telephone (Currently ALLTEL)	Western Reserve Telephone	1982	1983		Depreciation Study
	Mid Ohio Telephone	1982	1982		Depreciation Study

Appraisal & Capital Recovery Activities Client List

<u>Company</u>	<u>Property</u>	<u>Study Year</u>	<u>Year Performed</u>	<u>Activity</u>
	Florence Telephone Company	1980	1981	Depreciation Study
	Leeds Telephone Co.	1980	1981	Depreciation Study
	Elmore Coosa Tel Company	1980	1981	Depreciation Study
	Brookville Telephone Company	1980	1981	Depreciation Study
	Mid-Pennsylvania Telegraph	1980	1981	Depreciation Study
Telephone Utilities (Currently Pacific Telecom)	Telephone Utilities of Oregon	1979	1980	Depreciation Study
	Telephone Utilities of Eastern Oregon	1979	1980	Depreciation Study
	Northwestern Telephone Systems, Inc.-Oregon	1979	1980	Depreciation Study
	Rose Valley Telephone Company	1979	1980	Depreciation Study
United Telephone Systems, Inc.	United of Ohio	1979	1980	Depreciation Study
Telephone Utilities	Telephone Utilities of Washington	1978	1979	Depreciation Study
United Telephone Systems, Inc.	United of Ohio	1978	1979	Depreciation Study
Rochester Telephone	Rochester Telephone (Indiana)	1977	1978	Depreciation Study
United Telephone Systems, Inc.	United of Ohio	1977	1978	Depreciation Study
Princeton Telephone	Princeton Telephone (Indiana)	1976	1977	Depreciation Study
Northwestern Telephone	Northwestern Telephone (Illinois)	1975	1976	Depreciation Study

Papers and Seminars

- 2011 Training Instructor Depreciation Basics Sessions A & B and Life and Salvage Analysis
Society of Depreciation Professionals 25th Annual Meeting
Atlanta, GA September 20-22, 2011
- 2010 Will the Real Cost Approach Please Stand Up?
National Association of Property Tax Representatives Transportation, Energy, & Communications (NAPTR-TEC)
Scottsdale, Arizona October 25-27, 2010
- Issues Affecting Assessment of Regulated Industries
Institute for Professionals in Taxation (IPT) Property Tax Symposium
Austin, Texas October 31 – November 3, 2010
- 2009 (Valuing) Intangibles
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas July 28, 2009
- Fair Value Accounting (Appraisal Panelist)
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas July 29, 2009
- 2008 Valuation Issues Valuation of Assets and the Impact of Depreciation
Society of Depreciation Professionals Annual Meeting
Greenville, SC September 21-26, 2008
- Obsolescence in the Long-Distance and Local Transport Networks
Technology Futures Inc. Asset Valuation Conference
Austin Texas February 8, 2008
- 2007 Communications Industry Issues
National Association of Property Tax Representative – Transportation, Energy, & Communications
New Orleans, LA October 30, 2007
- 2006 Appraisal Procedures & Issues in a Changing communications Industry
Florida Chapter International Association of Assessing Officers' Tangible Personal Property Conference
Ocala, Florida January 12, 2006
- Valuation of Intangibles
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas July 25, 2006
- SDP 20 years of History and Beyond
Society of Depreciation Professionals 20th Annual Meeting
Long Beach, CA September 18, 2006
- 2005 Valuation in a World with Asset Impairments
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas August 1, 2005

Papers and Seminars

- 2004 Depreciation in the Valuation of Assets
Society of Depreciation Professionals' Eighteenth Annual Meeting
Washington, D.C., September 13, 2004
- 2003 Cost Approach and the Use of Appraisal Guidelines
Institute for Professionals in Taxation – Property Tax Symposium
Fort Lauderdale, FL, September 17, 2003
- Cost Approach – Obsolescence and Depreciation
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas, July 28, 2003
- 2000 Appraisal Issues Associated with Technological Change in the Wireline Telecommunications Industry
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas, July 31, 2000
- The Impact of Advancing Technology and the Changing Regulatory Environment on Obsolescence Calculations for Ad Valorem Valuation Purposes
Journal of Property Tax Management, Spring 2000
- 1996 How to Develop a Reproduction/Replacement Cost New Less Depreciation Approach to Value
Appraisal for Ad Valorem Taxation, Wichita State University
Wichita, Kansas, August 4, 1996
- 1995 Valuation Method, Techniques and Strategies (How to Quantify Stranded Investment) (Market, Income, & Cost Approach)
AGA Depreciation Committee Meeting
Denver, Colorado, August 6-9, 1995, jointly presented with Earl Robinson of AUS Consultants
- 1994 Integrating Future Expectations for the Telephone Industry into Historical Depreciation Analysis
United States Telephone Association (USTA's 1994 Capital Recovery Seminar)
Scottsdale, Arizona, September 12-13, 1994
- 1994 Capital Recovery: United States versus Canada
Canadian Telephone Industry's Annual Capital Recovery Seminar
Edmonton, Alberta, Canada June 14-15, 1994
- 1990 Capital Recovery: Methods, Terminology, Procedures, and Record Keeping
United States Telephone Association (USTA)'s
1990 Non-FCC Subject and Small Company Capital Recovery Seminar
Minneapolis, Minnesota April 10_11, 1990
- Integration of Technology Forecasting Into Historical Life Studies
29th Iowa State Regulatory Conference
Ames, Iowa May 15-17, 1990
- The 1990's and the Second Wave of Major Plant Retirements in the Communications Industry
NARUC's Seventh Biennial Information Conference
Columbus, Ohio September 12-14, 1990

Papers and Seminars

- How Do We Incorporate Change into the Study Filing Procedures?
USTA's 1990 Capital Recovery Seminar
Chicago, Illinois October 16_17, 1990
- 1989 Plant Modernization: Capital Planning and Capital Recovery
Midwest Utilities Conference
Chicago, Illinois September 11_14, 1989
- Price Indexes Today: Procedures, Uses, and Misuses
Society of Depreciation Professionals' Third Annual Meeting
New Orleans, Louisiana December 6_7, 1989
- 1988 Plant Modernization: Capital Planning and Capital Recovery
National Association of Regulatory Utility Commissioners (NARUC)'s
Sixth Biennial Regulatory Information Conference
Columbus, Ohio September 14_16, 1988

Papers and Seminars

- 1997 Sprint Corporation - West Finance Center
Overland Park, Kansas, August 1997
- 1997 Rochester Telephone Corporation
Rochester, New York, April 1997
- 1996 Sprint-Florida-Vista United Telecommunications
Altamonte Springs, Florida August 27-29, 1996
- 1994 Saskatchewan Telecommunications
Regina, Saskatchewan, Canada, June 1994
- 1994 AUS Consultants/Leroy J. Murphy and Associates 1994 Capital Recovery Seminar
May 1994
- 1993 Manitoba Telephone System, Winnipeg, Manitoba, December 1993
- 1993 Society of Depreciation Professionals Annual Meeting
Charleston, South Carolina September 30, 1993
- 1993 SPRINT - Local Telephone Division
Atlanta, Georgia August 11-12, 1993
- 1993 AUS Consultants/Leroy J. Murphy and Associates 1993 Capital Recovery Seminar
Chicago, Illinois May 11 - 13, 1993
- 1993 Canadian Telephone Capital Recovery Seminar
Halifax, Nova Scotia April 20 - 22, 1993
- 1993 United Telephone, Midwest Group
Overland Park, Kansas January 20, 1993
- 1992 BellSouth Corporation
Birmingham, Alabama November 23, 1992
- 1992 Sprint - Local Telephone Division
Kansas City, Kansas November 18 - 20, 1992
- 1992 Society of Depreciation Professionals Annual Meeting
San Antonio, Texas September 9 - 10, 1992
- 1992 AUS Consultants/Leroy J. Murphy and Associates 1992 Capital Recovery Seminar
Chicago, Illinois October 6 - 8, 1992
- 1991 Society of Depreciation Professionals Annual Meeting
Nashville, Tennessee November 20-22, 1991
- 1991 ALLTEL Corporation Microcomputer Depreciation Studies System Training
Hudson, Ohio October 14-16, 1991

Capital Recovery Training

- 2016 Society of Depreciation Professionals
Annual Training
Charleston, South Carolina, September 18-23, 2016
- 2015 Society of Depreciation Professionals
Annual Training
Austin Texas September 2015
- 2014 Society of Depreciation Professionals
Annual Training
New Orleans, Louisiana September 2014
- 2013 Society of Depreciation Professionals
Annual Training
Salt Lake City, Utah September 2013
- 2012 Society of Depreciation Professionals
Annual Training
Minneapolis, Minnesota, September 16-18, 2012
- 1991 United Telecommunications, Inc., Capital Recovery/Microcomputer Depreciation
Studies System Training
Kansas City, Kansas September 23-25, 1991
- 1991 AUS Consultants/Leroy J. Murphy and Associates 1991 Capital Recovery Seminar
Lake Geneva, Wisconsin September 17-19, 1991
- 1991 Rochester Telephone Corporation, Capital Recovery/Microcomputer Depreciation Studies
System Training, Rochester, New York September 3-7, 1991
- 1991 Ameritech Services, Microcomputer Depreciation Studies System Training
Chicago, Illinois May 16-17, 1991
- 1991 AUS Consultants/Leroy J. Murphy and Associates 1991 Capital Recovery Seminar
Washington, D.C. April 9_11, 1991
- 1990 United Telecommunications, Inc., Capital Recovery Seminar
Overland Park, Kansas December 1990
- 1990 AUS Consultants/Leroy J. Murphy and Associates 1990 Capital Recovery Seminar
Chicago, Illinois September 24_27, 1990
- 1990 AUS Consultants/Leroy J. Murphy and Associates 1990 Capital Recovery Seminar
Chicago, Illinois January 29-February 1, 1990
- 1990 United Telecommunications, Inc., Capital Recovery/Microcomputer Depreciation Studies
System Training, Chicago, Illinois July 1990
- 1989 United Telecommunications, Inc., Capital Recovery/Microcomputer Depreciation Studies
System Training, Chicago, Illinois July 1989

Capital Recovery Training

- 1989 AUS Consultants/Leroy J. Murphy and Associates 1989 Capital Recovery Seminar
 Chicago, Illinois March 6_9, 1989
- 1988 AUS Consultants/Leroy J. Murphy and Associates 1988 Capital Recovery Seminar
 Chicago, Illinois July 25_28, 1988
- 1988 United Telecommunications, Inc., Microcomputer Depreciation Studies System Training
 Kansas City, Kansas January 1988