

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DOCKET NO. R-2024-3045192

AND

DOCKET NO. R-2024-3045193

EXHIBITS TO ACCOMPANY DIRECT TESTIMONY

OF

DANE WATSON

ALLIANCE CONSULTING GROUP

VEOLIA WATER PENNSYLVANIA, INC.

February 2024

Dane A. Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Michigan	Michigan Public Service Commission	21513	Upper Peninsula Power Company	2023	Electric Depreciation Study
Texas	Public Utility Commission of Texas	55867	Lower Colorado River Authority	2023	Electric Depreciation Study
Texas	Railroad Commission of Texas	Case No. OS-23-00015513	CenterPoint Texas Gas	2023	Gas Depreciation Study
Nevada	Public Utility Commission of Nevada	23-090-12	Southwest Gas	2023	Gas Depreciation Study - Nevada Division
Louisiana	Public Service Commission of Louisiana	36959	Entergy Louisiana	2023	Electric Depreciation Study
Texas	Railroad Commission of Texas	13758	Atmos Energy - APT	2023	Gas Depreciation Study
Florida	Florida Public Service Commission	20230023	People Gas System	2023	Gas Depreciation Study
Texas	Public Utility Commission of Texas	54565	Central States Water Resources (CSWR Texas)	2023	Water Depreciation Study
New York	New York State Public Service Commission	23-W-0111	Veolia New York	2023	Water Depreciation Study
Arkansas	Arkansas Public Service Commission	22-085-U	Empire District Electric Company	2023	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	TA50-733 (U-21-058)	Cook Inlet Natural Gas Storage Alaska	2023	Focused Study - Communication Equipment
Manitoba Canada	Manitoba Public Utilities Board		Manitoba Hydro Electric	2022	Electric Depreciation Study
Tennessee	Tennessee Public Utility Commission	20-00086	Piedmont Natural Gas	2022	Gas Depreciation Study - 3 State
Texas	Public Utility Commission of Texas	54634	Southwestern Public Service Company	2023	Electric Technical Update
Arkansas	Arkansas Public Service Commission	22-085-U	Liberty Empire Electric Arkansas	2023	Electric Depreciation Study
Florida	Florida Public Service Commission	20220219	People Gas System	2022	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-21329	Michigan Gas Utilities Corporation	2022	Gas Depreciation Study
Dominica	Independent Regulatory Commission		Dominica Electricity Services LTD	2022	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	22-00270-UT	Public Service of New Mexico	2022	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	22-00286-UT	Southwestern Public Service Company	2022	Electric Technical Update

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Minnesota	Minnesota Public Utilities Commission	22-299	Northern States Power-Minnesota	2022	Electric Gas and Common Depreciation Study
California	California Public Utilities Commission	A.22-08-010	Bear Valley Electric	2022	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-21294	SEMCO Gas	2022	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	22-064-U	Liberty Pine Bluff Water	2022	Water Depreciation Study
Colorado	Colorado Public Utilities Commission	22AL-0348G	Atmos Energy	2022	Gas Depreciation Study
New York	FERC	ER22-2581-000	New York Power Authority	2022	Transmission and General Depreciation Study
South Carolina	South Carolina Public Service Commission	2022-89-G	Piedmont Natural Gas	2022	Natural Gas Depreciation Study
California	California Public Utilities Commission	A.22-007-001	California American Water	2022	Water and Waste Water Depreciation Study
Alaska	Regulatory Commission of Alaska	U-22-034	Chugach Electric Association	2022	Electric Depreciation Study
Georgia	Georgia Public Service Commission	44280	Georgia Power Company	2022	Electric Depreciation Study
Texas	Public Utility Commission of Texas	53719	Entergy Texas	2022	Electric Depreciation Study
California	California Public Utilities Commission	22-005-xxx	San Diego Gas and Electric	2022	Electric Gas and Common Depreciation Study
California	California Public Utilities Commission	22-005-xxx	Southern California Gas	2022	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	22AL-0046G	Public Service of Colorado	2022	Gas Depreciation given potential for climate change
Texas	Public Utility Commission of Texas	53601	Oncor Electric Delivery	2022	Electric Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR2222040253	South Jersey Gas	2022	Gas Depreciation Study
Oklahoma	Corporation Commission of Oklahoma	PUD 202100163	Empire District Electric Company	2022	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-21176	Consumers Gas	2021	Gas Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR21121254	Elizabethtown Natural Gas	2021	Gas Depreciation Study
Ontario Canada	Ontario Energy Board	EB-2021-0110	Hydro One	2021	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	TA116-118, TA115-97, TA160-37 and TA110-290	Fairbanks Water and Wastewater	2021	Water and Waste Water Depreciation Study

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Colorado	Public Utilities Commission of Colorado	21AL-0317E	Public Service of Colorado	2021	Electric and Common Depreciation Study
Alaska	Regulatory Commission of Alaska	U-21-025	Golden Valley Electric Association	2021	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	5-DU-103	WE Energies	2021	Electric and Gas Depreciation Study
Kentucky	Public Service Commission of Kentucky	2021-00214	Atmos Kentucky	2021	Gas Depreciation Study
Missouri	Missouri Public Service Commission	ER-2021-0312	Empire District Electric Company	2021	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	4220-DU-111	Northern States Power Wisconsin	2021	Transmission, Distribution General and Common Depreciation Study
Louisiana	Louisiana Public Service Commission	U-35951	Atmos Energy	2021	Statewide Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015-D-21-229	Allete Minnesota Power	2021	Intangible, Transmission, Distribution, and General Depreciation Study
Michigan	Michigan Public Service Commission	U-20849	Consumers Energy	2021	Electric and Common Depreciation Study
Texas	Texas Public Utility Commission	51802	Southwestern Public Service Company	2021	Electric Technical Update
MultiState	FERC	RP21-441-000	Florida Gas Transmission	2021	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	20-00238-UT	Southwestern Public Service Company	2021	Electric Technical Update
Yukon Territory Canada	Yukon Energy Board	2021 General Rate Application	Yukon Energy	2020	Electric Depreciation Study
MultiState	FERC	ER21-709-000	American Transmission Company	2020	Electric Depreciation Study
Texas	Texas Public Utility Commission	51611	Sharyland Utilities	2020	Electric Depreciation Study
Texas	Texas Public Utility Commission	51536	Brownsville Public Utilities Board	2020	Electric Depreciation Study

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New Jersey	New Jersey Board of Public Utilities	WR20110729	Suez Water New Jersey	2020	Water and Waste Water Depreciation Study
Idaho	Idaho Public Service Commission	SUZ-W-20-02	Suez Water Idaho	2020	Water Depreciation Study
Texas	Texas Public Utility Commission	50944	Monarch Utilities	2020	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-20844	Consumers Energy/DTE Electric	2020	Ludington Pumped Storage Depreciation Study
Mexico	Comision Reguladora de Energia	G/352/TRA/2015 UH-250/125738/2019	Arguelles Depreciation Study	2020	Gas Depreciation Study
Tennessee	Tennessee Public Utility Commission	2000086	Piedmont Natural Gas	2020	Gas Depreciation Study
Texas	Railroad Commission of Texas	OS-00005136	CoServ Gas	2020	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10988	EPCOR Gas Texas	2020	Gas Depreciation Study
Florida	Florida Public Service Commission	20200166-GU	People Gas System	2020	Gas Depreciation Study
Mississippi	Federal Energy Regulatory Commission	ER20-1660-000	Mississippi Power Company	2020	Electric Depreciation Study
Texas	Public Utility Commission of Texas	50557	Corix Utilities	2020	Water and Waste Water Depreciation Study
Georgia	Georgia Public Service Commission	42959	Liberty Utilities Peach State Natural Gas	2020	Gas Depreciation Study
Texas	Public Utility Commission of Texas	50734	Oncor Electric Delivery	2020	Life of Intangible Plant
New Jersey	New Jersey Board of Public Utilities	GR20030243	South Jersey Gas	2020	Gas Depreciation Study
Kentucky	Kentucky Public Service Commission	2020-00064	Big Rivers	2020	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	20AL-0049G	Public Service of Colorado	2020	Gas Depreciation Study
Texas	NA	NA	Pedernales Electric Coop	2019	Electric Depreciation Study
New York	Federal Energy Regulatory Commission	ER20-716-000	LS Power Grid New York, Corp.	2019	Electric Transmission Depreciation Study
Mississippi	Mississippi Public Service Commission	2019-UN-219	Mississippi Power Company	2019	Electric Depreciation Study
Texas	Public Utility Commission of Texas	50288	Kerrville Public Utility District	2019	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10920	CenterPoint Gas	2019	Gas Depreciation Study and Propane Air Study

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Texas, New Mexico	Federal Energy Regulatory Commission	ER20-277-000	Southwestern Public Service Company	2019	Electric Production and General Plant Depreciation Study
New Mexico	New Mexico Public Regulation Commission		New Mexico Gas	2019	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-19-086	Alaska Electric Light and Power	2019	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10900	Atmos Energy West Texas Division - Triangle	2019	Depreciation Rates for Natural Gas Property
Delaware	Delaware Public Service Commission	19-0615	Suez Water Delaware	2019	Water Depreciation Study
California	California Public Utilities Commission	A.19-08-015	Southwest Gas Northern California	2019	Gas Depreciation Study
California	California Public Utilities Commission	A.19-08-015	Southwest Gas Southern California	2019	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10895	CenterPoint Propane Air	2019	Depreciation Rates for Propane Air Assets
Texas	Public Utility Commission of Texas	49831	Southwestern Public Service Company	2019	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	19-00170-UT	Southwestern Public Service Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42516	Georgia Power Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42315	Atlanta Gas Light	2019	Gas Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-19-0055	Southwest Gas Corporation	2019	Gas Removal Cost Study
New Hampshire	New Hampshire Public Service Commission	DE 19-064	Liberty Utilities	2019	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR19040486	Elizabethtown Natural Gas	2019	Gas Depreciation Study
Texas	Public Utility Commission of Texas	49421	CenterPoint Houston Electric LLC	2019	Electric Depreciation Study
North Carolina	North Carolina Utilities Commission	Docket No. G-9, Sub 743	Piedmont Natural Gas	2019	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E-015/D-18-226	Allete Minnesota Power	2018	Electric Compliance Filing
Colorado	Colorado Public Utilities Commission	19AL-0063ST	Public Service of Colorado	2019	Steam Depreciation Study
Texas	NA	NA	CenterPoint Texas	2019	Propane Air Depreciation Study
Various	NA	NA	Enable Midstream Partners	2019	Gas Depreciation Study

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Alaska	Regulatory Commission of Alaska	U-18-121	Municipal Power and Light City of Anchorage	2018	Electric Depreciation Study
Various	NA	NA	Pattern Energy	2018	Renewable Asset Capital Accounting
New York	NA	NA	Long Island Electric Utility Servco LLC	2018	Electric Depreciation Study
Various	FERC	RP19-352-000	Sea Robin	2018	Gas Depreciation Study
Texas New Mexico	Federal Energy Regulatory Commission	ER19-404-000	Southwestern Public Service Company	2018	Electric Transmission Depreciation Study
California	Federal Energy Regulatory Commission	ER19-221-000	San Diego Gas and Electric	2018	Electric Transmission Depreciation Study
Kentucky	Kentucky Public Service Commission	2018-00281	Atmos Kentucky	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48500	Golden Spread Electric Coop	2018	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-054	Matanuska Electric Coop	2018	Electric Generation Depreciation Study
California	California Public Utilities Commission	A17-10-007	San Diego Gas and Electric	2018	Electric and Gas Depreciation Study
Texas	NA	NA	Lower Colorado River Authority	2018	Electric Transmission and General Study
Texas	Public Utility Commission of Texas	48401	Texas New Mexico Power	2018	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	18-05031	Southwest Gas	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48231	Oncor Electric Delivery	2018	Depreciation Rates
Texas	Public Utility Commission of Texas	48371	Entergy Texas	2018	Electric Depreciation Study
Kansas	Kansas Corporation Commission	18-KCPE-480-RTS	Kansas City Power and Light	2018	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-34803	Atmos LGS	2018	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	18-027-U	Liberty Pine Bluff Water	2018	Water Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E-015/D-18-226	Allete Minnesota Power	2018	Electric Depreciation Rate
Kentucky	Kentucky Public Service Commission	2017-00349	Atmos KY	2018	Gas Depreciation Rates
Tennessee	Tennessee Public Utility Commission	18-00017	Chattanooga Gas	2018	Gas Depreciation Study
Texas	Railroad Commission of Texas	10679	Si Energy	2018	Gas Depreciation Study

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Texas	City of Dallas Statement of Intent	NA	Atmos Mid-Tex	2017-2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-104	Anchorage Water and Wastewater	2017	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-18488	Michigan Gas Utilities Corporation	2017	Gas Depreciation Study
New Mexico	FERC	ER18-228-000	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Texas	Railroad Commission of Texas	10669	CenterPoint South Texas	2017	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	17-00255-UT	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Arkansas	Arkansas Public Service Commission	17-061-U	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Kansas	Kansas Corporation Commission	18-EPDE-184-PRE	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Oklahoma	Oklahoma Corporation Commission	PUD 201700471	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Missouri	Missouri Public Service Commission	EO-2018-0092	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Michigan	Michigan Public Service Commission	U-18457	Upper Peninsula Power Company	2017	Electric Depreciation Study
Florida	Florida Public Service Commission	20170179-GU	Florida City Gas	2017	Gas Depreciation Study
Iowa	NA		Cedar Falls Utility	2017	Telecommunications, Water, and Cable Utility
Michigan	FERC	ER18-56-000	Consumers Energy	2017	Electric Depreciation Study
Missouri	Missouri Public Service Commission	GR-2018-0013	Liberty Utilities	2017	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18452	SEMCO	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	47527	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Minnesota	Minnesota Public Utilities Commission	17-581	Minnesota Northern States Power	2017	Electric, Gas and Common Transmission, Distribution and General
Colorado	Colorado Public Utilities Commission	17AL-0363G	Public Service of Colorado-Gas	2017	Gas Depreciation Study

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MultiState	FERC	ER17-1664	American Transmission Company	2017	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-008	Municipal Power and Light City of Anchorage	2017	Generating Unit Depreciation Study
Louisiana	Louisiana Public Service Commission	U-34343	Atmos Trans Louisiana	2017	Gas Depreciation Study
Mississippi	Mississippi Public Service Commission	2017-UN-041	Atmos Energy	2017	Gas Depreciation Study
New York	FERC	ER17-1010-000	New York Power Authority	2017	Electric Depreciation Study
Oklahoma	Oklahoma Corporation Commission	PUD 201700078	CenterPoint Oklahoma	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10580	Atmos Pipeline Texas	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	46957	Oncor Electric Delivery	2017	Electric Depreciation Study
Alabama	FERC	ER16-2312-000	Alabama Power Company	2016	Electric Depreciation Study
Alabama	FERC	ER16-2313-000	SEGCO	2016	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-16-067	Alaska Electric Light and Power	2016	Generating Unit Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-16-0107	Southwest Gas	2016	Gas Depreciation Study
California	California Public Utilities Commission	A 16-07-002	California American Water	2016	Water and Waste Water Depreciation Study
Colorado	Colorado Public Utilities Commission	16A-0231E	Public Service Company of Colorado	2016	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	2016 UN 267	Willmut Gas	2016	Gas Depreciation Study
Florida	Florida Public Service Commission	160170-EI	Gulf Power	2016	Electric Depreciation Study
Georgia	N/A	N/A	Dalton Utilities	2016	Electric, Gas, Water, Wastewater & Fiber Depreciation Study
Georgia	NA	NA	Oglethorpe Power	2016	Electric Depreciation Study
Illinois	Illinois Commerce Commission	GRM #16-208	Liberty-Illinois	2016	Natural Gas Depreciation Study
Iowa	Iowa Utilities Board	RPU-2016-0003	Liberty-Iowa	2016	Natural Gas Depreciation Study
Kentucky	FERC	RP16-097-000	KOT	2016	Natural Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18195	Consumers Energy/DTE Electric	2016	Ludington Pumped Storage Depreciation Study

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Michigan	Michigan Public Service Commission	U-18127	Consumers Energy	2016	Natural Gas Depreciation Study
MultiState	FERC	ER17-191-000	American Transmission Company	2016	Electric Depreciation Study
Hawaii			Hawaii American Water	2015	Wastewater and Water Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR16090826	Elizabethtown Natural Gas	2016	Gas Depreciation Study
New York	NA		New York Power Authority	2016	Electric Transmission and General Study
North Carolina	North Carolina Utilities Commission	Docket G-9 Sub 77H	Piedmont Natural Gas	2016	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10567	CenterPoint Texas	2016	Gas Depreciation Study
Texas	Public Utility Commission of Texas	45414	Sharyland	2016	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-15-089	Fairbanks Water and Wastewater	2015	Water and Waste Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-098-U	CenterPoint Arkansas	2015	Gas Depreciation Study and Cost of Removal Study
Arkansas	Arkansas Public Service Commission	15-031-U	Source Gas Arkansas	2015	Underground Storage Gas Depreciation Study
Hawaii			Hawaii American Water	2015	Wastewater and Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-011-U	Source Gas Arkansas	2015	Gas Depreciation Study
Atmos Energy Corporation	Tennessee Regulatory Authority	14-00146	Atmos Tennessee	2015	Natural Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	15-AL-0299G	Atmos Colorado	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	16-ATMG-079-RTS	Atmos Kansas	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	15-KCPE-116-RTS	Kansas City Power and Light	2015	Electric Depreciation Study
Montana	NA	NA	Energy Keepers	2015	Property Units/ Depreciation Rates Hydro Facility
Multi-State NE US	FERC	16-453-000	Northeast Transmission Development, LLC	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00261-UT	Public Service Company of New Mexico	2015	Electric Depreciation Study

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New Mexico	New Mexico Public Regulation Commission	15-00296-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00139-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10432	CenterPoint- Texas Coast Division	2015	Gas Depreciation Study
Texas	Public Utility Commission of Texas	44704	Entergy Texas	2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	44746	Wind Energy Transmission Texas	2015	Electric Depreciation Study
Texas, New Mexico	FERC	ER15-949-000	Southwestern Public Service Company	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-120	Alaska Electric Light and Power	2014-2015	Electric Depreciation Study
Alabama	State of Alabama Public Service Commission	U-5115	Mobile Gas	2014	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-045	Matanuska Electric Coop	2014	Electric Generation Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-054	Sand Point Generating LLC	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-055	TDX North Slope Generating	2014	Electric Depreciation Study
California	California Public Utilities Commission	A.14-07-006	Golden State Water	2014	Water and Waste Water Depreciation Study
Colorado	Public Utilities Commission of Colorado	14AL-0660E	Public Service Company of Colorado	2014	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-28814	Atmos Energy Corporation	2014	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-17653	Consumers Energy Company	2014	Electric and Common Depreciation Study
Multi State – SE US	FERC	RP15-101	Florida Gas Transmission	2014	Gas Transmission Depreciation Study
Nebraska	Nebraska Public Service Commission	NG-0079	Source Gas Nebraska	2014	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	14-00332-UT	Public Service of New Mexico	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43950	Cross Texas Transmission	2014	Electric Depreciation Study
Texas	NA	NA	Hughes Natural Gas	2014	Gas Depreciation Study
Texas	Public Utility Commission of Texas	42469	Lone Star Transmission	2014	Electric Depreciation Study

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Texas	Public Utility Commission of Texas	43695	Southwestern Public Service Company	2014	Electric Depreciation Study
Wisconsin	Wisconsin	05-DU-102	WE Energies	2014	Electric, Gas, Steam and Common Depreciation Studies
Texas, New Mexico	Public Utility Commission of Texas	42004	Southwestern Public Service Company	2013-2014	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Virginia	Virginia Corporation Commission	PUE-2013-00124	Atmos Energy Corporation	2013-2014	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-078-U	Arkansas Oklahoma Gas	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-079-U	Source Gas Arkansas	2013	Gas Depreciation Study
California	California Public Utilities Commission	Proceeding No.: A.13-11-003	Southern California Edison	2013	Electric Depreciation Study
Kentucky	Kentucky Public Service Commission	2013-00148	Atmos Energy Corporation	2013	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	13-252	Allete Minnesota Power	2013	Electric Depreciation Study
New Hampshire	New Hampshire Public Service Commission	DE 13-063	Liberty Utilities	2013	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR13111137	South Jersey Gas	2013	Gas Depreciation Study
North Carolina/South Carolina	FERC	ER13-1313	Progress Energy Carolina	2013	Electric Depreciation Study
Oklahoma and TX Panhandle	NA	NA	Enable Midstream Partners	2013	Gas Depreciation Study
Texas	Public Utility Commission of Texas	41474	Sharyland	2013	Electric Depreciation Study
Texas	Railroad Commission of Texas	10235	West Texas Gas	2013	Gas Depreciation Study
Various	FERC	RP14-247-000	Sea Robin	2013	Gas Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	4220-DU-108	Northern States Power Company - Wisconsin	2013	Electric, Gas and Common Transmission, Distribution and General
Alaska	Regulatory Commission of Alaska	U-12-154	Alaska Telephone Company	2012	Telecommunications Utility
Alaska	Regulatory Commission of Alaska	U-12-141	Interior Telephone Company	2012	Telecommunications Utility
Alaska	Regulatory Commission of Alaska	U-12-149	Municipal Power and Light City of Anchorage	2012	Electric Depreciation Study

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Colorado	Colorado Public Utilities Commission	12AL-1269ST	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1268G	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Kansas	Kansas Corporation Commission	12-ATMG-564-RTS	Atmos Kansas	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-KCPE-764-RTS	Kansas City Power and Light	2012	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-17104	Michigan Gas Utilities Corporation	2012	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	12-858	Northern States Power Company - Minnesota	2012	Electric, Gas and Common Transmission, Distribution and General
Nevada	Public Utility Commission of Nevada	12-04005	Southwest Gas	2012	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	12-00350-UT	Southwestern Public Service Company	2012	Electric Depreciation Study
North Carolina	North Carolina Utilities Commission	E-2 Sub 1025	Progress Energy Carolina	2012	Electric Depreciation Study
North Dakota	North Dakota Public Service Commission	PU-12-0813	Northern States Power	2012	Electric, Gas and Common Transmission, Distribution and General
South Carolina	Public Service Commission of South Carolina	Docket 2012-384-E	Progress Energy Carolina	2012	Electric Depreciation Study
Texas	Railroad Commission of Texas	10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10147, 10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10174	Atmos West Texas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10182	CenterPoint Beaumont/ East Texas	2012	Gas Depreciation Study
Texas	Texas Public Utility Commission	40604	Cross Texas Transmission	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40020	Lone Star Transmission	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40606	Wind Energy Transmission Texas	2012	Electric Depreciation Study

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Texas	Texas Public Utility Commission	40824	Xcel Energy	2012	Electric Depreciation Study
California	California Public Utilities Commission	A1011015	Southern California Edison	2011	Electric Depreciation Study
Colorado	Public Utilities Commission of Colorado	11AL-947E	Public Service Company of Colorado	2011	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16938	Consumers Energy Company	2011	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-16536	Consumers Energy Company	2011	Wind Depreciation Rate Study
Mississippi	Mississippi Public Service Commission	2011-UN-184	Atmos Energy	2011	Gas Depreciation Study
MultiState	FERC	ER12-212	American Transmission Company	2011	Electric Depreciation Study
MultiState			Atmos Energy	2011	Shared Services Depreciation Study
MultiState			CenterPoint	2011	Shared Services Study
MultiState			CenterPoint	2011	Depreciation Reserve Study (SAP)
Pennsylvania	NA	NA	Safe Harbor	2011	Hydro Depreciation Study
Texas	Texas Public Utility Commission	39896	Entergy Texas	2011	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38929	Oncor	2011	Electric Depreciation Study
Texas	Texas Commission on Environmental Quality	Matter 37050-R	Southwest Water Company	2011	WasteWater Depreciation Study
Texas	Texas Commission on Environmental Quality	Matter 37049-R	Southwest Water Company	2011	Water Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-070	Inside Passage Electric Cooperative	2010	Electric Depreciation Study
Georgia	Georgia Public Service Commission	31647	Atlanta Gas Light	2010	Gas Depreciation Study
Maine/ New Hampshire	FERC	10-896	Granite State Gas Transmission	2010	Gas Depreciation Study
Multi State – SE US	FERC	RP10-21-000	Florida Gas Transmission	2010	Gas Depreciation Study
Multistate	NA	NA	Constellation Energy	2010	Fossil Generation Depreciation Study
Multistate	NA	NA	Constellation Energy Nuclear	2010	Nuclear Generation Depreciation Study
Texas	Texas Railroad Commission	10041	Atmos Amarillo	2010	Gas Depreciation Study
Texas	Texas Railroad Commission	10000	Atmos Pipeline Texas	2010	Gas Depreciation Study

Dane A. Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Railroad Commission of Texas	10038	CenterPoint South TX	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	36633	City Public Service of San Antonio	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38339	CenterPoint Electric	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38147	Southwestern Public Service Company	2010	Electric Technical Update
Texas	Public Utility Commission of Texas	38480	Texas New Mexico Power	2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-09-015	Alaska Electric Light and Power	2009-2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-043	Utility Services of Alaska	2009-2010	Water Depreciation Study
California	California Public Utility Commission	A10071007	California American Water	2009-2010	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-16054	Consumers Energy	2009-2010	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16055	Consumers Energy/DTE Energy	2009-2010	Ludington Pumped Storage Depreciation Study
Wyoming	Wyoming Public Service Commission	30022-148-GR10	Source Gas	2009-2010	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	09AL-299E	Public Service of Colorado	2009	Electric Depreciation Study
Iowa	NA		Cedar Falls Utility	2009	Telecommunications, Water, and Cable Utility
Michigan	Michigan Public Service Commission	U-15963	Michigan Gas Utilities Corporation	2009	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-15989	Upper Peninsula Power Company	2009	Electric Depreciation Study
Michigan	Michigan Public Service Commission	In Progress	Edison Sault	2009	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	09-UN-334	CenterPoint Energy Mississippi	2009	Gas Depreciation Study
New York	New York Public Service Commission		Key Span	2009	Generation Depreciation Study
North Carolina	North Carolina Utilities Commission		Piedmont Natural Gas	2009	Gas Depreciation Study
South Carolina	Public Service Commission of South Carolina		Piedmont Natural Gas	2009	Gas Depreciation Study
Tennessee	Tennessee Regulatory Authority	09-000183	AGL – Chattanooga Gas	2009	Gas Depreciation Study
Tennessee	Tennessee Regulatory Authority	11-00144	Piedmont Natural Gas	2009	Gas Depreciation Study

Dane A. Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Railroad Commission of Texas	9869	Atmos Energy	2009	Shared Services Depreciation Study
Texas	Railroad Commission of Texas	9902	CenterPoint Energy Houston	2009	Gas Depreciation Study
Arizona	NA	NA	Arizona Public Service	2008	Fixed Asset Consulting
Louisiana	Louisiana Public Service Commission	U-30689	Cleco	2008	Electric Depreciation Study
Multiple States	NA	NA	Constellation Energy	2008	Generation Depreciation Study
New Mexico	New Mexico Public Regulation Commission	07-00319-UT	Southwestern Public Service Company	2008	Testimony – Depreciation
North Dakota	North Dakota Public Service Commission	PU-07-776	Northern States Power Company - Minnesota	2008	Net Salvage
Texas	Public Utility Commission of Texas	35717	Oncor	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35763	Southwestern Public Service Company	2008	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Wisconsin	Wisconsin	05-DU-101	WE Energies	2008	Electric, Gas, Steam and Common Depreciation Studies
Colorado	Colorado Public Utilities Commission	Filed – no docket to date	Public Service Company of Colorado	2007-2008	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	10AL-963G	Public Service Company of Colorado	2007-2008	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015/D-08-422	Minnesota Power	2007-2008	Electric Depreciation Study
Multiple States	Railroad Commission of Texas	9762	Atmos Energy	2007-2008	Shared Services Depreciation Study
Multiple States	None		Tennessee Valley Authority	2007-2008	Electric Generation and Transmission Depreciation Study
Michigan	Michigan Public Service Commission	U-15629	Consumers Energy	2006-2009	Gas Depreciation Study
Multiple States	NA	NA	Constellation Energy	2007	Generation Depreciation Study
Texas	Public Utility Commission of Texas	34040	Oncor	2007	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	06-161-U	CenterPoint Energy – Arkla Gas	2006	Gas Distribution Depreciation Study and Removal Cost Study

Dane A. Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Colorado	Colorado Public Utilities Commission	06-234-EG	Public Service Company of Colorado	2006	Electric Depreciation Study
Multiple States	Multiple	NA	CenterPoint Energy	2006	Shared Services Depreciation Study
Nevada	NA	NA	Nevada Power/Sierra Pacific	2006	ARO Consulting

VEOLIA WATER PENNSYLVANIA, INC. WATER AND WASTE WATER UTILITY

DEPRECIATION RATE STUDY AT DECEMBER 31, 2021



<http://www.utilityalliance.com>

VEOLIA WATER PENNSYLVANIA, INC.
WATER AND WASTE WATER
DEPRECIATION RATE STUDY
EXECUTIVE SUMMARY

Veolia Water Pennsylvania, Inc. ("Veolia" or "Company" or "Utility") engaged Alliance Consulting Group to conduct a depreciation study of the Company's depreciable assets as of December 31, 2021. For Water assets, this study recommends an increase of approximately \$766 thousand in annual depreciation compared to the depreciation rates currently in effect. For Waste Water assets, this study recommends a decrease of approximately \$170 thousand in annual depreciation compared to the depreciation rates currently in effect. Overall this study recommends an increase of \$595 thousand annually in depreciation expense.

The existing depreciation rates were based on the straight-line method, equal life group ("ELG") procedure, and remaining-life technique. The same method, procedure, and technique are retained in this study. For Veolia Water, the life indications for the majority of the asset accounts stayed the same. Of the 30 accounts analyzed, 5 accounts had longer lives, 7 accounts had shorter lives, 14 accounts remained unchanged, and 4 accounts lacked an existing life parameter. Of the 5 accounts that had longer lives, the largest increases were Account 304.4 Transmission and Distribution Structures and Improvements and Account 304.2 Pumping Structures and Improvements, which had increases of 25 years and 10 years, respectively. Of the largest accounts by plant balance, Account 343 Transmission and Distribution Mains retained the same life and 345 Services increased the service life by 8 years. Accounts with the greatest decreases in lives were Account 308.2 Infiltration Galleries with a decrease of 19 years and Accounts 304.3 Purification Structures and Account 311.2 Electric Pumping Equipment, both of which had a decrease of 10 years.

For Veolia Waste Water, the life indications for the majority of the asset accounts stayed the same. Of the 7 accounts analyzed, 3 accounts had longer lives, 1 account

had shorter a shorter life, and 3 accounts lacked an existing life parameter. The account with the largest increase in life was Account 354.4 Structures and Improvements, which moved from 18 years to 40 years. The account with the smallest decrease in life was Account 371 Pumping Equipment, which had a decrease of 2 years.

At the request of the Company, this study does not include traditional net salvage recommendations. Instead, it includes the approach approved by the Pennsylvania Public Utility Commission (“Commission”) in the last case. This approach, which is being proposed in the study, develops an annual removal cost amount based on the most recent five years of removal cost charges. This amount will be accrued as part of the depreciation expense. For Veolia Water, the net salvage accrual of \$612,742 is shown in Appendix B as part of the annual depreciation accrual. Appendix D provides the calculation of the \$612,742 net salvage amount. For Veolia Waste Water, the net salvage accrual of \$0 is shown in Appendix B as part of the annual depreciation accrual. Appendix D-2 provides the calculation of the \$0 net salvage amount.

Appendix A provides the calculation of the recommended depreciation rates for Water and Waste Water. Appendices A-1 provides the calculation of the recommended amortization rates for the amortized general plant accounts and the general plant reserve true-up. Appendix B provides the comparison in depreciation expense from existing annual accrual to proposed annual accrual. Appendix C provides the mortality characteristics (life, curve, salvage, and net salvage) for the accounts analyzed. Appendix D provides the net salvage history for all accounts. Appendix E shows a comparison of book and allocated depreciation reserves by account.

**VEOLIA PENNSYLVANIA
WATER AND WASTE WATER
DEPRECIATION RATE STUDY
AT DECEMBER 31, 2021
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PURPOSE

The purpose of this study is to develop depreciation rates for the specified water and waste water depreciable property as recorded on Veolia's books at December 31, 2021. The account-based depreciation rates were designed to recover the total remaining undepreciated investment for the analyzed accounts, adjusted for net salvage, over the remaining life of the property on a straight-line basis.

Veolia Water Pennsylvania ("VWPA") provides water service to approximately 65,000 customers in 9 counties and 42 municipalities throughout Pennsylvania. It operates five surface water treatment plants ranging in size from three quarters to twelve million gallons per day. It also operates 33 wells with varying degrees of treatment, 34 booster stations and 41 storage facilities. Its infrastructure includes over 950 miles of main, 13,000 valves and 4,100 hydrants. The estimated number of customers served is 162,500.

Veolia Water Bethel serves approximately 2,500 customers in the Bethel system. Veolia owns and operates the water system infrastructure including 40 miles of water main. There are no treatment plants, wells, booster pump stations, or tanks in this system. It is served via interconnects with Veolia Water Delaware and Chester Water Authority. The estimated number of customers served is 7,500.

STUDY RESULTS

Overall depreciation rates for the specific depreciable property analyzed and included in this study are shown in Appendices A and A-1. For Veolia Pennsylvania Water assets, these rates translate into an annual depreciation expense of \$11.6 million based on Veolia’s depreciable investment at December 31, 2021. The annual equivalent depreciation expense calculated by the same method using the approved rates was \$11.0 million. The proposed increase is \$595 thousand from current depreciation rates. Appendix A demonstrates the development of the annual depreciation rates and annual accruals, and Appendix A-1 shows amortization rates and annual accruals by account. Appendix B presents a comparison of approved rates and accrual amounts versus proposed rates and accrual amounts by account. Appendix C presents a summary of life and net salvage estimates by account. Appendix D shows the net salvage history for all accounts. A summary of results is shown in the table below.

Veolia Water Pennsylvania
 Comparison of Proposed Depreciation Rates

As of December 31, 2021

Water Function	Plant at 12/31/21	Current Expense	Proposed Expense	Difference
Source of Supply	13,873,035	348,639	298,875	(49,764)
Pumping Equipment	17,109,183	600,205	862,587	262,382
Treatment Equipment	66,212,049	1,913,933	1,843,323	(70,611)
Transmission and Distribution	322,504,386	6,311,888	6,595,395	283,507
General	25,151,698	1,370,140	1,529,891	159,752
General Plant AR 15 Water Imbalance			180,571	180,571
	444,850,351	10,544,805	11,310,642	765,837

Sewer Function	Plant at 12/31/21	Current Expense	Proposed Expense	Difference
Collection, Treatment and Disposal	5,499,333	427,078	254,631	(172,446)
General Plant	20,876	234	1,898	1,663
General Plant AR 15 Sewer Imbalance			538	538
Total Sewer	5,520,209	427,312	257,067	(170,245)
Total Veolia PA	450,370,560	10,972,117	11,567,709	595,592

GENERAL DISCUSSION

Definition

The term "depreciation" as used in this study is considered in the accounting sense, that is, a system of accounting that distributes the cost of assets, less net salvage (if any), over the estimated useful life of the assets in a systematic and rational manner. It is a process of allocation, not valuation. This expense is systematically allocated to accounting periods over the life of the properties. The amount allocated to any one accounting period does not necessarily represent the loss or decrease in value that will occur during that particular period. The Company accrues depreciation on the basis of the original cost of all depreciable property included in each functional property group. On retirement the full cost of depreciable property, less the net salvage value, is charged to the depreciation reserve.

Basis of Depreciation Estimates

The straight-line, broad (average) life group, remaining-life depreciation system was employed to calculate annual and accrued depreciation in this study. In this system, the annual depreciation expense for each group is computed by dividing the original cost of the asset less allocated depreciation reserve less estimated net salvage by its respective average life group remaining life. The resulting annual accrual amounts of all depreciable property within a function were accumulated, and the total was divided by the original cost of all functional depreciable property to determine the depreciation rate. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group. The computations of the annual depreciation rates and remaining lives are shown in Appendices A and A-1.

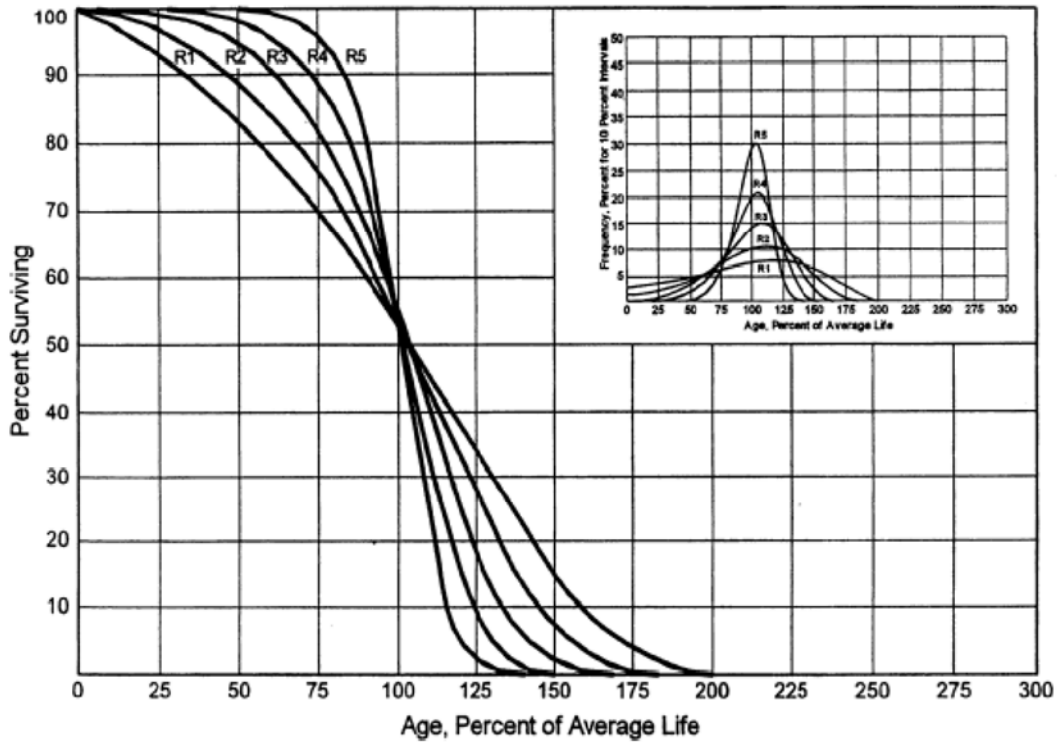
Actuarial analysis was used with each account within a function where

sufficient data were available, and judgment was used to some degree on all accounts.

Survivor Curves

To fully understand depreciation projections in a regulated utility setting, there must be a basic understanding of survivor curves. Individual property units within a group do not normally have identical lives or investment amounts. The average life of a group can be determined by first constructing a survivor curve which is plotted as a percentage of the units surviving at each age. A survivor curve represents the percentage of property remaining in service at various age intervals. The Iowa Curves are the result of an extensive investigation of life characteristics of physical property made at Iowa State College Engineering Experiment Station in the first half of the prior century. Through common usage, revalidation and regulatory acceptance, these curves have become a descriptive standard for the life characteristics of industrial property. An example of an Iowa Curve is shown below.

There are four families in the Iowa Curves that are distinguished by the relation of the age at the retirement mode (largest annual retirement frequency) and the average life. For distributions with the mode age greater than the average life, an "R" designation (i.e., Right modal) is used. The family of "R" moded curves is shown below.



Similarly, an "S" designation (i.e., Symmetric modal) is used for the family whose mode age is symmetric about the average life. An "L" designation (i.e., Left modal) is used for the family whose mode age is less than the average life. A special case of left modal dispersion is the "O" or origin modal curve family. Within each curve family, numerical designations are used to describe the relative magnitude of the retirement frequencies at the mode. A "6" indicates that the retirements are not greatly dispersed from the mode (i.e., high mode frequency) while a "1" indicates a large dispersion about the mode (i.e., low mode frequency). For example, a curve with an average life of 30 years and an "L3" dispersion is a moderately dispersed, left modal curve that can be designated as a 30 L3 Curve. An SQ, or square, survivor curve occurs where no dispersion is present (i.e., units of common age retire simultaneously).

Most property groups can be closely fitted to one Iowa Curve with a unique average service life. The blending of judgment concerning current conditions and

future trends along with the matching of historical data permits the depreciation analyst to make an informed selection of an account's average life and retirement dispersion pattern.

Actuarial Analysis

Actuarial analysis (retirement rate method) was used in evaluating historical asset retirement experience where vintage data were available and sufficient retirement activity was present. In actuarial analysis, interval exposures (total property subject to retirement at the beginning of the age interval, regardless of vintage) and age interval retirements are calculated. The complement of the ratio of interval retirements to interval exposures establishes a survivor ratio. The survivor ratio is the fraction of property surviving to the end of the selected age interval, given that it has survived to the beginning of that age interval. Survivor ratios for all of the available age intervals were chained by successive multiplications to establish a series of survivor factors, collectively known as an observed life table. The observed life table shows the experienced mortality characteristic of the account and may be compared to standard mortality curves such as the Iowa Curves. Where data were available, accounts were analyzed using this method. Placement bands were used to illustrate the composite history over a specific era, and experience bands were used to focus on retirement history for all vintages during a set period. The results from these analyses for those accounts which had data sufficient to be analyzed using this method are shown in the Life Analysis section of this report. Actuarial transactions were available from for varying periods. The oldest actuarial retirements began in 1955. The period of available data varied depending on the plant account.

Judgment

Any depreciation study requires informed judgment by the analyst

conducting the study. Knowledge of the property being studied, utilities' policies and procedures, general trends in technology and industry practice, and a sound basis of understanding depreciation theory are needed to apply this informed judgment. Judgment was used in areas such as survivor curve modeling and selection, depreciation method selection, simulated plant record method analysis, and actuarial analysis.

Judgment is not defined as being used in cases where there are specific, significant pieces of information that influence the choice of a life or curve. Those cases would simply be a reflection of specific facts into the analysis. Where there are multiple factors, activities, actions, property characteristics, statistical inconsistencies, implications of applying certain curves, property mix in accounts, or a multitude of other considerations that impact the analysis (potentially in various directions), judgment is used to take all of these factors and synthesize them into a general direction or understanding of the characteristics of the property. Individually, no one factor in these cases may have a substantial impact on the analysis, but, overall, may shed light on the utilization and characteristics of assets. Judgment may also be defined as deduction, inference, wisdom, common sense, or the ability to make sensible decisions. There is no single correct result from statistical analysis; hence, there is no answer absent judgment. At the very least, for example, any analysis requires choosing upon which bands to place more emphasis.

The establishment of appropriate average service lives and retirement dispersions for the Source of Supply, Pumping, Water Treatment, Transmission and Distribution, and General accounts requires judgment to incorporate the understanding of the operation of the system with the available accounting information analyzed using the Retirement Rate actuarial methods. The appropriateness of lives and curves depends not only on statistical analyses, but also on how well future retirement patterns will match past retirements.

Current applications and trends in use of the equipment also need to be factored into life and survivor curve choices in order for appropriate mortality characteristics to be chosen.

Equal Life Group Depreciation

The source of Veolia's existing depreciation accruals uses the average life group ("ELG") depreciation procedure, broad group with remaining life. This methodology was recently approved by the Pennsylvania Public Utilities Commission in Commission Docket Number R-2018-3000834 for the Pennsylvania water and waste water assets on plant at December 31, 2017. At the request of Veolia, this study uses the ELG depreciation procedure to group the assets within each account. After an average service life and dispersion were selected for each account, those parameters were used to estimate what portion of the surviving investment of each vintage was expected to retire. The depreciation of the group continues until all investment in the vintage group is retired. ELG groups are defined by their respective account dispersion, life, and salvage estimates. A straight-line rate for each ELG group is computed and accumulated across each vintage. The resultant rate for each ELG group is designed to recover all retirements less net salvage as each vintage retires. The ELG procedure recovers net book cost over the life of each ELG group rather than averaging many components. It also closely matches the concept of component or item accounting found in accounting textbooks.

Theoretical Depreciation Reserve

At the Company's request, the Company's book depreciation reserves were reallocated within division and function by plant account based on the theoretical reserves for each account for each division. The Company will maintain its books and records at the division level, and for this reason, reserve reallocation was performed within each distribution and function. These results are shown in Appendix E for each division. This study used a reserve model that relied on a prospective concept relating future retirement and accrual patterns for property, given current life and salvage estimates. The theoretical reserve of a group is developed from the estimated remaining life, total life of the property group, and estimated net salvage. The theoretical reserve represents the portion of the group cost that would have been accrued if current forecasts were used throughout the life of the group for future depreciation accruals. The computation involves multiplying the vintage balances within the group by the theoretical reserve ratio for each vintage. The equal life group method requires an estimate of dispersion and service life to establish how much of each vintage is expected to be retired in each year until all property within the vintage is retired. Estimated average service lives and dispersion determine the amount within each equal life group. The equal life group-remaining-life theoretical reserve ratio ("RRELG") is calculated as:

$$RRELG = 1 - \frac{(ELG \text{ Remaining Life})}{(ELG \text{ Life})} * (1 - \text{Net Salvage Ratio})$$

DETAILED DISCUSSION

Depreciation Study Process

This depreciation study encompassed four distinct phases. The first phase involved data collection and field interviews. The second phase was where the initial data analysis occurred. The third phase was where the information and analysis were evaluated. Once the first three stages were complete, the fourth phase began. This phase involved the calculation of depreciation rates and documenting the corresponding recommendations.

During the Phase 1 data collection process, historical data was compiled from continuing property records and general ledger systems. Data was validated for accuracy by extracting and comparing to multiple financial system sources. Audit of this data was validated against historical data from prior periods, historical general ledger sources, and field personnel discussions. This data was reviewed extensively to put in the proper format for a depreciation study. Further discussion on data review and adjustment is found in the Salvage Considerations Section of this study. Also, as part of the Phase 1 data collection process, numerous discussions were conducted with engineers and field operations personnel to obtain information that would assist in formulating life and salvage recommendations in this study. One of the most important elements of performing a proper depreciation study is to understand how the utility utilizes assets and the environment of those assets. Interviews with engineering and operations personnel are important methods that allow the analyst to obtain information that is beneficial when evaluating the output from the life and net salvage programs in relation to the utility's actual asset utilization and environment. Information that was gleaned in these discussions is found both in the Detailed Discussion of this study in the life analysis and salvage analysis sections and also in workpapers.

Phase 2 is where the actuarial analysis is performed. Phase 2 and 3 overlap to a significant degree. The detailed property records information is used in Phase 2 to develop observed life tables for life analysis. These tables are visually compared to industry standard tables to determine historical life characteristics. It is possible that the analyst would cycle back to this phase based on the evaluation process performed in Phase 3. Net salvage analysis consists of compiling historical salvage and removal data by functional group to determine values and trends in gross salvage and removal cost. This information was then carried forward into Phase 3 for the evaluation process.

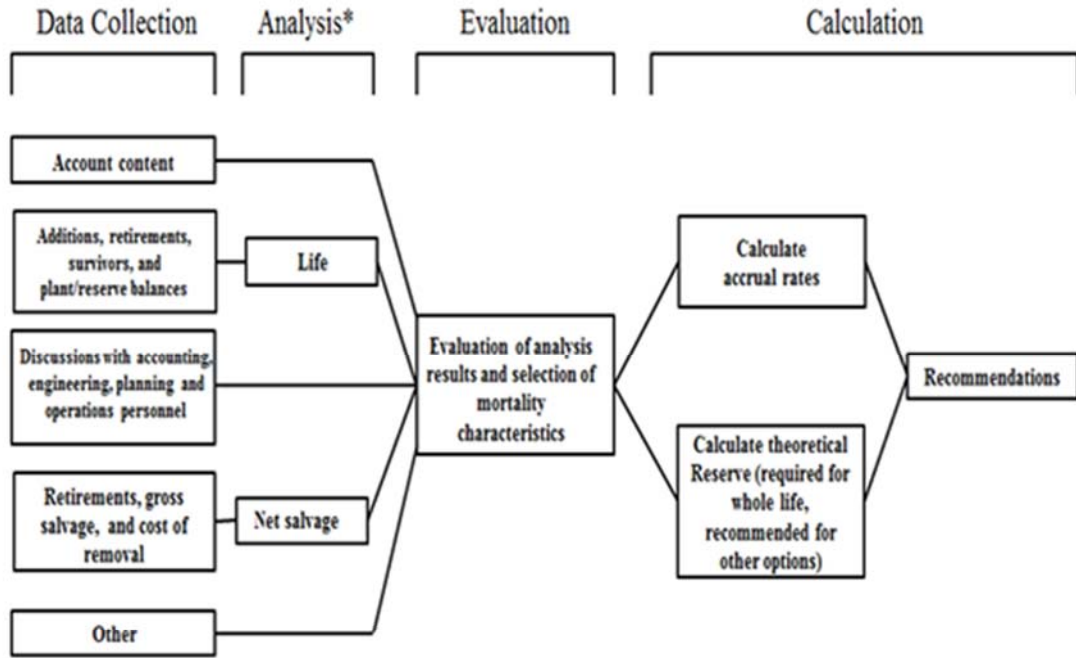
Phase 3 is the evaluation process which synthesizes analysis, interviews, and operational characteristics into a final selection of asset lives and net salvage parameters. The historical analysis from Phase 2 is further enhanced by the incorporation of recent or future changes in the characteristics or operations of assets that were revealed in Phase 1. Phases 2 and 3 allow the depreciation analyst to validate the asset characteristics as seen in the accounting transactions with actual Utility operational experience.

Finally, Phase 4 involved calculating accrual rates, making recommendations, and documenting the conclusions in a final report. The calculation of accrual rates is found in Appendices A and A-1. Recommendations for the various accounts are contained within the Detailed Discussion of this report. The depreciation study flow diagram shown as Figure 1¹ documents the steps used in conducting this study. Depreciation Systems², page 289, documents the same basic processes in performing a depreciation study which are: statistical analysis, evaluation of statistical analysis, discussions with management, forecast assumptions, write logic supporting forecasts and estimation, and write final report.

¹INTRODUCTION TO DEPRECIATION FOR PUBLIC UTILITIES & OTHER INDUSTRIES, AGA EEI (2013).

² W. C. Fitch and F.K.Wolf, DEPRECIATION SYSTEMS, Iowa State Press, at page 289 (1994).

Book Depreciation Study Flow Diagram



Source: Introduction to Depreciation for Public Utilities and Other Industries, AGA EEI, 2013.

*Although not specifically noted, the mathematical analysis may need some level of input from other sources (for example, to determine analysis bands for life and adjustments to data used in all analysis).

Depreciation Rate Calculation

Annual depreciation expense amounts for the depreciable property accounts of Veolia Pennsylvania were calculated by the straight line, equal life group, remaining life system. With this approach, remaining lives were calculated according to standard ELG group expectancy techniques, using the Iowa Curves noted in the calculation. For each plant account, the difference between the surviving investment at the statewide level, adjusted for estimated net salvage and the allocated book depreciation reserve, was divided by the average remaining life to yield the annual depreciation expense. These calculations are shown in Appendix A.

Vintage Group Amortization

Veolia proposes to implement vintage group amortization for assets in Accounts 391-398, excluding Transportation Equipment Power Operated Equipment. Under vintage group amortization, assets in the amortized accounts are retired when they reach the projected service life of the group. This study has reviewed the life and net salvage parameters for all accounts in this group. In the life analysis and salvage analysis sections, recommended changes to each account describe the depreciation parameters requested for those accounts. The depreciation accrual for General amortized property plant will change to reflect the reserve position of the various accounts and small changes in life parameters and net salvage percentages. This allows the Company to continue to track small dollar General Property plant items in a cost-efficient manner.

The changes in General Property plant for Vintage Group Amortization assets resulted in a reserve difference that has to be addressed to provide full recovery of the cost for these assets. For ease of tracking the difference, this study proposes a 5 year recovery period for this difference. These computations are shown in Appendix A-1.

Remaining Life Calculation

The establishment of appropriate average service lives and retirement dispersions for each account within a functional group was based on engineering judgment that incorporated available accounting information analyzed using the Retirement Rate actuarial methods. After establishment of appropriate average service lives and retirement dispersion, remaining life was computed for each account. Theoretical depreciation reserve with zero net salvage was calculated using theoretical reserve ratios as defined in the theoretical reserve portion of the General Discussion section. The difference between account balance and theoretical reserve was then spread over the ELG depreciation accruals. Remaining life computations are found for each account in the workpapers.

LIFE ANALYSIS

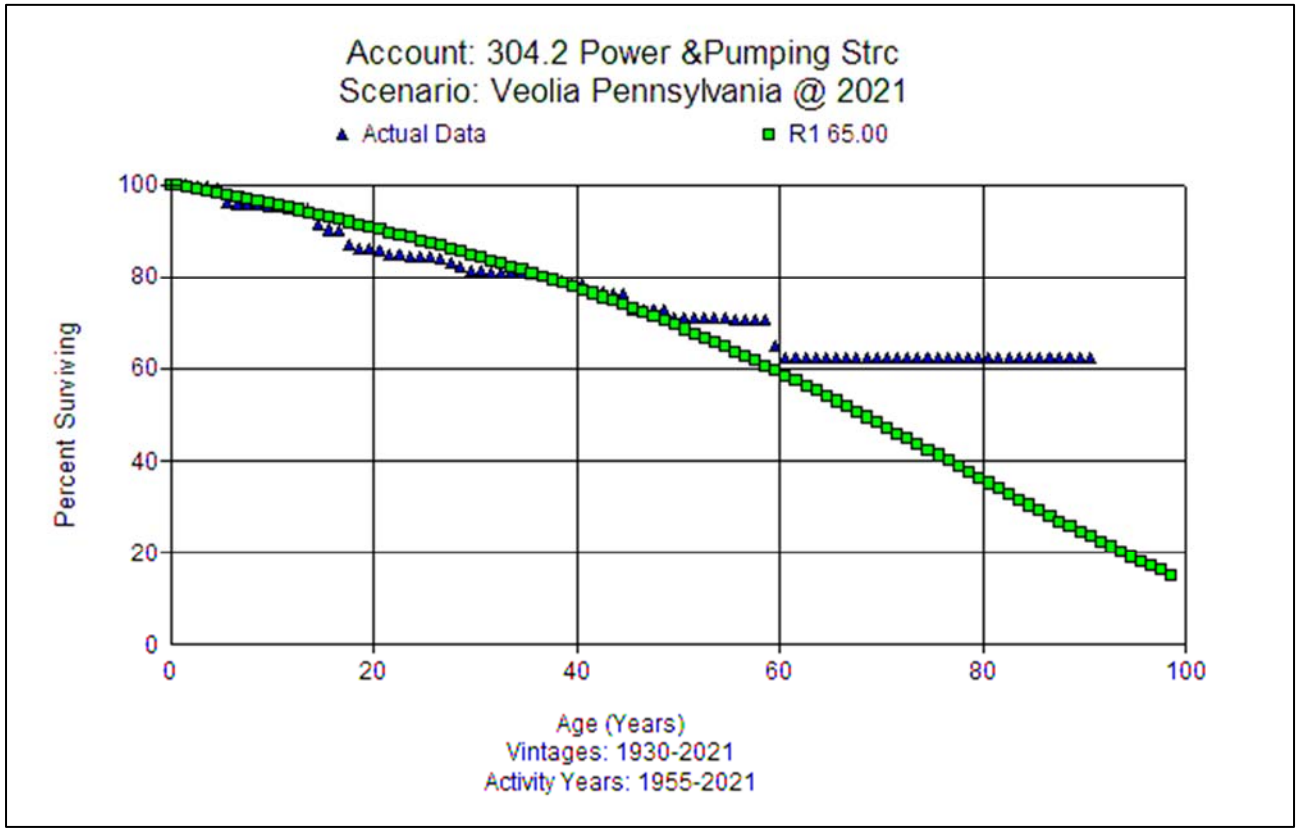
The retirement rate actuarial life analysis used in performing this study. The retirement rate actuarial analysis method was applied to all of the specified accounts for Veolia. For each account, an actuarial retirement rate analysis was made with placement and experience bands of varying width. The historical observed life table was plotted and compared with various Iowa Curves to obtain the most appropriate match. A selected curve for each account is shown in the Life Analysis Section of this report. The observed life tables for all analyzed placement and experience bands are provided in workpapers. The existing lives are determined in Pennsylvania Docket R-2018-3000834.

Life Analysis – Veolia Pennsylvania Water Assets

Source of Supply Plant

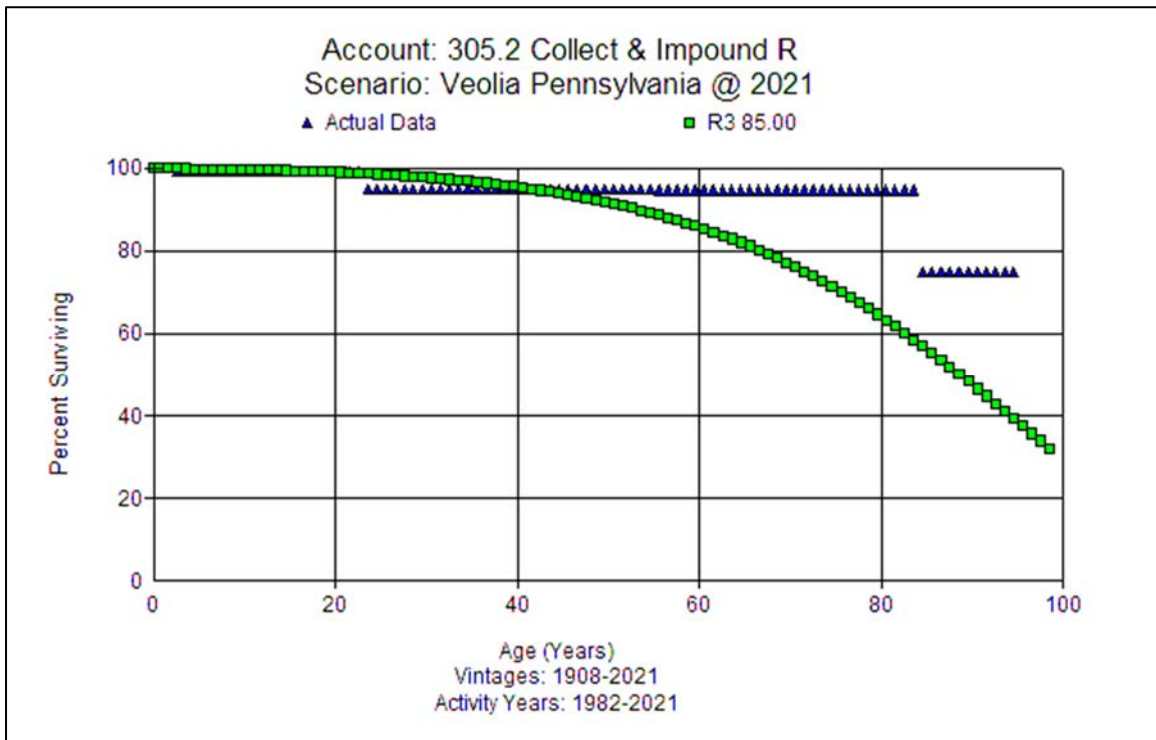
Account 304.2 Structures and Improvements Source of Supply (65 R1)

This account consists of structures and various improvements associated with source of supply equipment. The account balance is \$7.0 million for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 55 years with an R2 dispersion. The items in this account are components of structures such as: building shell, site work, roofs, fences, HVAC systems, safety equipment, and security systems. Actuarial analysis shows a slightly lower longer life, and Company SMEs (“Subject Matter Experts”) report that the assets in this account are concrete basins, which would have a longer life than the components in other types of structures. Based on judgment, input from Company personnel, and the assets in this account, this study recommends moving to a 65 year life with an R1 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



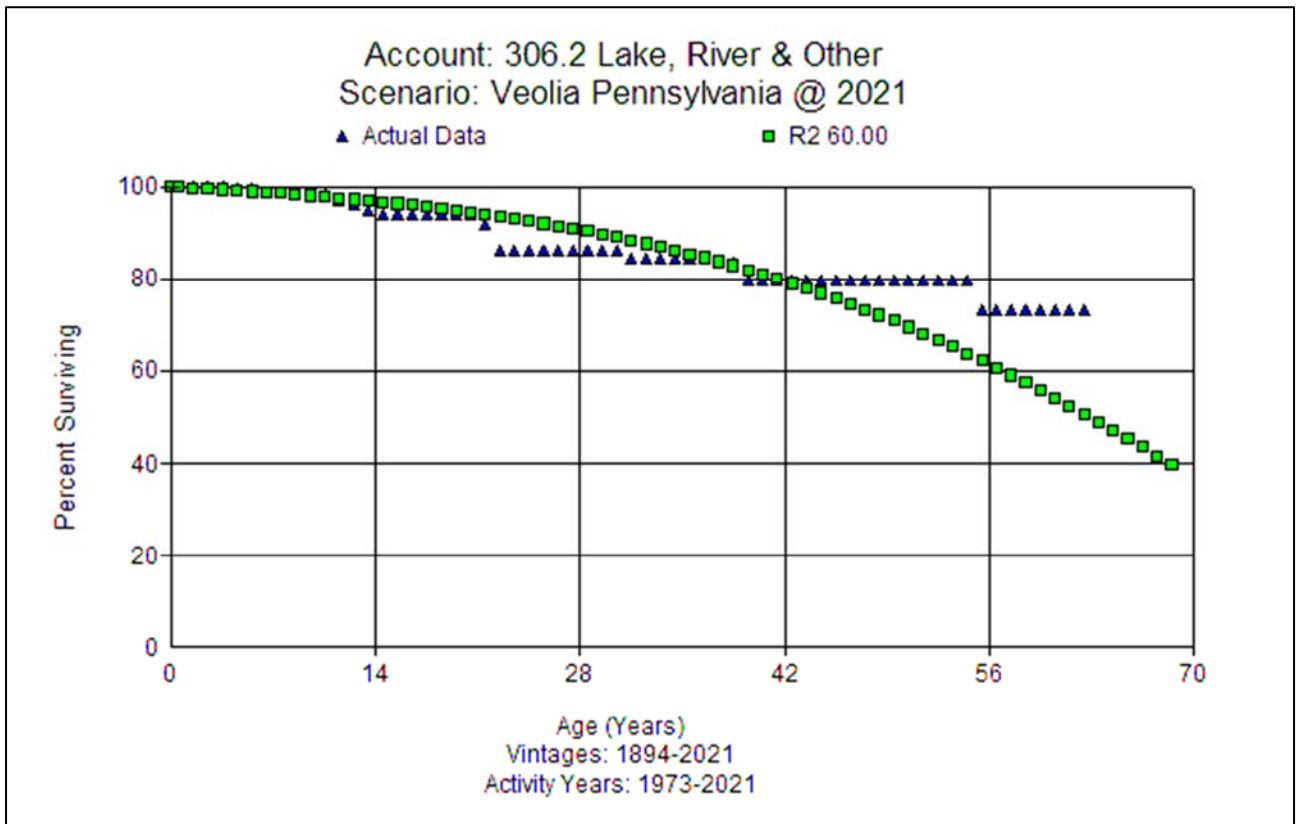
Account 305.2 Collecting & Impounding Reservoirs (85 R3)

This account has an account balance of \$435 thousand as of December 31, 2021. The plant is all located in Veolia Pennsylvania. The current life of this account is 65 years with an S1 dispersion. This account contains structures and various improvements used for impounding, collecting, and storing water in the source of supply system. Company personnel report that assets associated with dams have a longer life than the current life for this account. Based on judgment and the type of construction, this study recommends moving to an 85 year life with an R3 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



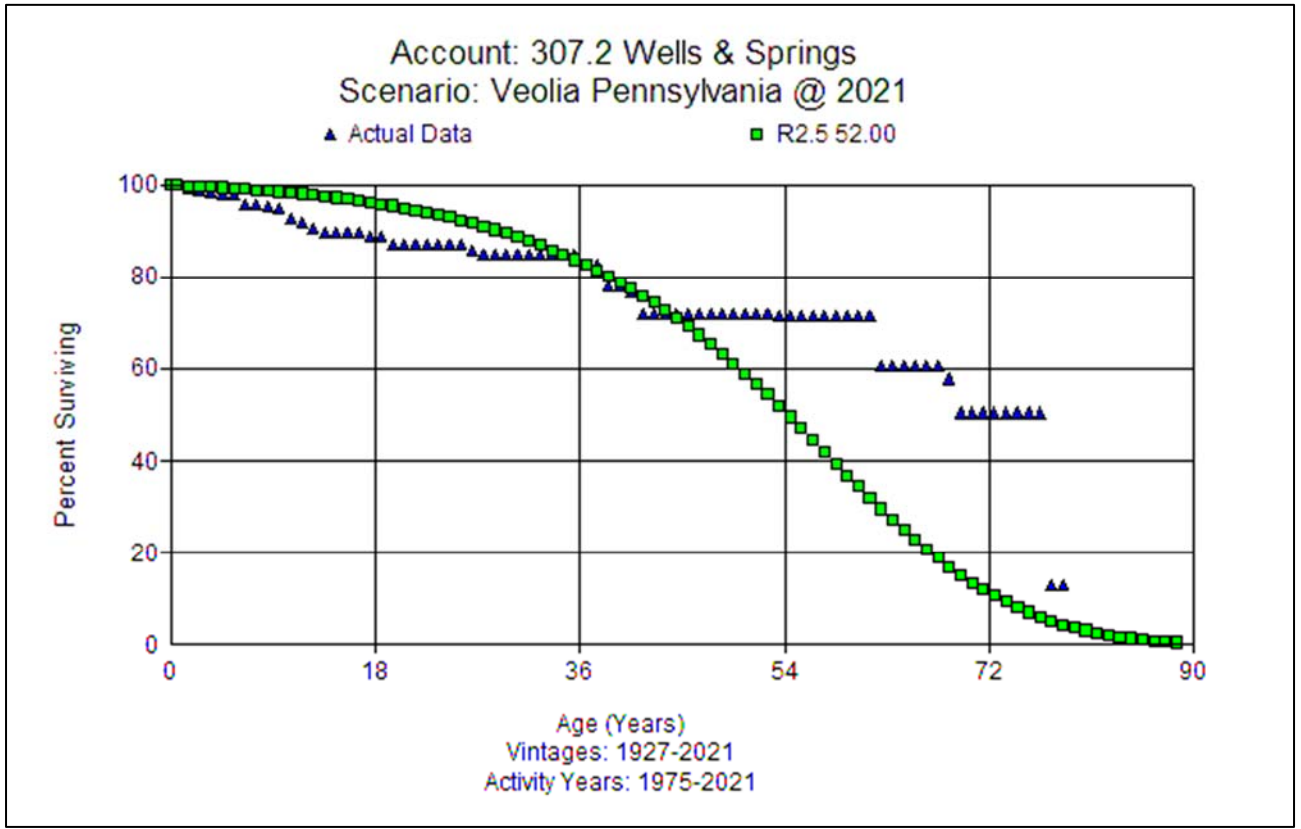
Account 306.2 Lake, River, and Other Intakes (60 R2)

This account consists of lake, river, or other intakes and includes items such as buildings, bulkheads, filter plant, screens, piping, and related assets. This account has an account balance of \$4.9 million as of December 31, 2021. The plant is all located in Veolia Pennsylvania. The current life of this account is 65 years with an R2.5 dispersion. Company SMEs report these assets are mostly raw water pipes and intake structures. They estimate that the life of intakes would be 50 years and longer for raw water pipes. Based on actuarial analysis and the assets in this account, this study recommends moving to a 60 year life with an R2 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



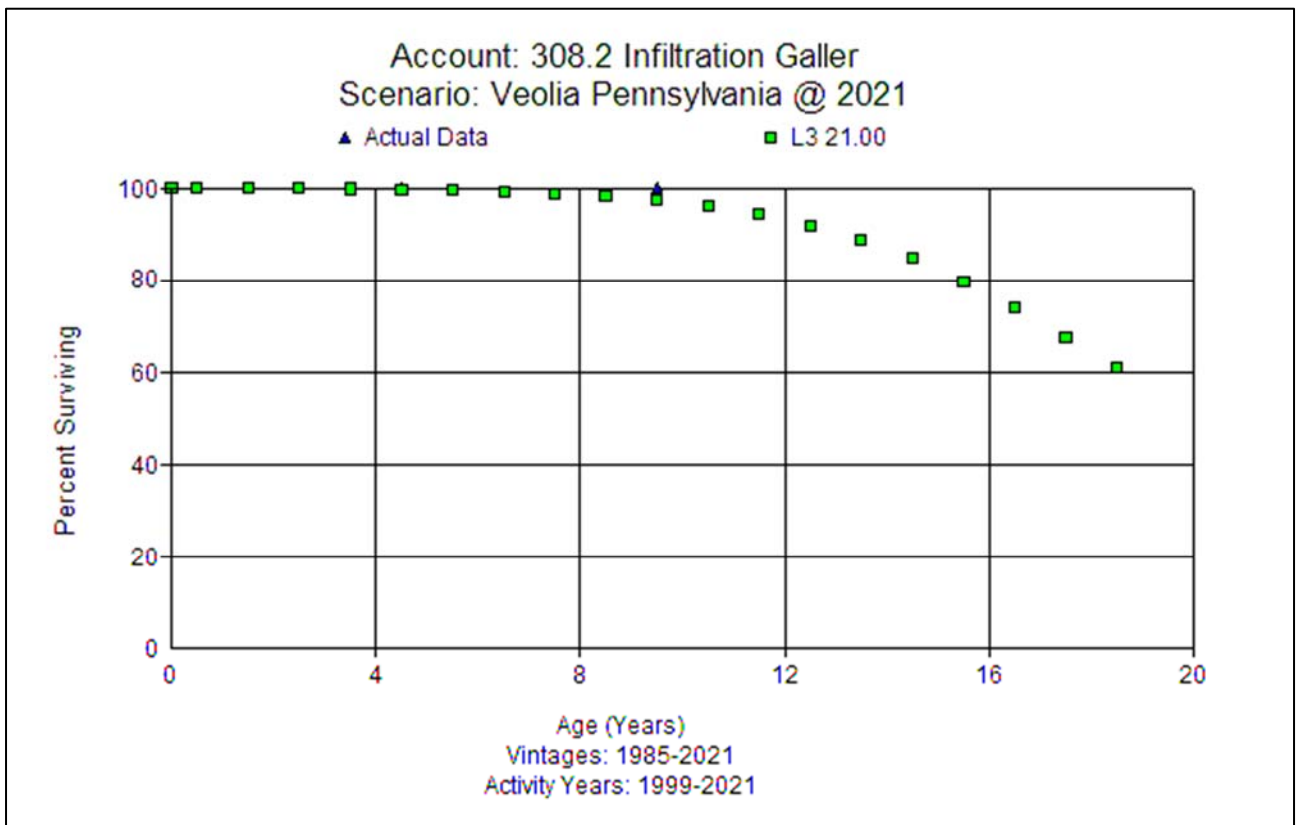
Account 307.2 Wells and Springs (52 R2.5)

This account consists of the cost of wells and springs used as a source of supply. Such assets might be collecting basins, pipes, springs and appurtenances, and wells and casings. The current life of this account is 48 years with an R2 dispersion, and the account balance is \$1.4 million. The plant is all located in Veolia Pennsylvania. Company SMEs report that there are many fairly short-lived assets in the account as well as some longer lived assets. A well itself will last longer than 55 years but much of the ancillary equipment that is replaced much more often. A number of the wells are from the 1950s and 1960s. Rehabilitations are capital and would occur on a 7-10 year cycle. Some original cost would be retired when rehabbed. If not rehabilitated frequently enough, the Company will permanently lose capacity in the well. From an operations perspective, Company SME recommend a slight movement longer in the life of this account. Based on judgment and data from Company SMEs, this study recommends moving to a 52 year life and moving to an R2.5 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



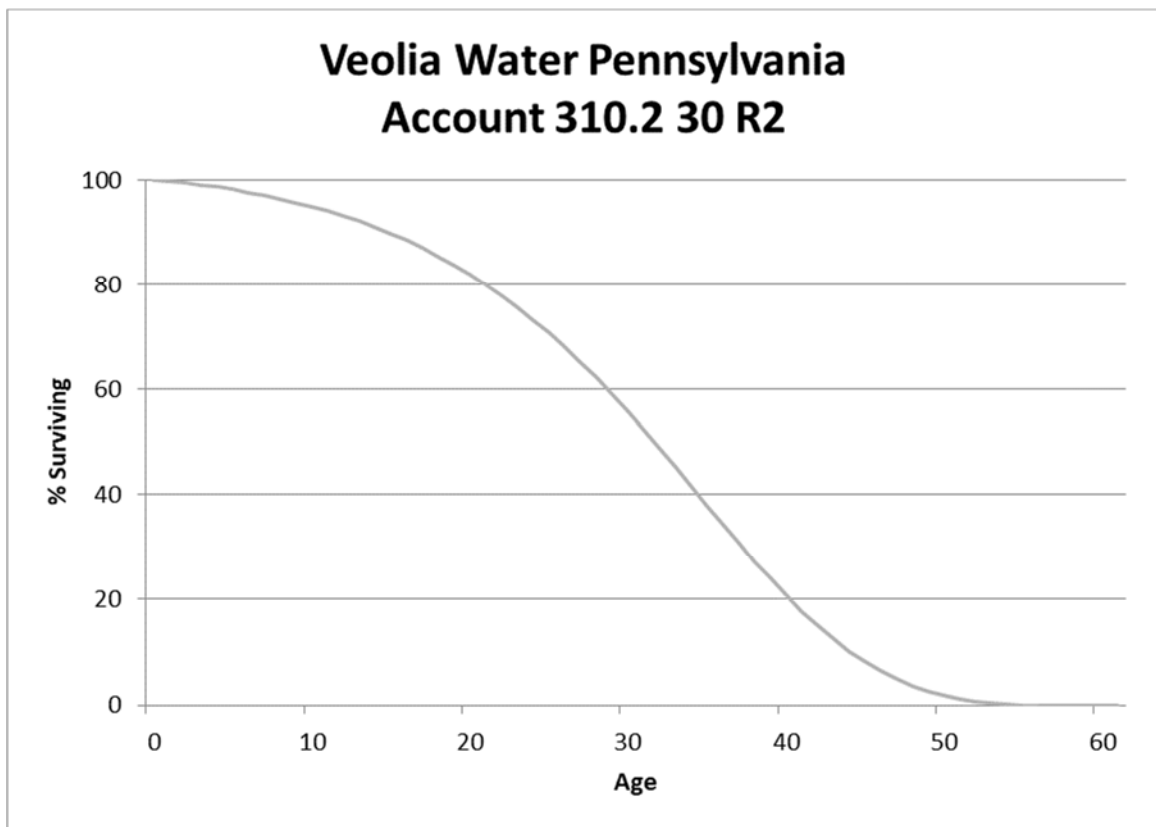
Account 308.2 Infiltration Galleries and Tunnels (21 L3)

This account consists of the cost of infiltration galleries and tunnels used as a source of supply. Such assets might be conduits, gatehouses, and equipment and /or piping. The current life of this account is 40 years with an R2.5 dispersion, and the account balance is \$13 thousand. The plant is all located in Veolia Pennsylvania. Company SMEs report that the small amount of plant in this account was added in 2016. It relates to Copper Smith plant piping and is similar to treatment plant. Company SMEs recommend a shorter life similar to other accounts in the treatment function. Based on judgment and data from Company SMEs, this study recommends moving to a life of 21 years with an L3 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



Account 310.2 Power Generation Equipment (30 R2)

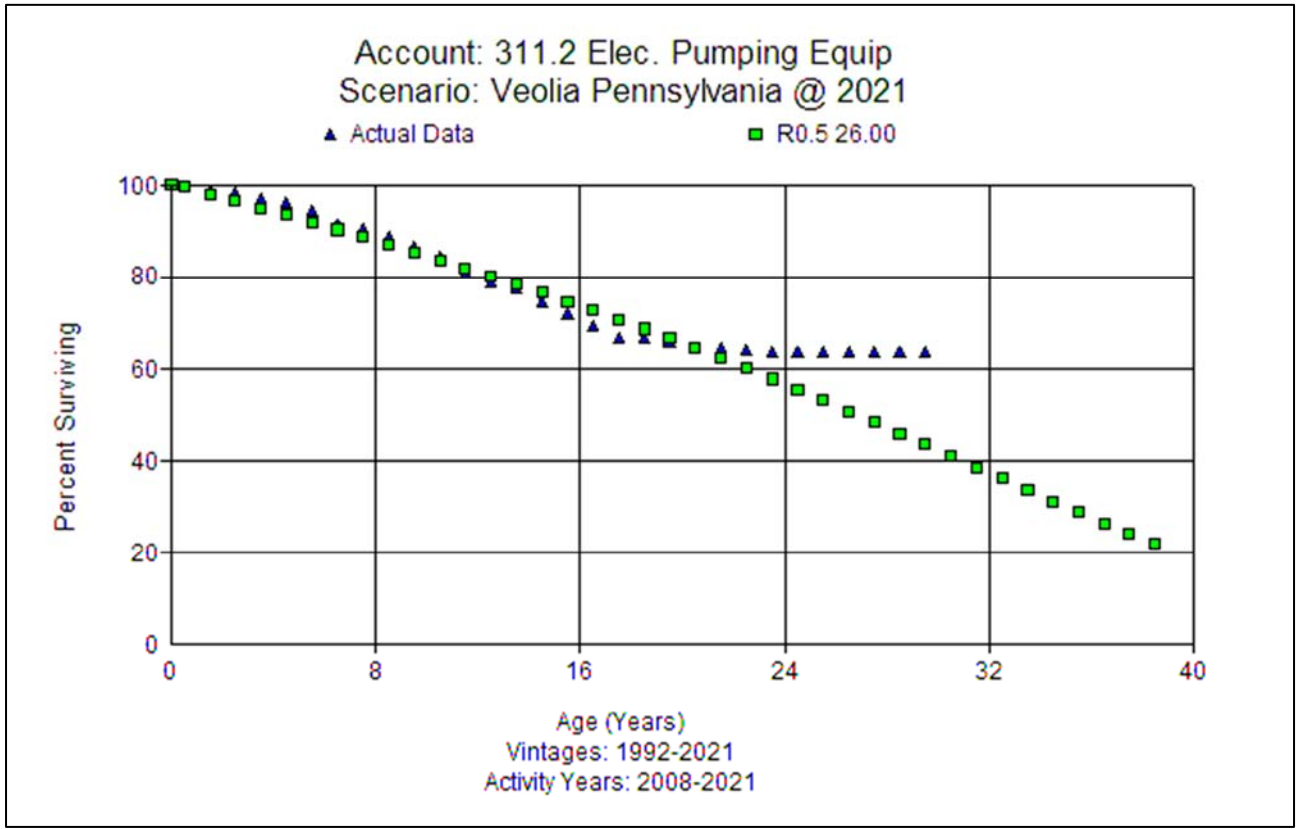
This account consists of the cost of any equipment used for the production of power. Such assets might include generators. The account balance is \$159 thousand. The plant is all located in Veolia Pennsylvania. There is no current life for this account. Based on judgment, this study recommends a 30 year life and an R2 dispersion curve for this account. A generic graph of the proposed curve and life for this account is shown below.



Pumping Plant

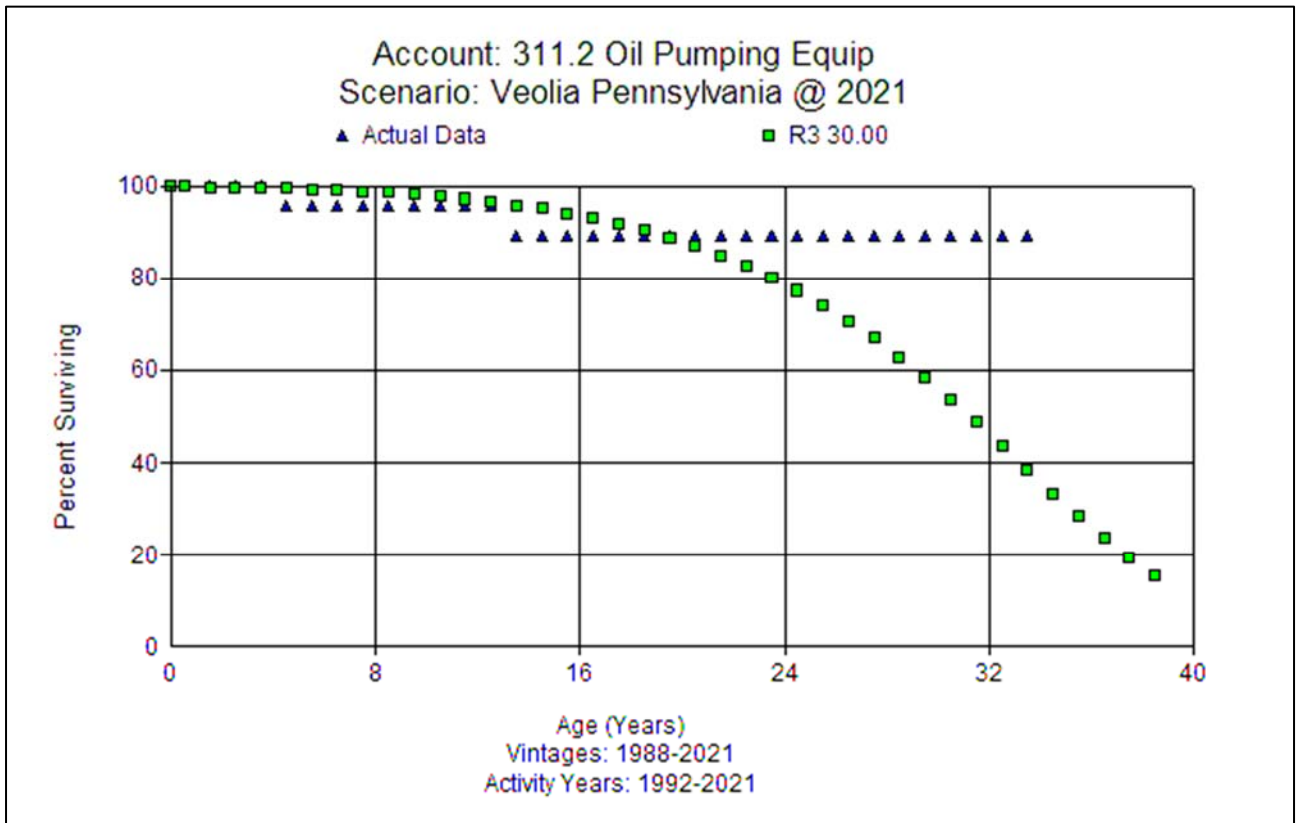
Account 311.2 Pumping Equipment Electrical (26 R0.5)

This account consists of electric pumps, piping, circulating, and other related equipment used in the pumping plant. The account balance is \$16.2 million for this account. The current life of this account is 36 years with an R0.5 dispersion. The plant is all located in Veolia Pennsylvania. The actuarial analysis for this account shows a much shorter life than the existing life. Company SMEs report that the average age of assets in this account is 12 years. Company SMEs reports that operationally, the pumps that are used now are lead free and have a shorter life. The life should be much shorter than the existing life of 36 years. Company SMEs recommend moving to a 26 years life, which they believe is very reasonable and would be around the expected life in the field. Based on judgment and the assets in this account, this study recommends a 26 year life with an R0.5 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



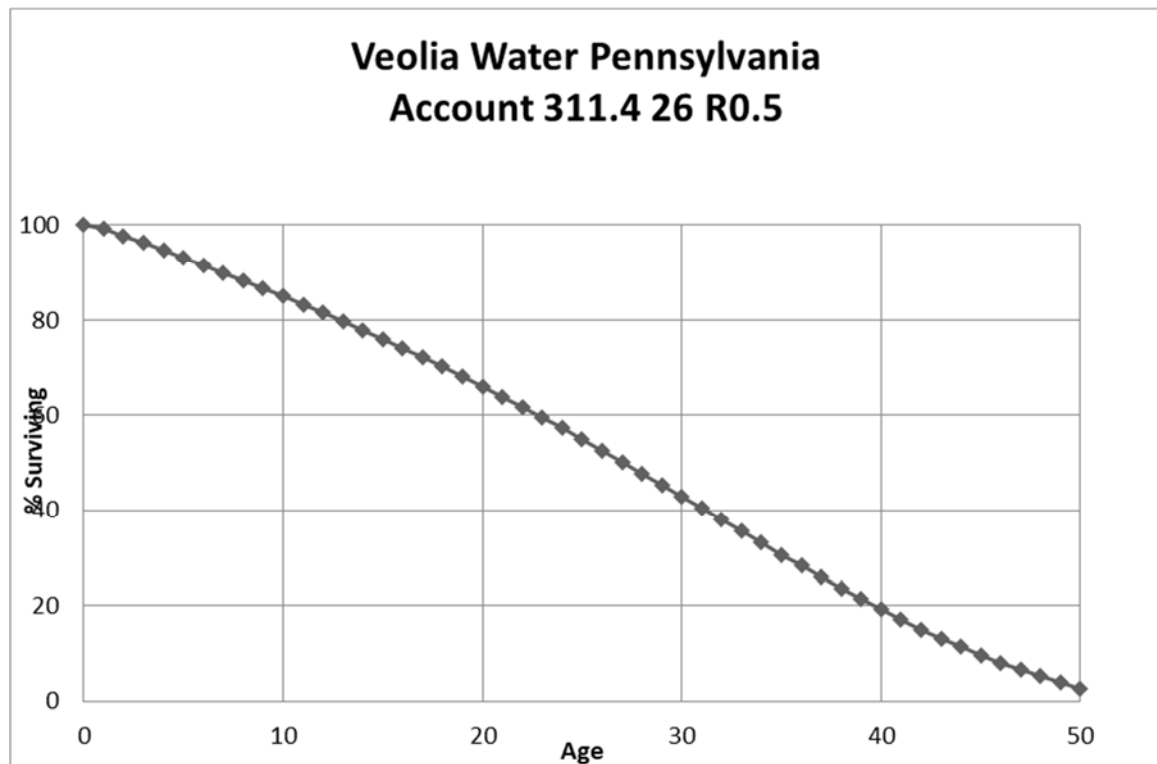
Account 311.2 Oil Pumping Equipment (30 R3)

This account consists of diesel pumps, piping, circulating, and other related equipment used in the pumping plant. The account balance is \$314 thousand for this account. The current life of this account is 35 years with an S2 dispersion. The plant is all located in Veolia Pennsylvania. Company SMEs believe that the life of this account should be in the low 30 year range. New pumps offer improvements in efficiency with operation and operating costs. The newest assets in this account come from the 2006 vintage (\$63k out of \$314k). There is also a portable diesel pump and oil engine pump from 1993, which cost \$233 thousand. Operations personnel believe that the 30 year old portable pump would be close to retirement. Based on judgment and the assets in this account, this study recommends a 30 year life with an R3 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



Account 311.4 Pumping Equipment Other (26 R0.5)

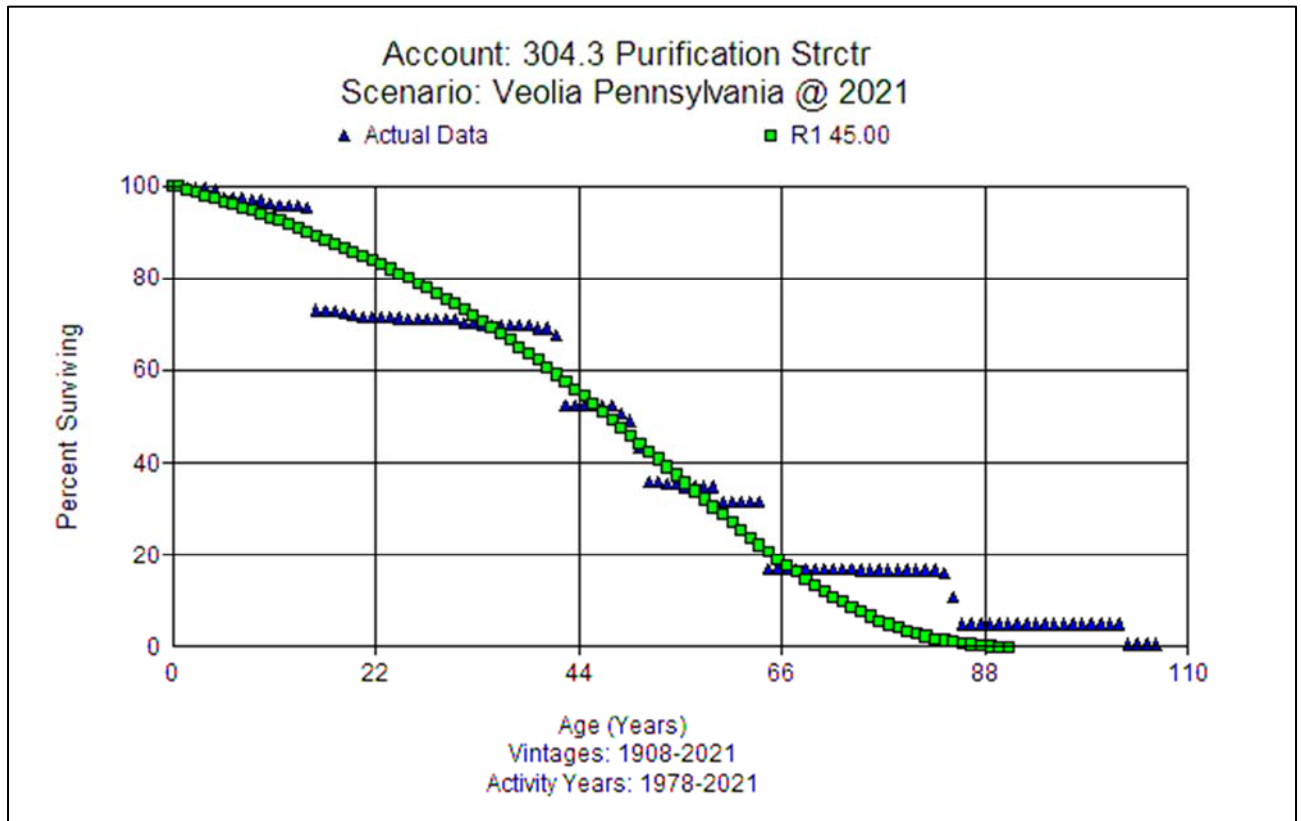
This account consists of various booster pumps, chemical pumps, and VFD (variable frequency drive) equipment. The account balance is \$569 thousand for this account. There is no current life for this account. The plant is all located in Veolia Pennsylvania. Company personnel state that this account will have a life similar to Account 311.2 Electric Pumping Equipment. There have been no retirements in this account. Based on input from Company SMEs and the assets in this account, this study recommends a 26 year life with an R0.5 dispersion curve for this account. A generic graph for this account is shown below.



Water Treatment Plant

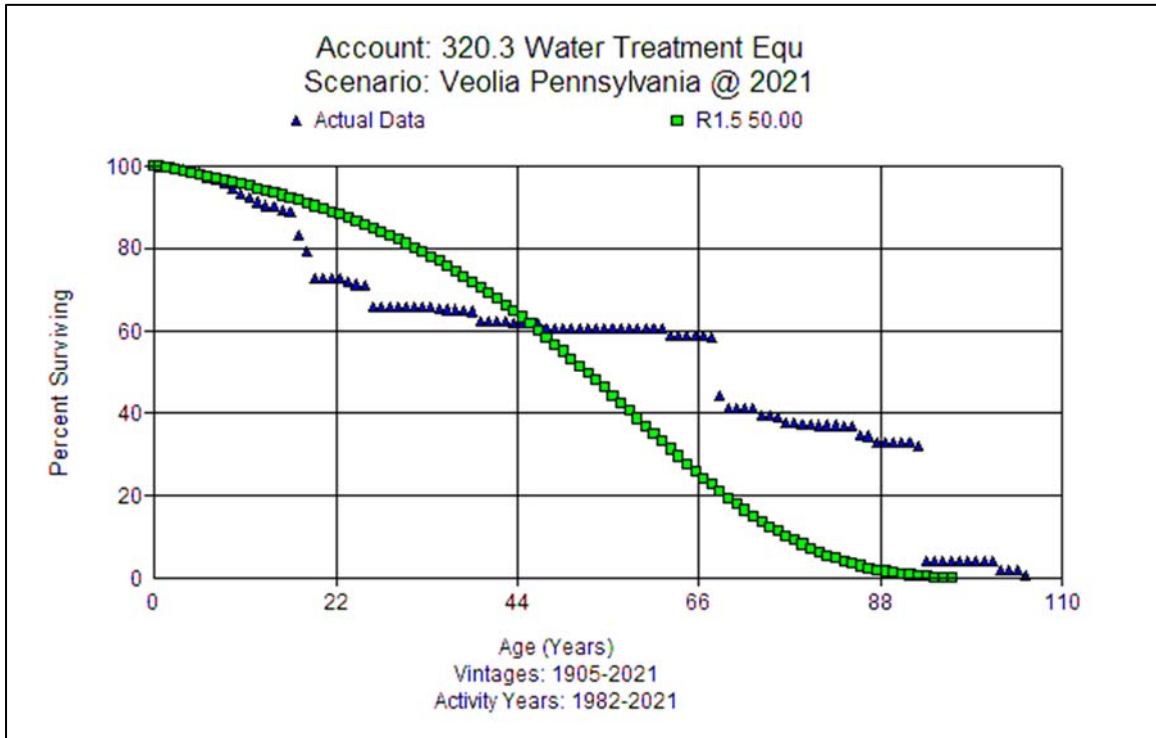
Account 304.3 Structures and Improvements Treatment (45 R1)

This account consists of structures and various improvements associated with treatment equipment. The account balance is \$17.8 million for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 55 years with an S1.5 dispersion. The items in this account are components of structures such as: building shell, site work, roofs, fences, HVAC systems, safety equipment, and security systems. There is some shorter lived treatment equipment in this account. Company personnel expect a shorter life for this type of structures (due to a harsher environment) than for source of supply structures, which have a 65 year life. Based on judgment and the assets in this account, this study recommends reducing the life to 45 years with an R1 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



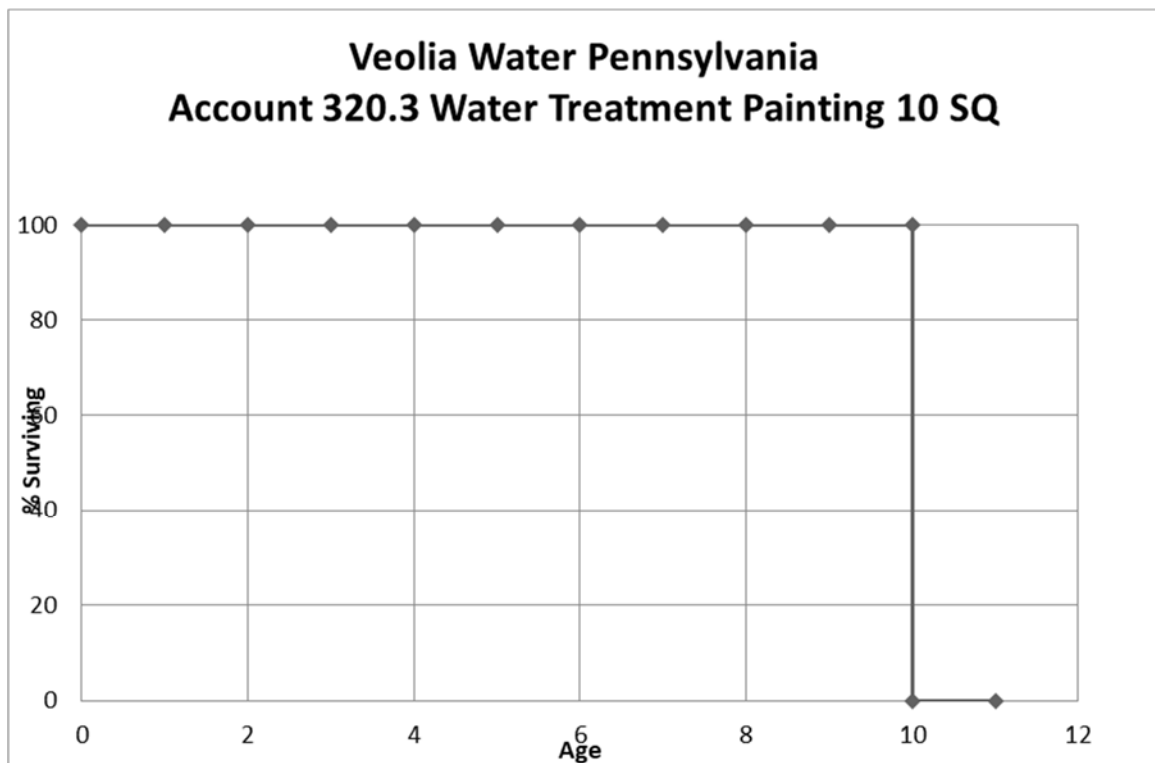
Account 320.3 Water Treatment Equipment (50 R1.5)

This account consists of chemical equipment, disinfection facilities, sedimentation basins and equipment, media for water treatment equipment, including filtration systems, and other equipment used in the water treatment plant. The account balance is \$40.1 million for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 50 years with an R1.5 dispersion. Corrosive chemicals in water treatment tend to shorten the life of equipment. Membranes would only last 9 or 10 years. The Company performed a large membrane changeout in 2014 or 2015. Operationally, there are also other items with short lives (like chemical and chlorine equipment) but many of the large items (like yard piping, etc.) would last much longer. There is one plant with a Per and Polyfluoroalkyl Substances (PFOS) project (Market Street). The current 50 year life is as long as operationally supportable, since membrane is 40% or more of the total cost. Based on judgment, input of utility personnel and future plans, and the mix of assets in the account, this study recommends retention of the existing 50 year life with an R1.5 dispersion curve. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



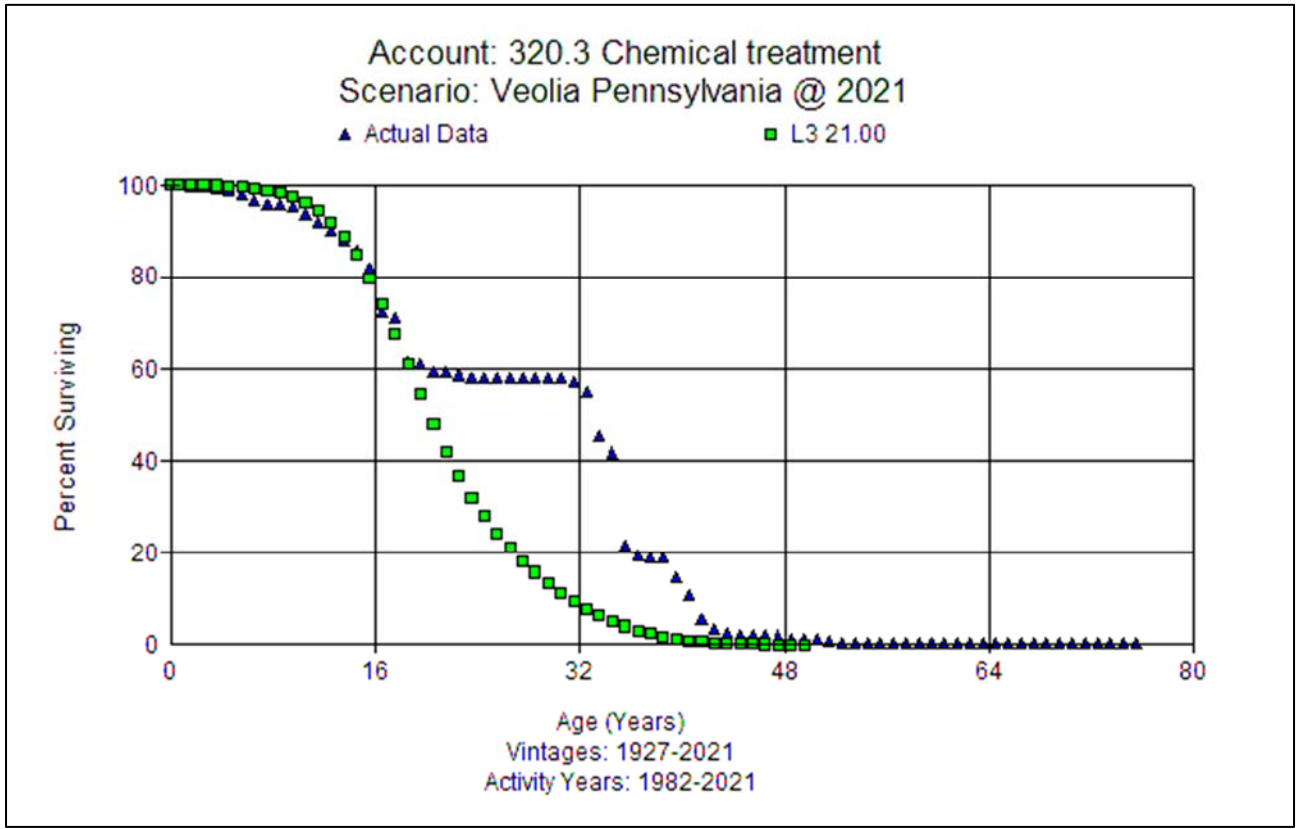
Account 320.3 Water Treatment Painting (10 SQ)

This account consists of painting treatment used for chemical equipment, disinfection facilities, sedimentation basins and equipment, media for water treatment equipment, including filtration systems, and other equipment used in the water treatment plant. The account balance is \$424 thousand for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 10 years with an SQ dispersion. Company SMEs state that painting these assets occurs about every ten years. Tanks are the primary item that is painted. Based on judgment, input of utility personnel and future plans, and the mix of assets in the account, this study recommends retention of the existing 10 year life with an SQ dispersion curve. Currently this account is fully accrued. Future additions are assumed to have a 10% annual accrual rate based on the proposed life parameter. A generic curve shape is shown below.



Account 320.3 Chemical Treatment Equipment (21 L3)

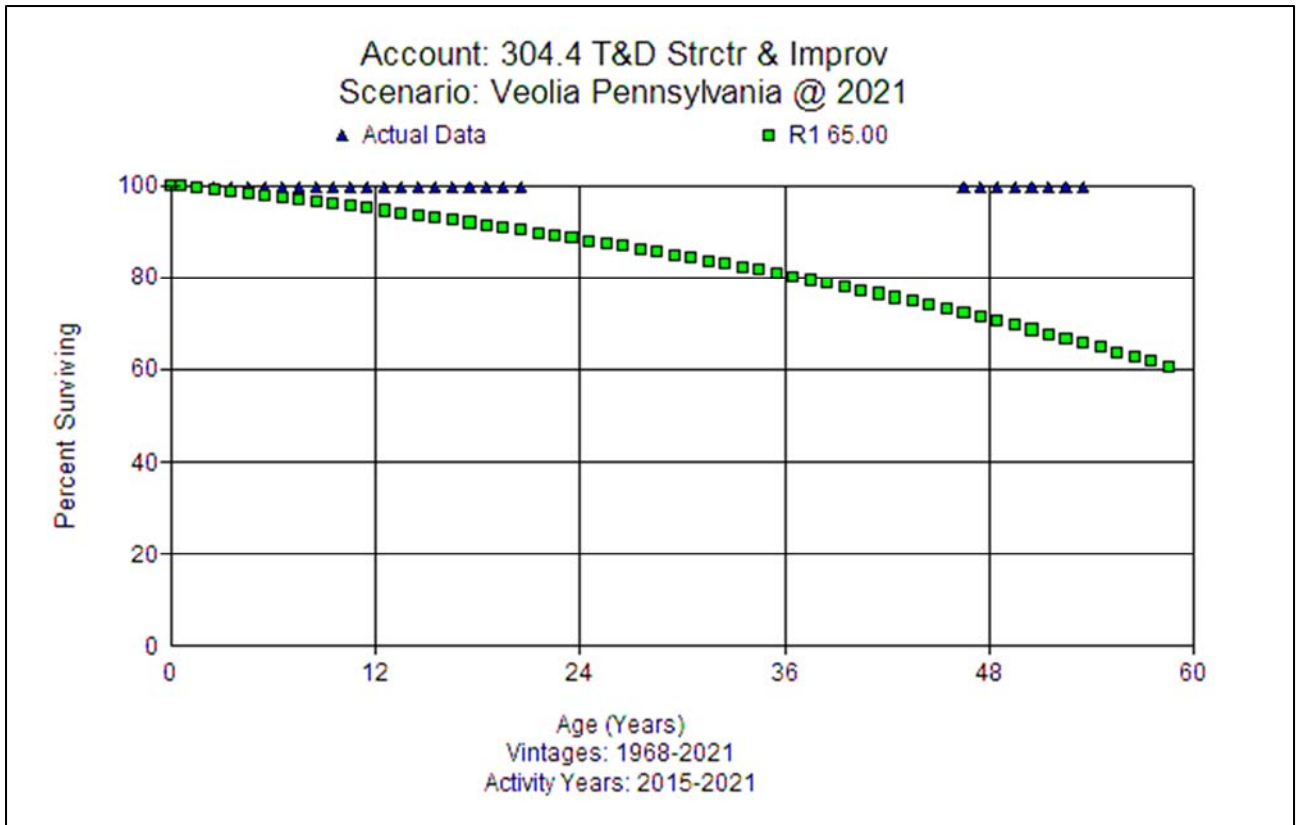
This account consists of chemical equipment, disinfection facilities, sedimentation basins and equipment, media for water treatment equipment, including filtration systems, and other equipment used in the water treatment plant. The account balance is \$7.8 million for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 25 years with an S0.5 dispersion. Company personnel expect an operational life of under 20 years. The Company plans to overhaul Raybold plant over the next 2-3 years. Company SMEs state that the many different components in this account have varying lives: chemical equipment has a life of 20-25 years; disinfectant facilities have a life of 20 years; chemical storage tanks have a life of 10 years; and storage tanks have a life of 10 years. Based on judgment, input of utility personnel and future plans, and the mix of assets in the account, this study recommends moving to a 21 year life with an L3 dispersion curve. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



Transmission and Distribution Plant

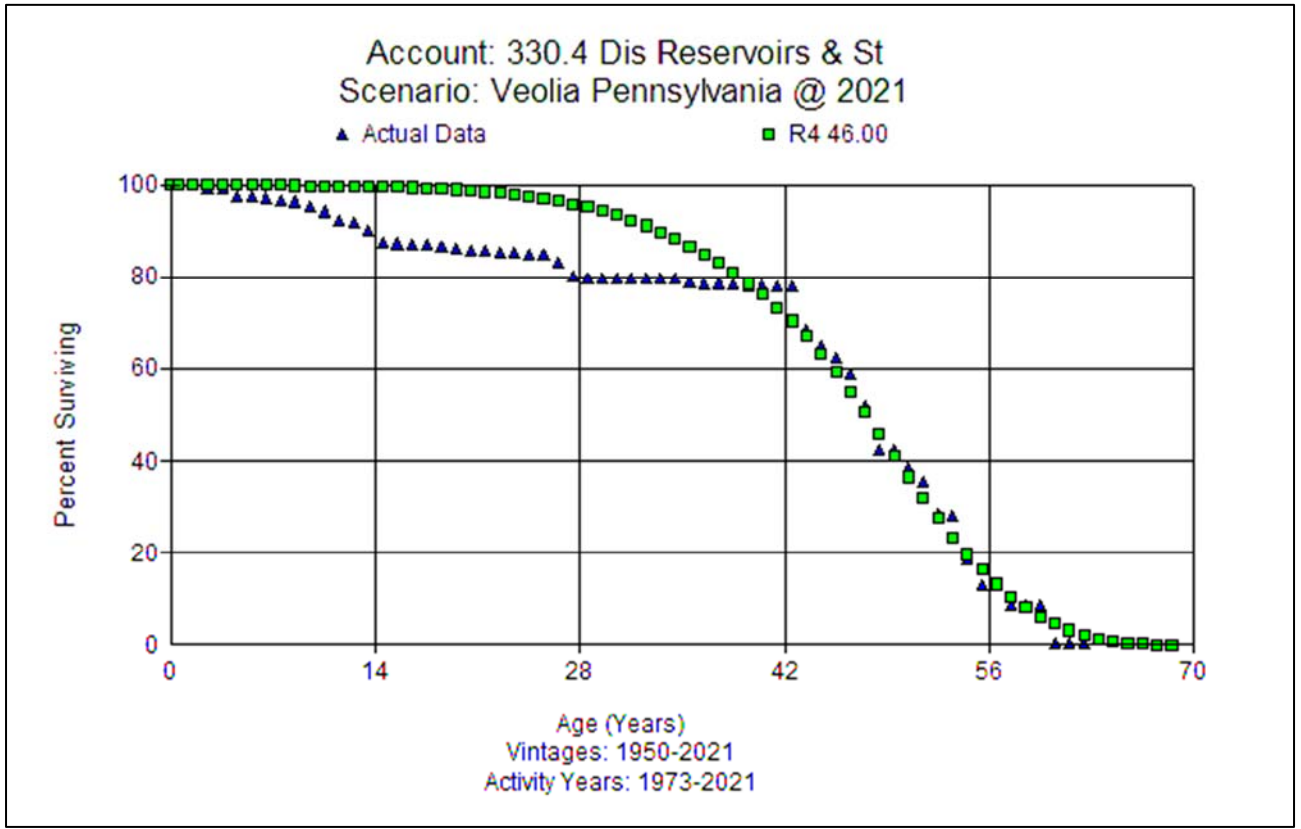
Account 304.4 Structures and Improvements – Transmission and Distribution (65 R1)

This account consists of structures and various improvements associated with the transmission and distribution plant. The account balance is \$1.6 million for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 40 years with an R3 dispersion. No retirements have occurred in this account. Based on judgment and similarity between assets in Account 304.2 and the assets in this account, this study recommends moving to a 65 year life with an R1 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



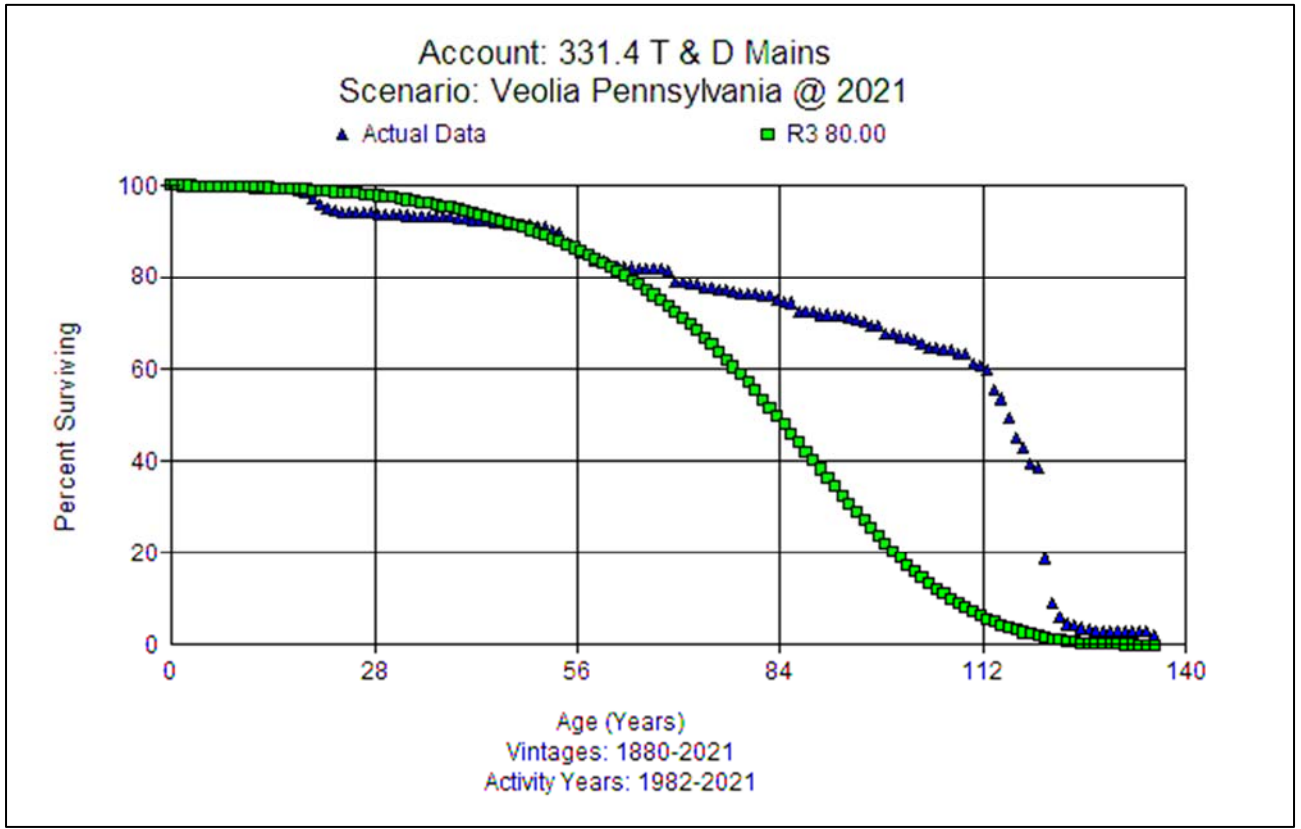
Account 330.4 Distribution Reservoirs and Standpipes (46 R4)

This account consists of reservoirs, tanks, standpipes, and appurtenances used in storing water for transmission and distribution plant. The account balance is \$12.0 million for this account. The plant is all located in Veolia Pennsylvania. The current life of this account is 45 years with an R1.5 dispersion. Most of the assets in 330.4 are in tanks. There are frequent capital improvements (over \$3M in painting and \$8M in tanks) on the impoundments. There are around 42 tanks on the system. The Company's painting cycle for non-treatment tanks is 20 years. The Company will retire previous painting costs (if known; if not known, they will retire a portion of the tank). Tanks (except for partial retirements or retirement of painting costs) may last a long time. Any painting costs will be recovered over the composite life of this account. Based on the analysis, judgment and the assets in this account, this study recommends moving to a 46 year life with an R4 dispersion curve. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



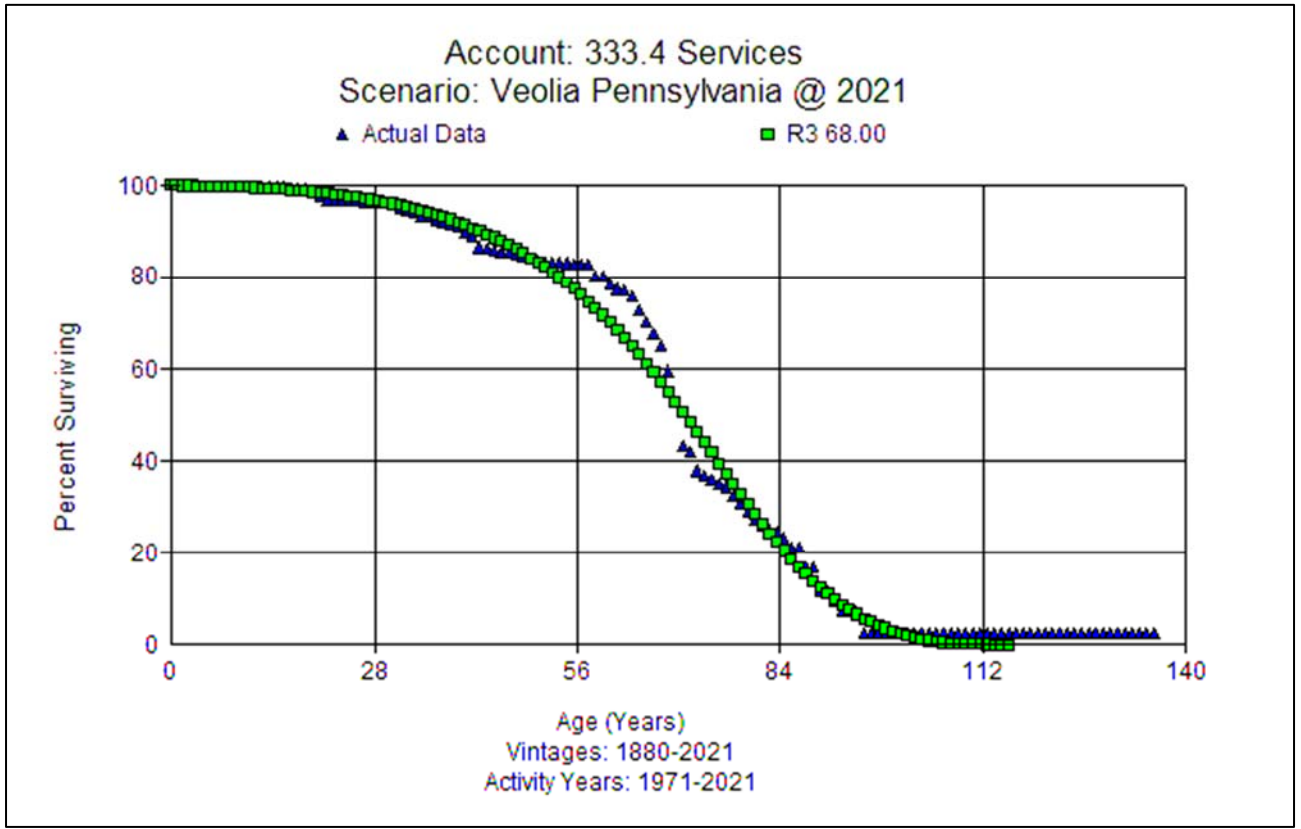
Account 331.4 Transmission and Distribution Mains (80 R3)

This account consists of transmission and distribution mains of varying types. The account balance is \$215.1 million for this account. The plant is separated into Veolia Pennsylvania with \$206.0 million and Bethel with \$5.8 million. The current life of this account for Veolia Pennsylvania is 80 years with an R3 dispersion. For Bethel, the plant is divided into two groups: 1) assets installed after 1991 with a life of 84.75 years and R3 dispersion; and 2) assets installed before 1991 with a 78.74 year life and R3 dispersion. The Company began doing material amounts of replacements in 2016 (nearly \$29M out of the \$215M in service). There has been a robust main replacement in the last few years. Company SMEs have the expectation that pipe and valves put in now should last 100 years. The retirements occurring range from 60 years to 100+ year old cast iron. They are installing all Ductile Iron, which should last 100 years. AC and plastic (250 miles remaining – 30%) would have much shorter lives, around 40 years. There is very little galvanized left to replace. Operationally, moving to an average of 80 years would be reasonable at this point. As the earlier generations of pipe are replaced, Company personnel would expect the life to increase. Based on judgment and the assets in this account, this study recommends retaining the current 80 year life with an R3 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



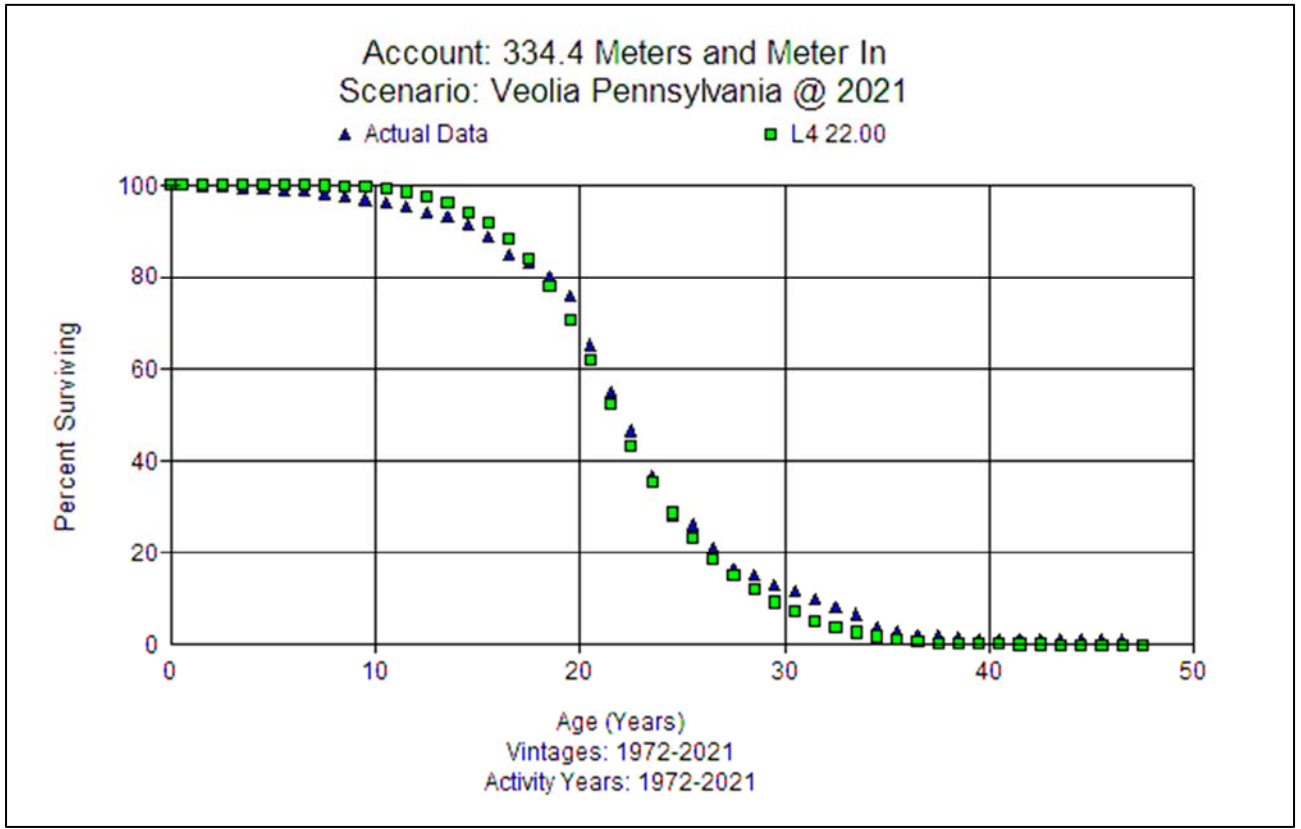
Account 333.4 Services (68 R3)

This account consists of service pipes and accessories leading from the main to the curb box by customers' premises. The account balance is \$58.1 million for this account. The plant is separated into Veolia Pennsylvania with \$56.5 million and Bethel with \$1.6 million. The current life of this account for Veolia Pennsylvania is 60 years with an S2.5 dispersion. For Bethel, the plant is divided into two groups: 1) assets installed after 1991 with a life of 64.94 years and an S2.5 dispersion; and 2) assets installed before 1991 with an 60.24 year life and S2.5 dispersion. Company owns from the main to the curb box. Relocations and road widenings, as well as replacements when mains are replaced, would be forces of retirement. Meter pits are not owned by the Company (they will install but the customer would then own). The expectation for services in general is that they will have a shorter life than mains. The Company is performing an inventory to validate if there are any lead services. When they touch a main, they will install a meter pit and move the meter out of the house into the pit. Company SMEs feel that a 65-70 year life is operationally reasonable. Based on judgment and the assets in this account, this study recommends retaining the current 68 year life with an R3 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



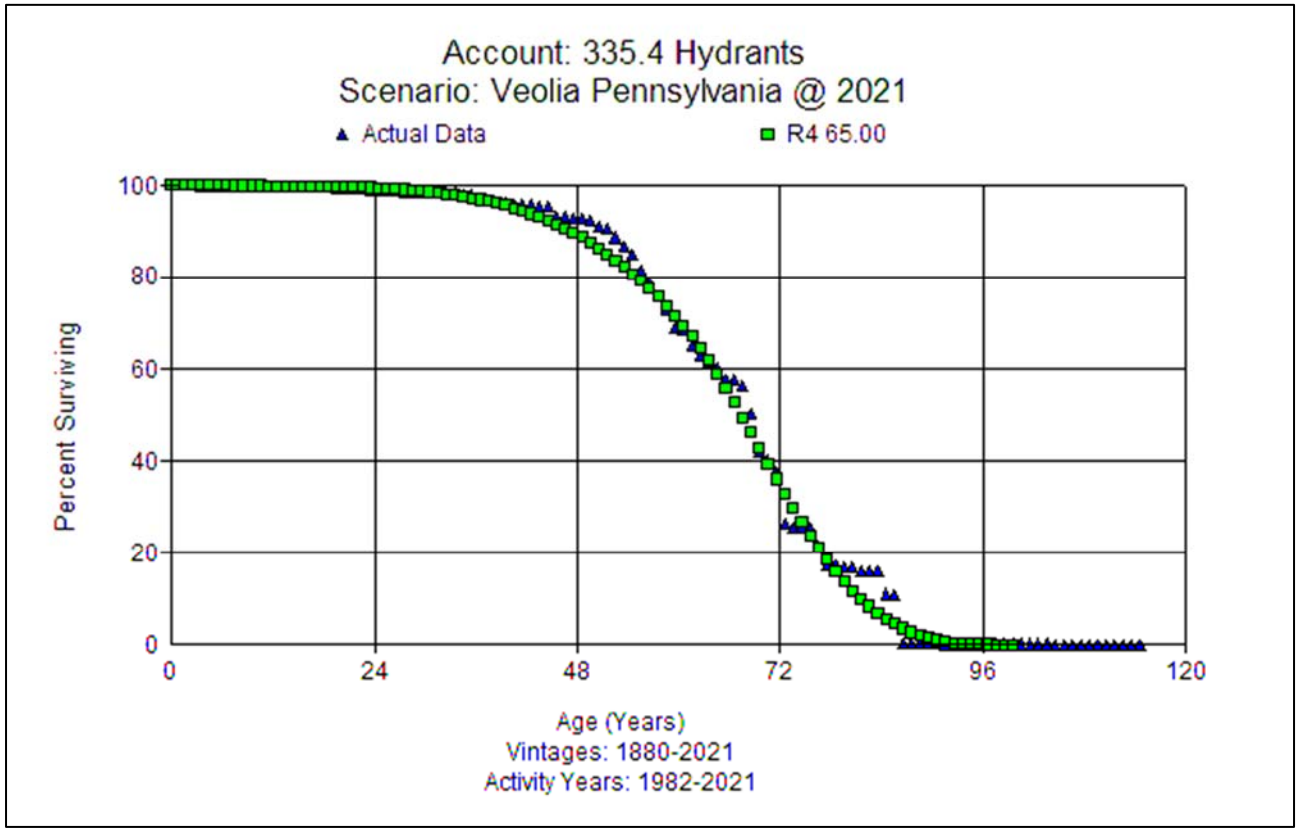
Account 334.4 Meters (22 L4)

This account consists of meters, devices, and other appurtenances used for measuring the quantity of water delivered to users, whether actually in service or held in reserve. The account balance is \$25.4 million for this account. The plant is separated into Veolia Pennsylvania with \$24.9 million and Bethel with \$509 thousand. The current life of this account for Veolia Pennsylvania is 25 years with an S1.5 dispersion. For Bethel, the plant is divided into two groups: 1) assets installed after 1991 with a life of 30.03 years and an S1.5 dispersion; and 2) assets installed before 1991 with a 26.46 year life and an S1.5 dispersion. The state has compliance requirements in place to mandate replacing small residential meters by 20 years. Larger meters are replaced or tested in shorter periods. Based on judgment and the assets in this account, this study recommends moving to a 22 year life for residential meters with an L4 dispersion curve for this account. A graph of the actual data is shown below.



Account 335.4 Hydrants (65 R4)

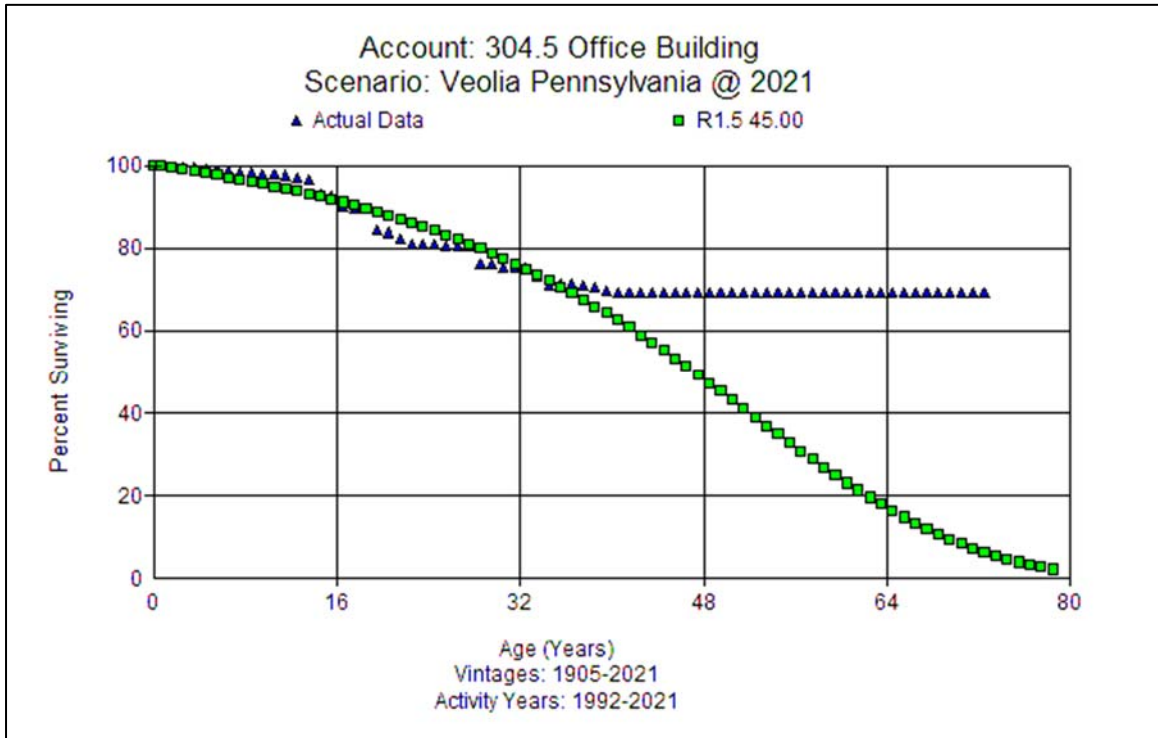
This account consists of hydrants in service owned by the utility. The account balance is \$10.2 million for this account. The plant is separated into Veolia Pennsylvania with \$9.7 million and Bethel with \$475 thousand. The current life of this account for Veolia Pennsylvania is 60 years with an R4 dispersion. For Bethel, the plant is divided into two groups: 1) assets installed after 1991 with a life of 54.95 years and an R4 dispersion; and 2) assets installed before 1991 with a 49.50 year life and an R4 dispersion. Some hydrants are replaced due to mains replacement and others due to vehicular accidents. Company SMEs report that they will replace hydrants as they replace water mains in the main renewal program. T, lateral, etc. are also part of this account, although they are a small portion. Hydrants would have a shorter life than mains and have more chance of damage. Company SMEs feel that the current life is slightly shorter than future expectations for this account. The actuarial fit provides an excellent visual match. Based on judgment and the assets in this account, this study recommends moving to a 65 year life with an R4 dispersion curve for this account. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



General Plant

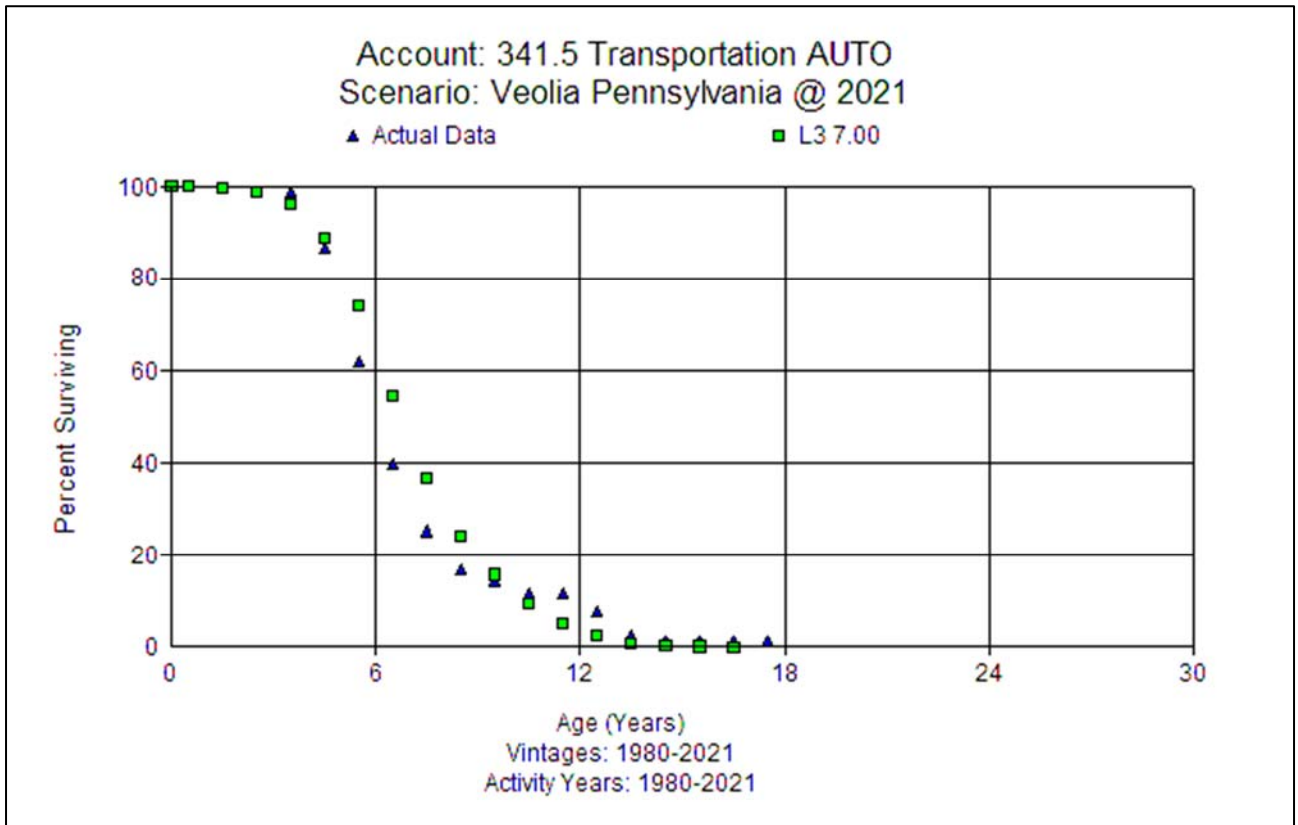
Account 304.5 General Offices (45 R1.5)

This account consists of structures and various improvements associated with general offices not tied to a specific functional group. The account balance is \$12.2 million this account, and the current life is 45 years with an R2.5 dispersion. The plant is all located in Veolia Pennsylvania. The Company recently moved its offices and will retire the building when demolished. There was a reclass to nonutility plant. There are very few actual building assets in this account. Most are much shorter lived assets: 50% of the account is office remodel and many assets are roofs, fencing, cameras, etc. None of the assets other than any actual building shells will last 45 years or longer. The items in this account are components of structures such as: the building shell, roadways, paving, HVAC systems, safety equipment, and flooring. Actuarial analysis shows a slightly shorter life. Based on judgment and the assets in this account, this study recommends retaining a 45 year life with an R1.5 dispersion curve. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



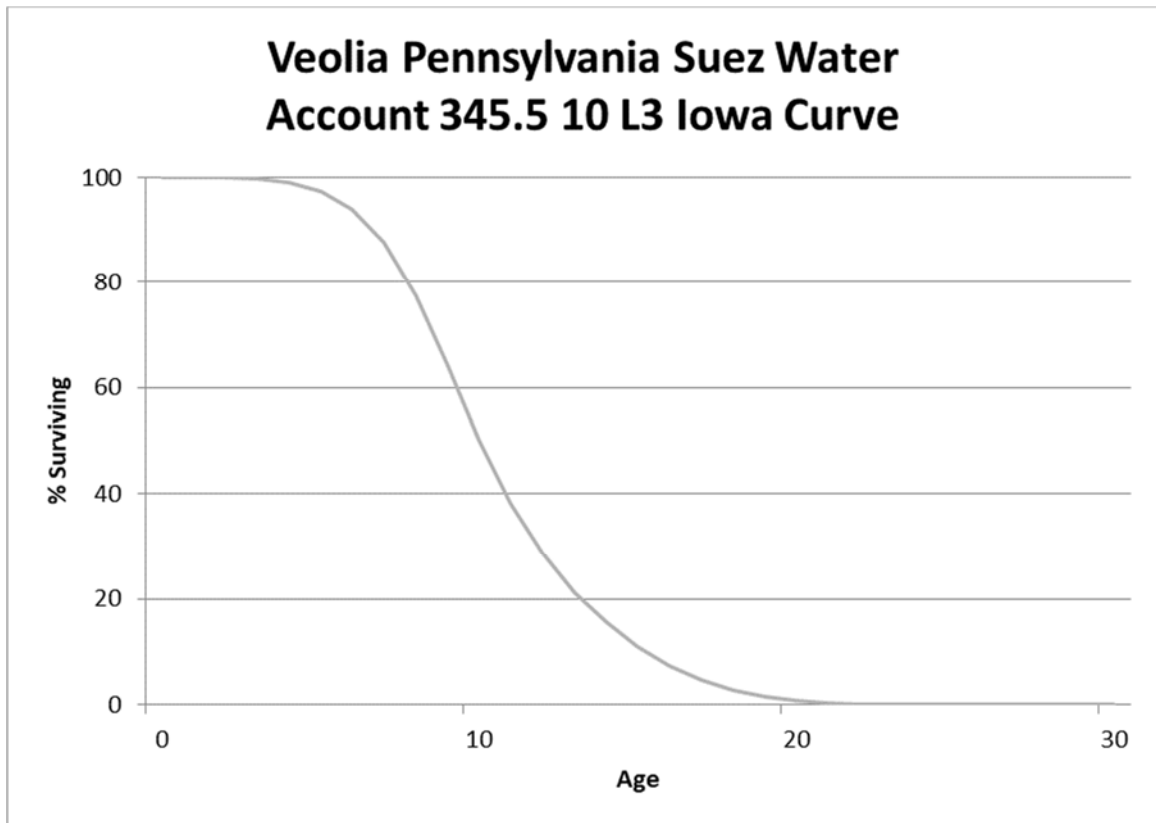
Account 341.5 Transportation Equipment (7 S3)

This account consists of transportation equipment that is licensed on local roadways. The account balance is \$4 thousand for this account. The approved life is 7 years with an L3 dispersion. Actuarial analysis shows a similar life. Based on judgment and actuarial analysis, this study recommends a 7 year life with an L3 dispersion. A graph of the observed life table compared to the proposed curve and life for this account is shown below.



Account 345.5 Power Operated Equipment (10 L3)

This account can consist of power operated equipment such as bulldozers, trenchers, hydro excavators, and backhoes. The account balance is \$7 thousand for this account. There is no approved life for this account. Based on judgment and the analysis, this depreciation study recommends a 10 year life and an L3 dispersion curve for this account. A generic graph showing the proposed survivor curve is shown below.



General Plant - Amortized (Accounts 340.5, 342.5-344.5, 346.5-347.5)

Adoption of Vintage Group Amortization

This study recommends the adoption of vintage group amortization for certain General plant accounts. FERC adopted Accounting Release 15 (“AR15”) in 1997 using the following criteria:

1. The individual classes of assets for which vintage year accounting is followed are high volume, low value items;
2. There is no change in existing retirement unit designations, for purposes of determining when expenditures are capital or expense;
3. The cost of the vintage groups is amortized to depreciation expense over their useful lives and there is no change in depreciation rates resulting from the adoption of the vintage year accounting;
4. Interim retirements are not recognized;
5. Salvage and removal cost relative to items in the vintage categories are included in the accumulated depreciation account and assigned to the oldest vintage first; and
6. Properties are retired from the affected accounts that, at the date of the adoption of vintage year accounting, meet or exceed the average service life of properties in that account.

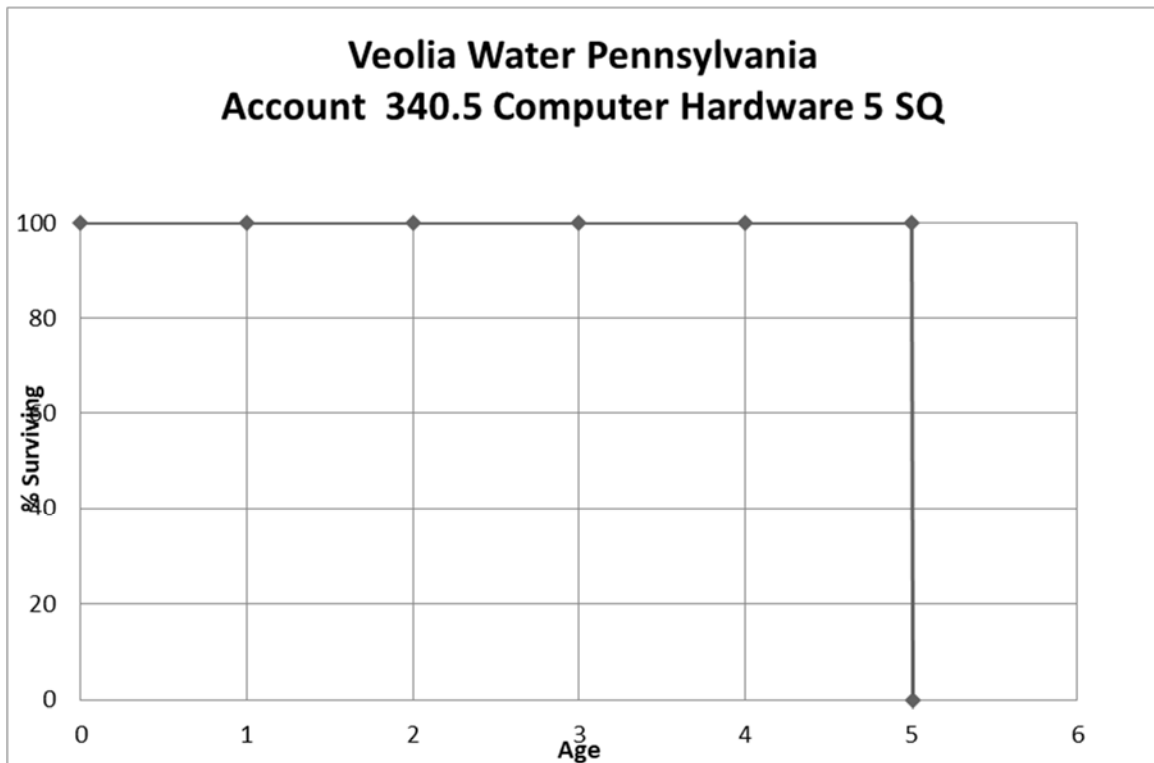
A vintage year method of accounting for the general plant accounts that meets all of the foregoing requirements may be implemented without obtaining specific authorization from the Commission to do so.

With the adoption of vintage group amortization, it is no longer necessary to keep track of the location and retirement of specific assets. Annually, assets are retired after reaching the average service life for that account. The retirement amounts for fully accrued assets are shown for each account in Appendix A-1. After those assets are retired, the remaining plant in service for each account will be amortized using the amortization rates shown in Appendix A-1. An additional accrual is necessary for each plant account to make up the difference between the book

depreciation reserve and the theoretical depreciation reserve. For Veolia, there is a small difference between the book and theoretical reserve that needs to be amortized over the remaining life of each plant account. This amount is shown for each account in Appendix A-1. Slight changes in life for the amortized plant accounts are discussed below.

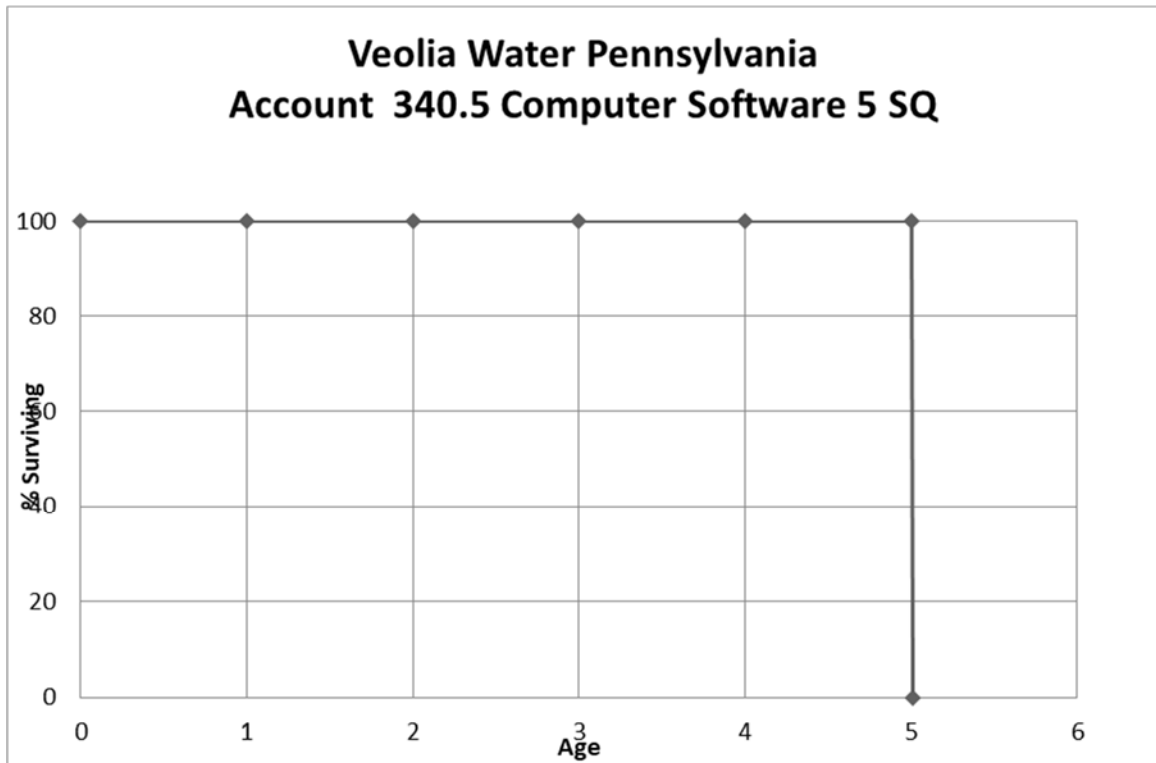
Account 340.5 Computer Hardware (5 SQ)

This account consists of various types of computer hardware, such as servers and network equipment. The account balance is \$1.2 million for this account, and after the retirement of fully accrued assets, there will be \$648 thousand in plant. All the plant is located in Veolia Pennsylvania. The approved life is 5 years. The Company's goal is to refresh its computer equipment every 4 years. Some assets (such as network equipment) may last longer. Based on judgment and Company practices, this study recommends retaining the approved 5 year life and using an SQ dispersion curve for this account. A graph of the recommended curve shape is shown below.



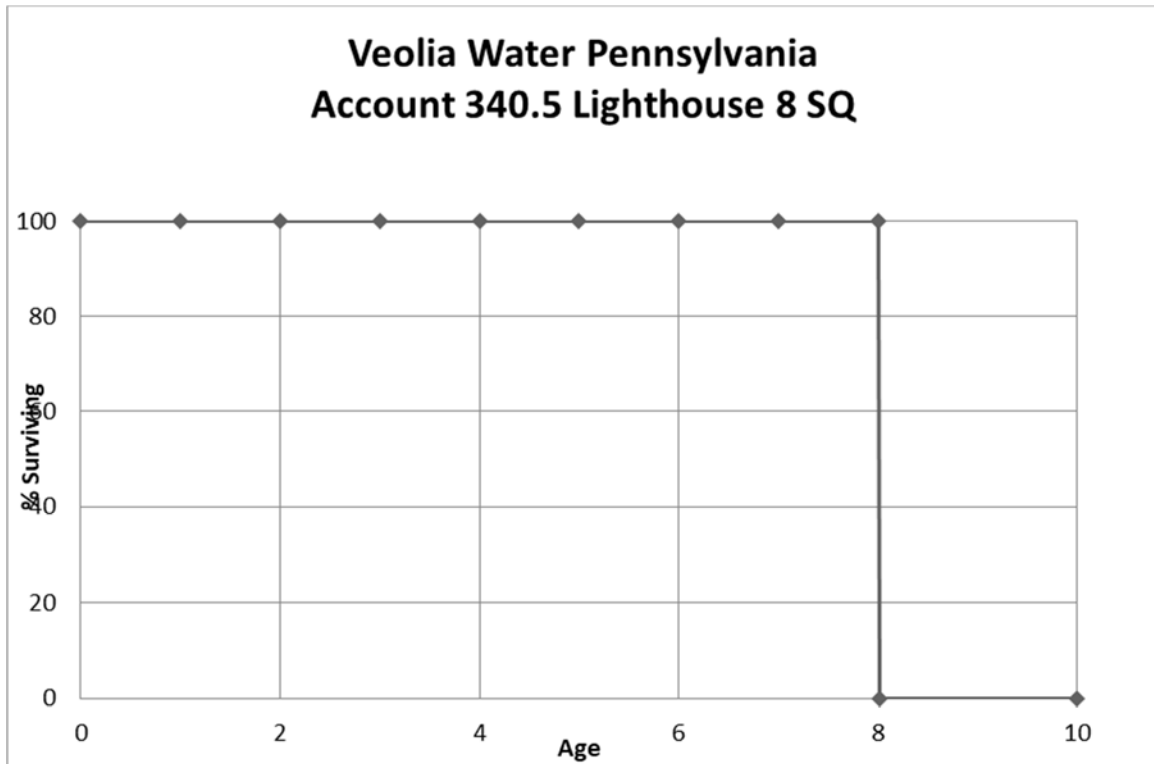
Account 340.5 Computer Software (5 SQ)

This account consists of miscellaneous computer software. The account balance is \$2.6 million for this account. After the retirement of fully accrued assets, there will be \$731 thousand in plant. All the plant is located in Veolia Pennsylvania. The approved life is 5 years. The Company refreshes software every 4 to 5 years. Based on judgment and Company practice, this study recommends retaining the approved 5 year life and using an SQ dispersion curve for this account. A graph of the recommended curve shape is shown below.



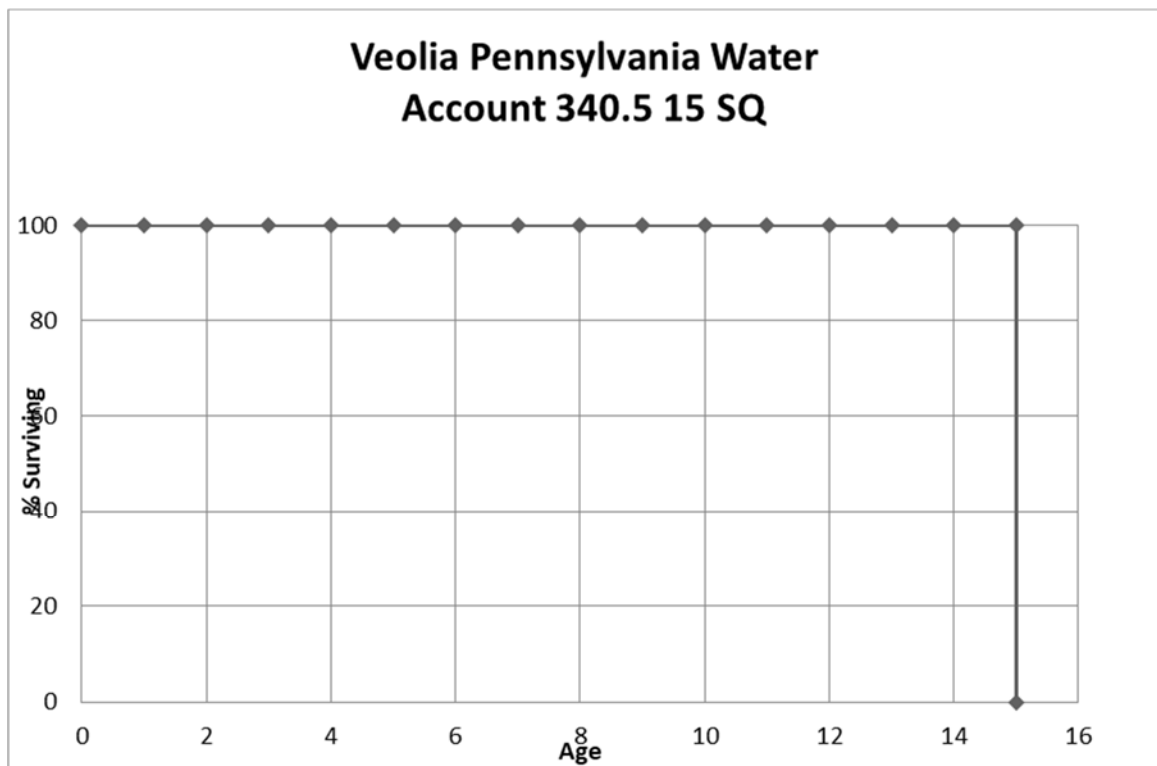
Account 340.5 Computer Software Lighthouse (8 SQ)

This account consists of the Company's lighthouse computer software. The account balance is \$3.8 million for this account. After the retirement of fully accrued assets, there will be \$0 in plant. All the plant is located in Veolia Pennsylvania. The current life of this account is 8 years. The assets in this account were installed in 2011, and there have been no additions or retirements since the assets went in service. Given that the use of the software is unchanged, Company SMEs recommend retention of the current 8 year life. Based on judgment and the recommendation of Company personnel, this study recommends a 8 year life and using an SQ dispersion curve for this account. A graph of the recommended curve shape is shown below.



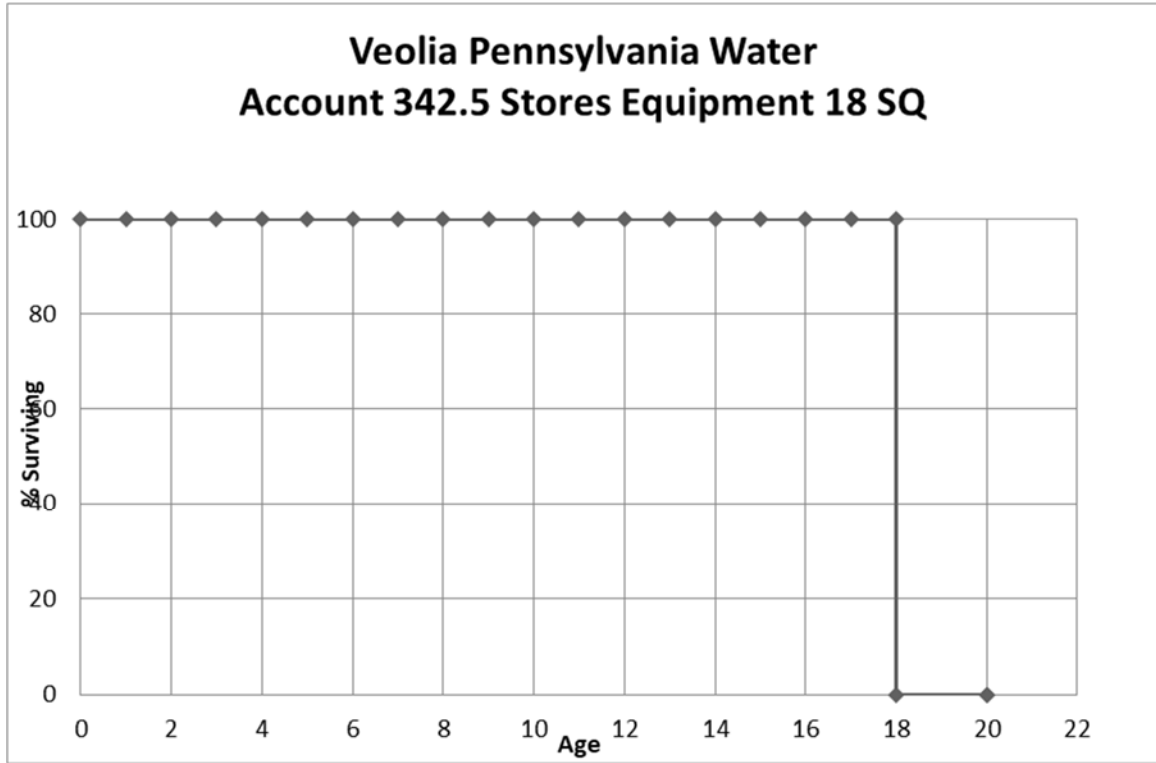
Account 340.5 Office Furniture and Equipment (15 SQ)

This account consists of office furniture and equipment such as desks, chairs, projectors, and other similar equipment. The account balance is \$754 thousand for this account. After the retirement of fully accrued assets, there will be \$751 thousand in plant. All the plant is located in Veolia Pennsylvania. The approved life is 15 years. After adoption of general plant amortization, this study recommends retaining the approved 15 year life and using an SQ dispersion curve for this account. A graph of the recommended curve shape is shown below.



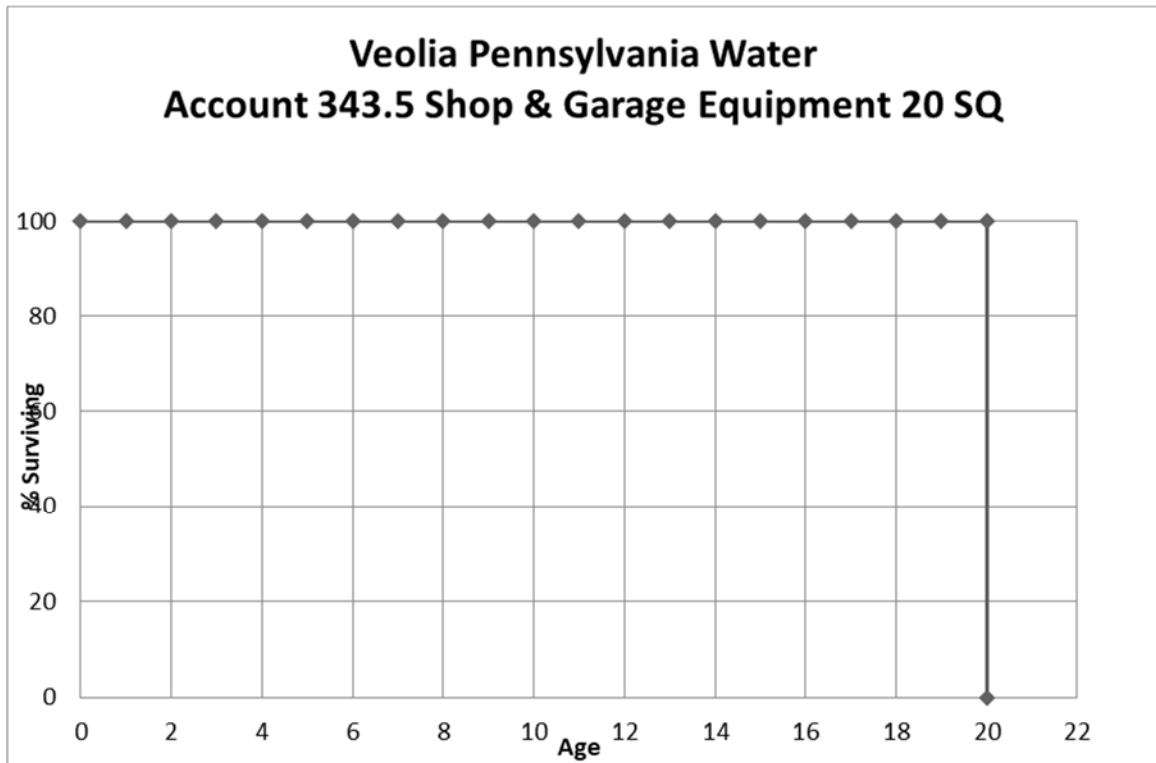
Account 342.5 Stores Equipment (18 SQ)

This account consists of stores equipment such as furniture and tools. The account balance is \$8 thousand for this account. The plant is all located in Veolia Pennsylvania. The approved life characteristic is unknown. After adoption of general plant amortization, this study recommends an 18 year life with an SQ dispersion curve. A graph of the proposed curve shape is shown below.



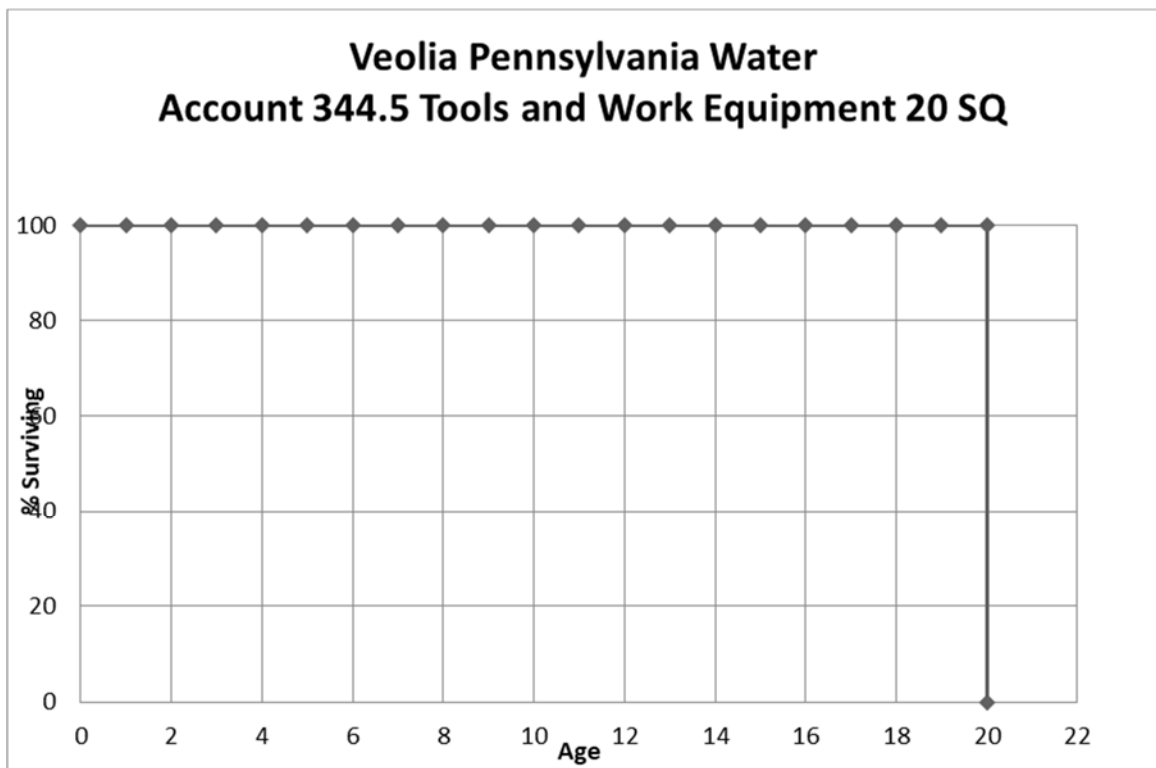
Account 343.5 Shop, and Garage Equipment (20 SQ)

This account consists , shop, and garage equipment, such as miscellaneous tools, electric equipment, or pumps. The account balance is \$765 thousand for this account and the existing life is 20 years. The plant is all located in Veolia Pennsylvania. After the retirement of fully accrued assets, there will be \$697 thousand in plant. After adoption of general plant amortization, this study recommends retention of a 20 year life and using an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



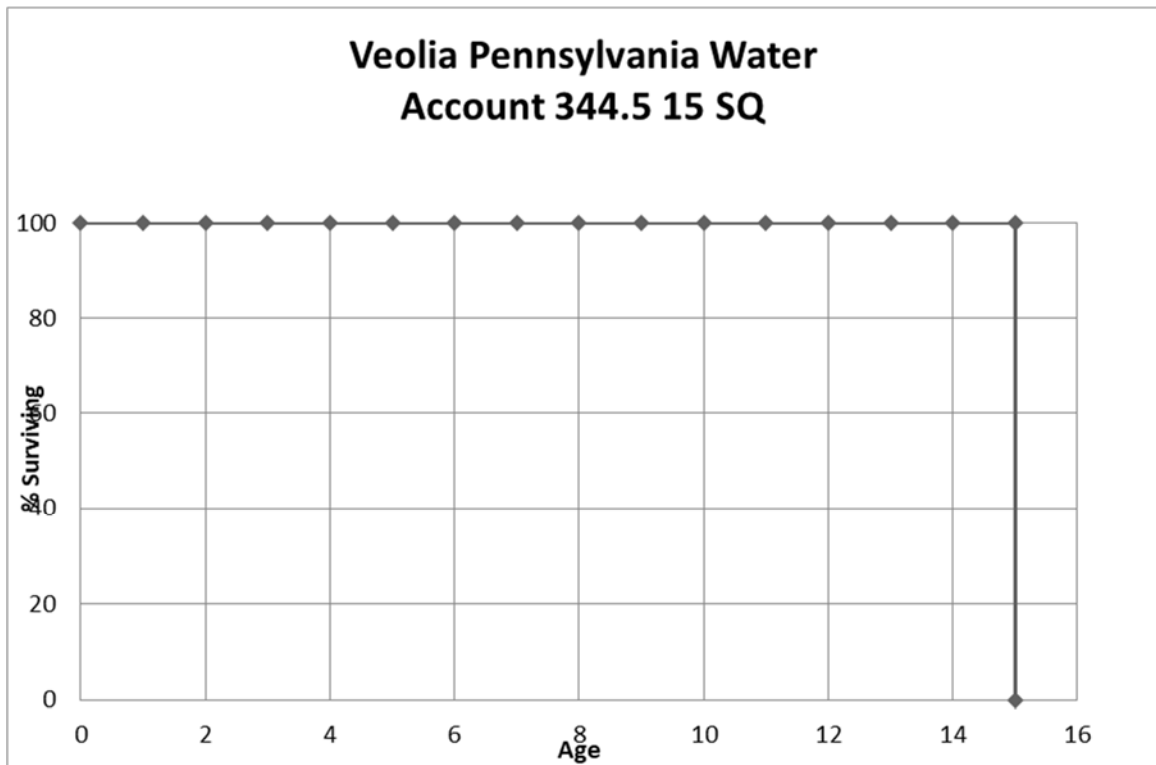
Account 344.5 Tools and Work Equipment (20 SQ)

This account consists of tools and work equipment, such as miscellaneous tools, electric equipment, or pumps. The account balance is \$3.7 million for this account and the existing life is 20 years. The plant is all located in Veolia Pennsylvania. After the retirement of fully accrued assets, there will be \$3.4 million in plant. After adoption of general plant amortization, this study recommends retention of a 20 year life and using an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



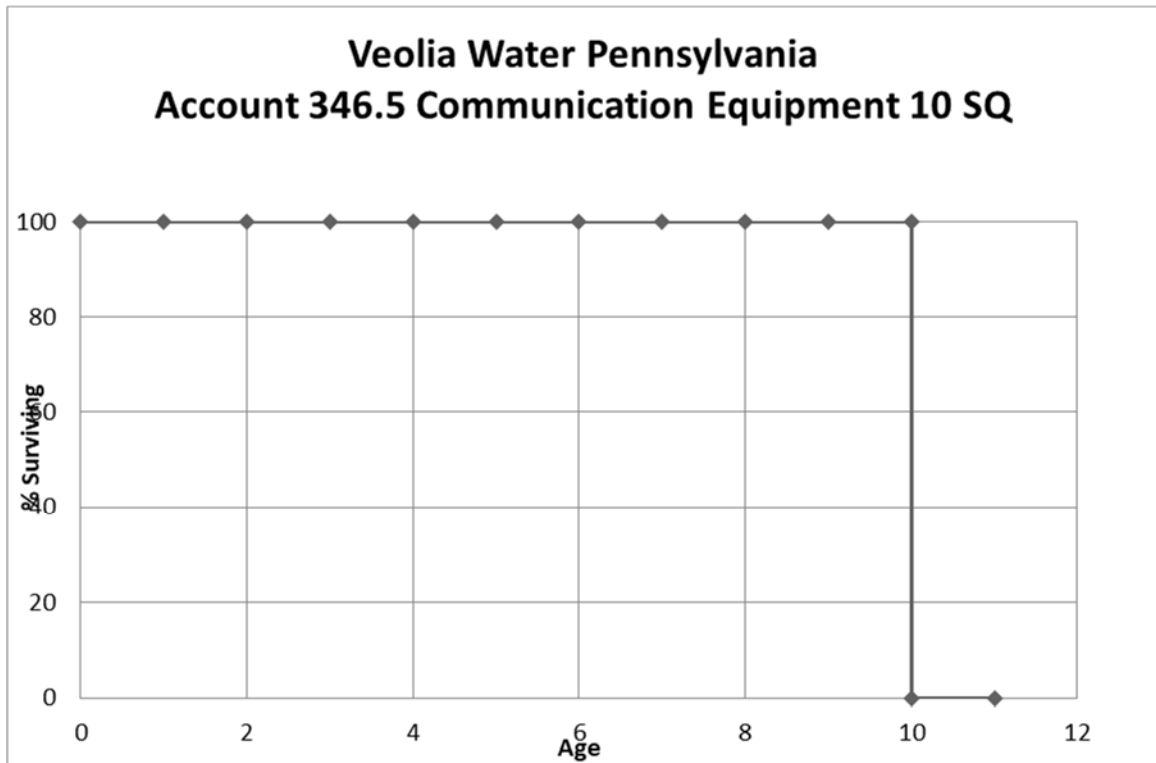
Account 344.5 Laboratory Equipment (15 SQ)

This account consists of laboratory equipment such as testing instruments. The account balance is \$132 thousand for this account. After the retirement of fully accrued assets, there will be \$81 thousand in plant. The plant is all located in Veolia Pennsylvania. The approved life characteristic is 15 years with an SQ dispersion. Company personnel state that the assets in this account are driven by technology change. Accordingly, they recommend a slightly shorter life. After adoption of general plant amortization, this study recommends moving to a 15 year life and using an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



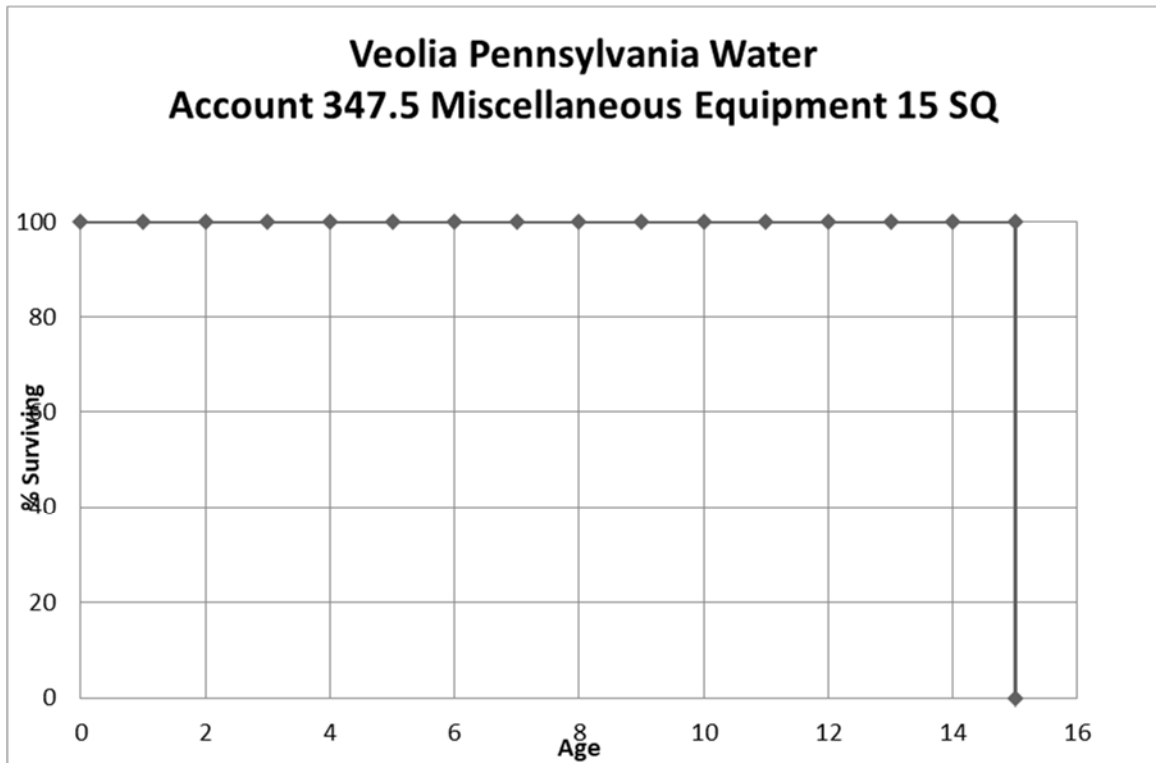
Account 346.5 Communication Equipment (10 SQ)

This account consists of communication equipment such as control equipment, radios, telephone systems, and similar assets. The account balance is \$7.9 million for this account, and after the retirement of fully accrued assets, there will be \$5.6 million in plant. The plant is all located in Veolia Pennsylvania. The current life for this account is 10 years. Company SMEs see no operational reason to change the existing service life. After adoption of general plant amortization, this study recommends a 10 year life and using an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



Account 347.5 Miscellaneous Equipment (15 SQ)

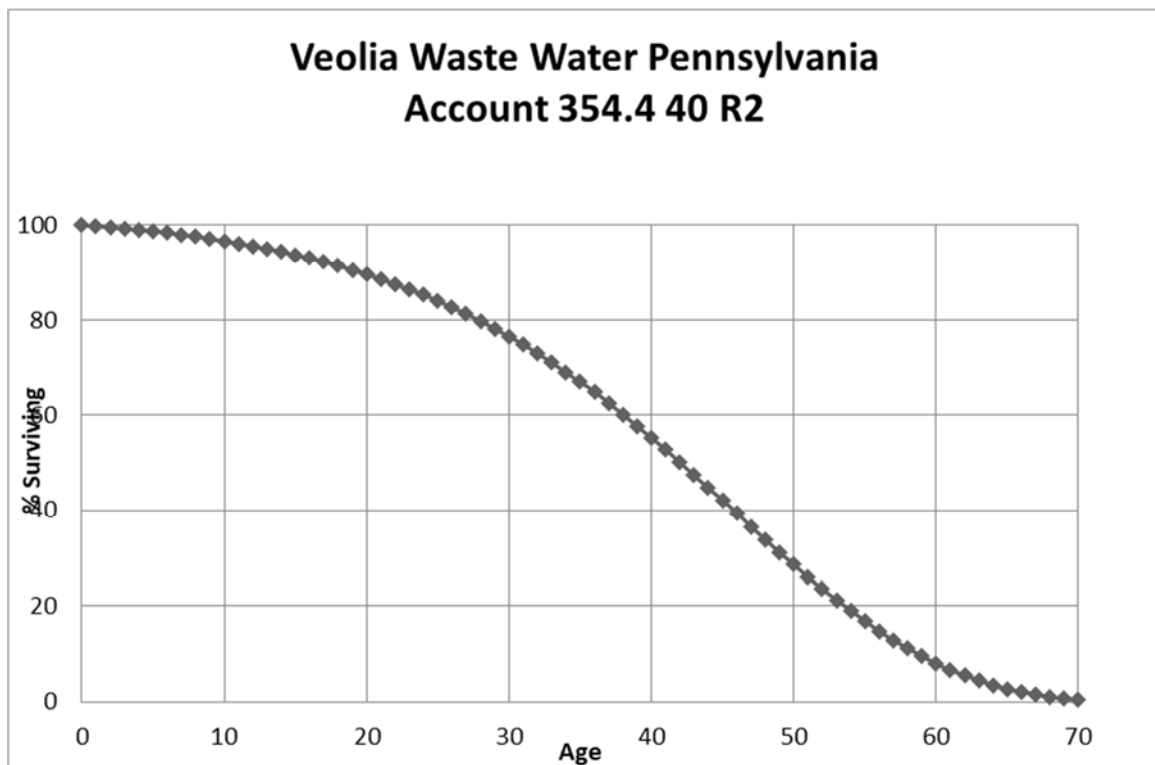
This account consists of miscellaneous equipment signs, miscellaneous tools, sampling stations, or other equipment that may not fit in any other general plant account. The account balance is \$1.0 million for this account. The plant is all located in Veolia Pennsylvania. No assets are older than the current 15 year life. Company SMEs see no operational reason to change the existing service life. After adoption of general plant amortization, this study recommends retaining the approved 15 year life and using an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



Life Analysis – Veolia Pennsylvania Waste Water Assets Treatment and Disposal Plant

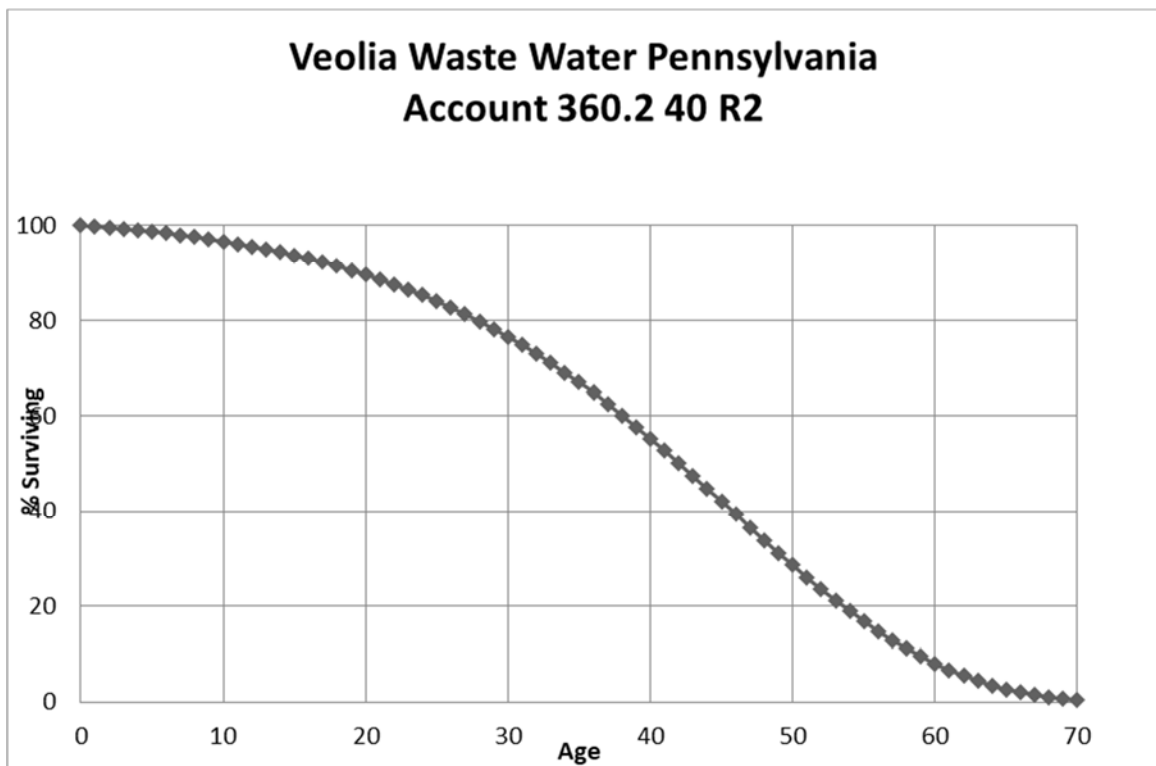
Account 354.4 Structures and Improvements (40 R2)

This account includes the cost of all structures and improvements used for treatment and disposal of sewage. The account balance is \$36 thousand million for this account. The current life of this account is 17.99 years with an L0 dispersion. There is no actuarial history for this account. Based on judgment, this study recommends moving to a 40 year life with an R2 dispersion. A generic curve shape is shown below.



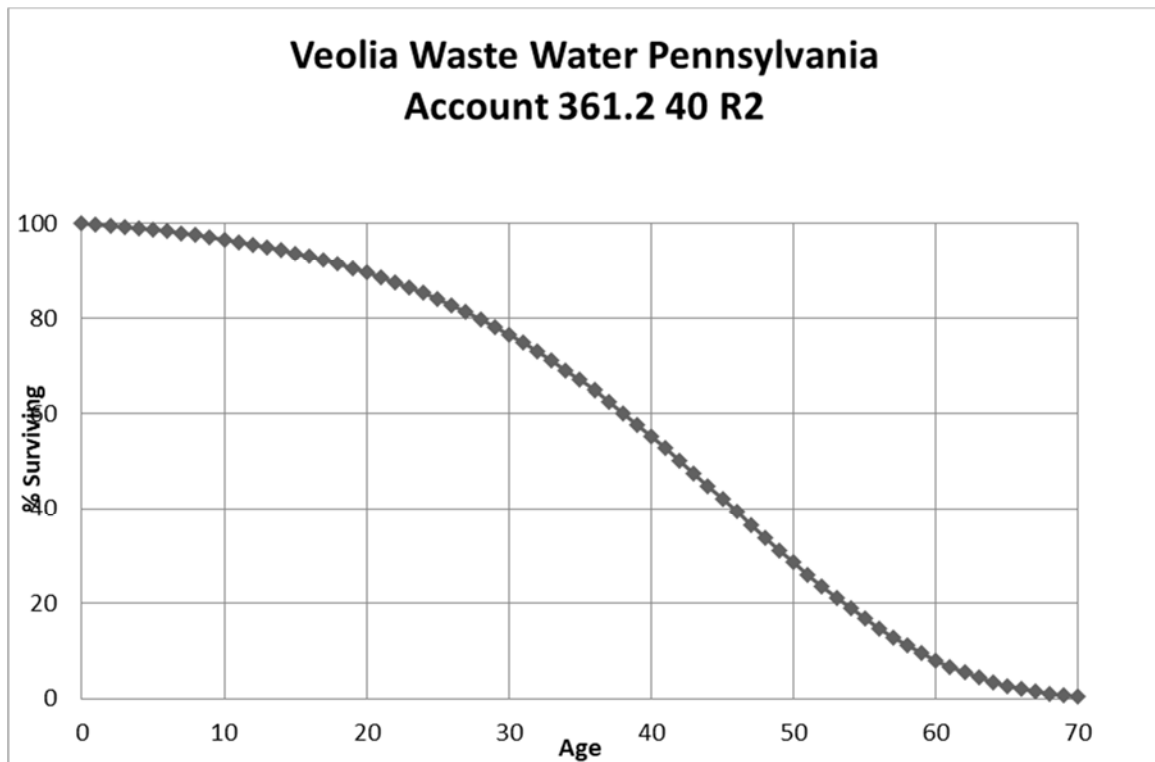
Account 360.2 Force Mains (40 R2)

Items in this account include the cost of all mains, piping and special castings, valves, etc., used in the conveyance of sewage, under pressure, to the next pumping station or other junction point in the collecting system, to the treatment plant, or directly to a point of final discharge. The account balance is \$170 thousand for this account. This account does not have a current life. There is no actuarial history for this account. Based on judgment, this study recommends a 40 year life with an R2 dispersion. A generic curve shape is shown below.



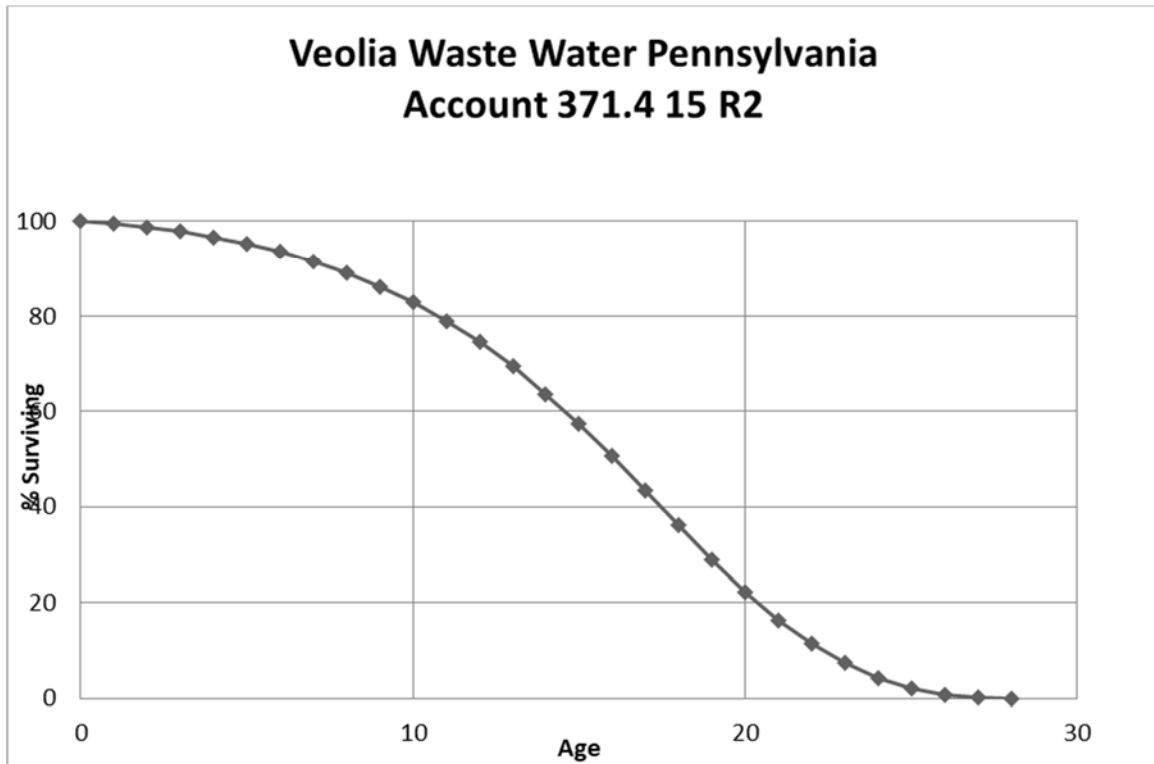
Account 361.2 Collection Sewers Gravity (40 R2)

This account shall include the cost of all mains, pipes, ducts, receiving and pumping wells, manholes and their related equipment, and accessories, the primary purpose of which is to convey sewage from the service connection to a point where it enters the interceptor main or pumping station within the collecting system. The account balance is \$4.3 million for this account. The current life of this account is 30.30 years with an L0 dispersion. There is insufficient data to perform actuarial analysis for this account. Company SMEs believe that operationally, assets in Accounts 321-323 will have similar lives. Based on actuarial analysis and judgment, this study recommends moving to a 40 year life with an R2 dispersion. A generic curve shape is shown below.



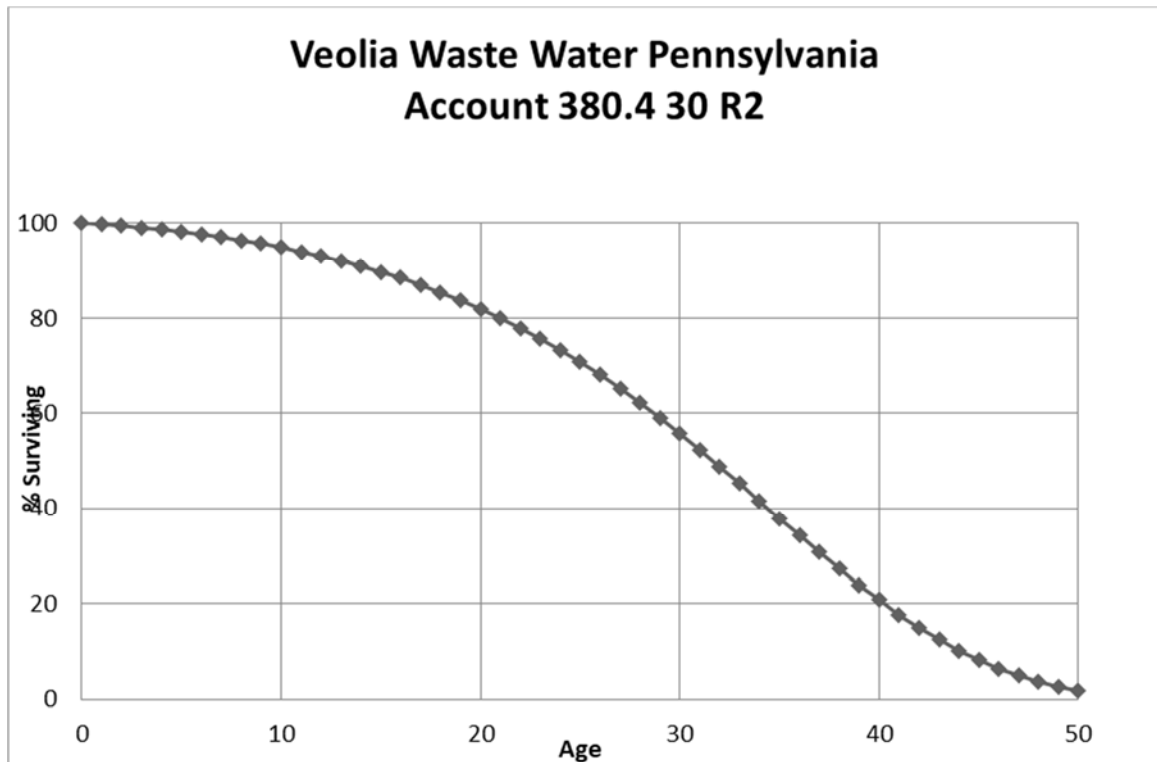
Account 371.4 Pumping Equipment - Electric (15 R2)

Items charged to this account include the cost installed of electric-powered pumping equipment used in the sewerage process. Such equipment includes generating equipment (if any), prime movers, pumps, controls and all appurtenant equipment and appliances. The account balance is \$611 thousand for this account. The current life of this account is 17.99 years with an L0 dispersion. There is insufficient data to perform actuarial analysis for this account. Company SMEs believe that this account should have a similar life to water pumping equipment due to the similar nature of those operations. Based on actuarial analysis and judgment, this study recommends moving to a 15 year life with an R2 dispersion. A generic curve shape is shown below.



Account 380.4 Treatment Plant and Equipment (30 R2)

This account includes the cost of chlorine containers, gas-producing evaporators and similar equipment, the transmission lines, which convey the chlorine from the containers to such producers, the chlorinators wherein the chlorine gas is mixed with water, the source of supply providing the water used for the chlorine solution, and all equipment used for conveying water from such source to chlorinators. Equipment of a similar nature used for the handling, converting, and conveying of any chemical purification material other than chlorine is also included in this account. The account balance is \$416 thousand for this account. The current life of this account is 17.99 years with an L0 dispersion. There is insufficient data to perform actuarial analysis for this account. Company SMEs believe that this account should have a life similar to water treatment equipment due to the harsh chemicals associated with these assets. Based on actuarial analysis and judgment, this study recommends moving to a 30 year life with an R2 dispersion. A generic curve shape is shown below.



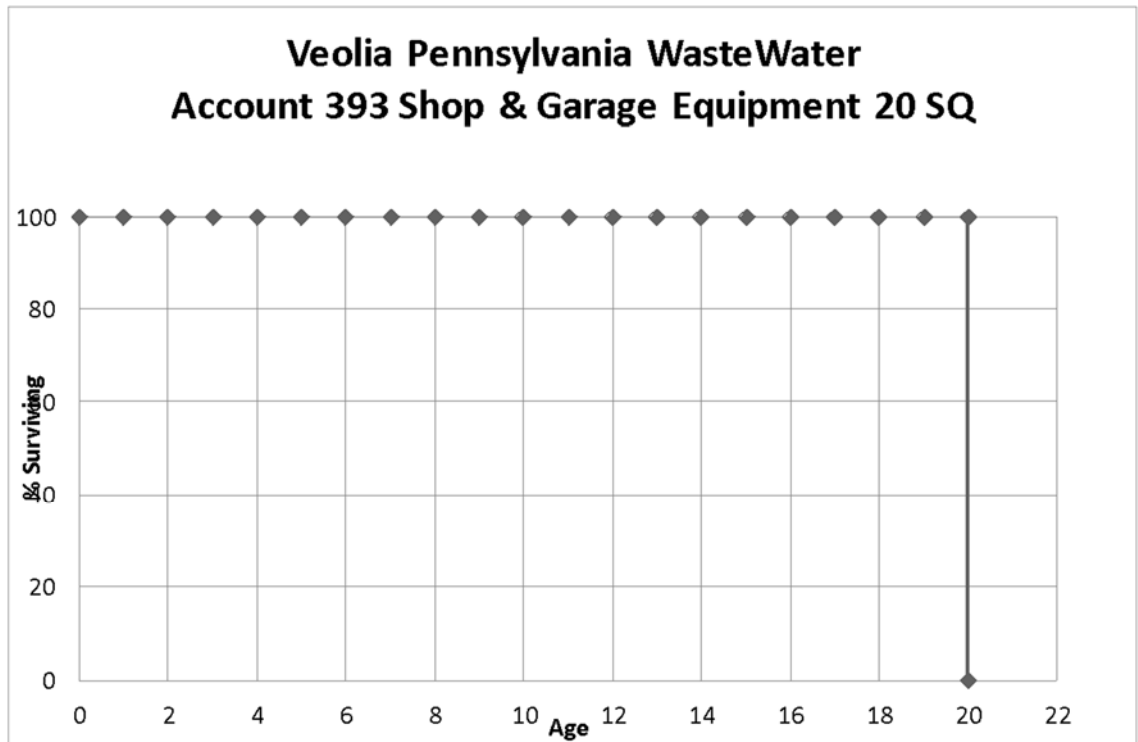
General Plant - Amortized (Accounts 393 and 396)

Adoption of Vintage Group Amortization

Since AR-15 is being adopted for water assets, this study proposed its adoption for waste water assets. With the adoption of vintage group amortization, it is no longer necessary to keep track of the location and retirement of specific assets. Annually, assets are retired after reaching the average service life for that account. The retirement amounts for fully accrued assets are shown for each account in Appendix A-2. After those assets are retired, the remaining plant in service for each account will be amortized using the amortization rates shown in Appendix A-2. An additional accrual is necessary for each plant account to make up the difference between the book depreciation reserve and the theoretical depreciation reserve. For Veolia, there is a small difference between the book and theoretical reserve that needs to be amortized over the remaining life of each plant account. This amount is shown for each account in Appendix A-2. Slight changes in life for the amortized plant accounts are discussed below.

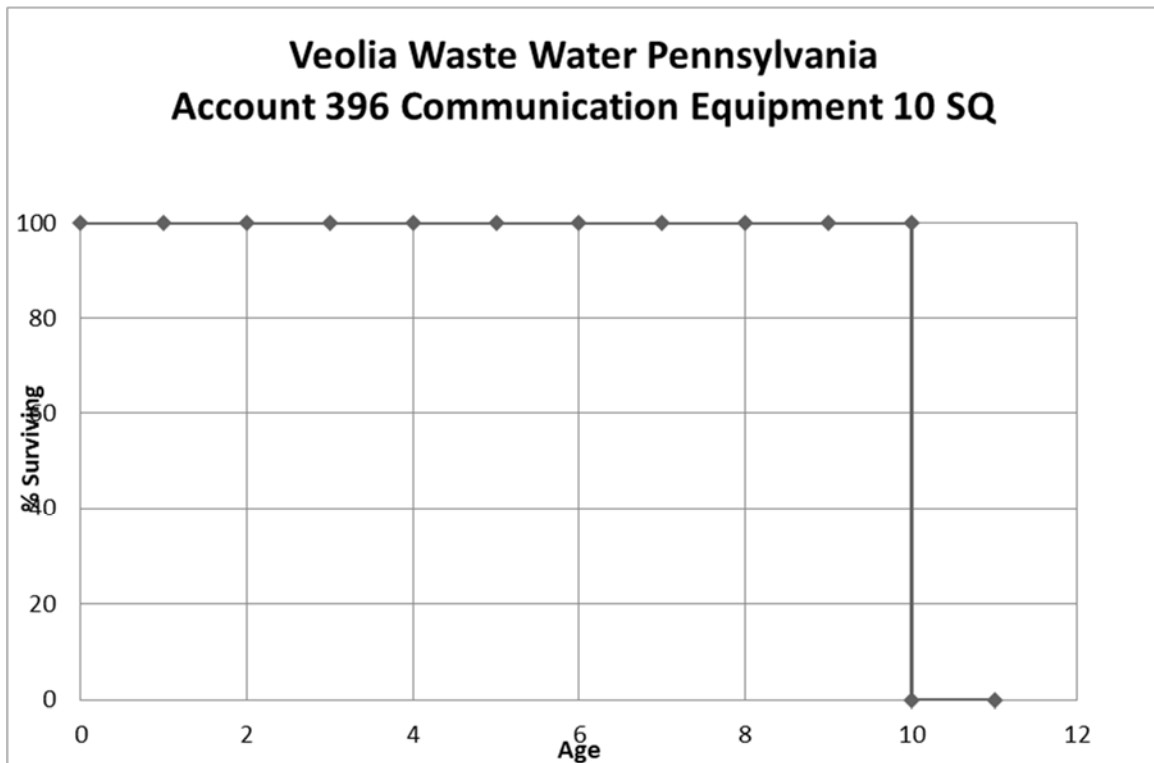
Account 393 Shop, and Garage Equipment (20 SQ)

This account consists of shop and garage equipment, such as miscellaneous tools, electric equipment, or pumps. The account balance is \$4 thousand for this account. Company SMEs see no operational reason to change the existing service life used for water assets. After adoption of general plant amortization, this study recommends a 20 year life and an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



Account 396 Communication Equipment (10 SQ)

This account consists of communication equipment such as control equipment, radios, telephone systems, and similar assets. The account balance is \$17 thousand for this account, and after the retirement of fully accrued assets, there will be no change in plant balance. The plant is all located in Veolia Pennsylvania. There is no current life for this account. Company experts believe a 10 year for this account is a reasonable life estimate from an operational perspective for waste water assets. After adoption of general plant amortization, this study recommends a 10 year life and using an SQ dispersion curve for this account. A graph of the proposed curve shape is shown below.



NET SALVAGE

When a capital asset is retired, physically removed from service and finally disposed of, terminal retirement is said to have occurred. The residual value of a terminal retirement is called gross salvage. Net salvage is the difference between the gross salvage (what the asset was sold for) and the removal cost (cost to remove and dispose of the asset). Salvage and removal cost percentages are calculated by dividing the salvage and removal costs stated in current dollars by the original installed cost of the asset stated in dollars when the plant went into service. Some plant assets can experience significant negative removal cost percentages due to the timing of the original addition versus the retirement. For example, a Distribution asset in FERC Account 331 Mains with a current installed cost of \$500 (2021) would have had an installed cost of \$12.62³ in 1941. A removal cost of \$50 for the asset calculated (incorrectly) on current installed cost would only have a negative 10 percent removal cost (\$50/\$500). However, a correct removal cost calculation would show a negative 396 percent removal cost for that asset (\$50/\$12.62). Inflation from the time of installation of the asset until the time of its removal must be taken into account in the calculation of the removal cost percentage because the depreciation rate, which includes the removal cost percentage, will be applied to the original installed cost of assets.

The normal net salvage analysis that is performed uses the history of the individual accounts to estimate the future net salvage that a company can expect in its operations. As a result, the analysis not only looks at the historical experience but also takes into account recent and expected changes in operations that could reasonably lead to different future expectations for net salvage than were experienced in the past. Generally, recent experience is more heavily weighted in making net salvage recommendations than experience older than 10 years. As discussed below, this approach was not used for Veolia Pennsylvania.

³Using the Handy-Whitman Bulletin No. 198, W-1, line 34, $\$12.62 = \$500 \times 23/911$.

Salvage Characteristics

In the traditional net salvage analysis, we take historical data for each account, including data for retirements, gross salvage, and cost of removal for as far back as available. A minimum of 10 years is desired. Moving averages, which remove timing differences between retirement and salvage and removal cost, would be analyzed over periods varying from one to two to 10 years. These are then evaluated in making the net salvage recommendations for the study. However, the Commission's past orders have supported the Commission Staff's position that an average of net salvage expense should be used to calculate net salvage and included in the overall depreciation expense of the Company. Therefore, while neither the Company nor Alliance agrees with this position, the Company wished to avoid significant controversy on this issue and directed Alliance to follow this methodology.

As a result, it was agreed to use an average of recent historical net salvage experience. For water assets, the Company used a 5 year average from 2017-2021 to make that computation. As a result, a net salvage amount of \$612,742 was developed and has been incorporated into the total annual accrual amount for the Company as shown on Appendix B. Appendix D provides the calculation of the annual net salvage accrual amount.

For waste water assets, the Company used a 5 year average from 2017-2021 to make that computation. As a result, a net salvage amount of \$0 was developed and has been incorporated into the total annual accrual amount for the Company as shown on Appendix B. Appendix D provides the calculation of the \$0 used for the annual net salvage accrual amount.

APPENDIX A
Computation of Annual Depreciation Accrual and Rates

Veolia Water Pennsylvania
Computation of Proposed Depreciation Rates
Using Equal Life Group Depreciation
As of December 31, 2021

Account	Description	Plant Balance	Allocated Reserve	Unaccrued Balance	Average Remaining Life	Annual Accrual Amount	Proposed Annual Accrual Rate
<u>Source of Supply</u>							
304.2	Source of Supply Structures and Improvements	6,964,369.12	1,287,653.08	5,676,716.04	37.11	152,973.58	2.20%
305.2	Collection and Impounding Reservoirs	434,514.78	130,585.82	303,928.96	36.33	8,366.82	1.93%
306.2	Lake, Rivers and Other Intakes	4,912,488.15	1,342,975.01	3,569,513.14	37.30	95,691.47	1.95%
307.2	Wells and Springs	1,389,114.26	510,377.19	878,737.07	30.74	28,588.23	2.06%
308.2	Infiltration Galleries and Tunnels	13,358.04	6,362.28	6,995.76	10.83	646.17	4.84%
310.2	Power Generation Equipment	159,191.00	22,831.45	136,359.55	12.38	11,012.46	6.92%
	Total Source of Supply	13,873,035.35	3,300,784.83	10,572,250.52		297,278.73	2.14%
<u>Pumping Equipment</u>							
311.2	Elec. Pumping Equipment	16,226,444.97	5,741,651.43	10,484,793.54	13.65	768,372.38	4.74%
311.2	Oil Pumping Equipment	314,155.78	208,454.13	105,701.65	9.92	10,652.30	3.39%
311.4	Pumping Equipment	568,582.10	81,863.73	486,718.37	12.22	39,817.22	7.00%
	Total Pumping	17,109,182.85	6,031,969.29	11,077,213.56		818,841.90	4.79%
<u>Treatment Equipment</u>							
304.3	Purification Structures & Improv	17,846,220.37	5,508,524.28	12,337,696.09	26.01	474,257.86	2.66%
320.3	Water Treatment Equ	40,111,224.04	11,743,166.27	28,368,057.77	29.80	951,964.30	2.37%
320.3	Water TreatPainting	423,963.70	423,963.70	-	-	-	0.00% *
320.3	Chemical treatment	7,830,640.74	3,915,989.84	3,914,650.90	10.07	388,918.69	4.97%
	Total Treatment	66,212,048.85	21,591,644.10	44,620,404.75	-	1,815,140.85	0 2.74%
* Remaining life is zero.							
<u>Transmission and Distribution</u>							
304.4	Structures and Improvements T &D	1,603,093.31	110,323.67	1,492,769.64	37.27	40,051.43	2.50%
330.4	Distribution Reservoirs and Standpipes	12,000,255.10	2,817,748.07	9,182,507.03	28.26	324,892.31	2.71%
331.4	Transmission and Distribution Mains	215,118,009.75	25,664,311.36	189,453,698.39	62.12	3,049,861.20	1.42%
333.4	Services	58,107,724.56	8,251,861.56	49,855,863.00	48.28	1,032,681.81	1.78%
334.4	Meters and Meter Installations	25,442,524.14	6,507,670.92	18,934,853.22	13.23	1,431,371.36	5.63%
335.4	Hydrants	10,232,779.21	1,872,254.16	8,360,525.05	45.23	184,838.98	1.81%
	Total Transmission & Distribution	322,504,386.07	45,224,169.75	277,280,216.32		6,063,697.09	1.88%
<u>General</u>							
304.5	General Plant Office Buildings	12,198,028.17	2,105,270.22	10,092,757.95	28.45	354,762.84	2.91%
341.5	Transportation Equipment	3,993.79	2,003.28	1,990.51	2.76	720.35	18.04%
345.5	Power Operated Equipment	7,045.89	7,045.89	-	1.09	-	10.00%
	Total Water General Plant	12,209,067.85	2,114,319.39	10,094,748.46		355,483.18	
Excludes General Plant Amortized	Total Water	431,907,720.97	78,262,887.36				

* Remaining life was less than 1 year. Remaining life set as greater than 1. Account is fully accrued. Proposed whole life rate of 10% for new additions.

Veolia Water Pennsylvania
Computation of Proposed Depreciation Rates
Using Equal Life Group Depreciation
As of December 31, 2021

Account	Description	Plant Balance	Allocated Reserve	Unaccrued Balance	Average Remaining Life	Annual Accrual Amount	Proposed Annual Accrual Rate
Sewer Plant							
Collection, Treatment and Disposal							
354.4	Structures and Improvements	36,078.02	14,454.66	21,623.36	19.96	1,083.20	3.00%
360.2	Pump Station Force Mains	169,734.00	54,613.44	115,120.56	20.79	5,536.84	3.26%
361.2	Collection Sewers - Gravity	4,266,458.22	1,379,013.50	2,887,444.72	20.80	138,819.16	3.25%
371.4	Pumping Equipment	611,013.99	366,929.13	244,084.86	2.60	93,753.38	15.34%
380.4	Treatment and Disposal Equipment	416,048.92	248,615.60	167,433.32	10.85	15,438.54	3.71%
Excludes General Plant Amortized	Total Treatment and Disposal	<u>5,499,333.15</u>	<u>2,063,626.33</u>	<u>3,435,706.82</u>		<u>254,631.12</u>	<u>4.63%</u>
General Plant							
393.7	Tools, Shop and Garage Equipment	3,800.00	288.32	3,511.68	3.50	1,003.34	26.40%
396.7	Communication Equipment	17,076.15	1,744.45	15,331.70	12.50	1,226.54	7.18%
	Total Sewer General	<u>20,876.15</u>	<u>2,032.77</u>	<u>18,843.38</u>		<u>2,229.87</u>	<u>10.68%</u>
Excludes General Plant Amortized	Total Sewer	<u>5,520,209.30</u>	<u>2,065,659.10</u>	<u>3,454,550.20</u>		<u>256,861.00</u>	
Excludes General Plant Amortized	Total Company	437,427,930.27	80,328,546.46				

APPENDIX A-1
Computation of Annual Amortization Accrual and Rates

VEOLIA WATER PENNSYLVANIA

COMPUTATION OF AMORTIZATION RATE
 AT DECEMBER 31, 2021

Account Description	Original Cost at 12/31/21	Allocated Book Reserve at 12/31/21	Theoretical Reserve \$	Reserve Difference \$	Asset > ASL	Remaining Life
340.50 Computer Hardware	1,245,991.71	1,012,960.79	1,048,707.74	(35,746.95)	598,165.90	5.00
340.50 Computer Software	2,549,853.56	2,244,197.20	2,365,714.75	(121,517.55)	1,818,796.64	5.00
340.50 Office Furniture and Fixtures	753,725.20	120,976.92	143,316.62	(22,339.71)	2,622.26	5.00
340.50 Computer Software Lighthouse	3,815,699.93	3,815,699.93	3,815,699.93	-	3,815,699.93	5.00
342.50 Stores Equipment	7,543.09	743.80	884.19	(140.39)	-	5.00
343.50 Shop and Garage	765,520.13	388,425.10	448,774.59	(60,349.49)	68,696.55	5.00
344.50 Tools & Work Equip	3,708,971.79	1,097,974.13	1,239,922.74	(141,948.60)	345,937.58	5.00
344.50 Laboratory Furniture & Equipment	132,049.93	90,345.76	97,743.64	(7,397.88)	51,152.17	5.00
346.50 Communication Equipment	7,769,107.38	4,748,094.17	5,238,098.31	(490,004.15)	2,152,076.83	5.00
347.50 Miscellaneous Equipment	1,047,315.18	124,025.20	147,435.23	(23,410.04)	-	5.00
393.00 Tools & Work Equip	-	-	-	-	-	5.00
396.00 Communication Equipment	17,076.15	1,576.66	4,269.04	(2,692.38)	-	5.00
	21,812,854.05	13,645,019.65	14,550,566.79	(905,547.14)	8,853,147.86	

After Retirements of Assets with Age > Average Service Life

Account Description	Plant Balance	Allocated Reserve	Amortization Life	Annual Amortization %	Annual Amortization \$	Annual Amortization True Up \$
340.50 Computer Hardware	647,825.81	414,794.89	5.00	20.00%	129,565.16	7,149.39
340.50 Computer Software	731,056.92	425,400.56	5.00	20.00%	146,211.38	24,303.51
340.50 Office Furniture and Fixtures	751,102.94	118,354.66	15.00	6.67%	50,073.53	4,467.94
340.50 Computer Software Lighthouse	-	-	8.00	12.50%	-	-
342.50 Stores Equipment	7,543.09	743.80	18.00	5.56%	419.06	28.08
343.50 Shop and Garage	696,823.58	319,728.55	20.00	5.00%	34,841.18	12,069.90
344.50 Tools & Work Equip	3,363,034.21	752,036.55	20.00	5.00%	168,151.71	28,389.72
344.50 Laboratory Furniture & Equipment	80,897.76	39,193.59	15.00	6.67%	5,393.18	1,479.58
346.50 Communication Equipment	5,617,030.55	2,596,017.34	10.00	10.00%	561,703.06	98,000.83
347.50 Miscellaneous Equipment	1,047,315.18	124,025.20	15.00	6.67%	69,821.01	4,682.01
-	-	-	-	-	-	-
-	-	-	-	-	-	-
393.00 Tools & Work Equip	-	-	20.00	5.00%	-	-
396.00 Communication Equipment	17,076.15	1,576.66	10.00	10.00%	1,707.62	538.48
	12,959,706.19	4,791,871.79			1,167,886.89	181,109.43

APPENDIX B
Comparison of Existing and Proposed Accrual and Rates

Veolia Water Pennsylvania
Computation of Proposed Depreciation Rates
Using Equal Life Group Depreciation
As of December 31, 2021

Acct	Description	Plant	Depreciation Accrual Current Rates	Life Proposed Accrual Rate	Life Proposed Accrual \$	Amortization of Net Salvage	Net Salvage Accrual %	Total Company Accrual %	Total Accrual	Accrual \$ Difference
Source of Supply										
304.2	Source of Supply Structures and Improvements	6,964,369.12	154,608.99	2.20%	152,973.58	309.05	0.00%	2.20%	153,282.64	(1,326.36)
305.2	Collection and Impounding Reservoirs	434,514.78	7,995.07	1.93%	8,366.82	1,192.40	0.27%	2.20%	9,559.22	1,564.15
306.2	Lake, Rivers and Other Intakes	4,912,488.15	157,690.87	1.95%	95,691.47	82.23	0.00%	1.95%	95,773.70	(61,917.17)
307.2	Wells and Springs	1,389,114.26	23,614.94	2.06%	28,588.23	12.74	0.00%	2.06%	28,600.97	4,986.03
308.2	Infiltration Galleries and Tunnels	13,358.04	399.41	4.84%	646.17	-	0.00%	4.84%	646.17	246.77
310.2	Power Generation Equipment	159,191.00	4,330.00	6.92%	11,012.46	-	0.00%	6.92%	11,012.46	6,682.46
	Total Source of Supply	13,873,035.35	348,639.28		297,278.73	1,596.42			298,875.16	(49,764.12)
Pumping Equipment										
311.2	Elec. Pumping Equipment	16,226,444.97	580,906.73	4.74%	768,372.38	43,745.23	0.27%	5.00%	812,117.61	231,210.88
311.2	Oil Pumping Equipment	314,155.78	3,832.70	3.39%	10,652.30	-	0.00%	3.39%	10,652.30	6,819.60
311.4	Pumping Equipment	568,582.10	15,465.43	7.00%	39,817.22	-	0.00%	7.00%	39,817.22	24,351.78
	Total Pumping	17,109,182.85	600,204.86		818,841.90	43,745.23			862,587.12	262,382.26
Treatment Equipment										
304.3	Purification Structures & Improv	17,846,220.37	439,363.02	2.66%	474,257.86	1,763.40	0.01%	2.67%	476,021.26	36,658.24
320.3	Water Treatment Equ	40,111,224.04	906,513.66	2.37%	951,964.30	7,108.48	0.02%	2.39%	959,072.78	52,559.12
320.3	WaterTreatPainting	423,963.70	37,139.22	0.00%	-	-	0.00%	0.00%	-	(37,139.22)
320.3	Chemical treatment	7,830,640.74	530,917.44	4.97%	388,918.69	19,310.08	0.25%	5.21%	408,228.77	(122,688.67)
	Total Treatment	66,212,048.85	1,913,933.35		1,815,140.85	28,181.96			1,843,322.81	(70,610.54)
* If plant is added to this account a rate of 10% is proposed										
Transmission and Distribution										
304.4	Structures and Improvements T & D	1,603,093.31	56,669.72	2.50%	40,051.43	-	0.00%	2.50%	40,051.43	(16,618.29)
330.4	Distribution Reservoirs and Standpipes	12,000,255.10	347,323.62	2.71%	324,892.31	12,737.86	0.11%	2.81%	337,630.17	(9,693.45)
331.4	Transmission and Distribution Mains	215,118,009.75	3,515,505.24	1.42%	3,049,861.20	452,026.70	0.21%	1.63%	3,501,887.90	(13,617.34)
333.4	Services	58,107,724.56	1,065,477.72	1.78%	1,032,681.81	46,632.70	0.08%	1.86%	1,079,314.51	13,836.79
334.4	Meters and Meter Installations	25,442,524.14	1,146,927.56	5.63%	1,431,371.36	15,036.62	0.06%	5.69%	1,446,407.98	299,480.42
335.4	Hydrants	10,232,779.21	179,983.77	1.81%	184,838.98	5,260.48	0.05%	1.86%	190,099.46	10,115.69
	Total Transmission & Distribution	322,504,386.07	6,311,887.63		6,063,697.09	531,694.36			6,595,391.45	283,503.82
General										
304.5	General Plant Office Buildings	12,198,028.17	286,762.82	2.91%	354,762.84	1,517.90	0.01%	2.92%	356,280.74	69,517.92
340.5	Computer Hardware	647,825.81	38,770.83	20.00%	129,565.16	65.75	0.01%	20.01%	129,630.91	90,860.08
340.5	Computer Software	731,056.92	83,530.50	20.00%	146,211.38	-	0.00%	20.00%	146,211.38	62,680.88
340.5	Office Furniture and Fixtures	751,102.94	23,165.15	6.67%	50,073.53	(65.75)	-0.01%	6.66%	50,007.78	26,842.63
340.5	Computer Software Lighthouse	-	18,765.12	12.50%	-	-	0.00%	12.50%	-	(18,765.12)
341.5	Transportation Equipment	3,993.79	811.94	18.04%	720.35	-	0.00%	18.04%	720.35	(91.59)
342.5	Stores Equipment	7,543.09	-	5.56%	419.06	-	0.00%	5.56%	419.06	419.06
343.5	Shop and Garage	696,823.58	32,764.26	5.00%	34,841.18	1.19	0.00%	5.00%	34,842.37	2,078.11
344.5	Tools & Work Equip	3,363,034.21	186,190.38	5.00%	168,151.71	5,182.84	0.15%	5.15%	173,334.55	(12,855.83)
344.5	Laboratory Furniture & Equipment	80,897.76	4,674.57	6.67%	5,393.18	-	0.00%	6.67%	5,393.18	718.62
345.5	Power Operated Equipment	7,045.89	191.65	10.00%	704.59	-	0.00%	10.00%	704.59	512.94
346.5	Communication Equipment	5,617,030.55	621,305.22	10.00%	561,703.06	822.42	0.01%	10.01%	562,525.48	(58,779.74)
347.5	Miscellaneous Equipment	1,047,315.18	73,207.33	6.67%	69,821.01	-	0.00%	6.67%	69,821.01	(3,386.32)
	Total Water General Plant	25,151,697.89	1,370,139.76		1,522,367.05	7,524.35			1,529,891.40	159,751.64
	General Plant Water Imbalance				180,570.95				180,570.95	180,570.95
	Total Water	444,850,351.01	10,544,804.89		10,697,896.56	612,742.33			11,310,638.89	765,834.00

* If plant is added to this account a rate of 10.0% is proposed

Veolia Water Pennsylvania
Computation of Proposed Depreciation Rates
Using Equal Life Group Depreciation
As of December 31, 2021

Acct	Description	Plant	Depreciation Accrual Current Rates	Life Proposed Accrual Rate	Life Proposed Accrual \$	Amortization of Net Salvage	Net Salvage Accrual %	Total Company Accrual %	Total Accrual	Accrual \$ Difference
Sewer Plant										
Collection, Treatment and Disposal										
354.4	Structures and Improvements	36,078.02	2,728.74	3.00%	1,083.20	-	0.00%	3.00%	1,083.20	(1,645.54)
360.2	Pump Station Force Mains	169,734.00	7,824.74	3.26%	5,536.84	-	0.00%	3.26%	5,536.84	(2,287.89)
361.2	Collection Sewers - Gravity	4,266,458.22	331,687.64	3.25%	138,819.16	-	0.00%	3.25%	138,819.16	(192,868.48)
371.4	Pumping Equipment	611,013.99	61,704.15	15.34%	93,753.38	-	0.00%	15.34%	93,753.38	32,049.23
380.4	Treatment and Disposal Equipment	416,048.92	23,132.32	3.71%	15,438.54	-	0.00%	3.71%	15,438.54	(7,693.78)
	Total Treatment and Disposal	5,499,333.15	427,077.59		254,631.12	-	-		254,631.12	(172,446.47)
General Plant										
393.7	Tools, Shop and Garage Equipment	3,800.00	234.46	5.00%	190.00	-	0.00%	5.00%	190.00	(44.46)
396.7	Communication Equipment	17,076.15	-	10.00%	1,707.62	-	0.00%	10.00%	1,707.62	1,707.62
	Total Sewer General	20,876.15	234.46		1,897.62	-			1,897.62	1,663.16
	General Plant Sewer Imbalance				538.48				538.48	538.48
	Total Sewer	5,520,209.30	427,312.05		257,067.21	-			257,067.21	(170,244.84)
	Total Veolia PA	450,370,560.31	10,972,116.94	-	10,954,963.78	612,742.33			11,567,706.11	595,589.17

APPENDIX C

Comparison of Life and Net Salvage Parameters

Veolia Water Pennsylvania
Comparison Of Life Parameters
As of December 31, 2021

Plant Acct	Current								
	Veolia Plant		Bethel				Proposed		
	Life	Curve	Post 91		Pre 91		Life	Curve	
		Life	Curve	Life	Curve	Life	Curve	Life	Curve
301.1 Organization									
302.1 Franchises & Consen									
303.2 Other Supply Land									
303.3 Purification Land									
303.4 Rsrvs&Stndpipe Land									
304.2 Power &Pumping Strc		55 R2						65 R1	
304.3 Purification Strctr		55 S1.5						45 R1	
304.4 TD Structures		40 R3						65 R1	
304.5 Office Building		45 R2..5						45 R1.5	
305.2 Collect & Impound R		65 S1						85 R3	
306.2 Lake, River & Other		65 R2.5						60 R2	
307.2 Wells & Springs		48 R2						52 R2.5	
308.2 Infiltration Galler		40 R2.5						21 L3	
310.2 - Power Generation Equipment								30 R2	
311.2 Elec. Pumping Equip		36 R0.5						26 R0.5	
311.2 Oil Pumping Equip		35 S2						30 R3	
311.4 - Pumping Equipment								26 R0.5	
320.3 Water Treatment Equ		50 R1.5						50 R1.5	
320.3 WaterTreatPainting		10 SQ						10 SQ	
320.3 Chemical treatment		25 S0.5						21 L3	
330.4 Dis Reservoirs & St		45 R1.5						46 R4	
331.4 T & D Mains		80 R3		84.75 R3		78.74 R3		80 R3	
333.4 Services		60 S2.5		64.94 S2.5		60.24 S2.5		68 R3	
334.4 Meters and Meter In		25 S1.5		30.03 S1.5		26.46 S1.5		22 L4	
335.4 Hydrants		60 R4		54.95 R4		49.50 R4		65 R4	
340.5 Computer Hardware		5 SQ						5 SQ	
340.5 Computer Software		5 SQ						5 SQ	
340.5 Office Furniture &		15 SQ						15 SQ	
340.5 Comp. Software Lighthouse		8 SQ						8 SQ	
341.5 Transportation AUTO		7 L3						7 L3	
342.5 Stores Equipment		NA						18 R2	
343.5 Shop and Garage		20 SQ						20 SQ	
343.5 Tools & Work Equip		20 SQ						20 SQ	
344.5 Laboratory Equipmen		15 SQ						15 SQ	
345.0 - Power Operated Equipment		NA						10 L3	
346.5 Communication Equip		10 SQ						10 SQ	
347.5 Miscellaneous Equip		15 SQ						15 SQ	
354.4 Structures & Improv		17.99 L0						40 R2	
360.2 Collection Sewers - force								40 R2	
361.2 Collection Sewers - Gravity		30.30 L0						40 R2	
371.3 Pumping Equipment		17.99 L0						15 R2	
380.4 Treatment & Disposa		17.99 L0						30 R2	
393.0 Tools and Work Equipment								20 SQ	
396.7 Communication Equipment								10 SQ	

APPENDIX D
Net Salvage

VEOLIA PENNSYLVANIA AND BETHEL
 AMORTIZATION OF NET SALVAGE 2017-2021

Plant Acct	2017		2018		2019		2020		2021		Net Salvage	Salvage Accrual
	Gross Salvage	Cost of Removal	Gross Salvage	Cost of Removal	Gross Salvage	Cost of Removal	Gross Salvage	Cost of Removal	Gross Salvage	Cost of Removal		
304.2 Power & Pumping Strc		82.00		1,463.27							(1,545.27)	(309.05)
304.3 Purification Strctr		8,380.00		436.98							(8,816.98)	(1,763.40)
304.4 T&D Strctr & Improv											0.00	0.00
304.5 Office Building		0.00		7,597.05		(7.54)					(7,589.51)	(1,517.90)
305.2 Collect & Impound R						5,962.00					(5,962.00)	(1,192.40)
306.2 Lake, River & Other						411.16					(411.16)	(82.23)
307.2 Wells & Springs						63.69					(63.69)	(12.74)
308.2 Infiltration Galler											0.00	0.00
310.2 - Power Generation Equipment											0.00	0.00
311.2 Elec. Pumping Equip		3,725.00		16,089.17		13,417.10		32,848.90		152,645.96	(218,726.13)	(43,745.23)
311.2 Oil Pumping Equip											0.00	0.00
311.4 - Pumping Equipment											0.00	0.00
320.3 Water Treatment Equ		501.00		14,327.00		990.16		18,226.47		1,497.79	(35,542.42)	(7,108.48)
320.3 WaterTreatPainting											0.00	0.00
320.3 Chemical treatment		23,442.00		6,883.44		9,309.50		3,620.39		53,295.06	(96,550.39)	(19,310.08)
330.4 Dis Reservoirs & St		11,262.00		21,409.94		4,989.24		26,028.13			(63,689.31)	(12,737.86)
331.4 T & D Mains		237,488.23		256,562.90		146,308.06	103.25	1,379,574.47		240,303.11	(2,260,133.52)	(452,026.70)
333.4 Services		42,620.00		51,991.19		74,323.53	0.00	42,290.72		21,938.06	(233,163.50)	(46,632.70)
334.4 Meters and Meter In		(6,288.10)	452.10	19,207.15	4,208.00	32,325.31	2,500.00	37,089.98		8.85	(75,183.09)	(15,036.62)
335.4 Hydrants		2,742.00	5,612.00	450.32	4,024.63	6,291.36	4,190.19	4,615.18	1,494.55	27,524.91	(26,302.40)	(5,260.48)
340.5 Computer Hardware				328.74							(328.74)	(65.75)
340.5 Computer Software											0.00	0.00
340.5 Office Furniture &				(328.74)							328.74	65.75
340.5 Comp. Software Lighthouse											0.00	0.00
341.5 Transportation AUTO											0.00	0.00
342.5 Stores Equipment											0.00	0.00
343.5 Shop and Garage								5.95			(5.95)	(1.19)
343.5 Tools & Work Equip								25,914.20			(25,914.20)	(5,182.84)
344.5 Laboratory Equipmen											0.00	0.00
345.0 - Power Operated Equipment											0.00	0.00
346.5 Communication Equip		1,796.00		49.25		2,266.86					(4,112.11)	(822.42)
347.5 Miscellaneous Equip											0.00	0.00
354.4 Structures & Improv											0.00	0.00
360.2 Collection Sewers - force											0.00	0.00
361.2 Collection Sewers - Gravity											0.00	0.00
371.3 Pumping Equipment											0.00	0.00
380.4 Treatment & Dispos											0.00	0.00
393.0 Tools and Work Equipment											0.00	0.00
396.7 Communication Equipment											0.00	0.00
397.7 Miscellaneous Equipment											0.00	0.00
Total	-	325,750.13	6,064.10	396,467.66	8,232.63	296,650.43	6,793.44	1,570,214.39	1,494.55	497,213.74	(3,063,711.63)	(612,742.33)

APPENDIX E
Comparison of Book and Allocated
Depreciation Reserve

Veolia Pennsylvania
Comparison of Accumulated Depreciation
Per Book, Reallocated, and Calculated Reserve at December 31, 2021

	Per Book	Reallocated	Calculated
	Total Accumulated Depr	Total Accumulated Depr	Total Accumulated Depr
Plant Acct			
<u>Water</u>			
301.1 Organization	145,805.00	145,805.00	145,805.00
302.1 Franchises & Consen	-		
Source of Supply			
303.2 Other Supply Land	-		
304.2 Power & Pumping Strc	1,214,475.89	1,287,653.08	1,175,111.97
306.2 Collect & Impound R	126,428.48	130,585.82	120,542.53
306.2 Lake, River & Other	1,382,766.74	1,342,975.01	1,225,598.75
307.2 Wells & Springs	550,614.82	510,377.19	465,843.24
308.2 Infiltration Galler	3,667.45	6,362.28	5,865.92
310.2 - Power Generation Equipmen	27,169.80	22,831.45	97,797.41
Mahoning Unallocated	(4,338.35)		
	<u>3,300,784.83</u>	<u>3,300,784.83</u>	<u>3,090,759.80</u>
Pumping Equipment			
311.2 Elec. Pumping Equip	5,687,678.81	5,741,651.43	6,185,746.95
311.2 Oil Pumping Equip	262,726.75	208,454.13	224,577.28
311.3	(300.00)	-	-
311.4 - Pumping Equipment	299,418.09	81,863.73	350,659.27
Mahoning Unallocated	(217,554.36)		
Total Pumping	<u>6,031,969.29</u>	<u>6,031,969.29</u>	<u>6,760,983.50</u>
Treatment Equipment			
303.3 Purification Land	(81,870.00)		
304.3 Purification Strctr	3,242,897.57	5,508,524.28	5,411,929.41
320.3 Water Treatment Equ	16,409,141.10	11,743,166.27	11,476,977.17
320.3 Water Treat Painting	311,930.47	423,963.70	423,963.70
320.3 Chemical treatment	1,700,994.14	3,915,989.84	3,657,928.02
Mahoning Unallocated	8,550.82		-
Total Treatment	<u>21,591,644.10</u>	<u>21,591,644.10</u>	<u>20,970,798.30</u>
Transmission and Distribution			
303.4 Rsrvrs&Stndpipe Land	-		
304.4 Structures & Improv TD	216,785.57	110,323.67	268,318.32
330.4 Dis Res Stand Painting	83,134.12	-	-
330.4 Dis Reservoirs & St	4,322,621.72	2,817,748.07	4,281,048.13
331.4 T & D Mains	16,821,248.66	25,664,311.36	38,096,100.36
333.4 Services	12,206,766.67	8,251,861.56	11,910,286.29
334.4 Meters and Meter In	8,147,434.66	6,507,670.92	9,356,166.80
335.4 Hydrants	2,918,707.45	1,872,254.16	2,732,859.13
Mahoning Unallocated	507,470.90	-	
Total Transmission & Distribution	<u>45,224,169.75</u>	<u>45,224,169.75</u>	<u>66,644,779.03</u>

Veolia Pennsylvania
Comparison of Accumulated Depreciation
Per Book, Reallocated, and Calculated Reserve at December 31, 2021

	Per Book	Reallocated	Calculated
Plant Acct	Total Accumulated	Total Accumulated	Total Accumulated
General	Depr	Depr	Depr
303.5 Land and Land Rights	(55,219.00)	-	
304.5 Misc Structure and Improveme	210,235.87	-	
304.5 Office Building	1,325,510.06	2,105,270.22	2,519,121.17
304.5 Shop & Garage Building	641,361.64	-	
340.5 Computer Hardware	780,279.95	1,031,371.07	1,048,707.74
340.5 Computer Software	2,007,063.57	2,248,338.66	2,528,126.87
340.5 Office Furniture &	113,541.34	120,976.92	147,458.08
340.5 Comp. Software Lighthouse	3,815,699.93	3,815,699.93	3,815,699.93
341.5 Transportation AUTO	149,351.18	2,003.28	2,381.41
342.5 Stores Equipment	64,145.33	743.80	884.19
343.5 Shop and Garage	380,165.34	388,425.10	448,774.59
343.5 Tools & Work Equip	1,020,910.38	1,097,974.13	1,239,922.74
344.5 Laboratory Equipmen	98,944.12	90,345.76	97,743.64
345.0 - Power Operated Equipment	4,184.00	7,045.89	6,653.85
346.5 Communication Equip	5,043,069.24	4,871,166.31	5,361,170.45
347.5 Miscellaneous Equip	150,333.46	124,025.20	147,435.23
Mahoning Unallocated	153,809.86		
Total General	<u>15,903,386.27</u>	<u>15,903,386.27</u>	<u>17,364,079.91</u>
Total Water	<u>92,343,564.23</u>	<u>92,343,564.23</u>	<u>115,123,010.53</u>
Sewer Plant			
354.4 Structures & Improv			
360.2 Collection Sewers - force			
361.2 Collection Sewers - Gravity	6,908.94		
371.3 Pumping Equipment	(279.83)		
380.4 Treatment & Disposa	645.59		
330.4 Dis Reservoirs & St	(100.99)		
333.4 Services	(21.09)		
354.4 Structures & Improv	21,255.15	14,454.66	17,998.44
360.2 Collection Sewers - force	87,243.00	54,613.44	79,917.05
361.2 Collection Sewers - Gravity	1,334,492.40	1,379,013.50	2,002,308.14
371.3 Pumping Equipment	367,027.33	366,929.13	534,953.96
380.4 Treatment & Disposa	253,608.45	248,615.60	280,489.47
Total Treatment and Disposal	<u>2,063,626.33</u>	<u>2,063,626.33</u>	<u>2,915,667.06</u>
Sewer General			
393.0 Tools and Work Equipment	2,248.00	288.32	2,470.00
396.7 Communication Equipment	(215.23)	1,744.45	2,846.03
Total General Plant	<u>2,032.77</u>	<u>2,032.77</u>	<u>5,316.03</u>
Total Sewer	<u>2,065,659.10</u>	<u>2,065,659.10</u>	<u>2,920,983.09</u>
Total Company	<u>94,409,223.33</u>	<u>94,409,223.33</u>	<u>118,043,993.62</u>