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FLORIDA PUBLIC SERVICE COMMISSION

Docket No. 951056-WS

PALM COAST UTILITY CORPORATION

RATE CASE - 1995 YEAR-END TEST YEAR

Used and Useful Analysis

Utility Plant in Service

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## INTRODUCTION

The purpose of this analysis is to identify the portion of the cost of the utility system which should be considered "Used and Useful" and includable in rate base. The balance of the cost is considered plant held for "Future Use," which is excluded from rate base. Since the used and useful portion is included in rate base, it represents a revenue requirement component for which recovery is provided through the general rates.

In preparing this analysis, the Florida Public Service Commission's ("FPSC") decisions in previous rate cases were reviewed, along with rule-making under review in the FPSC's workshop on used and useful. For the most part, the methodology used by Palm Coast Utility Corporation ("PCUC" or "Company") in previous cases, and accepted by the FPSC, has been applied to the test year data in this case. In addition, the prudence of economical expansion of certain facilities has been recognized with respect to particular components and, in general, for all plant in service.

## METHODOLOGY

The used and useful analysis is based on an examination of operating and financial data, as well as an inspection of the systems. Historical and current operating data were examined, along with the operational characteristics of the water and sewer systems, including: average and maximum demands, fire flow requirements, lost and unaccounted-for water, customer growth (for margin reserve calculations), customer density and system capacities. The interrelationship of the demand, capacity and growth data formed the basis for the allocation factors used to apportion the cost of utility plant in service.

The Company provides water and sewer service to residential, commercial and multi-family customers in the Palm Coast community, as well as water service to Dunes Community Development District ("DCDD") and other customers on the "beachside" peninsula located east of the Intracoastal Waterway. Effluent reuse water is also utilized by the DCDD.

The used and useful percentages developed in this analysis will be applied to the respective primary plant accounts for the water and sewer systems. Summaries and calculations of the used and useful analyses are contained in Tables A through H for the water system and Tables I through O for the sewer system. Table A-1 and I-1 contain a list of primary plant accounts showing the non-used and useful percentages and dollar amounts for the water and sewer systems, respectively.

It is noted that with respect to both the water and/or sewer systems, the Intangible Plant categories of Organization, Franchises and Miscellaneous, Land and Meters are considered 100% used and useful since those costs do not fluctuate with usage, are entirely necessary to serve existing customers or would be no smaller to serve only existing customers.

The used and useful analyses also provide allowances to recognize the economic benefit to all customers by constructing prudently-sized facilities; instead of constructing, for the purpose of rate base inclusion, smaller facilities which would be more costly and ultimately require higher rates. The "prudency" allowances are recognized by two calculations. One is to set a limit of 80% of the cost as being subject to used and useful adjustment, with 20% of the cost included in rate base regardless of the relationship of demands to capacity. The other prudency allowance is to recognize that once a facility reaches 100% used and useful, because additional capacity must be added to serve growth or meet regulatory requirements, it will remain 100% used and useful after the new capacity is added. Both of these prudency allowances are set forth on Table A-2 for water and Table I-2 for sewer.

## WATER SYSTEM

### Source of Supply

The Company obtains its entire water supply from 30 existing wells and one new well. The source of supply for Water Treatment Plant No. 1 ("WTP#1") is obtained from 27 wells which are individually separated over a wide area west of Interstate 95. These wells are adequately spaced and operated in order to limit excess drawdown, preclude saltwater intrusion and control color. Under this operating criteria, these wells have a combined yield of 6,073,920 GPD. Water Treatment Plant #2 ("WTP#2") obtains its water from three existing wells with a combined yield of 3,445,920 GPD, with another well under construction, located in the southern portion of the system near that treatment plant.

The used and useful calculation with respect to source of supply is set forth on Table B. The used and useful percentage is calculated according to the ratio of the maximum day demand on the system, adjusted for margin reserve and fire demand, to the combined capacity of the wells. The well capacity for WTP#1 excludes three maximum yield wells. The well capacity for WTP#2 excludes one maximum yield well, and also reflects an adjustment for additional water which must feed WTP#2 for the level of membrane concentrate produced by this process. Table B includes a list of the wells, for each treatment plant, along with their yield as determined by the Company's ongoing monitoring. The maximum day demand of 4.89 MGD on the system exclusive of any unusual events occurred on September 30, 1994.

In the last rate case, the FPSC allowed an estimated fire demand of 2,000 GPM for a five-hour duration. While that fire demand recognizes that the service area includes residential, commercial and multi-family customers, it did not provide for the actual fire demands experienced by PCUC in connection with the 1985 forest fires. Although we believe that in areas where there is the possibility of forest fires, the customers would be willing to support a relatively modest allowance in the revenue requirement to enable the water system to adequately fight such fires, we will not use the actual fire demand in the present study. We will again use the fire demand allowed by the FPSC in the last case, although as the system continues to serve an increasing number of customers, a greater fire demand will be necessary. We also recognize that under the actual event of a fire all facilities are required to meet the potential fire flow requirements across the entire service area. Accordingly, the reduced level of fire demand is applied to all major facilities.

#### Water Treatment Plant

The Company's water treatment facilities include a lime-softening plant and a new membrane treatment plant. WTP#1 is a lime-softening process consisting of solids contact clarifiers, high rate gravity filters, clear well and pumps, ground storage, high service pumps, wash water recovery basins and lime-sludge thickening basins. WTP#1 has a rated capacity of 6.0 MGD, but that capacity must be adjusted for plant uses. The FPSC accepted a 90% factor in the last case for plant uses, but also directed the

Company to again analyze plant uses in the next rate case. The 1994 plant use with respect to the application of lime, chlorine and lime sludge processing amounted to an annual average of 250,000 GPD, in relation to an average of 3.101 MGD of filtered water. In addition, the amount of water used for backwashing during 1994 averaged 190,000 GPD. Accordingly, during 1994 the actual average plant use for chemical processing and backwashing amounts to 14.2% of the filtered water. The plant use during the 1988 test year in the last case was 18.5% of filtered water. Consistent with the plant requirements determined in other engineering studies for the Company, 13.3% of the capacity is used for plant requirements in this used and useful analysis.

Since the last case the Company added WTP#2 which consists of a membrane treatment process. WTP#2 has a rated capacity of 2.0 MGD and was designed so that future expansions can be installed by adding membrane units. While the membrane process does not require "plant uses," it does produce a concentrate requiring disposal. Accordingly, the plant requires 2.353 GPD of raw water in order to operate at its 2.0 MGD capacity. For used and useful purposes, the supply wells, not the plant capacity, have been adjusted to account for the concentrate.

It is also noted that the concentrate is disposed of either in canals when the natural flow of the canals permits, or to the Company's wastewater treatment plant. During periods of high water demands, usually dry weather conditions when the natural flow in canals is low, the concentrate is pumped to the wastewater treatment plant, providing the Company with additional flows and,



therefore, additional effluent for reuse as public access irrigation is also higher during dry weather.

The used and useful calculation with respect to water treatment facilities is set forth on Table C. The combined capacity of the treatment plants is 7.2 MGD, after adjustment for plant uses applicable to WTP#1. The maximum day of 4.89 MGD is adjusted for margin reserve and a fire demand of 0.6 MGD (2,000 GPM for five hours), equating to 6.427 MGD. The ratio of the demand to the capacity calculates to a used and useful percentage of 89.3%. As shown on Table A-2, the 89.3% is applied to the cost of WTP#2. The cost of WTP#1 remains at 100% used and useful.

#### Storage Facilities

The storage facilities consist of a 1.0 million gallon ground storage tank located at WTP#1, a 2.0 million gallon ground storage tank at WTP#2, and two elevated distribution storage tanks with capacities of 750,000 gallons and 400,000 gallons. The combined storage capacity is 4,150,000 gallons. The "demand" for storage includes a retention allowance of 10% of storage as unusable capacity, an allowance of 50% of the maximum day demand to provide for equalization (peak flows within the day) and reserves for emergencies, and reserves for fire demands. While the fire demand of 2,000 GPM for a 5-hour duration is used, it is recognized that a fire may occur at any location throughout the system, requiring that storage be available at all locations. For purposes of this analysis, the 600,000 gallon fire demand has been included for the two major locations of the storage facilities.

### Transmission and Distribution - Mains

The calculation of used and useful mains is consistent with the methodology accepted by the FPSC in the last case, with a further adjustment which is necessary to recognize that in addition to general metered service, mains must also meet fire demands. Both transmission and distribution mains are allocated to used and useful on the basis of "density," as shown on Table E-1. The used and useful percentage is based on the ratio of ERCs, adjusted for margin reserve, to the total lots capable of being served.

While the distribution mains have been installed to serve 46,438 lots (excluding the DCDD and beachside), the transmission mains are not adequate to serve the entire 46,438 lots. Accordingly, a separate analysis of the transmission mains has been performed in order to determine, by means of an hydraulic equivalency calculation, the percentage of the present system served by existing transmission mains, as set forth on Table E-2.

In addition to the density calculations shown on Table E-1 for transmission and distribution mains, which in effect recognize both distance and various demands of different customer classes (by the relationship of ERCs to lots), the allowance for fire demands is also shown. The calculation is based on the fact that mains must be capable of meeting fire demands on the maximum day. In order to avoid duplication, the fire demand allowance, based on the ratio of the fire demand to the maximum day plus fire demand (33.1%), is only applied to the portion of mains not included as used and useful in the density calculation. For transmission (off site)

mains, the fire demand allowance is applied to 52.5% of the mains and to 68.6% of the distribution mains.

It is noted that the cost of the mains in the "beachside" area is advanced subject to refund agreements approved by the FPSC. The amounts refunded in accordance with the agreements are considered 100% used and useful. The refunded and unrefunded amounts are accounted for separately on the plant in service schedules within the MFRs.

#### Services

The distribution system contained an average of 15,172 services in 1995, excluding beachside and multi-family customers. As in the last case, the used and useful percentage is based on the ratio of the average ERCs, adjusted for margin reserve, to the total services, as shown on Table F.

#### Meters and Meter Installation

Consistent with the FPSC decision in the last case, meters and meter installations are considered 100% used and useful.

### Hydrants

Consistent with the FPSC decision in the last case, the used and useful percentage for hydrants is based on the ratio of active hydrants serving one or more customers to the total hydrants, as shown on Table G.

### General Plant

The General Plant accounts are considered to be 100% used and useful.

### Margin Reserve

Table H sets forth the margin reserve for water, which represents an allowance for capacity which must be available to meet short term growth -- and to continually provide safe and adequate service to all customers. The margin reserve calculation is based on a straight line trend (regression analysis) of the average ERCs for the years 1990 to 1995, except for ERCs related to the DCDD. The ERCs related to the DCDD for 1995 reflect an adjustment based on the current level of consumption by the DCDD. The DCDD maintains its own distribution system and, in the past, has required significant amounts of water in order to maintain water quality throughout its system. It has been able to reduce the quantity of water used for that purpose and is currently using an average of about 140,000 gallons per day, with anticipated additional flows estimated to reach approximately 200,000 gallons per day by the year 2000. Accordingly, the growth related to the DCDD is based on a straight line increase of approximately 70 ERCs

per year. The ERCs are trended to year-end 1995 (the test year), and the margin reserve is calculated for either 1.5 years or 3 years beyond that point. The 1.5 years for margin reserve is applicable to mains and wells, and the 3 years for margin reserve is applicable to treatment plant, based on anticipated construction.

While a complete discussion of the margin reserve cannot be incorporated into this narrative, the following points support the inclusion of a margin reserve:

1. The expenditures for margin reserve plant are current and essential for the provision of safe and adequate service to existing customers, and the ability to provide service to additional customers as required by law.

2. Shifting margin reserve costs entirely to new customers should not be considered because those costs are essential to both existing and new customers, and because consideration must be given to certain economies of scale attributable to new customers.

3. While expenditures for margin reserve costs are certain and essential whether or not growth projections materialize, the generation of fully compensatory revenues from adequate growth is not certain.

As noted in the last case although the imputation of CIAC "related to margin reserve" was considered improper for setting rates equal to the cost of providing service, in order to avoid this issue in the last case, CIAC was imputed in the then proposed rate base, net of the related amortization. In this case, however,

CIAC has not been imputed. CIAC is not "related" to margin reserve because the costs allowed for "margin reserve" are costs the Company must incur to serve existing and new customers, whether or not growth expectations are realized. If growth is realized, then allowances for future growth must continue in order to serve existing and new customers in the future.

## SEWER SYSTEM

### Collecting Mains

Consistent with the FPSC decision in the last case, the collecting mains are segregated into three categories for calculating used and useful allocations: Force Main, Gravity Main and Pressure Main (PEP--pretreatment effluent pumping system). The allocation of collecting main to used and useful is set forth on Table J.

The force mains which comprise the major manifold (carrying the combined flow from all lift stations) are considered 100% used and useful. The remaining force mains are allocated to used and useful according to the weighted used and useful percentage for lift stations. A separate calculation with respect to Force Main is set forth on Table K.

The used and useful percentage for the gravity collection mains is based on a density analysis of ERCs served (excluding customers on the PEP system and adjusted for margin reserve) in relation to total lots served by the gravity mains.

The used and useful allocation of PEP mains is based on the ratio of ERCs served by the PEP system, adjusted for margin reserve, to the total lots served by the PEP system. The cost of individual pumps is separately identified as being 100% used and useful.

### Services

Consistent with the FPSC decision in the last case, services are allocated to used and useful on the basis of the ERCs (excluding customers served by the PEP system, and multi-family customers) in relation to total services, as shown on Table L.

### Pumping Plant

The collection system includes 89 lift stations with various capacities. Consistent with the FPSC decision in the last case, an analysis of each lift station has been made to estimate the 12-hour combined demand from each connected customer served by a particular lift station. An allowance has also been made for infiltration and inflow. On a combined basis, after adjusting for margin reserve, the used and useful percentage was found to be 46.4% as shown on Table M-1. The detailed analysis with respect to each lift station is contained on Table M-2.

### Treatment Plant

The wastewater treatment plant is an activated sludge process which has been significantly expanded since the last case. The current plant consists of a mechanical screen and grit removal structure, two oxidation basin trains (2.0 MGD capacity each), four clarifiers and two chlorine contact tanks. Waste sludge is further oxidized by means of four aerobic digesters. Sludge is further thickened to approximately 5% solid by weight by means of a belt thickener. The thickened sludge is then trucked to an agricultural site for land application. Effluent facilities include a spray



field (0.6 MGD), two rapid infiltration basins ("RIB") for percolation/evaporation (1.0 MGD each), an effluent pumping station and a 6.0 MG ground storage tank. Effluent for reuse is also utilized by the DCDD for public access irrigation at an annual average rate of 0.8 MGD. However, during wet weather the DCDD is committed to utilize only 0.3 MGD. The wet weather capacity is 2.3 MGD, without the spray field and the DCDD dry weather capacity of 1.1 MGD.

The capacity of the treatment plant is 4.0 MGD. The used and useful calculation is based on the ratio of an estimated maximum 3-month demand, adjusted for margin reserve, to the capacity of the treatment plant, as set forth on Table N-1. In order to estimate the maximum 3-month wastewater treatment demand, the wastewater flow for 1995 was calculated on the basis of water usage by sewer service customers, excluding water used for irrigation and construction, as set forth on Table N-2. The water returned to the sewer system, or sewage flow, is based on a return factor of 85%. An allowance of 15% for infiltration and inflow was included. The calculations were made on an ERC basis. With respect to the treatment facilities, the average sewage flow was adjusted for a maximum 3-month demand using the actual ratio of the maximum 3 months to average for 1995. A similar calculation was made for the effluent reuse facilities using a maximum month factor, because of the need for "wet weather" capacity.

Margin Reserve

The margin reserve for sewer is calculated using the same methodology as for water, as shown on Table O. The margin reserve is based on 1.5 years for mains and 5 years for treatment facilities.

Palm Coast Utility Corporation  
Non-Used and Useful Utility Plant In Service - Water

Table A-1

A/C No.	Description	Pro Forma 12/31/95	Non-Used & Useful	
			Percent	Amount
	<b>INTANGIBLE PLANT</b>			
301.1	Organization	\$6,130	0.0%	\$0
302.1	Franchises	2,664	0.0%	0
339.1	Other Plant & Misc. Equipment	228,345	0.0%	0
	<b>SOURCE OF SUPPLY AND PUMPING PLANT</b>			
303.2	Land & Land Rights	123,422	0.0%	0
304.2	Structures & Improvements	105,208	18.1%	19,022
305.2	Collect. & Impound. Reservoirs	0	0.0%	0
306.2	Lake, River & Other Intakes	0	0.0%	0
307.2	Wells & Springs	4,761,730	18.1%	860,921
308.2	Infiltration Galleries & Tunnels	0	0.0%	0
309.2	Supply Mains	2,191,871	0.0%	0
310.2	Power Generation Equipment	0	0.0%	0
311.2	Pumping Equipment	378,829	18.1%	68,492
339.2	Other Plant & Misc. Equipment	95,961	18.1%	17,350
	<b>WATER TREATMENT PLANT</b>			
303.3	Land & Land Rights	280,476	0.0%	0
304.3	Structures & Improvements	3,945,088	5.8%	230,601
320.3	Water Treatment Equipment	9,447,104	4.8%	454,155
339.3	Other Plant & Misc. Equipment	0	0.0%	0
	<b>TRANSMISSION &amp; DISTRIBUTION PLANT</b>			
303.4	Land & Land Rights	100,734	0.0%	0
304.4	Structures & Improvements	5,499	0.0%	0
330.4	Distr. Reservoirs & Standpipes	1,969,660	0.0%	0
331.4	Transm. & Distribution Mains	26,107,446	34.1%	8,897,418
333.4	Services	1,140,496	8.3%	94,889
334.4	Meters & Meter Installations	2,364,999	0.0%	0
335.4	Hydrants	2,515,589	4.2%	104,648
339.4	Other Plant & Misc. Equipment	0	0.0%	0
	<b>GENERAL PLANT</b>			
303.5	Land & Land Rights	0	0.0%	0
304.5	Structures & Improvements	529,769	0.0%	0
340.5	Office Furniture & Equipment	387,772	0.0%	0
341.5	Transportation Equipment	673,147	0.0%	0
342.5	Stores Equipment	6,007	0.0%	0
343.5	Tools, Shop & Garage Equipment	187,372	0.0%	0
344.5	Laboratory Equipment	20,566	0.0%	0
345.5	Power Operated Equipment	251,825	0.0%	0
346.5	Communication Equipment	52,483	0.0%	0
347.5	Miscellaneous Equipment	1,514	0.0%	0
348.5	Other Tangible Plant	0	0.0%	0
450.0	Advanced Mains - Beachside	1,095,156	0.0%	0
450.1	Advanced Mains - P.C.	36,799	0.0%	0
106.0	Undistributed Gen. Plant	0	0.0%	0
200.0	Future Use	196,151	100.0%	196,151
107.0	Advanced Property	2,672,139	100.0%	2,672,139
	<b>Total</b>	<b>\$61,881,951</b>		<b>\$13,615,786</b>

**Palm Coast Utility Corporation**  
 Utility Plant In Service - Used and Useful Analysis - Water

Table A-2

A/C No.	Pro Forma 12/31/85	WTP #1				WTP #2				Original Storage				New Storage				Other				Used & Useful			
		Total	Economy Of Scale	Used & Useful		Total	Economy Of Scale	Used & Useful		Total	Economy Of Scale	Used & Useful		Total	Economy Of Scale	Used & Useful		Total	Economy Of Scale	Used & Useful		Total	%		
			Factor 80%	Percent	Amount		Factor 80%	Percent	Amount		Factor 80%	Percent	Amount		Factor 80%	Percent	Amount		Factor 80%	Percent	Amount			Factor 80%	Percent
301.1	\$6,130																								
302.1	2,864																								
338.1	228,345																								
303.2	123,422																								
304.2	105,208																								
305.2	0																								
306.2	0																								
307.2	4,761,730																								
308.2	0																								
309.2	2,191,871																								
310.2	0																								
311.2	378,829																								
339.2	95,961																								
303.3	280,476																								
304.3	3,945,088	5,125,136	1,000,809	100.0%	1,000,809	52,893,952	2,155,162	89.3%	1,824,560																
320.3	8,447,104	4,141,558	3,313,246	100.0%	3,313,246	5,305,546	4,244,437	89.3%	3,790,282																
339.3	0																								
303.4	100,734																								
304.4	5,499																								
330.4	1,969,660																								
331.4	26,107,446																								
333.4	1,140,496																								
334.4	2,364,999																								
335.4	2,515,589																								
339.4	0																								
303.5	0																								
304.5	529,769																								
340.5	387,772																								
341.5	673,147																								
342.5	6,007																								
343.5	187,372																								
344.5	20,566																								
345.5	251,825																								
346.5	52,483																								
347.5	1,514																								
348.5	0																								
450.0	1,095,156																								
450.1	36,799																								
106.0	0																								
200.0	196,151																								
107.0	2,672,139																								
	\$61,881,851	\$55,392,694				\$7,999,498				\$1,511,622				\$458,038							\$46,520,099			\$48,266,165	

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Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Allocation of Source of Supply

Table B

Well Yield						
Water Treatment Plant # 1			Water Treatment Plant # 2			Total GPD
Well	GPM	GPD	Well	GPM	GPD	
SW 4	58	83,520	LW 21	833	1,199,520	
SW 5	243	349,920	LW 30	760	1,094,400	
SW 6	177	254,880	LW 31	800	1,152,000	
SW 7	122	175,680	LW 32	833	1,199,520	
SW 8	81	116,640				
SW 13	105	151,200				
SW 14	88	126,720				
SW 27	283	407,520				
SW 28	154	221,760				
SW 29	136	195,840				
SW 30	95	136,800				
SW 31	268	385,920				
SW 32	63	90,720				
SW 33	176	253,440				
SW 34	236	339,840				
SW 35	195	280,800				
SW 36	189	272,160				
SW 58	290	417,600				
SW 59	165	237,600				
SW 60	57	82,080				
SW 61	56	80,640				
SW 62	77	110,880				
SW 105	63	90,720				
SW 106	53	76,320				
SW 107	154	221,760				
SW 114	236	339,840				
SW 115	398	573,120				
Total		6,073,920	Total		4,645,440	
Less 3 Maximum Wells		(1,398,240)	Less Membrane Conc.		(353,000)	
			Less 1 Maximum Well		(1,199,520)	
Capacity		4,675,680			3,092,920	7,768,600

Source of Supply Capacity	7,768,600 GPD
Maximum Day Demand ( 9/30/94 )	4,890,000
Margin Reserve 10.77%	526,653
Fire Demand ( 2,000gpm – 5hrs )	600,000
<b>Total Demand</b>	<b>6,016,653 GPD</b>
Used and Useful Percentage	77.4%

Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Allocation of Treatment Plant

Table C

Capacity	GPD
Treatment Plant # 1	6,000,000
Treatment Plant # 2	<u>2,000,000</u>
Subtotal	8,000,000
Less: Plant Requirements	(800,000)
Total Capacity	7,200,000

Demand	GPD
Maximum Day ( 9/30/94 )	4,890,000
Margin Reserve            19.16%	<u>936,924</u>
Total Maximum Day	5,826,924
Fire Demand (2,000gpm – 5hrs)	600,000
Total Demand	6,426,924

Used and Useful Percentage – Treatment	89.3%
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Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Allocation of Storage Facilities

Table D

Storage Facilities – Capacity	4,150,000 GAL.
Demand	
Retention ( 10.00% of Storage )	415,000 GAL.
Equalization & Emergency (50% of Max. Day)	2,913,462
Fire Demand ( 600,000 per Major Facility )	<u>1,200,000</u>
Total Demand	4,528,462
Used and Useful Percentage – Storage	100.0%

Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Allocation of Transmission (Off-Site) and Distribution Main

Table E-1

		1995 Year End Cost	Used and Useful Cost
<b>Off-Site Main</b>			
1995 Average ERC	14,846		
Margin Reserve	10.77% <u>1,599</u>		
Total ERC's	16,445		
Total Lots Served (Sch. E - 2)	34,651		
Used and Useful % (Density)	47.5%		
Fire Flow Allowance %	<u>17.4%</u>		
Used and Useful Percentage	64.9%	\$7,863,032	\$5,103,108
<b>Distribution Main</b>			
1995 Average ERC	14,846		
Less: DCDD / Beachside	<u>(1,694)</u>		
Subtotal	13,152		
Margin Reserve	10.77% <u>1,416</u>		
Total ERC's	14,568		
Total Lots Served	46,438		
Used and Useful % (Density)	31.4%		
Fire Flow Allowance %	<u>22.7%</u>		
Used and Useful Percentage	54.1%	18,244,413	9,870,227
<b>Total</b>		<b>\$26,107,445</b>	<b>\$14,973,335</b>
<b>Combined Used and Useful Percentage</b>			<b>57.4%</b>

Fire Flow Allowance			
Fire Demand %		O.S. Main	
Fire Demand	2,000 GPM	Non U & U % (Density)	52.5%
Max Day + Fire Demand	6,046 GPM	Fire Demand %	<u>33.1%</u>
Percent	33.1%	Product	17.4%
		Distribution Main	
		Non U & U % (Density)	68.6%
		Fire Demand %	<u>33.1%</u>
		Product	22.7%



Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Equivalent Lots Served by Off–Site Main

Table E–2

Size	Hydr. Equiv. Factor	Off–Site Footage		Hydraulic Equivalent	
		Existing 12/31/95	Total	Existing 12/31/95	Total
8	0.6	7,064	11,552	4,238	6,931
10	1.0	146,530	163,331	146,530	163,331
12	1.6	152,172	167,772	243,475	268,435
14	2.4	6,875	8,722	16,500	20,933
16	3.5	52,426	43,738	183,491	153,083
20	6.3	8,142	18,692	51,295	117,760
30	18.4		11,400		209,760
Total		373,209	425,207	(A) 645,529	(B) 940,233
Percentage of Existing System Served ( A / B )					68.7%
Total Lots					50,438
Total Equivalent Lots Served					34,651

Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Allocation of Services

Table F

1995 Average ERC		14,846
Less: DCDD / Beachside Multi-Family		(1,694) (878)
Subtotal		12,274
Margin Reserve	10.77%	1,322
Used and Useful Services		13,596
Total Services		15,172
Used and Useful Percentage		89.6%

Palm Coast Utility Corporation  
Used and Useful Analysis – Water  
Allocation of Hydrants

Table G

Number of Hydrants in Use	2,536
Total Hydrants	2,674
Used and Useful Percentage	94.8%

Palm Coast Utility Corporation  
 Used and Useful Analysis – Water  
 Calculation of Margin Reserve Percentage

Table H

	Year	ERC's w/o Hammock Dunes	ERC's w/o H.D. Trended	Hammock Dunes ERC's	Total ERC's
1	Average 1990	10,275	10,160	255	10,530
2	Average 1991	10,935	10,921	759	11,694
3	Average 1992	11,460	11,682	812	12,272
4	Average 1993	12,447	12,443	1,422	13,869
5	Average 1994	13,229	13,204	1,598	14,827
6	Average 1995	14,029	13,965	817	14,846
6.5	Year End 1995		14,346	852	15,198
7	Average 1996		14,726	887	15,613
8	Average 1997		15,488	957	16,445
9	Average 1998		16,249	1,027	17,276
9.5	Year End 1998		16,629	1,062	17,691

Margin Reserve ( 1.5 Years from Year End 1995 )	10.77%
Margin Reserve ( 3 Years from Year End 1995 )	19.16%

Regression Output	
Constant	9,399
Std Err of Y Est	130
R Squared	99.3%
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	761
Std Err of Coef.	31

Palm Coast Utility Corporation  
Non-Used and Useful Utility Plant In Service - Sewer

Table I-1

A/C No.	Description	Pro Forma 12/31/95	Non-Used & Useful	
			Percent	Amount
	<b>INTANGIBLE PLANT</b>			
351.1	Organization	\$6,130	0.0%	\$0
352.1	Franchises	2,684	0.0%	0
389.1	Other Plant & Misc. Equipment	121,386	0.0%	0
	<b>COLLECTION PLANT</b>			
353.2	Land & Land Rights	0	0.0%	0
354.2	Structures & Improvements	6,560	0.0%	0
360.2	Collection Sewers - Force	0	0.0%	0
361.2	Collection Sewers - Gravity	35,493,443	41.0%	14,538,114
362.2	Special Collecting Structures	0	0.0%	0
363.2	Services to Customers	2,964,847	43.0%	1,273,698
364.2	Flow Measuring Devices	0	0.0%	0
365.2	Flow Measuring Installations	0	0.0%	0
389.2	Other Plant & Misc. Equipment	0	0.0%	0
	<b>SYSTEM PUMPING PLANT</b>			
353.3	Land & Land Rights	207,043	0.0%	0
354.3	Structures & Improvements	101,995	42.9%	43,735
370.3	Receiving Wells	0	0.0%	0
371.3	Pumping Equipment	4,233,215	42.9%	1,815,203
389.3	Other Plant & Misc. Equipment	0	0.0%	0
	<b>TREATMENT AND DISPOSAL PLANT</b>			
353.4	Land & Land Rights	946,489	0.0%	0
354.4	Structures & Improvements	6,402,440	23.7%	1,518,658
380.4	Treatment & Disposal Equipment	6,707,269	12.8%	857,080
381.4	Plant Sewers	0	0.0%	0
382.4	Outfall Sewer Lines	0	0.0%	0
389.4	Other Plant & Misc. Equipment	0	0.0%	0
	<b>GENERAL PLANT</b>			
353.5	Land & Land Rights	0	0.0%	0
354.5	Structures & Improvements	534,224	0.0%	0
390.5	Office Furniture & Equipment	391,033	0.0%	0
391.5	Transportation Equipment	678,806	0.0%	0
392.5	Stores Equipment	6,057	0.0%	0
393.5	Tools, Shop & Garage Equipment	188,947	0.0%	0
394.5	Laboratory Equipment	20,739	0.0%	0
395.5	Power Operated Equipment	253,942	0.0%	0
396.5	Communication Equipment	52,925	0.0%	0
397.5	Miscellaneous Equipment	1,527	0.0%	0
398.5	Other Tangible Plant	0	0.0%	0
450.0	Advanced Mains	13,789	0.0%	0
450.1	Advanced Mains	16,452	0.0%	0
106.0	Undistributed Gen. Plant	0	0.0%	0
300.0	Future Use	179,081	100.0%	179,081
107.0	Advanced Property	0	0.0%	0
	<b>Total</b>	<b>\$59,531,023</b>		<b>\$20,225,569</b>

Palm Coast Utility Corporation  
Utility Plant In Service - Used and Useful Analysis - Sewer

Table I-2

A/C No.	Pro Forma 12/31/95	Treatment				Disposal				Other				Used & Useful	
		Total	Economy Of Scale Factor 80%	Used & Useful		Total	Economy Of Scale Factor 80%	Used & Useful		Total	Economy Of Scale Factor 80%	Used & Useful		Total	%
				Percent	Amount			Percent	Amount			Percent	Amount		
351.1	\$6,130									\$6,130	4,904	100.0%	4,904	\$6,130	100.0%
352.1	2,684									2,684	2,147	100.0%	2,147	2,684	100.0%
389.1	121,386									121,386	97,109	100.0%	97,109	121,386	100.0%
353.2	0									0	0	100.0%	0	0	100.0%
354.2	6,560									6,560	5,248	100.0%	5,248	6,560	100.0%
360.2	0									0	0	100.0%	0	0	100.0%
361.2	35,493,443									35,493,443	28,394,754	48.8%	13,856,640	20,955,329	59.0%
362.2	0									0	0	100.0%	0	0	100.0%
363.2	2,964,847									2,964,847	2,371,878	46.3%	1,098,180	1,691,149	57.0%
364.2	0									0	0	100.0%	0	0	100.0%
365.2	0									0	0	100.0%	0	0	100.0%
389.2	0									0	0	100.0%	0	0	100.0%
353.3	207,043									207,043	165,634	100.0%	165,634	207,043	100.0%
354.3	101,995									101,995	81,596	46.4%	37,861	58,260	57.1%
370.3	0									0	0	100.0%	0	0	100.0%
371.3	4,233,215									4,233,215	3,386,572	46.4%	1,571,369	2,418,012	57.1%
389.3	0									0	0	100.0%	0	0	100.0%
353.4	946,489									946,489	757,191	100.0%	757,191	946,489	100.0%
354.4	6,402,440	\$6,143,439	4,914,751	69.1%	3,396,093	\$259,001	207,201	100.0%	207,201				4,883,782	76.3%	
380.4	6,707,269	3,467,154	2,773,723	69.1%	1,916,643	3,240,115	2,592,092	100.0%	2,592,092				5,850,189	87.2%	
381.4	0									0	0	100.0%	0	0	100.0%
382.4	0									0	0	100.0%	0	0	100.0%
389.4	0									0	0	100.0%	0	0	100.0%
353.5	0									0	0	100.0%	0	0	100.0%
354.5	534,224									534,224	427,379	100.0%	427,379	534,224	100.0%
390.5	391,033									391,033	312,826	100.0%	312,826	391,033	100.0%
391.5	678,806									678,806	543,045	100.0%	543,045	678,806	100.0%
392.5	6,057									6,057	4,846	100.0%	4,846	6,057	100.0%
393.5	188,947									188,947	151,158	100.0%	151,158	188,947	100.0%
394.5	20,739									20,739	16,591	100.0%	16,591	20,739	100.0%
395.5	253,942									253,942	203,154	100.0%	203,154	253,942	100.0%
396.5	52,925									52,925	42,340	100.0%	42,340	52,925	100.0%
397.5	1,527									1,527	1,222	100.0%	1,222	1,527	100.0%
398.5	0									0	0	100.0%	0	0	100.0%
450.0	13,789									13,789	11,031	100.0%	11,031	13,789	100.0%
450.1	16,452									16,452	13,162	100.0%	13,162	16,452	100.0%
106.0	0									0	0	0.0%	0	0	100.0%
300.0	179,081									179,081	143,265	0.0%	0	0	0.0%
107.0	0									0	0	0.0%	0	0	100.0%
	\$59,531,023	\$9,610,593				\$3,499,116				\$46,421,314				\$39,305,454	

Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Allocation of Collecting Main

Table J

		1995 Year End Cost	Used and Useful Cost
<b>Gravity Main</b>			
1995 Average ERC	12,435		
Less: PEP	<u>(1,281)</u>		
Subtotal	11,154		
Margin Reserve	11.93% <u>1,331</u>		
Total ERC's	12,485		
Lots Served by Gravity Main	25,062		
Used and Useful Percentage	49.8%	\$22,940,448	\$11,424,343
<b>PEP Main</b>			
1995 Average ERC	1,281		
Margin Reserve	11.93% <u>153</u>		
Total ERC's	1,434		
Lots Served by PEP	21,376		
Used and Useful Percentage	6.7%	5,862,547	392,791
<b>Pep Tanks</b>			
Used and Useful Percentage	100.0%	2,119,907	2,119,907
<b>Force Main</b>			
Used and Useful Percentage	73.7%	4,570,541	3,370,731
<b>Total</b>		<b>\$35,493,443</b>	<b>\$17,307,772</b>
<b>Combined Used and Useful Percentage</b>			<b>48.8%</b>

Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Allocation of Force Main

Table K

Size	Total Force Main Footage	Used & Useful Footage			Used and Useful Percent
		Major Manifold 100.0%	Other 46.4%	Total	
4"	5,672	230	2,525	2,755	48.6%
6"	65,250	10,091	25,594	35,685	54.7%
8"	127,975	51,500	35,484	86,984	68.0%
10"	27,333	17,500	4,563	22,063	80.7%
12"	26,073	19,032	3,267	22,299	85.5%
16"	7,343	7,343	0	7,343	100.0%
Total	259,646	105,696	71,433	177,129	

Size	Total Force Main Cost	Used and Useful	
		Percent	Amount
4"	\$34,340	48.6%	\$16,689
6"	636,382	54.7%	348,101
8"	1,790,738	68.0%	1,217,702
10"	1,025,174	80.7%	827,315
12"	848,161	85.5%	725,178
16"	235,746	100.0%	235,746
Total	\$4,570,541	73.7%	\$3,370,731



Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Allocation of Services

Table L

1995 Average ERC		12,435
Less: PEP System		(1,281)
Multi-Family		(796)
Subtotal		10,358
Margin Reserve	11.93%	1,236
Used and Useful Services		11,594
Total Services		25,062
Used and Useful Percentage		46.3%

Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Allocation of Pumping Plant

Table M-1

		GPM
Combined Capacity of Pumping Stations		20,496
Combined Peak Demand		8,498
Margin Reserve	11.93%	1,014
Used and Useful Demand		9,512
Used and Useful Percentage		46.4%

**Palm Coast Utility Corporation**  
**Used and Useful Analysis - Sewer**  
**Allocation of Pumping Plant**

Table M-2  
Page 1 of 2

Station	Residential		Gen. Serv. & Multi Fam. Flow	Total Sewage Flow	I&I Allow.	Peak Sewage Flow	Peak + I&I		Station Capac. (GPM)	U&U Percent
	Conn.	Flow					(GPD)	(GPM)		
23-1	106	12,614		12,614	2,226	37,842	40,068	28	160	17.5%
32-1	30	3,570		3,570	630	10,710	11,340	8	150	5.3%
32-2	134	15,946		15,946	2,814	47,838	50,652	35	225	15.6%
30-1	97	11,543		11,543	2,037	34,629	36,666	25	270	9.3%
26-1	41	4,879		4,879	861	14,637	15,498	11	190	5.8%
29-1	82	9,758		9,758	1,722	29,274	30,996	22	300	7.3%
29-2	38	4,522		4,522	798	13,566	14,364	10	200	5.0%
24-1	187	22,253		22,253	3,927	66,759	70,686	49	200	24.5%
24-2	230	27,370		27,370	4,830	82,110	86,940	60	180	33.3%
26-1	84	9,996		9,996	1,764	29,988	31,752	22	175	12.6%
33-1	22	2,618		2,618	462	7,854	8,316	6	175	3.4%
34-1	315	37,485	175,000	212,485	37,497	637,455	674,952	469	490	95.7%
34-2	46	5,474		5,474	966	16,422	17,388	12	240	5.0%
34-3	47	5,593		5,593	987	16,779	17,766	12	330	3.6%
34-4	28	3,332		3,332	588	9,996	10,584	7	240	2.9%
63-1	34	4,046		4,046	714	12,138	12,852	9	183	4.9%
63-2	59	7,021		7,021	1,239	21,063	22,302	15	125	12.0%
64-1	5	595		595	105	1,785	1,890	1	127	0.8%
65-1	30	3,570		3,570	630	10,710	11,340	8	129	6.2%
65-2	12	1,428		1,428	252	4,284	4,536	3	135	2.2%
19-1	1,678	199,682	175,000	374,682	66,120	1,124,046	1,190,166	827	405	100.0%
BB-1	27	3,213	2,306	5,519	974	16,557	17,531	12	20	60.0%
OK-2	0	0	20,733	20,733	3,659	62,199	65,858	46	200	23.0%
16-1	140	16,660		16,660	2,940	49,980	52,920	37	130	28.5%
9-1	666	79,254		79,254	13,986	237,762	251,748	175	230	76.1%
BB-26	1,117	132,923		132,923	23,457	398,769	422,226	293	430	68.1%
BB-18	1,320	157,080		157,080	27,720	471,240	498,960	347	480	72.3%
BB-13	1,822	216,818	2,734	219,552	38,744	658,656	697,400	484	640	75.6%
BV-1A	67	7,973		7,973	1,407	23,919	25,326	18	90	20.0%
BU-6	85	10,115		10,115	1,785	30,345	32,130	22	60	36.7%
BL-8	136	16,184		16,184	2,856	48,552	51,408	36	30	100.0%
PS-B	2,241	266,679	29,433	296,112	52,255	888,336	940,591	653	1,050	62.2%
14-1	332	39,508		39,508	6,972	118,524	125,496	87	133	65.4%
4-1	664	79,016		79,016	13,944	237,048	250,992	174	200	87.0%
4-2	743	88,417	5,864	94,281	16,638	282,843	299,481	208	600	34.7%
PS-E	1,100	130,900	7,926	138,826	24,499	416,478	440,977	306	400	76.5%
PS-C	357	42,483		42,483	7,497	127,449	134,946	94	300	31.3%
PS-D	1,126	133,994	16,274	150,268	26,518	450,804	477,322	331	231	100.0%
AA-18	6	714		714	126	2,142	2,268	2	20	10.0%
AA-12	29	3,451		3,451	609	10,353	10,962	8	260	3.1%
AG-13	77	9,163		9,163	1,617	27,489	29,106	20	56	35.7%
AG-5	126	14,994	1,512	16,506	2,913	49,518	52,431	36	56	64.3%
AQ-3	57	6,783		6,783	1,197	20,349	21,546	15	21	71.4%
AA-8	322	38,318	1,512	39,830	7,029	119,490	126,519	88	310	28.4%
AU-5	36	4,284		4,284	756	12,852	13,608	9	186	4.8%
AA-5	439	52,241	1,512	53,753	9,486	161,259	170,745	119	350	34.0%
PS-A	458	54,502	2,919	57,421	10,133	172,263	182,396	127	300	42.3%
GH-6	378	44,982		44,982	7,938	134,946	142,884	99	166	59.6%
GG-7A	431	51,289		51,289	9,051	153,867	162,918	113	166	68.1%
GJ-5A	132	15,708		15,708	2,772	47,124	49,896	35	125	28.0%
PS-G	660	78,540		78,540	13,860	235,620	249,480	173	350	49.4%
11-2	292	34,748		34,748	6,132	104,244	110,376	77	230	33.5%
11-1	618	73,542		73,542	12,978	220,626	233,604	162	270	60.0%
PS-K	0	0	4,063	4,063	717	12,189	12,906	9	280	3.2%
OK-1	0	0	12,503	0	0	0	0	0	310	0.0%
F.R.P.	0	0	10,603	10,603	1,871	31,809	33,680	23	103	22.3%
CL-1	0	0	283	283	50	849	899	1	250	0.4%
PS-W	0	0	203	203	36	609	645	0	360	0.0%

**Palm Coast Utility Corporation**  
**Used and Useful Analysis - Sewer**  
**Allocation of Pumping Plant**

Pa.

Station	Residential		Gen. Serv. & Multi Fam. Flow	Total Sewage Flow	I&I Allow.	Peak Sewage Flow	Peak + I&I		Station Capac. (GPM)	U&U Percent
	Conn.	Flow					(GPD)	(GPM)		
FF-29	70	8,330	3,711	12,041	2,125	36,123	38,248	27	175	15.4%
FF-21	166	19,754	5,712	25,466	4,494	76,398	80,892	56	290	19.3%
FD-2	43	5,117		5,117	903	15,351	16,254	11	136	8.1%
FF-11	43	5,117		5,117	903	15,351	16,254	11	125	8.8%
FF-11A	364	43,316	5,712	49,028	8,652	147,084	155,736	108	500	21.6%
39-1	416	49,504	5,712	55,216	9,744	165,648	175,392	122	275	44.4%
37-3	17	2,023		2,023	357	6,069	6,426	4	180	2.2%
37-2	30	3,570		3,570	630	10,710	11,340	8	237	3.4%
37-1	23	2,737		2,737	483	8,211	8,694	6	237	2.5%
35-4	98	11,662		11,662	2,058	34,986	37,044	26	250	10.4%
35-3	65	7,735		7,735	1,365	23,205	24,570	17	225	7.6%
35-2	61	7,259		7,259	1,281	21,777	23,058	16	180	8.9%
35-1	51	6,069		6,069	1,071	18,207	19,278	13	280	4.6%
12-1	243	28,917		28,917	5,103	86,751	91,854	64	190	33.7%
13-3	853	101,507		101,507	17,913	304,521	322,434	224	138	100.0%
13-2	933	111,027		111,027	19,593	333,081	352,674	245	138	100.0%
13-4	130	15,470		15,470	2,730	46,410	49,140	34	130	26.2%
13-5	50	5,950	776	6,726	1,187	20,178	21,365	15	200	7.5%
IP-3	0	0	137	137	24	411	435	0	150	0.0%
IP-1	0	0	4,848	4,848	856	14,544	15,400	11	450	2.4%
IP-2	0	0	5,864	5,864	1,035	17,592	18,627	13	120	10.8%
13-1	1,173	139,587	13,160	152,747	26,955	458,241	485,196	337	530	63.6%
27-1	156	18,564		18,564	3,276	55,692	58,968	41	115	35.7%
21-1	406	48,314		48,314	8,526	144,942	153,468	107	82	100.0%
22-4	173	20,587		20,587	3,633	61,761	65,394	45	100	45.0%
22-1	516	61,404		61,404	10,836	184,212	195,048	135	116	100.0%
22-3	93	11,067		11,067	1,953	33,201	35,154	24	120	20.0%
22-2	852	101,388		101,388	17,892	304,164	322,056	224	80	100.0%
20-1	1,540	183,260		183,260	32,340	549,780	582,120	404	321	100.0%
20-3	19	2,261		2,261	399	6,783	7,182	5	210	2.4%
20-2	254	30,226		30,226	5,334	90,678	96,012	67	194	34.5%
	28,147	3,349,493	516,012	3,853,002	679,942	11,559,006	12,238,948	8,498	20,496	41.5%

Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Allocation of Treatment and Disposal Plant

Table N-1

Treatment	GPD
Treatment Plant Capacity	4,000,000
Maximum 3–Month Demand Margin Reserve                      32.34%	2,089,080 675,528
Total Demand	2,764,608
Used and Useful Percentage	69.1%

Effluent Disposal	
Effluent Reuse Capacity	3,400,000
Dry Weather Capacity:	
Sprayfield	(600,000)
DCDD	(500,000)
Total Wet Weather Capacity	2,300,000
Maximum Month Demand Margin Reserve                      32.34%	2,263,170 731,822
Total Demand	2,994,992
Used and Useful Percentage	100.0%

Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Calculation of Maximum Wastewater Treatment Demand

Table N-2

Average 1995 Sewer ERC's:	
Residential	9,872
General Service	1,767
Multi-Family	796
Total	12,435
Average Sewage Flow/ERC	
	119 GPD
Average Daily Sewage Flow	
	1,479,765 GPD
Allowance for Infiltration & Inflow (at 15% of Treated Flow)	
	261,135 GPD
Average Wastewater Flow	
	1,740,900 GPD

Maximum 3-Month Factor:		
	Flow	Factor
Maximum 3-Month Oct. – Dec. 1994	2.650	1.2
1994 Average	2.239	1.0
Maximum 3-Month Factor		1.2
Estimated 1995 Maximum 3-Month Demand		2,089,080 GPD

Maximum Month Factor:		
	Flow	Factor
Maximum Month November 1994	2.805	1.3
1994 Average	2.239	1.0
Maximum Month Factor		1.3
Estimated 1995 Maximum Month Demand		2,263,170 GPD

Palm Coast Utility Corporation  
 Used and Useful Analysis – Sewer  
 Calculation of Margin Reserve Percentage

Table O

	Year	Actual ERC's	Trended ERC's
1	Average 1990	8,820	8,847
2	Average 1991	9,682	9,572
3	Average 1992	10,140	10,296
4	Average 1993	11,053	11,021
5	Average 1994	11,842	11,745
6	Average 1995	12,435	12,470
6.5	Year End 1995		12,832
7	Average 1996		13,195
8	Average 1997		13,919
9	Average 1998		14,644
10	Average 1999		15,369
11	Average 2000		16,093
11.5	Year End 2000		16,456

Margin Reserve ( 1.5 Year )	11.93%
Margin Reserve ( 5 Year )	32.34%

Regression Output	
Constant	8,122
Std Err of Y Est	113
R Squared	99.5%
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	725
Std Err of Coef.	27