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OFFICE OF THE PUBLIC COUNSEL

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November 7, 2001

Ms. Blanca S. Bayó, Director
Division of the Commission Clerk
and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0870

RE: Docket No. 010503-EI

Dear Ms. Bayó:

Enclosed are an original and fifteen copies of Direct Testimony of Stephen A. Stewart for filing in the above-referenced docket.

Also enclosed is a 3.5 inch diskette containing the Direct Testimony of Stephen A. Stewart in WordPerfect for Windows 6.1. Please indicate receipt of filing by date-stamping the attached copy of this letter and returning it to this office. Thank you for your assistance in this matter.

Sincerely,

Stephen C. Burgess
Deputy Public Counsel

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Enclosures

PREFILED TESTIMONY
OF
STEPHEN A. STEWART

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

ON BEHALF OF THE

CITIZENS OF THE STATE OF FLORIDA

DOCKET NO. 010503-WU

NOVEMBER 7, 2001

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Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION?

A. My name is Stephen A. Stewart. My address is 2904 Tyron Circle, Tallahassee, Florida, 32309. I am appearing as a consultant for the Office of Public Counsel.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE?

A. I graduated from Clemson University with a Bachelor of Science degree in Electrical Engineering in December 1984. I received a Master's degree in Political Science from Florida State University in August 1990, and I have completed Doctorate level work in the area of Public Policy.

From January 1985 until October 1988, I was employed by Martin Marietta Corporation and Harris Corporation as a Test Engineer. In July 1989, I accepted an internship with the Science and Technology Committee in the Florida House of Representatives. Upon expiration of the internship I accepted employment with the Office of the Auditor General in August 1990, as a program auditor. In this position I was responsible for evaluating and analyzing public programs to determine their impact and cost-effectiveness.

In October 1991, I accepted a position with the Office of Public Counsel responsible for analyzing accounting, financial, statistical, economic and engineering data of regulated companies and identifying issues and positions in matters addressed by the Public Service Commission.

Since 1994 and I have been the Director of Operations for two privately held companies, USMED and Real Estate Data Services, Inc. My responsibilities with

these two companies have included profitability analysis, product development, product evaluation, budgeting and forecasting.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address the methodology used by Aloha to project test year water consumption.

Q. HAVE YOU PREPARED AN EXHIBIT TO YOUR TESTIMONY?

A. Yes. I have prepared an exhibit entitled, "Exhibit of Stephen A. Stewart," which consist of 6 schedules and has been identified as Exhibit No.____.

Q. PLEASE DESCRIBE THE METHODOLOGY USED BY ALOHA TO PROJECT TEST YEAR WATER CONSUMPTION?

A. Aloha projects total water to be sold in 2001 by adding projected new customer water demand in 2001 to water sold in 2000 (Schedule G-9, page 2 of 4). New customer water projected to be sold in 2001 is calculated by multiplying the projected number of additional ERC's for 2001 (Schedule F-9, page 1 of 2) by the projected water demand per additional ERC in 2001 of 500 Gallons/Day (Schedule G-9, Page 1 of 4). The formula for this methodology is listed in Schedule 1 of my Exhibit.

Q. HOW WAS THE NUMBER OF NEW ERC'S PROJECTED FOR 2001?

A. Aloha used a regression analysis for the period of 1995 to 2000 to project 2001 ERC's. This procedure is detailed in Schedule F-9, Page 2 of the MFR's.

Q. HOW WAS THE 500 GALLON/DAY USAGE FOR EACH NEW CUSTOMER IN 2001 CALCULATED?

A. Aloha witness Porter averaged the annual average monthly demand per ERC for the period 7/1/00 to 6/30/01 for twelve of the newer subdivisions in the Aloha service area. OPC witness Biddy points out in detail the numerous flaws in this procedure.

Q. DO YOU THINK THE METHODOLOGY USED BY ALOHA IN THIS CASE IS APPROPRIATE?

A. No. In calculating their projection, Aloha integrates a number of competing methodologies. Aloha accepts the single year 2000 as a base for their projection, uses data from the period 1995 to 2000 to project ERC's, and uses 12 month averages of selected neighborhoods to calculate new customer demand. This hodgepodge of methodologies is inappropriate. After reviewing Aloha's filing and conducting my own research and analysis the evidence indicates the hybrid methodology used by Aloha in this case failed to take into consideration the abnormally dry weather in 2000 and has resulted in an inflated projection of water consumption in 2001.

Q. HOW WOULD ABNORMALLY DRY WEATHER AFFECT PROJECTED TEST YEAR CONSUMPTION?

A. Abnormally dry weather would result in increased water usage due to irrigation needs.

Q. WHAT MAKES YOU THINK WEATHER IS RELATED TO WATER CONSUMPTION?

A. Schedule 2 of my Exhibit shows water consumption over the last five years with the associated yearly rainfall in Pasco county. As you can see the

relationship between rain and consumption is inversely proportional – as rain increases consumption decreases. Also listed in Schedule 2 is a statistical analysis which supports the inverse relationship between rainfall and water usage during this period.

Q. WHAT IS YOUR EVIDENCE THAT THE DATA USED BY ALOHA COMES FROM AN ABNORMALLY DRY PERIOD.

A. Schedule 3 of my exhibit shows rainfall data as provide by the Southwest Water Management District for Pasco county. The data reveals that the year 2000 was abnormally dry.

Q. WHAT IMPLICATIONS DOES THIS HAVE FOR ALOHA'S METHODOLOGY.

A. First, using the "dry" year 2000 consumption data as a base for projecting 2001 usage creates an inflation factor in the methodology. Second, calculating projected usage for new customers employing consumption data from a "dry" year compounds the effect by introducing another inflating factor. Taken together, these factors result in a methodology which projects consumption that would be less under normal weather conditions.

Q. GIVEN THE FLAWS YOU HAVE IDENTIFIED WITH ALOHA'S METHODOLOGY, HOW WOULD YOU CALCULATE PROJECTED 2001 WATER USAGE.

A. Given the limitations placed on discovery in this case, a valid approach would be to take a reasonable gallon per day usage figure per ERC and multiply that

number by the projected average number of ERC's for 2001. Schedule 4 of my exhibit details this approach.

Q. HOW DID YOU ARRIVE AT AN AVERAGE GALLON PER DAY USAGE FIGURE PER ERC?

A. I took the average gallon per day usage per ERC over the period of 1995 to 2000 as provided by the utility in Schedule F-9, Page 1 of the MFR.

Q. HOW DID YOU ARRIVE AT THE PROJECTED AVERAGE NUMBER OF ERC'S FOR 2001?

A. I accepted the year 2001 ERC's as projected by the Utility and calculated an average number of ERC's for 2001.

Q. GIVEN THESE CACULATIONS, WHAT IS YOUR PROPOSED 2001 WATER USAGE?

A. Referring to Schedule 4 of my exhibit, the methodology I employed proposes a reasonable consumption figure of 998,492,175 gallons for 2001. This number is arrived at by multiplying gallons/day usage by 365 and by the projected average number of ERC's.

Q. WHY DO YOU BELIEVE THIS PROJECTION IS REASONABLE.

A. One test of reasonableness is to compare actual results with projected results. In this case we have actual results for the first six months of 2001. Schedule 5 of my exhibit shows that the methodology I employed matches 2001 actual numbers rather well, particularly when compared to the projections by Aloha. OPC's projection is off by 2.4 % of actuals, while Aloha's projection is off by 13.4%.

In addition, Schedule 6 of my exhibit demonstrates the variation in projections based on extreme values of gallons/day per ERC over the period of 1995 to 2000. The high extreme is 277 gallons/day per ERC and the low extreme is 247 gallons/day per ERC. This schedule clearly shows that OPC's projection falls between these extremes. Aloha's projection for 2001 results in 287 gallons/day per ERC. This number clearly falls outside the high range of gallons/day per ERC usage over the period of 1995 to 2000.

Q. ARE THERE ANY OTHER FACTORS THE COMMISSION SHOULD CONSIDER IN DETERMINING THE 2001 PROJECTION OF WATER USAGE?

A. Yes. The methodology I have employed to determine 2001 projected usage was based on using a consistent methodology. This methodology does not give any "special consideration" to the drought of the year 2000.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

Docket No. 010503-WU
Exhibit__(SS-1)
Schedule 1

Aloha Utilities' Projection Methodology

Water Sold In 2000	1,018,745,467
Additional ERC's	473
Water Demand per ERC(Gallons/Day)	500
Additional Water Demand/Yr. (Gallons)	86,322,500
Water Projected To Be Sold in 2001(Gallons)	1,105,067,967

Docket No. 010503-WU
Exhibit__(SS-1)
Schedule 2

Pasco County Rainfall Data & Aloha Customer Usage

Year	Rainfall (Inches)	Gallons/ERC/Day
1995	56.91	247
1996	47.25	260
1997	61.94	266
1998	56.04	263
1999	43.84	277
2000	38.05	277

Statistical Correlation between Rainfall & Gallons/ERC/Day is -.63

Yearly Rainfall Data and Analysis for PASCO County (Source: SWFMD)

Year	Rainfall (inches)	Ranking	% of Ave.	Year	Rainfall (inches)	Ranking	% of Ave.	Year	Rainfall (inches)	Ranking	% of Ave.
1915	52.84	46	97.3%	**1949**	58.38	26	107.6%	**1983**	69.68	5	128.4%
1916	48.14	64	88.7%	**1950**	53.45	44	98.5%	**1984**	45.98	72	84.7%
1917	50.24	58	92.6%	**1951**	47.44	66	87.4%	**1985**	53.55	42	98.7%
1918	51.45	53	94.8%	**1952**	42.48	80	78.3%	**1986**	52.26	50	96.3%
1919	59.36	23	109.4%	**1953**	73.65	4	135.7%	**1987**	57.67	31	106.2%
1920	51.61	52	95.1%	**1954**	45.88	73	84.5%	**1988**	61.24	17	112.8%
1921	57.67	30	106.2%	**1955**	41.75	82	76.9%	**1989**	43.39	79	79.9%
1922	59.99	22	110.5%	**1956**	41.18	84	75.9%	**1990**	41.70	83	76.8%
1923	50.26	57	92.6%	**1957**	64.26	12	118.4%	**1991**	53.89	39	99.3%
1924	57.93	29	106.7%	**1958**	55.60	36	102.4%	**1992**	49.10	62	90.5%
1925	52.62	47	96.9%	**1959**	75.71	1	139.5%	**1993**	46.40	71	85.5%
1926	53.31	45	98.2%	**1960**	74.17	3	136.6%	**1994**	53.53	43	98.6%
1927	43.92	76	80.9%	**1961**	39.44	85	72.7%	**1995**	56.91	32	104.8%
1928	65.39	9	120.5%	**1962**	46.57	70	85.8%	**1996**	47.25	68	87.0%
1929	52.26	49	96.3%	**1963**	58.10	27	107.0%	**1997**	61.94	15	114.1%
1930	50.60	56	93.2%	**1964**	60.85	19	112.1%	**1998**	56.04	33	103.2%
1931	46.69	69	86.0%	**1965**	58.88	24	108.5%	**1999**	43.84	77	80.8%
1932	42.10	81	77.6%	**1966**	55.39	37	102.0%	**2000**	38.05	86	70.1%
1933	60.34	21	111.2%	**1967**	45.54	74	83.9%				
1934	64.47	11	118.8%	**1968**	52.39	48	96.5%	**MIN**	**38.05**		
1935	54.99	38	101.3%	**1969**	65.92	8	121.4%	**MAX**	**75.71**		
1936	55.80	34	102.8%	**1970**	49.68	61	91.5%	**AVG**	**54.28**		
1937	61.63	16	113.5%	**1971**	58.09	28	107.0%				
1938	48.51	63	89.4%	**1972**	50.19	59	92.5%				
1939	52.17	51	96.1%	**1973**	55.68	35	102.6%				
1940	44.73	75	82.4%	**1974**	58.76	25	108.3%				
1941	60.78	20	112.0%	**1975**	62.87	13	115.8%				
1942	60.85	18	112.1%	**1976**	51.08	54	94.1%				
1943	62.06	14	114.3%	**1977**	47.59	65	87.7%				
1944	50.77	55	93.5%	**1978**	53.56	41	98.7%				
1945	74.60	2	137.4%	**1979**	66.47	7	122.5%				
1946	53.83	40	99.2%	**1980**	43.61	78	80.3%				
1947	67.39	6	124.1%	**1981**	47.36	67	87.2%				
1948	49.97	60	92.1%	**1982**	64.52	10	118.9%				

Docket No. 010503-WU
Exhibit (SS-1)
Schedule 3

Docket No. 010503-WU
Exhibit__(SS-1)
Schedule 4

OPC Water Projected To Be Sold In 2001

Six Year Average ERC Usage (Gallon/Day) Calculated by averaging column 6 of Schedule F-9 of MFR filing from 1995 to 2000 and then dividing by 365. Calculation:((90,000+95,000+97,000+96,000+101,000+101,000)/6)/365	265
Annual Usage (Gallons) Calculated by multiplying Six Year Average ERC Usage by 365. Calculation: (265*365)	96,725
Projected 2001 Average Number of ERC's Calculated by summing projected 2001 ERC's of 10,543 and 2000 year-end ERC's of 10,087 and dividing by 2. Calculation: (10,543+10,087)/2	10,323
Projected Gallons to be Sold in 2001 Calculated by multiplying Projected 2001 Average Number of ERC's by Annual Usage. *Calculation (10,323 * 96,725)*	998,492,175

Comparison of 2001 Projections with Six Month Actuals

	Aloha's Projection	OPC's Projection	Actual Usage
Proj. To Be Sold in 2001 (Gallons)	1,105,069,500	998,492,175	
2001 Six Month Proration (51%)	563,585,445	509,231,009	497,022,000
Deviation From Actual Usage (Gallons)	66,563,445	12,209,009	
% Deviation From Actual Usage	13.4%	2.5%	
Deviation In Dollars	$ 156,424	$ 28,691	

Comparison of Projections with Extreme Values of Gallons/Day

	Aloha's Projection	Max. Projection	OPC's Projection	Min. Projection
Prev. Yr Usage	1,018,747,000			
Proj. New ERCS	473			
Proj. Usage per New ERCS	500			
New Usage/YR	86,322,500			
Proj. To Be Sold in 2001 (Gallons)	1,105,069,500	1,043,706,915	998,492,175	930,670,065
ERC's	10,560	10,323	10,323	10,323
Gallons/Day	287	277	265	247
With Water Loss	1,227,855,000	1,159,674,350	1,109,435,750	1,034,077,850
Water Availble Per WUP	744,600,000	744,600,000	744,600,000	744,600,000
Water Purchased	483,255,000	415,074,350	364,835,750	289,477,850
Cost of Water Purchased	$ 1,135,649	$ 975,425	$ 857,364	$ 636,851

CERTIFICATE OF SERVICE
DOCKET NO. 010503-WU

I HEREBY CERTIFY that a true and correct copy of the foregoing Prefiled Testimony of Stephen A. Stewart has been furnished by hand-delivery(*) or U.S. Mail to the following parties on this 7th day of November, 2001:

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