ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition for Determination of Need for the Osprey Energy Center in Polk County by Seminole Electric Cooperative, Inc. and Calpine Construction Finance Company, L.P.	)	**DOCKET NO. 001748-EC**
	)	**FILED: December 4, 2000**

DIRECT TESTIMONY AND EXHIBITS

OF

WILLIAM T. LAWTON

ON BEHALF OF

SEMINOLE ELECTRIC COOPERATIVE, INC.

ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY AND EXHIBITS OF WILLIAM T. LAWTON
ON BEHALF OF SEMINOLE ELECTRIC COOPERATIVE, INC.
DOCKET NO. _____-EC

December 4, 2000

Q. Please state your name and business address.

A. My name is William T. Lawton and my business address is 16313 North Dale Mabry Highway, Tampa, Florida 33618.

Q. By whom are you employed and in what capacity?

A. I am employed by Seminole Electric Cooperative, Inc. ("Seminole") as Staff Economist.

Q. Please describe your background and experience.

A. I have over 10 years of experience in electric demand forecasting. My electric utility forecasting experience includes work at Kentucky Utilities Company as a Financial Analyst and at Seminole as a Corporate Planning Analyst and Staff Economist. I received a Bachelor of Arts degree with honors in Economics from Michigan State University and a Master of Arts degree in Economics from the University of Detroit.

Q. What are your current responsibilities?

A. As Seminole witness Tim Woodbury describes, Seminole was formed to assist its Member cooperatives with the generation and purchasing of electrical power for the benefit of their respective customers/Members. A fundamental function in that regard is the projection of Members' future requirements. The two primary responsibilities of my present position are to develop forecasts of electric demand

for Seminole and its Member cooperatives and to conduct residential customer surveys for the Members. Both are joint efforts between Seminole and its Member cooperatives.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe Seminole's load forecasting methodology and the key results of the most recent forecast, which was the basis for the conclusion that Seminole needs to add capacity in 2004.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I have prepared and attached to my testimony Exhibit Nos. _____ (WTL-1 - WTL-4). These exhibits present our load forecast results in both tabular and graphic form. I also sponsor Sections E and F to Volume Appendix I-A of the Exhibits to the Joint Petition.

Q. Please summarize Seminole's load forecast methodology.

A. Seminole develops energy and demand forecasts for each of its Member cooperatives. Demographic, economic, energy usage, and weather characteristics for each Member's service area are analyzed and projected. Seminole system projections are an aggregation of the Member-level forecasts. The Seminole forecast is a cooperative effort between Seminole and its Member systems, and is conducted in close coordination with the Rural Utilities Service ("RUS"). Each Member provides input and reviews its forecast at several stages. My testimony presents Seminole's latest long-term forecast.

Q. With what frequency does Seminole prepare a load forecast?

A. Seminole prepares a load forecast on an annual basis. Pursuant to the schedule in its annual plan, which schedule is approved by the RUS, Seminole completed its

1999 load forecast in July of that year. This was the load forecast on which the Ten Year Site Plan of April 2000 was based. It necessarily was the current load forecast at the time the Request for Proposals ("RFP") described in Garl Zimmerman's testimony was issued. In July 2000, Seminole again completed its annual load forecast. That forecast is the one that was used to evaluate responses to the RFP. It is the one that I will address in my testimony and in my exhibits.

Q. Does the forecast that you will address in your testimony differ in methodology from the one that preceded it?

A. No.

Q. According to the testimony of Garl Zimmerman, based on this forecast, Seminole's system planners increased the amount of capacity to be added in 2004 by some 40 megawatts. What caused the increase?

A. Principally, the increase was the result of projected increases in commercial and industrial activity by some of our Members, in addition to smaller, "across-the-board" projections.

Q. Please describe the models upon which Seminole's forecasts of peak demands and net energy for load are based.

A. Seminole uses both econometric and end-use modeling techniques. Econometric forecasting techniques utilize statistical regression methods to estimate the relationship among the variables used in the models. End-use techniques estimate the effects of heating, cooling, and water heating appliances on energy usage and demand. The combination of these techniques produces a composite model which yields Seminole's load forecast.

Q. Please summarize the key assumptions of the forecasts that are derived from

these models.

A. Demographic, economic, end-use, and weather data are the four principal factors behind Seminole's forecasts. The main demographic and economic data are the population and income projections. They are obtained from the Bureau for Business and Economic Research ("BEBR") at the University of Florida. End-use information is obtained from Seminole's Residential Survey. Information on housing characteristics, demographic composition, and appliance saturations has been collected since 1980 for each Member system. Weather data is obtained from the National Oceanic and Atmospheric Administration ("NOAA"). Seminoles uses 20-year averages of six weather stations in and around the Members' service areas as representative of normal weather.

Q. Please describe Seminole's historical and projected seasonal peak demands, energy, number of customers, and load factors.

A. Seminole's historical and projected summer and winter peak demands are shown in Exhibit Nos. ____, (WTL- 1, 4). From 1989 through 1999, Seminole's summer peak demands grew at an annual average compound growth rate ("AAGR") of 4.7% per year. From 2000 through the summer of 2010, Seminole's summer peak is projected to grow from 2,599 MW to 3,677 MW, representing an AAGR of 3.4% per year.

Historical winter peak demands for the period 1988-89 through 1998-99 grew at an AAGR of 4.8% per year. Winter peak demands for the period 1999-00 through the winter of 2009-2010 are projected to grow from 3,174 MW to 4,589 MW, representing an AAGR of 3.8% per year.

Seminole's historical and projected consumers are shown in Exhibit No. ___

(WTL- 2). Total consumers grew at an AAGR of 2.8% per year for the period 1989-1999. They are projected to increase at an AAGR of 2.3% per year for the period 2000-2010. Historical and projected usage per customer has increased at an AAGR of 1.8% per year for the period 1989 through 1999 and is projected to increase at an AAGR of 1.3% per year over the 2000 through 2010 period. Seminole's historical and projected energy is shown in Exhibit No. ____ (WTL-3). Seminole's energy requirements have grown at an AAGR of 4.5% per year from 1989-1999 and are projected to increase at an AAGR of 3.6% per year over the 2000-2010 period.

Q. Does Seminole's forecast reflect the effects of conservation and load management?

A. Yes. Seminole's load forecast methodology captures the effect of its Members' residential and commercial conservation and load management activities. Projected maximum load management reductions for the winter and summer seasons are shown in Exhibit No. ___ (WTL-1). Seminole estimates it will have 250 MW of load management capabilities in the winter and 204 MW in the summer over the forecast period. In the aggregate, our Members are not projecting to increase their load management capabilities over the forecast period.

Q. What efforts has Seminole made in the conservation area?

A. Seminole does not have a direct role in conservation activities, which typically involve interaction with the end use consumer. What Seminole has done is to design a rate structure that will send its Members a price signal that reflects Seminole's cost of supplying power in the aggregate. Each Member may then use this price signal to evaluate the cost effectiveness of conservation measures for its

cooperative.

Q. How has Seminole structured its rates to achieve the maximum benefits from load management?

A. Seminole has a rate structure, which has been approved by its Members, that bases Seminole's billings to its Members on their aggregated system demand at the time of Seminole's peak. This enables Seminole to concentrate its load management on efforts to control the overall system peak rather than the peaks of ten different utilities.

Q. Does that complete your direct testimony?

A. Yes.

Docket No. _____
Witness: William T. Lawton
Exhibit No. ____ (WTL-1)

Exhibit WTL-1

Seminole Electric Cooperative, Inc.
2000 Power Requirements Study

FORECAST SUMMARY

	(GWH) Energy	Maximum Demand (MW) Winter	Maximum Demand (MW) Summer	Maximum Load Management Reductions (MW) Winter	Maximum Load Management Reductions (MW) Summer	(%) Annual Load Factor	(%) Annual Purchases Growth	(%) Annual Peak Growth
1980	4,287	1,133	873	-	-	43.1	-	-
1981	4,593	1,217	978	-	-	43.1	7.1	7.4
1982	4,532	1,342	928	-	-	38.5	-1.3	10.3
1983	4,949	1,222	1,055	-	-	46.2	9.2	(9.0)
1984	5,148	1,436	1,075	-	-	40.8	4.0	17.5
1985	5,723	1,736	1,269	-	-	37.6	11.2	20.9
1986	6,006	1,717	1,276	-	-	39.9	4.9	(1.1)
1987	6,484	1,583	1,454	-	-	46.8	8.0	(7.8)
1988	7,031	1,873	1,474	-	-	42.7	8.4	18.3
1989	7,690	1,961	1,629	-	-	44.8	9.4	4.7
1990	7,833	2,270	1,714	-	-	39.4	1.9	15.7
1991	8,176	2,009	1,693	-	-	46.5	4.4	(11.5)
1992	8,434	2,245	1,860	-	-	42.8	3.2	11.8
1993	8,978	2,112	1,924	-	-	48.5	6.5	(6.0)
1994	9,218	2,291	1,877	-	-	45.9	2.7	8.5
1995	10,218	2,652	2,149	-	-	44.0	10.8	15.8
1996	10,579	3,079	2,205	-	-	39.1	3.5	16.1
1997	10,734	2,893	2,277	-	-	42.4	1.5	(6.1)
1998	11,682	2,380	2,560	-	-	52.1	8.8	(11.5)
1999	11,912	3,147	2,589	-	-	43.2	2.0	22.9
2000	12,503	3174*	2599*	293	236	44.9	5.0	0.8
2001	13,015	3,346	2,716	250	204	44.4	4.1	5.4
2002	13,495	3,473	2,812	250	204	44.4	3.7	3.8
2003	13,985	3,601	2,914	250	204	44.3	3.6	3.7
2004	14,523	3,731	3,015	250	204	44.3	3.8	3.6
2005	14,998	3,864	3,117	250	204	44.3	3.3	3.6
2006	15,539	4,003	3,225	250	204	44.3	3.6	3.6
2007	16,093	4,145	3,334	250	204	44.3	3.6	3.5
2008	16,704	4,290	3,446	250	204	44.3	3.8	3.5
2009	17,239	4,438	3,560	250	204	44.3	3.2	3.5
2010	17,833	4,589	3,677	250	204	44.4	3.4	3.4
2011	18,451	4,746	3,799	250	204	44.4	3.5	3.4
2012	19,134	4,906	3,923	250	204	44.4	3.7	3.4
2013	19,729	5,072	4,049	250	204	44.4	3.1	3.4
2014	20,390	5,238	4,178	250	204	44.4	3.4	3.3
2015	21,067	5,410	4,312	250	204	44.4	3.3	3.3
2016	21,833	5,587	4,450	250	204	44.5	3.6	3.3
2017	22,499	5,770	4,591	250	204	44.5	3.1	3.3
2018	23,241	5,958	4,734	250	204	44.5	3.3	3.3
2019	23,999	6,150	4,882	250	204	44.5	3.3	3.2
2020	24,840	6,348	5,035	250	204	44.5	3.5	3.2

* Actual winter peak 3137 MW, actual summer peak 2566 MW.
Reporting actual data through December 1999.

WTL - 2

Seminole Electric Cooperative, Inc.
2000 Power Requirements Study

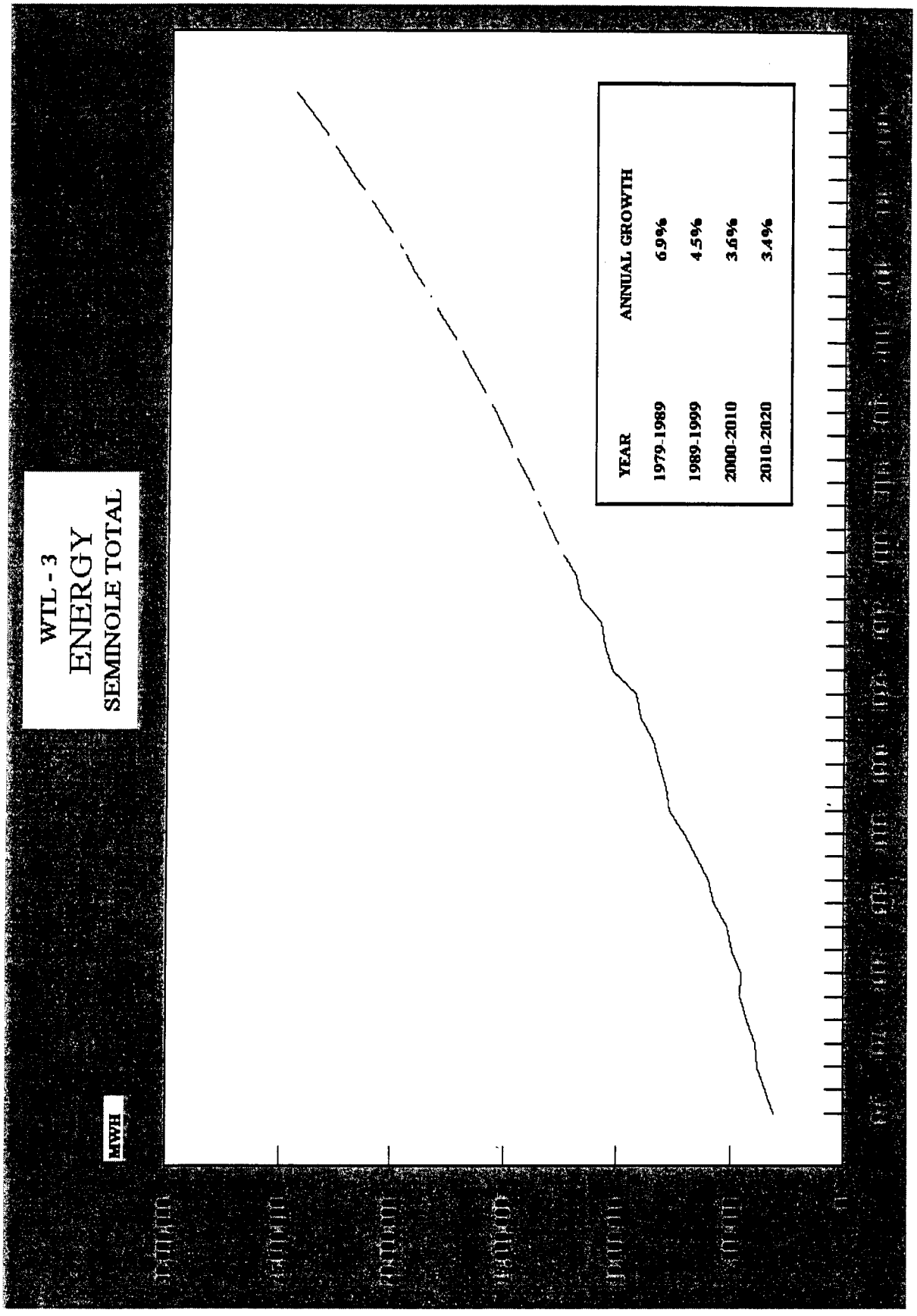
CONSUMER FORECASTS

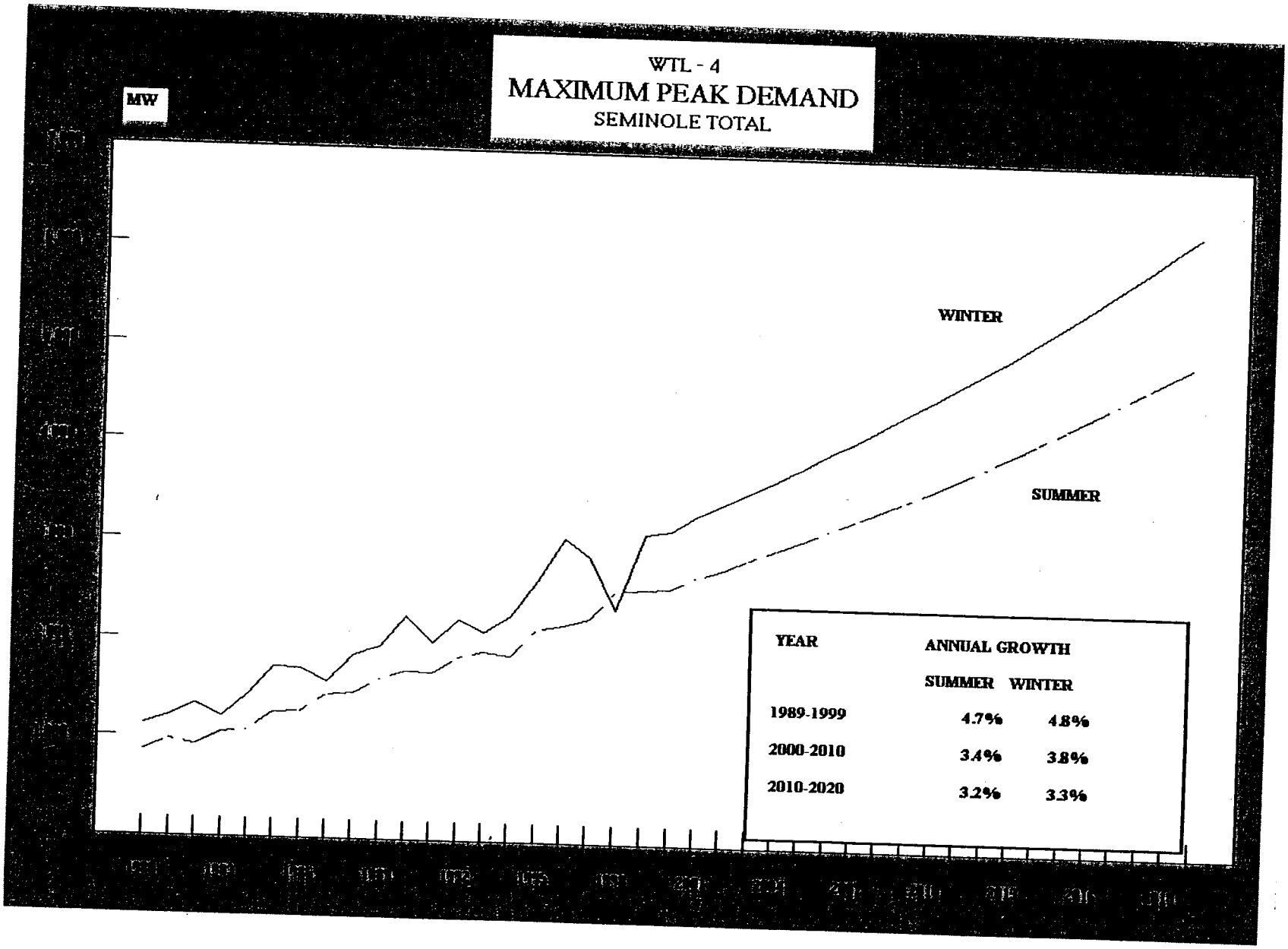
	Residential	Percent Growth	Commercial	Percent Growth	Other	Percent Growth	Total	Percent Growth
1975	205,376	-	15,273	-	3,868	-	224,517	-
1976	215,880	5.11	16,405	7.41	3,874	0.16	236,159	5.19
1977	227,936	5.58	17,872	8.94	3,871	(0.08)	249,679	5.72
1978	243,272	6.73	19,375	8.41	3,574	(7.67)	266,221	6.63
1979	262,623	7.95	21,511	11.02	3,404	(4.76)	287,538	8.01
1980	283,276	7.86	23,584	9.64	2,812	(17.39)	309,672	7.70
1981	302,533	6.80	24,838	5.32	2,872	2.13	330,243	6.64
1982	318,591	5.31	26,040	4.84	2,922	1.74	347,553	5.24
1983	335,362	5.26	27,901	7.15	3,021	3.39	366,284	5.39
1984	353,131	5.30	29,924	7.25	3,112	3.01	386,167	5.43
1985	374,234	5.98	32,225	7.69	2,966	(4.69)	409,425	6.02
1986	394,049	5.29	35,060	8.80	2,810	(5.26)	431,919	5.49
1987	421,802	7.04	38,204	8.97	2,999	6.73	463,005	7.20
1988	442,571	4.92	40,977	7.26	3,165	5.54	486,713	5.12
1989	462,593	4.52	42,969	4.86	3,324	5.02	508,886	4.56
1990	481,195	4.02	43,968	2.32	3,353	0.87	528,516	3.86
1991	495,362	2.94	44,388	0.96	3,241	(3.34)	542,991	2.74
1992	506,754	2.30	47,327	6.62	3,248	0.22	557,329	2.64
1993	518,690	2.36	49,079	3.70	3,304	1.72	571,073	2.47
1994	531,680	2.50	50,743	3.39	3,341	1.12	585,764	2.57
1995	546,831	2.85	51,421	1.34	3,366	0.75	601,618	2.71
1996	561,981	2.77	53,223	3.50	3,349	(0.51)	618,553	2.81
1997	578,344	2.91	55,263	3.83	3,514	4.93	637,121	3.00
1998	595,967	3.05	57,012	3.16	3,586	2.05	656,565	3.05
1999	607,059	1.86	59,044	3.56	3,593	0.20	669,696	2.00
2000	624,729	2.91	61,026	3.36	3,671	2.17	689,426	2.95
2001	641,782	2.73	62,783	2.88	3,766	2.59	708,331	2.74
2002	658,087	2.54	64,279	2.38	3,855	2.36	726,221	2.53
2003	674,269	2.46	65,807	2.38	3,941	2.23	744,017	2.45
2004	690,494	2.41	67,355	2.35	4,024	2.11	761,873	2.40
2005	706,751	2.35	68,909	2.31	4,108	2.09	779,768	2.35
2006	722,711	2.26	70,457	2.25	4,192	2.04	797,360	2.26
2007	738,690	2.21	72,008	2.20	4,275	1.98	814,973	2.21
2008	754,681	2.16	73,564	2.16	4,358	1.94	832,603	2.16
2009	770,680	2.12	75,120	2.12	4,439	1.86	850,239	2.12
2010	786,687	2.08	76,681	2.08	4,523	1.89	867,891	2.08
2011	803,264	2.11	78,296	2.11	4,608	1.88	886,168	2.11
2012	819,844	2.06	79,911	2.06	4,694	1.87	904,449	2.06
2013	836,427	2.02	81,528	2.02	4,779	1.81	922,734	2.02
2014	853,013	1.98	83,142	1.98	4,864	1.78	941,019	1.98
2015	869,601	1.94	84,760	1.95	4,951	1.79	959,312	1.94
2016	886,949	1.99	86,449	1.99	5,040	1.80	978,438	1.99
2017	904,300	1.96	88,139	1.95	5,129	1.77	997,568	1.96
2018	921,653	1.92	89,830	1.92	5,219	1.75	1,016,702	1.92
2019	939,005	1.88	91,519	1.88	5,309	1.72	1,035,833	1.88
2020	956,361	1.85	93,210	1.85	5,397	1.66	1,054,968	1.85

Reporting actual data through December 1999.

Docket No. _____
Witness: William T. Lawton
Exhibit No. ____ (WTL-2)

Docket No. _____
Witness:William T. Lawton
Exhibit No. ____(WTL-3)





Docket No. _____
Witness: William T. Lawton
Exhibit No. ____ (WTL-4)