REBUTTAL TESTIMONY OF BILL GILMORE

What is your name and business address?

My name is Bill Gilmore and my business address is 7107 36th Avenue East, Bradenton, FL 34208.

Describe your educational and work background.

I am a principal and vice president of Southeastern Utility Services, Inc. I provide technical and statistical support to SUSI, and I also advise clients on the best ways to use their utilities.

I have a Bachelor of Science degree in electrical engineering from Georgia Tech (1973) and Masters of Business Administration with emphasis in Management Science from the University of Florida (1979).

In 1973 I joined Florida Power & Light as an electrical engineer. Later I went to management positions in construction and maintenance, marketing, customer service, and became Manager of District Office Operations in the corporate headquarters. While in that last position, one of my duties was to ensure that all rates and tariffs were administered fairly and accurately.

In 1990, I left FPL to become a senior consultant in the management consulting firm of Qualtec Quality Services, Inc. While at Qualtec, I advised and set up Statistical Process Control systems in many corporations and government organizations, and I instructed in the proper use of statistical tools such as control charts. In 1990, I left FPL to become a senior consultant in the management consulting firm of Qualtec Quality Services, Inc. While at Qualtec, I advised and set up Statistical Process Control systems in many corporations and

government organizations, and I instructed in the proper use of statistical tools such as control charts.

What is the purpose of your testimony?

The purpose of my testimony is to rebut the testimony of FPL witness David Bromley and FPSC Staff witness Sid Matlock.

Are you sponsoring any exhibits included with your testimony?

Yes. Attached are exhibits BG-1, BG-2, BG-3, and BG-4.

Mr. Bromley has testified that the meters in this docket should only receive a 12 month refund. Do you agree with this testimony?

No. FPSC Rule 25-6.103(1) limits refunds to 12 months, "except that if it can be shown that the error was due to some cause, the date of which can be fixed, the overcharges shall be computed back to but not beyond such date based upon available records." FPL has conducted an entirely subjective analysis to determine if refunds should extend beyond 12 months. Based on this analysis, it is not too surprising that FPL has concluded that longer refunds are not appropriate. Mr. Brown has provided testimony indicating that there has been a change in demand registration that occurred following replacement of the 1V thermal demand meters at issue in this docket. Moreover, this change in demand registration extends for the entire period these meters were installed.

Have you conducted any additional analysis regarding proper refund durations in rebuttal to Mr. Bromley's testimony?

Yes. I have prepared a statistical analysis to determine if a statistically significant change in demand registration has occurred following replacement of the meters in this docket.

Describe this analysis.

For each meter in this docket, I have constructed an XmR control chart. A control chart is a standard statistical tool for determining if a change in a process has occurred. To construct a control chart, a population of data is observed. From this population, the mean is determined. Control limits (an Upper Control Limit, or UCL, and a Lower Control Limit, or LCL) around these mean are then determined. These control charts are simply time-series line graphs, with the UCL and LCL being approximately three Standard Deviations above and below the mean. A point outside the lines can be said to have less than a 1% chance of being a part of the previous process.

For this analysis, I have compared before and after meter replacement data (obtained from FPL's billing records), to determine if the after-meter-replacement data indicates that a change has occurred. In other words, when the value for the year after change-out is "out of control", or outside of the control limits, it clearly is different from all previous years indicating that some change has occurred.

The upper and lower control lines are derived statistically, and are used in Industry to determine if/when a process has had a significant change. Control limits in an XmR chart are calculated from the moving range (mR). A range is based on the absolute value of

consecutive differences in observations. The first step in calculating control limits is to estimate the average of the moving range.

- Count the number of time periods, n.
- Calculate the absolute value of the difference of every consecutive value, call this moving range.
- Add the moving ranges and divide by "n" minus one to get the average moving range.

The UCL is the mean of the observations plus 2.66 times the average range. The value 2.66 is chosen so that 99% of the data fall within the control limits.

UCL = Mean of observations + 2.66 * Average of moving range

Similarly, lower control limit is average of observation minus 2.66 times the average range. The Lower Control Limit (LCL) is calculated as:

LCL = Mean of observations – 2.66 * Average of moving range.

What assumptions have you made in this analysis?

I have assumed that there is a relationship between consumption and demand. In other words, I have assumed that demand is a function of consumption, and that as consumption increases, demand increases as well. My analysis is based on the ratio of demand to consumption. I have utilized a parameter that is derived from the ratio of maximum demand to total kwh consumption for a given period. I have then multiplied this ratio by 1000 to create a more user friendly number. For example, in a month where the maximum demand is 540 kW, and the kWhr consumption is 200,000 kWhrs, this parameter would be determined as follows:

Ratio = (540) / (200,000) * 1000 = 2.7

What is the basis for this assumption?

I know that here is a direct relationship between kWhr consumption and demand. In fact, demand is nothing more than the integration of kWhr consumption over a fixed period of time and is expressed in kW. In other words, the demand for any hour of consumption is equal to the kWhr's consumed during that hour (e.g., 450 kWhr consumer over a 1 hour period equals a demand of 450 kW).

This known relationship between consumption and demand is very useful. It can be used to explain changes in demand registration that have occurred due to changes in total consumption that have occurred for any observed period of time. For example, in analyzing the change in demand that has occurred following replacement of a meter, one method is to simply compare the average annual demand that occurred post meter change to the average annual demand that occurred during the life of the meter. FPL used a substantially similar method to calculate the appropriate correction to demand registration for 1V meters that are not in this docket.

However, this methodology does not recognize that increases or reductions in demand may also be related to changes in total kWhr consumption during that period. My analysis corrects for changes in consumption that have occurred during the life of the meter, and, therefore, allows for a true comparison of demand, before and after meter replacement.

What have you done to check this assumption?

Exhibit BG-2 contains the raw data for each meter in this docket. Using this data, I conducted a standard correlation test to determine if there is a statistically significant correlation between demand and consumption. A correlation test was conducted for each meter in the docket - comparing demand and consumption for each month prior to meter replacement. A correlation of greater than 0.70 is considered to be a strong correlation between two sets of data.

What are the results of this correlation analysis?

This analysis indicates that 9 of the 13 meters for which a demand refund is sought exhibited correlations of at least 0.69. Four other meters exhibited lower correlations. For three of these meters, my review of the raw data indicates that there may be meter reading errors that affect the results obtained. Exhibit BG-1 summarizes this information.

In total, this analysis tells me that using the ratio of demand to consumption is valid, and that my assumption about there being a significant relationship between demand and consumption is valid.

What do the control charts indicate?

I have attached Exhibit BG-3 which is a 28 page exhibit containing, for each meter in this docket, an XmR control chart and the data from which the chart is generated. The analysis is the same for each meter, so the simplest way to explain this is to look at one specific meter. I will describe the analysis shown on pages 1and 2 of this exhibit, for the Target, SR 7 store:

First, for each year of billing information that precedes meter replacement, I determined the average monthly kWhr consumption and the average monthly demand for that year. I then determined the ratio of demand to consumption for each year. Next I determined the mean of this ratio for all available years and the moving ranges, and used this information to determine the UCL and LCL. I then created the chart shown on page 1, which also includes a single data point for the year 2003, which, similarly, is the demand to consumption ratio determined after meter replacement. As you can see in this example, all of the data points lie within the control limits; only the last point (representing data for the time after the meter change) is outside the limits. This indicates that this data is "out of control," because it is below the LCL. Therefore, there is a 99% probability that a change in the process has occurred; namely, that the data "after" is significantly different from the data "before."

Have you prepared a summary of observations from these control charts?

Yes. Attached as Exhibit BG-4 is a summary of the results from this control chart analysis.

Can you draw any other observations from these charts?

Yes. Even though several meters are "in control," each meter for which a demand refund is sought shows a significant decrease in the demand/consumption ratio after meter replacement, and generally are significant at the 90% level.. Note that those meters not showing a significant decrease are also accounts where the actual meter readings are highly suspect.

The type of analysis done here is entirely consistent with techniques normally used by FPL. In fact, that is where I learned and first used Statistical Process Control.

Does this complete your rebuttal testimony?

Yes.

SUMMARY			
		Raw Data	
Customer	Location	Correlaton	Notes
Target	SR 7	0.73	
Target	1901 Congress	0.77	
Target	14th St. Bradenton	0.69	
Target	Delray	0.56	1
Target	Ft. Meyers	0.82	
Target	Hollywood	0.59	2
Target	Port Charlotte	0.72	
Target	Fruitville - Sarasota	0.88	
Target	Venice	0.72	
JC Penney	Bradenton	0.72	
JC Penney	Naples	0.48	3
Ocean Properties	Bradenton	0.77	
Dillards	Coral Springs	0.33	

Notes:

1) The raw data point for the month of May 1997 was removed as an anamoly. In that period, because of a change in the meter reading schedule, only 8 days are included.

2) Underlying data is suspect. The observed ranges of kWhr consumption at the same level of demand is suspect.

3) Underlying data is suspect. For example, in 1994, there are four consectuive months (April - July) where the demand is 480, even though the kWhr consumption increases from 189,360 to 248,640 kwhrs.

Target SR 7 billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D
Dec			207000	416	222960	416	223440	480	206640	468	213840	456	233280	468	202920	456	191160	444
Nov			212880	474	226920	492	235920	480	223560	444	244080	480	212640	456	196800	456	190320	480
Oct			262200	497	239400	540	223080	480	239400	492	235080	492	244440	480	217800	444	195480	480
Sep			276240	514	256440	540	248880	516	270240	528	259320	480	220800	480	228600	480	235440	492
Aug			263520	522	259440	564	285000	540	285720	528	262200	504	228840	480	249240	492	224520	504
Jul			298680	521	275040	540	272280	504	246480	480	240720	504	241800	480	249480	480	222120	492
Jun			229560	482	229680	540	239760	540	255000	504	251880	480	219120	504	230640	456	246240	516
May	197160	390	239400	500	222120	480	242400	480	213840	504	205200	480	205080	480	215760	456	209760	480
April	181920	389	222480	431	214080	480	213240	480	202680	480	214680	480	179520	432	172440	456	192840	444
Mar	187200	444	242640	446	209880	480	201360	456	196800	468	192240	420	178440	444	180840	444	174120	456
Feb	201960	421	209040	468	193680	480	199080	444	217200	456	184440	408	166680	456	175920	444	173160	444
Jan	175440	422	189600	408	216720	480	183120	468	199200	456	185880	420	174120	456	178800	456	200400	444

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	210480	456	203880	480	192840	420
Nov	238680	480	219840	540	202800	456
Oct	210840	480	200040	480	192120	444
Sep	227040	480	226320	504	217320	456
Aug	210120	480	217200	492	210120	504
Jul	224760	492	218760	492	207840	480
Jun	229440	516	219360	468	216720	480
May	215400	528	190680	480	171720	480
April	201240	444	180960	480	170520	420
Mar	195120	444	175320	468	148680	408
Feb	163320	420	182160	432		
Jan	185760	420	162840	444		

Target Congress Ave. billing data (from FPL)

	2004		2003		2002		2001		2000						1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D					kWh	D	kWh	D
Dec			236400	487	231360	502	236640	564	210480	480	218880	492	222240	504	216480	516	216720	480
Nov			247680	492	225840	528	231120	528	194160	504	202560	480	209280	504	223440	480	196080	504
Oct			241200	504	252240	564	239520	504	222960	504	217440	540	240480	540	223440	516	203520	492
Sep			263280	514	244800	576	281520	576	238080	528	253920	547	241680	540	232800	528	226560	497
Aug			254880	499	268560	576	238080	576	253200	540	240000	564	229440	528	220560	516	234720	504
Jul			333120	533	248880	576	237840	552	264960	540	223680	552	228000	528	233280	540	221760	528
Jun			243600	514	247200	576	230640	576	240000	516	246480	528	239520	504	212400	492	227760	504
May			230400	490	230400	552	197040	528	200400	480	206880	528	197520	480	191040	492	224640	552
April			210960	506	230400	540	192480	504	199440	480	196560	516	178080	468	193680	480	182880	492
Mar	185760	401	237840	535	194400	516	185040	504	185040	456	180960	480	174480	468	197280	480	176400	480
Feb	216480	420	184800	432	212400	480	175920	480	180960	480	186960	480	198240	480	168240	456	169440	480
Jan	220080	437	216960	487	226320	576	203040	480	195120	456	187680	516	226320	516	198960	456	198960	480

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	221280	480	210000	480	195360	456
Nov	217200	480	235920	492	252480	504
Oct	222240	480	210240	516	238560	552
Sep	222720	504	222000	528	238080	528
Aug	232560	504	222720	528	235920	528
Jul	222240	492	248880	528	222240	552
Jun	217200	492	204960	504	204000	480
May	213840	480	200880	480	165360	456
April	188160	480	181440	480	169200	480
Mar	174480	408	170400	480	162720	432
Feb	153600	420	177840	480		
Jan	195840	432	161520	456		

Target Bradenton billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D
Dec			212880	448	187800	462	221040	516	190080	504	182160	504	221400	504	181200	420	172320	432
Nov			230160	523	205200	528	197040	540	197520	540	197040	480	204240	540	174360	480	197520	480
Oct			250080	529	223560	600	230880	564	234480	540	222960	564	224520	540	227400	504	195600	528
Sep			284760	540	264720	540	255120	588	234120	564	235680	576	257880	564	212400	528	232200	540
Aug			249120	536	244680	540	235560	600	235080	576	258360	600	244200	600	223440	540	227400	540
Jul			273240	530	241200	564	258720	600	255480	576	231480	600	245400	540	252720	540		
Jun			281760	481	254640	540	246000	576	238800	552	226920	552	261360	540	210480	528		
May	193320	450	216960	436	225480	540	205680	552	215040	540	216960	516	201840	480	188760	504		
April	183240	404	195960	452	207480	480	195000	540	196440	504	190560	504	185640	492	184800	444		
Mar	172680	392	204960	474	190920	480	194520	480	181440	480	164880	480	165360	444	173040	420		
Feb	186480	400	187200	424	189720	480	175680	504	163920	480	170880	540	165840	420	162960	432		
Jan	210240	397	194160	451	200760	516	181920	480	188280	480	197640	540	169200	444	179160	420		

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec						
Nov						
Oct						
Sep						
Aug						
Jul						
Jun						
May						
April						
Mar						
Feb						
Jan						

Target Delray billing data (from FPL)

	2004		2003		2002											
	kWh	D	kWh	D	kWh	D										
Dec			267720	444	216360	422	226440	444	193440	480	219000	360	243120	468	197280	456	198600	480
Nov			263880	469	210840	432	254280	480	197880	480	215400	480	225360	504	204840	480	190560	480
Oct			221520	439	222360	432	255240	504	220560	480	231480	468	231960	480	237240	468	215880	480
Sep			246000	444	237960	480	279960	516	243600	480	229800	492	241440	492	255840	492	222720	504
Aug			214560	456	208200	444	253200	540	249720	480	256560	492	235680	516	224520	516	246240	480
Jul			229440	457	208560	480	231840	480	242400	480	221880	480	235560	481	230160	480	233040	480
Jun	214560	486	211080	462	203640	480	206640	480	215640	480	240360	480	240600	480	203760	480	219960	480
May	205320	498	186240	446	193920	420	188280	480	209640	480	190920	480	188280	432	183720	450	177960	456
April	187560	401	175800	418	208800	480	198480	480	193200	468	185400	468	182040	420	189000	420	164280	480
Mar	196560	416	204120	409	213000	420	185160	444	174120	456	169080	456	183840	432	184800	450	157440	420
Feb	195960	407	180240	366	212280	480	166200	444	180480	420	191160	444	160320	480	159960	444	156840	420
Jan	222840	398	214440	406	239520	480	181080	432	205560	456	224520	468	209640	456	188760	450	188760	456

	1995		1994		1993	
	kWh	D	kWh	D		D
Dec	209280	480	197760	480	202080	420
Nov	210960	480	191400	480	176520	480
Oct	196320	480	177360	456	194400	480
Sep	222600	492	206880	480	210360	480
Aug	222360	480	214920	480	214680	480
Jul	200400	480	218760	480	196320	480
Jun	205320	480	191640	420	184080	444
May	210120	480	189720	480	146040	420
April	159600	432	166680	420	149760	420
Mar	154080	428	166440	420	154680	360
Feb	142680	360	159120	360		
Jan	166560	396	165240	420		

Target Ft. Myers billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D
Dec			205440	473	184320	442.5	224160	588	201360	540	198480	600	216240	552	195600	576	203040	528
Nov			212880	485	217800	576	199440	600	189840	576	210480	528	204000	576	194640	564	215280	576
Oct			226560	497	227880	576	242880	588	237840	588	231600	588	228960	576	237360	588	239760	600
Sep			267600	521	203520	600	247680	600	247200	588	250080	600	265680	600	240480	600	261120	576
Aug			242400	521	268320	600	250320	600	258480	576	274560	600	245280	600	239760	600	276480	588
Jul			266880	550	253200	576	265200	588	270240	576	253440	600	251760	624	256560	600	267840	600
Jun			271920	557	279120	588	251040	576	253680	600	237360	588	266400	600	232080	600	243840	600
May	214080	478	232560	528	240000	576	212880	540	218880	576	232080	552	207120	588	194640	600	222240	552
April	200640	487	205680	518	216000	552	199920	528	216000	540	202560	552	198960	576	200160	564	181440	528
Mar	190320	446	221040	521	201360	540	207840	516	189120	504	174240	456	162720	576	200640	552	175920	576
Feb	184560	449	194880	509	201840	540	182400	492	174240	504	172800	504	180000	552	166560	540	173280	564
Jan	201600	427	194400	550.5	205920	552	177840	504	200400	516	213120	552	191040	552	191040	528	198720	552

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	195360	600	220800	528	206880	528
Nov	274800	672	250080	552	236880	552
Oct	283920	648	236880	576	227760	576
Sep	305760	672	252960	576	195840	504
Aug	307920	672	259680	576	169440	504
Jul	258480	600	248640	564	109920	372
Jun	268800	672	239280	576	95280	360
May	269520	660	237840	552	71040	288
April	216000	552	202080	528		
Mar	190560	516	192960	504		
Feb	162720	528	198480	504		
Jan	207600	504	181920	504		

Target Hollywood billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D
Dec			256080	530	209280	564	204720	552	199680	552	203040	576	239520	480	200160	552	219600	552
Nov			257520	535	247680	600	242880	600	231600	660	203040	600	225360	492	203520	576	215280	576
Oct			251040	538	228960	480	226320	552	221760	600	221760	600	264480	600	252960	552	245760	720
Sep			240240	504	253440	540	260160	600	248160	600	243840	600	259200	576	255840	600	253200	720
Aug			252480	506	241920	552	235920	600	258720	600	274560	600	253680	576	234480	552	270720	480
Jul			268560	516	251040	600	262800	600	229680	552	217680	600	254880	576	256320	552	233280	480
Jun			258960	578	238800	552	225360	576	223680	528	252720	528	256800	528	224640	552	226800	480
May	228240	514	209760	542	224880	552	199680	480	206880	528	199200	480	195360	528	199200	552	216720	480
April	210000	482	214080	562	205920	528	201120	480	190320	576	186960	480	180240	576	204480	552	187200	480
Mar	216480	482	227520	528	194880	528	185280	480	179040	528	165120	480	191280	528	200160	552	170400	480
Feb	219120	504	165840	408	194400	552	169920	480	170640	480	195360	480	164640	528	170160	480	177120	504
Jan	239280	499	211440	557	215040	600	187200	480	197280	528	203760	480	212880	552	201120	480	200160	528

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	213840	576	237840	480	221760	480
Nov	231120	576	236880	528	216720	552
Oct	238800	528	237840	528	207600	480
Sep	250080	552	256800	480	141600	408
Aug	257760	552	263040	528	88800	252
Jul	250560	552	248640	480		
Jun	251280	552	229200	480		
May	239520	528	228960	480		
April	201840	504	189360	480		
Mar	194160	480	186720	408		
Feb	162240	480	180000	432		
Jan			181200	408		

Target Port Charlotte billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D
Dec			183360	463	201840	468	227760	540	204600	480	180360	480	189360	504	174120	480	177000	480
Nov			211200	505	220320	504	188760	540	195120	504	174960	504	199080	504	173880	480	193800	504
Oct			214680	505	227280	540	229680	540	224400	540	196680	516	202800	528	211560	540	201480	540
Sep			218520	530	236760	552	244320	540	265560	540	233640	552	205080	540	235560	540	243480	540
Aug			220080	557	248880	564	217920	540	243240	552	216600	480	213240	516	214200	540	225960	516
Jul			246120	551	222720	540	224160	540	224040	552	223440	540	235320	516	219240	492	231480	516
Jun			223560	529	219480	540	244800	540	223560	540	220320	540	216960	480	226920	480	231360	480
May	207720	481	209040	509	228000	540	194400	504	197880	516	189480	492	179400	480	181920	480	196560	480
April	158160	436	199080	480	192000	540	182640	528	179280	480	195840	480	190440	480	174840	480	163800	480
Mar	172560	456	198480	490	171720	480	191280	504	170760	504	147960	432	161040	480	190560	480	163080	480
Feb	176400	464	162840	469	171840	516	183960	576	165720	480	162600	480	148200	420	171120	444	162000	456
Jan	184200	446	179040	457	188880	528	178920	480	181080	504	180840	480	177000	480	165000	432	163200	420

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	171360	480	200760	480	167160	408
Nov	191040	480	197160	480	192600	456
Oct	217800	480	207000	492	185040	468
Sep	242280	480	230880	504	224400	480
Aug	223680	504	204720	480	216960	480
Jul	221520	504	220200	504	212280	480
Jun	224280	480	217920	480	191040	480
May	200520	480	193440	480	171960	432
April	172800	444	174840	456	163680	372
Mar	156360	408	168840	408	131400	348
Feb	159000	420	147360	396		
Jan	160560	360	146520	360		

Target Sarasota billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
															kWh	D	kWh	D
Dec			238080	578	235560	570	218160	636	202320	600	199440	600	230280	600	230640	612		
Nov			256440	600	247800	566	227760	648	203400	564	236160	612	231240	648	233640	564		
Oct			273240	599	292560	619	261840	660	269640	624	236880	600	233880	600	271080	660		
Sep			297840	578	180240	623	253200	672	256320	636	246240	636	275520	648	278640	660		
Aug			276600	612	267480	600	259800	648	266280	660	265080	660	276960	660	282120	672		
Jul			258120	612	246720	648	264600	612	234240	624	225480	600	243720	624	231360	600		
Jun	272880	575	286680	588	257520	600	232080	660	240240	600	236160	624	249840	576	52440	336		
May	230640	587	222240	571	221280	636	204840	576	200160	600	227880	600	185040	564	35400	180		
April	226560	560	227040	596	199560	624	180960	576	195720	600	176640	576	170880	552	85680	282		
Mar	203280	482	210960	557	180000	600	202920	564	177360	540	174600	540	171720	576	21000	144		
Feb	184320	486	195840	442	209880	600	166920	564	172080	540	174840	600	188400	564				
Jan	231120	497	206880	563	241320	540	205800	708	206040	564	223080	600	216720	588				

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec						
Nov						
Oct						
Sep						
Jul						
Jun						
May						
April						
Mar						
Feb						
Jan						

Target Venice billing data (from FPL)

	2004		2003		2002		2001		2000		1999		1998		1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D
Dec			205440	540	183480	463	214080	600	200400	540	200640	516	208560	540	183960	468	172920	480
Nov			212760	529	214680	500	206040	564	221880	564	187920	552	199320	504	183480	480	201120	504
Oct			223560	588	268680	576	218640	582	227760	576	215760	552	222000	552	230040	516	205680	492
Sep			261360	540	248160	576	235800	612	246600	576	227280	564	246600	558	224400	504	223920	504
Aug			235440	552	245760	588	242760	624	259680	576	249240	528	238200	540	233520	528	230400	480
Jul			249480	545	259200	588	294000	600	229680	600	244440	516	237360	564	240840	504	222240	504
Jun			254880	538	231480	576	246600	600	229080	528	232080	504	252480	540	209040	480	213120	504
May	232440	557	222600	517	208920	504	205080	600	206640	552	202800	504	197280	516	181800	456	200640	480
April	187680	469	191760	484	189120	480	210000	588	188040	540	190560	540	189120	480	182880	504	160800	432
Mar	184680	504	205800	493	185880	480	197400	576	182520	480	164880	564	169680	492	172920	456	157560	444
Feb	181080	505	186120	491	176400	570	185040	564	168480	516	187800	516	184680	480	162840	444	150720	444
Jan	205320	564	194040	457	197400	576	195120	516	198000	480	181560	528	195480	480	183600	420	170400	480

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	168480	480	170520	456	165840	420
Nov	195360	480	196920	456	186360	480
Oct	203880	540	194880	480	181800	480
Sep	213840	540	202560	480	202200	480
Aug	226200	480	209400	480	214200	480
Jul	214200	492	198960	480	197640	480
Jun	206280	552	199560	504	197520	480
May	212760	468	193800	468	159600	420
April	168240	444	168720	456	153120	420
Mar	155760	480	151800	420	126240	360
Feb	152280	420	157320	408		
Jan	165120	432	156000	372		

JC Penney Bradenton billing data (from FPL)

														1997		1996	
														kWh	D	kWh	D
Dec			141600	389	132720	408	118320	360	112080	348	117840	420	135840	396	126240	360	117120	384
Nov			133440	370	137280	432	119520	408	112560	384	124560	420	130560	420	127200	408	126240	408
Oct			141360	389	161040	456	142560	408	144000	432	130800	420	143280	444	145440	432	133200	408
Sep			155280	398	149040	456	150240	432	135600	396	130560	444	146640	432	142560	384	128880	408
Aug			163920	410	160320	480	134880	456	140400	396	140640	420	146880	432	140160	432	155520	432
Jul			141120	413	136320	432	143280	456	126720	408	132720	408	142800	432	138720	420	137760	408
Jun	150240	415	148320	408	143280	432	133680	432	130560	384	125280	408	160800	360	138960	420	132960	432
May	126480	384	119760	358	133920	396	118800	384	113040	396	135120	372	120480	360	112800	408	116160	432
April	122400	350	119040	384	130800	372	108960	360	131760	384	100560	336	110400	360	111120	384	110160	372
Mar	111840	341	109440	324	109920	360	116160	360	96480	336	120000	384	110640	384	120000	336	107520	360
Feb	101760	326	96240	336	111120	372	89040	336	90000	324	104160	384	108000	360	115680	324	102480	348
Jan	139200	341	116160	360	138720	372	111840	336	119760	336	134880	360	122880	360	115610	360.22	138720	360

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	135600	408	122160	360	108000	336
Nov	157440	480	136560	372	121920	360
Oct	161760	408	124800	384	125520	372
Sep	164880	408	126960	365	126960	372
Aug	165600	384	130080	372	137760	396
Jul	130320	384	136560	365	126000	396
Jun	130560	384	124560	360	134880	396
May	111360	360	111600	360	125760	384
April	110400	360	103200	348	123120	360
Mar	97200	348	98400	324	114720	336
Feb	92640	312	90960	312		
Jan	124320	360	105840	288		

JC Penney Naples billing data (from FPL)

	2004		2003								1999		1998		1997		1996	
	kWh	D	kWh	D							kWh	D	kWh	D	kWh	D	kWh	D
Dec			169680	433	180480	422	177360	480	167280	552	157080	528	194160	516	182280	516	174720	48
Nov			161400	480	176760	480	182640	504	182760	540	174720	480	174480	540	179040	528	201720	46
Oct			177840	474	184560	504	166200	492	220560	576	182160	540	178200	552	210240	552	229320	45
Sep			186120	481	197160	492	200760	540	211680	576	205800	540	218400	588	227760	576	219000	48
Aug			193680	461	173880	444	184080	540	224040	564	207120	540	213360	564	207240	564	174720	54
Jul			181440	470	169080	456	184560	504	204840	552	192480	540	207480	552	200760	576	177000	51
Jun	171480	437	194640	464	196320	480	195360	528	195600	540	194160	528	198360	564	200280	540	148920	42
May	143040	407	168960	451	159600	456	164400	516	167760	516	166320	540	182640	552	167880	552	139320	42
April	140040	438	166920	450	175800	444	163560	528	150720	516	187320	528	160800	552	169080	540		
Mar	148680	448	167760	443	141960	432	161040	504	172080	504	141240	492	159600	564	181920	528		
Feb	132360	433	152160	428	154560	444	158040	504	131880	504	158880	480	159840	552	154080	480		
Jan	154560	414	159960	439	161160	444	167520	528	168720	480	173280	480	179280	528	181680	480		

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec						
Nov						
Oct						
Sep						
Aug						
Jul						
Jun						
May						
April						
Mar						
Feb						
Jan						

Ocean Properties billing data (from FPL)

													1998 kWh	D				
Dec			160320	347	145080	361	158040	420	147240	408	156600	360	158471	398	140400	372	167040	384
Nov			165480	371	187440	395	190560	420	174120	432	170400	432	209040	480	196200	456	175920	420
Oct			198000	376	219840	384	206520	480	204480	432	195960	540	248040	480	214200	468	227160	456
Sep			181800	430	207240	432	222600	480	217200	504	227040	432	236880	516	227760	480	218160	456
Aug			217680	439	217080	444	230040	480	228480	444	221160	480	250200	540	237720	480	252840	456
Jul			196560	409	213720	432	207960	480	201120	468	193200	480	251520	516	195360	480	218040	468
Jun	191640	442	220800	414	204240	444	182280	444	190200	456	207240	444	229200	432	177360	384	208440	420
May	159000	365	151680	361	185040	480	161760	420	166200	396	152280	360	171000	420	169080	360		
April	133320	320	161400	391	165360	420	159960	432	144840	420	156600	416	157680	432	160080	360		
Mar	129480	293	137280	358	149160	396	152280	360	134760	324	146880	397	153840	384	138840	384		
Feb	119640	253	127440	355	144240	420	132120	420	123480	384	159600	376	141840	324	147720	408		
Jan	121920	259	138000	282	177720	420	166080	408	143160	348	163320	420	168360	408	140880	420		

	1995 kWh	D	1994 kWh	D	1993 kWh	D
Dec						
Nov						
Oct						
Sep						
Aug						
Jul						
Jun						
May						
April						
Mar						
Feb						
Jan						

Dillards Pt Charlotte billing data (from FPL)

	2004		2003		2002		2001		2000		1999						1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D					kWh	D
Dec			200640	646	190080	586	214080	600	211200	600	179760	540	197760	576	187440	576	177120	576
Nov			192000	617	197040	636	177360	600	191280	576	180000	552	185760	588	176400	576	194640	564
Oct			198240	636	212160	660	193200	648	200160	600	196320	588	181200	600	217680	600	181440	576
Sep			220320	655	221520	648	224160	624	212880	624	201360	648	205680	612	200160	612	192000	600
Aug			196800	636	213120	648	205680	648	228000	648	227760	612	204000	612	193920	624	189360	600
Jul			214800	641	198000	672	237840	624	213840	612	189360	588	200880	624	231120	648	210720	576
Jun			219120	655	205920	624	214800	624	217200	624	194160	600	213600	624	192240	648	190080	600
May	195360	672	197280	648	209040	648	190320	600	177360	600	183840	588	179040	600	180000	636	176400	576
April	193200	619	172320	612	172560	600	189360	612	186960	576	170160	564	167280	576	174720	600	166560	564
Mar	169440	590	177840	590	166560	600	175440	576	184560	552	149280	528	163200	564	194880	588	156000	540
Feb	177120	574	198000	569	196800	576	171840	564	165840	540	173520	540	173280	540	170400	552	146160	528
Jan	202080	554	183600	569	185760	600	201360	576	213600	552	179280	552	181920	564	181440	576	185520	528

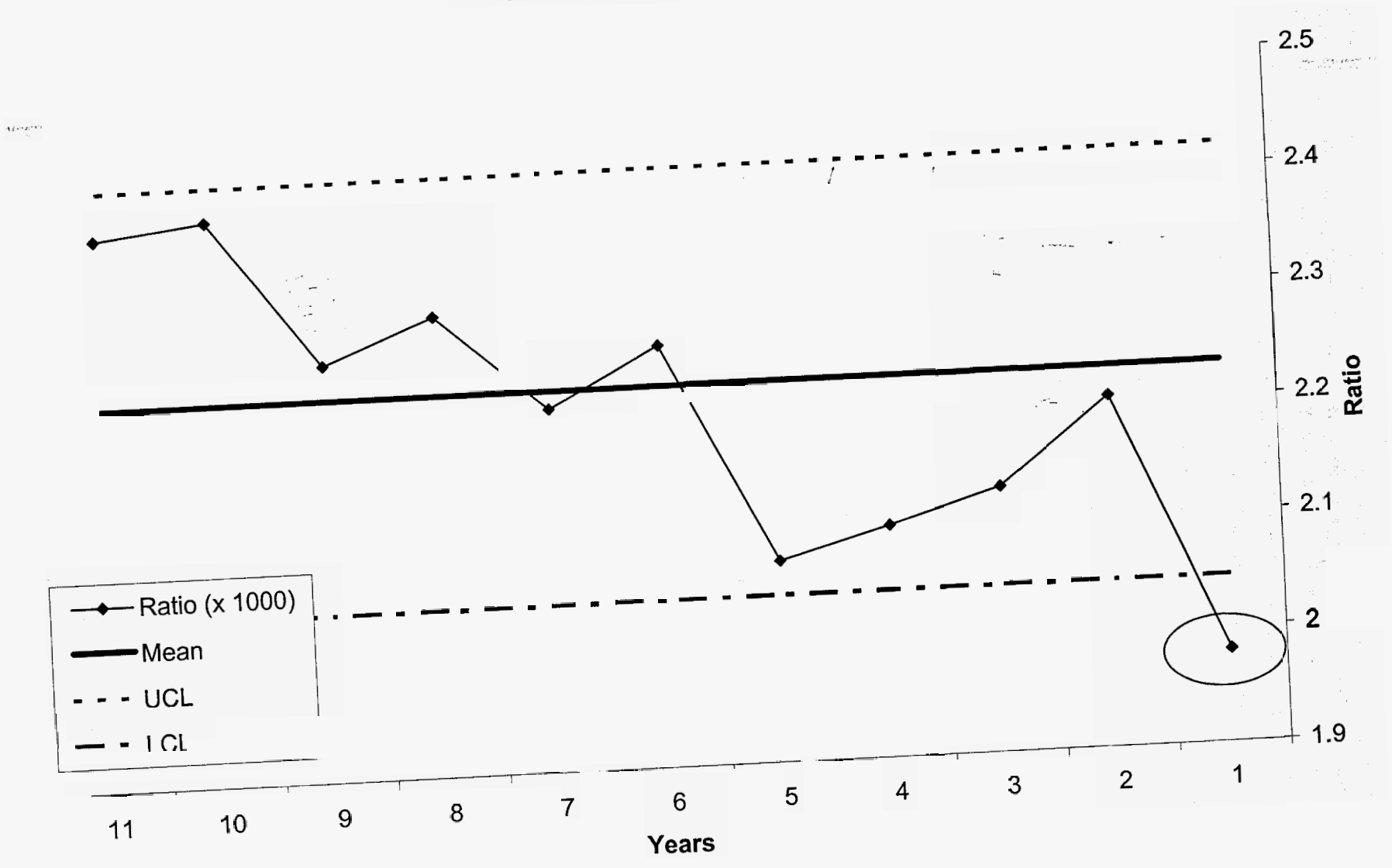
	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec	158640	528	176880	552	166560	540
Nov	189360	564	195120	576	184800	564
Oct	193920	576	203280	588	180480	588
Sep	197040	588	205200	600	187200	576
Aug	192720	576	180480	588	202320	588
Jul	223200	600	211200	600	190080	624
Jun	197040	600	194880	612	186720	588
May	184800	600	182160	588	180960	552
April	184320	564	183120	576	173520	564
Mar	161280	540	165840	552	163440	552
Feb	145200	528	152160	552		
Jan	186960	528	165360	528		

Dillards Coral Springs billing data (from FPL)

	2004		2003		2002		2001		2000						1997		1996	
	kWh	D	kWh	D	kWh	D	kWh	D	kWh	D					kWh	D	kWh	D
Dec			155160	450	155400	442	169560	480	165120	480	150600	420	162600	480	150120	516		
Nov			157200	458	147240	504	138120	480	154320	480	146640	492	165600	480	155760	540		
Oct			153360	474	164640	516	156840	540	160440	492	165240	504	151800	516				
Sep			164280	481	162120	492	186000	360	186240	480	187200	540	174600	516				
Aug			157200	481	187440	540	169800	600	187680	480	185160	516	200280	540				
Jul			190080	487	168120	480	200040	540	181440	480	180120	516	183960	544				
Jun			160800	484	155640	480	171840	540	176880	480	166080	492	180240	540				
May	139680	440	155160	493	158880	480	143520	480	150360	480	148320	480	156480	540				
April	129720	443	141480	468	132120	480	139800	540	144120	480	149400	480	168960	540				
Mar	139320	443	148080	496	128400	480	133320	480	144960	444	131040	420	137040	528				
Feb	153600	452	132600	445	127920	480	142080	464	144120	468	131280	420	140280	480				
Jan	166320	431	155760	438	160200	480	155040	480	186960	480	160200	480	183840	516				

	1995		1994		1993	
	kWh	D	kWh	D	kWh	D
Dec						
Nov						
Oct						
Sep						
Aug						
Jul						
Jun						
May						
April						
Mar						
Feb						
Jan						

Target SR 7 (Control Chart)

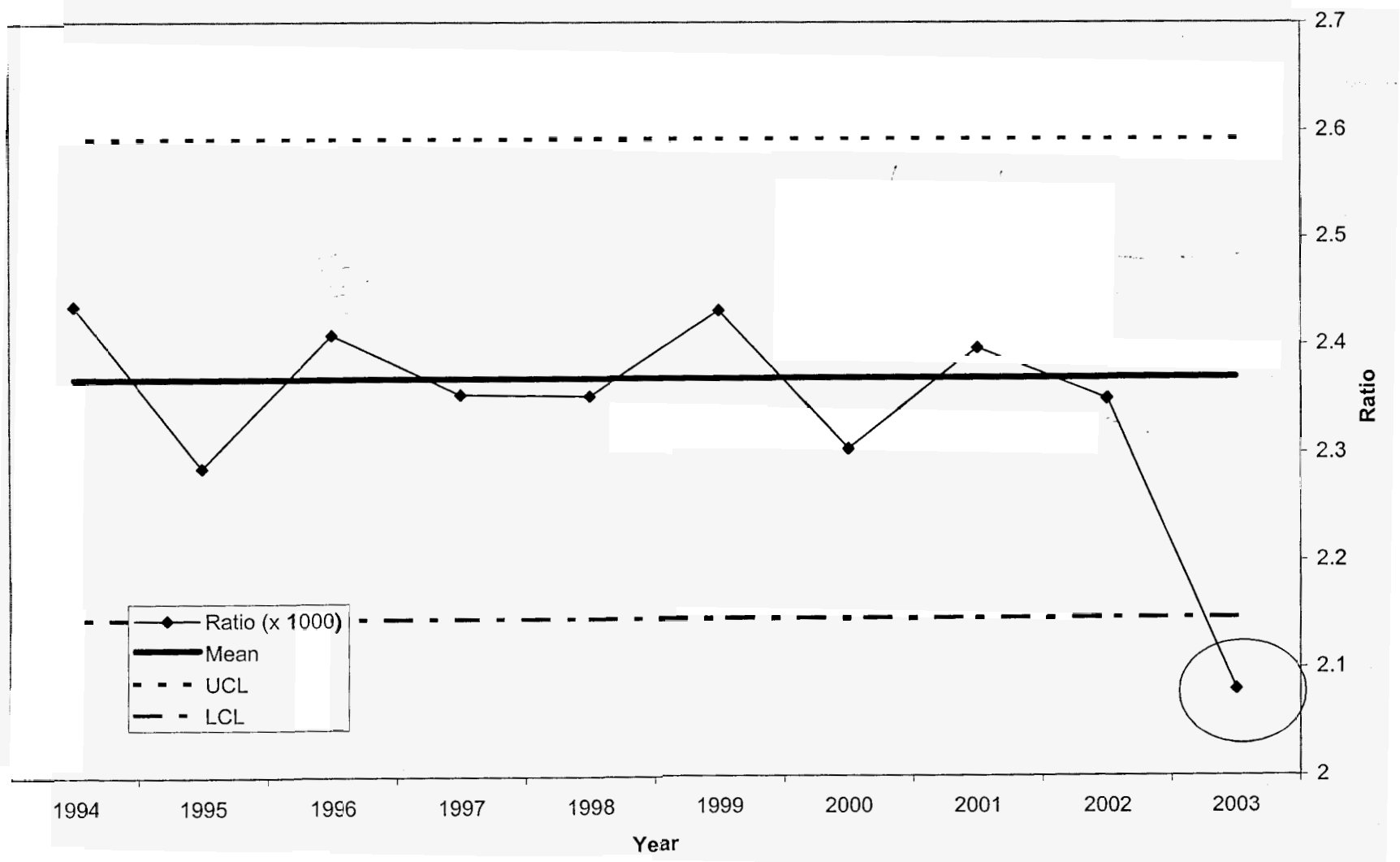


Customer Target - SR 7

Year	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	Moving Range
2003	1.98	2.23	2.42	2.04	
2002	2.20	2.23	2.42	2.04	0.070
2001	2.13	2.23	2.42	2.04	0.030
2000	2.10	2.23	2.42	2.04	0.030
1999	2.07	2.23	2.42	2.04	0.190
1998	2.26	2.23	2.42	2.04	0.050
1997	2.21	2.23	2.42	2.04	0.090
1996	2.30	2.23	2.42	2.04	0.040
1995	2.26	2.23	2.42	2.04	0.130
1004	2.39	2.23	2.42	2.04	0.010
1993	2.38	2.23	2.42	2.04	

Average	2.23	0.07
UCL	2.42	
LCL	2.04	

Target Congress Av Control Chart

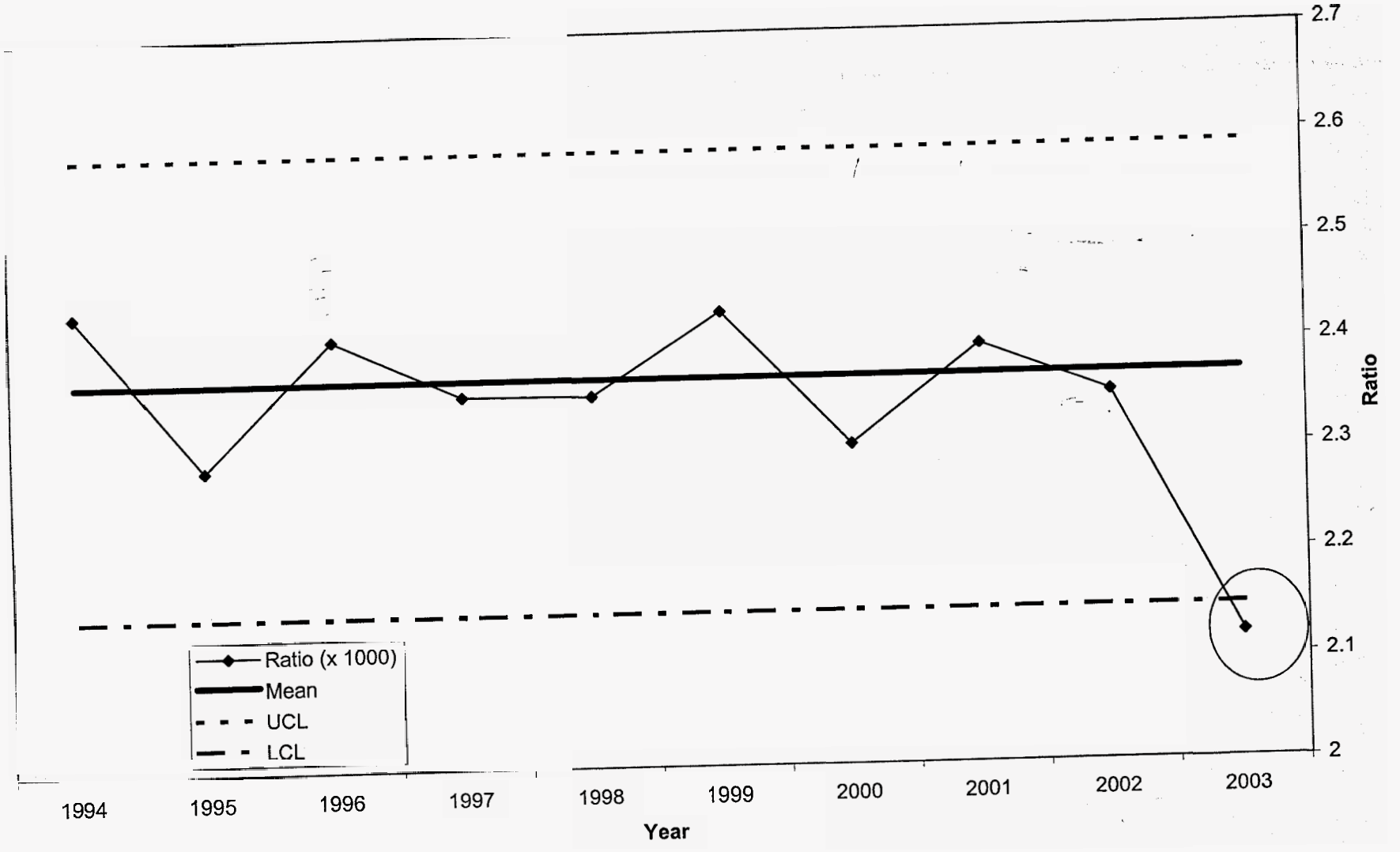


Target 1901 Congress

Year	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	Moving Range
2003	2.08	2.37	2.593	2.147	
2002	2.35	2.37	2.593	2.147	0.047
2001	2.40	2.37	2.593	2.147	0.093
2000	2.30	2.37	2.593	2.147	0.128
1999	2.43	2.37	2.593	2.147	0.078
1998	2.35	2.37	2.593	2.147	0.001
1997	2.36	2.37	2.593	2.147	0.055
1996	**2.41**	**2.37**	**2.593**	**2.147**	**0.122**
1995	2.29	2.37	2.593	2.147	0.149
1994	2.44	2.37	2.593	2.147	

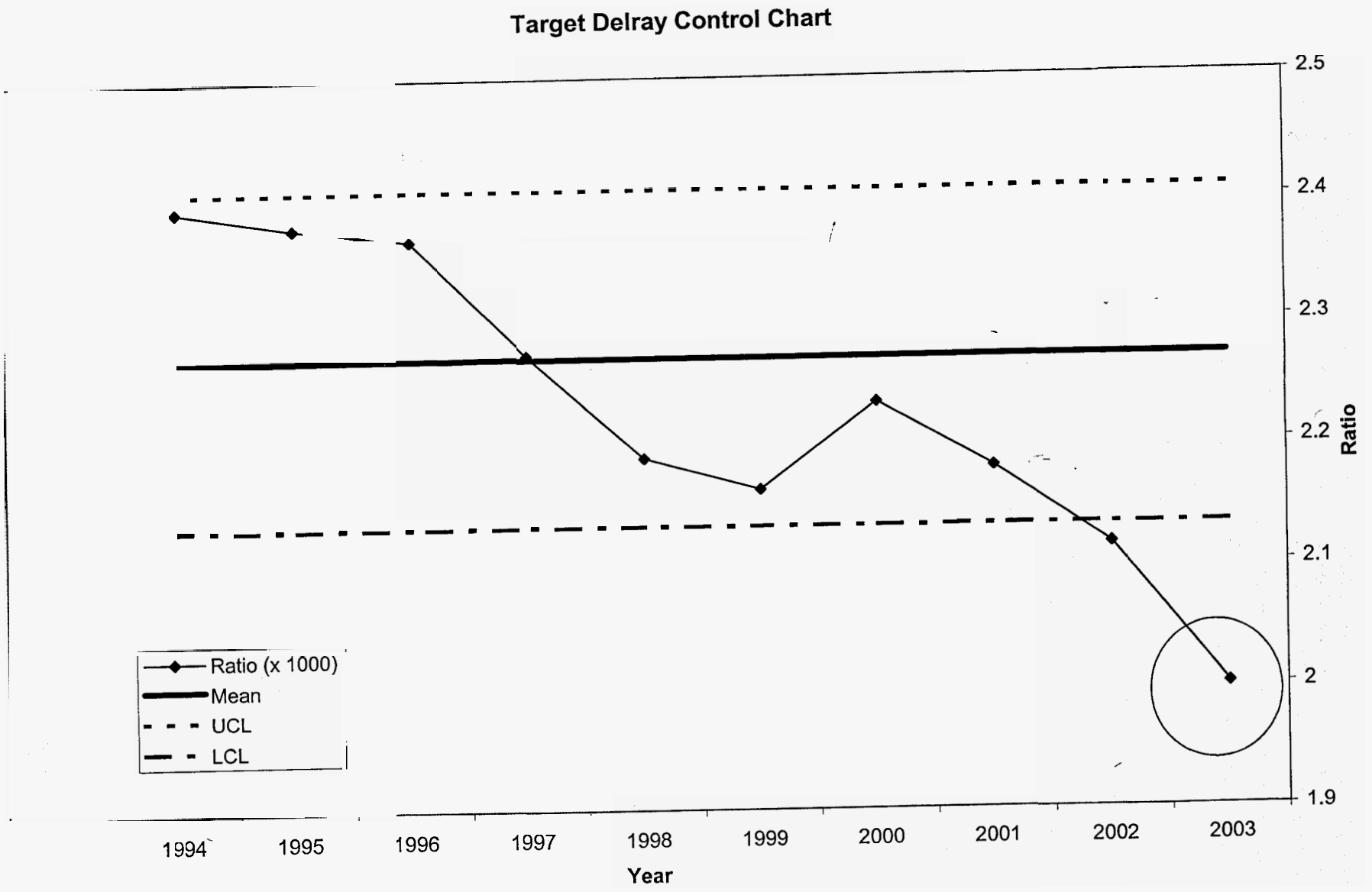
2.37	
MR BAR	0.084
UCL	2.593
LCL	2.147

Target Bradenton Control Chart



Target 14 St. Bradenton

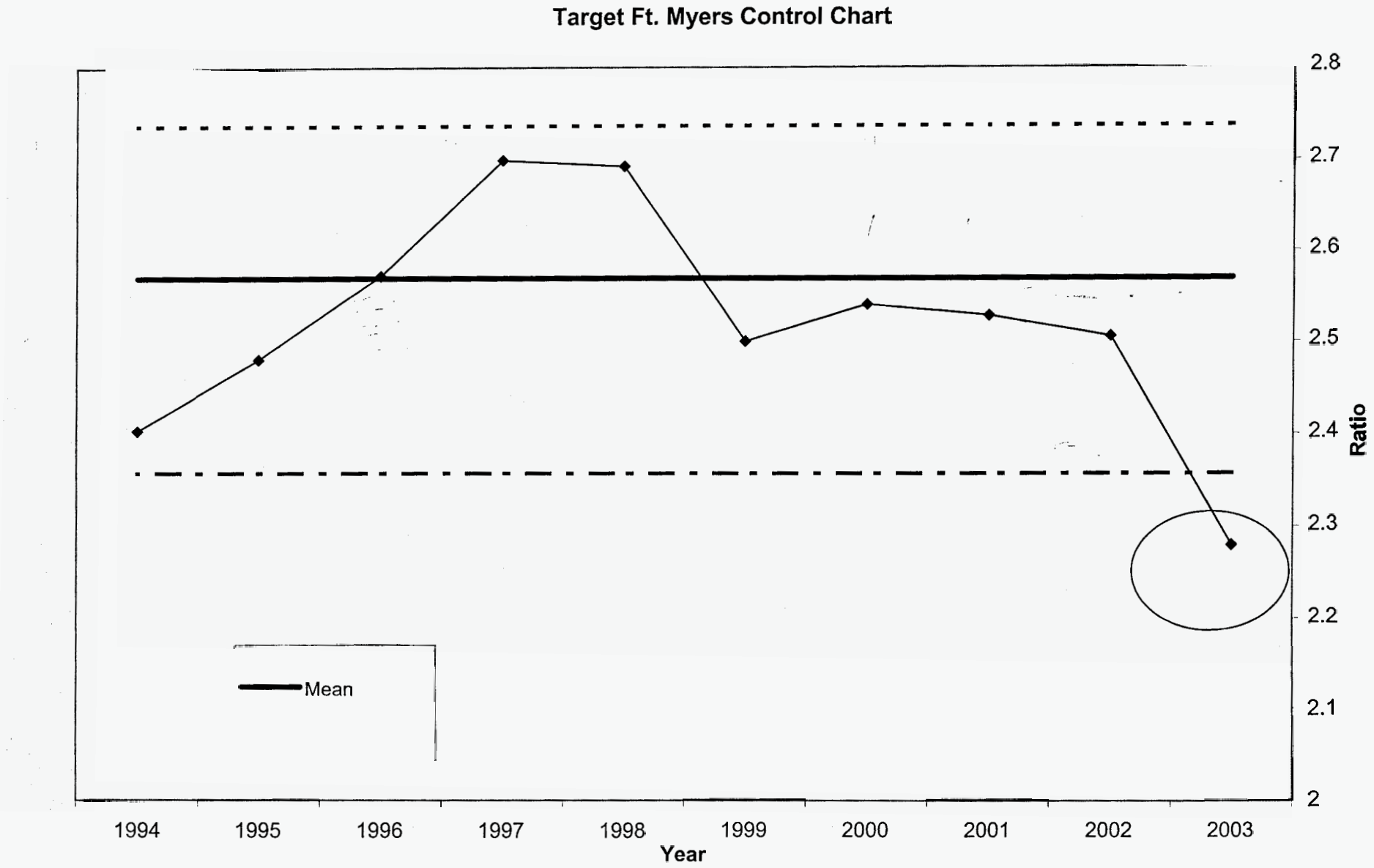
Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2.12	2.37	2.588	2.147	
2002	2.35	2.37	2.588	2.147	0.047
2001	2.40	2.37	2.588	2.147	0.093
2000	2.30	2.37	2.588	2.147	0.128
1999	2.43	2.37	2.588	2.147	0.078
1998	2.35	2.37	2.588	2.147	0.001
1997	2.36	2.37	2.588	2.147	0.055
1996	2.41	2.37	2.588	2.147	0.122
1995	2.29	2.37	2.588	2.147	0.149
1994	2.44	2.37	2.588	2.147	
		2.37			0.084
				UCL	2.588
				LCL	2.147


Target Delray Control Chart
2.5
2.4
2.3
2.2
2.1
2
1.9
Ratio
Ratio (x 1000)
Mean
UCL
LCL
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Year

Customer Target Delray

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2	2.27	2.408	2.132	
2002	2.12	2.27	2.408	2.132	0.064
2001	2.18	2.27	2.408	2.132	0.053
2000	2.23	2.27	2.408	2.132	0.071
1999	2.16	2.27	2.408	2.132	0.026
1998	2.19	2.27	2.408	2.132	0.085
1997	2.27	2.27	2.408	2.132	0.094
1996	2.37	2.27	2.408	2.132	0.011
1995	2.38	2.27	2.408	2.132	0.015
1994	2.39	2.27	2.408	2.132	

	2.25		0.052
		UCL	2.394
		LCL	2.115

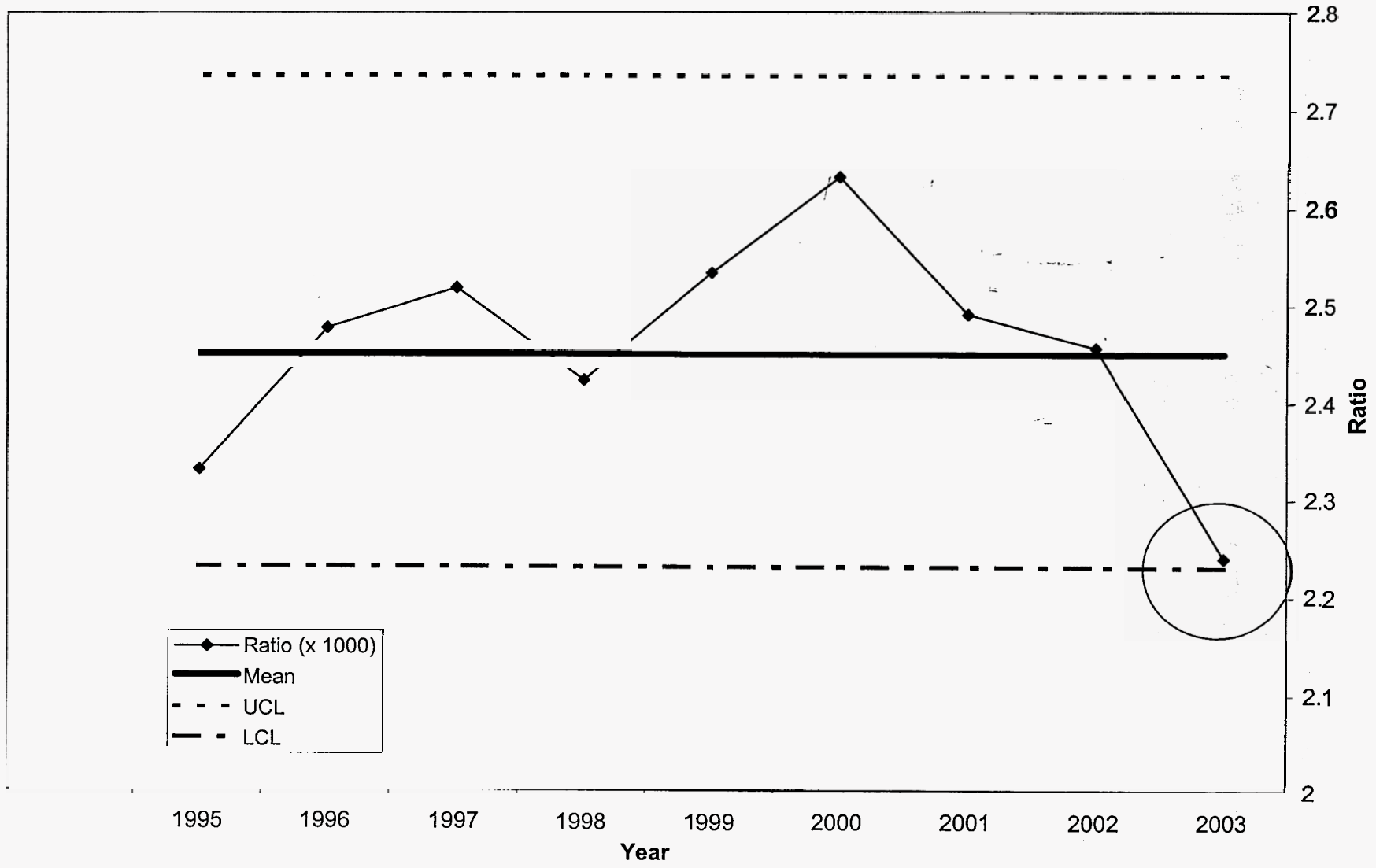

Target Ft. Myers Control Chart
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
Ratio
Mean
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Year

Customer Target Ft. Meyers

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL		
2003	2.28	2.57	2.737	2.357		
2002	2.51	2.57	2.737	2.357	0.023	
2001	2.53	2.57	2.737	2.357	0.012	
2000	2.54	2.57	2.737	2.357	0.040	
1999	2.50	2.57	2.737	2.357	0.193	
1998	2.69	2.57	2.737	2.357	0.007	
1997	2.70	2.57	2.737	2.357	0.128	Note: the raw data point for 5/21/97 was removed in calculating the ratio.
1996	2.57	2.57	2.737	2.357	0.092	
1995	2.48	2.57	2.737	2.357	0.077	
1994	2.40	2.57	2.737	2.357		

	2.55		0.072
		UCL	2.737
		LCL	2.357

Target Hollywood Control Chart



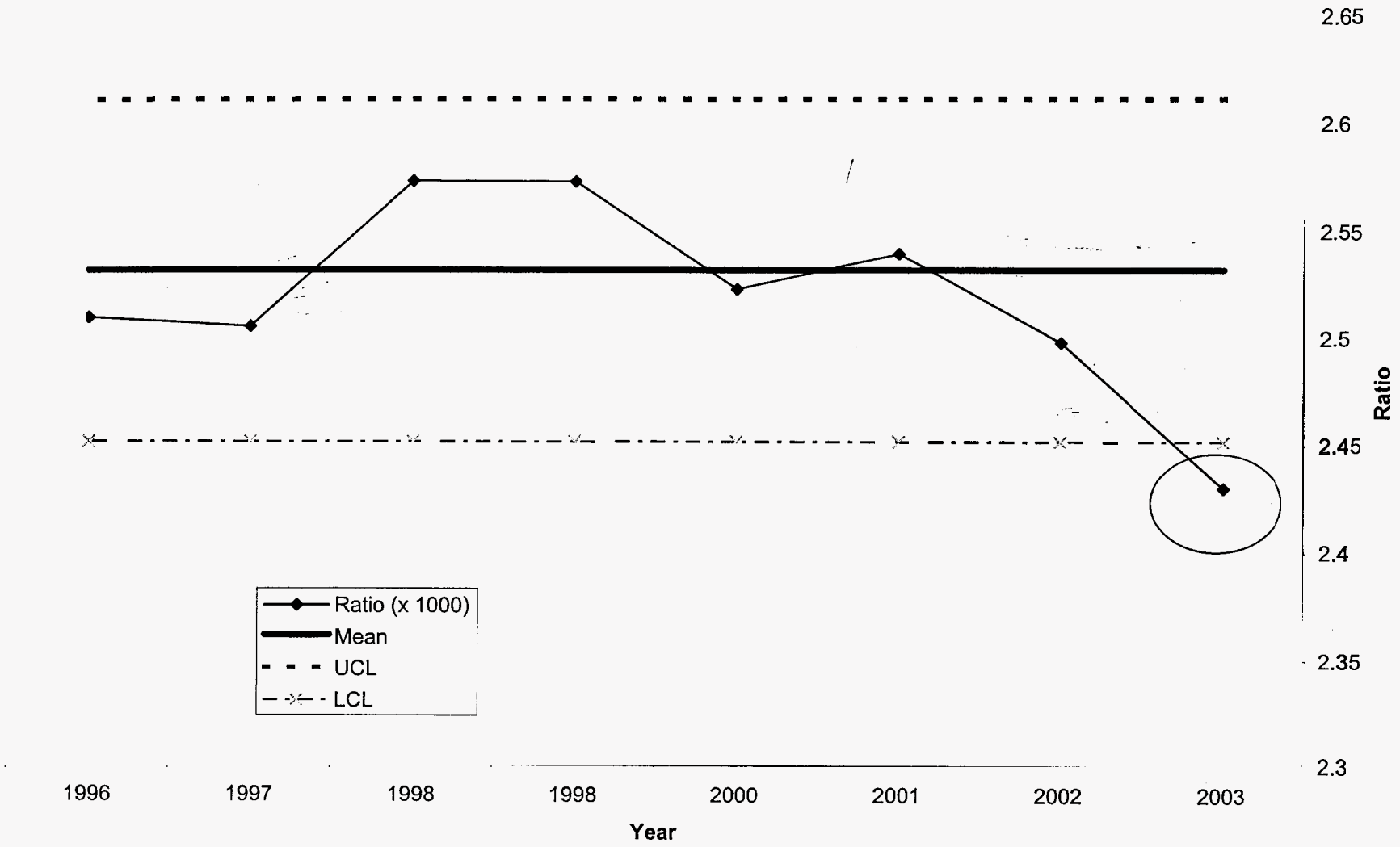
Customer Target Hollywood

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2.24	2.45	2.735	2.230	
2002	2.46	2.45	2.735	2.230	0.034
2001	2.49	2.45	2.735	2.230	0.141
2000	2.63	2.45	2.735	2.230	0.099
1999	2.53	2.45	2.735	2.230	0.110
1998	2.42	2.45	2.735	2.230	0.093
1997	2.52	2.45	2.735	2.230	0.040
1996	**2.48**	2.45	2.735	2.230	0.146
1995	2.33	2.45	2.735	2.230	

Note: year 1994 data removed as outlier. In that year, there are 7 of 12 monthly readings at 480, enen though consumpton varies from approx 180k to 260 k

	2.48		0.095
		UCL	2.735
		LCL	2.230

Target Port Charlotte Control Chart

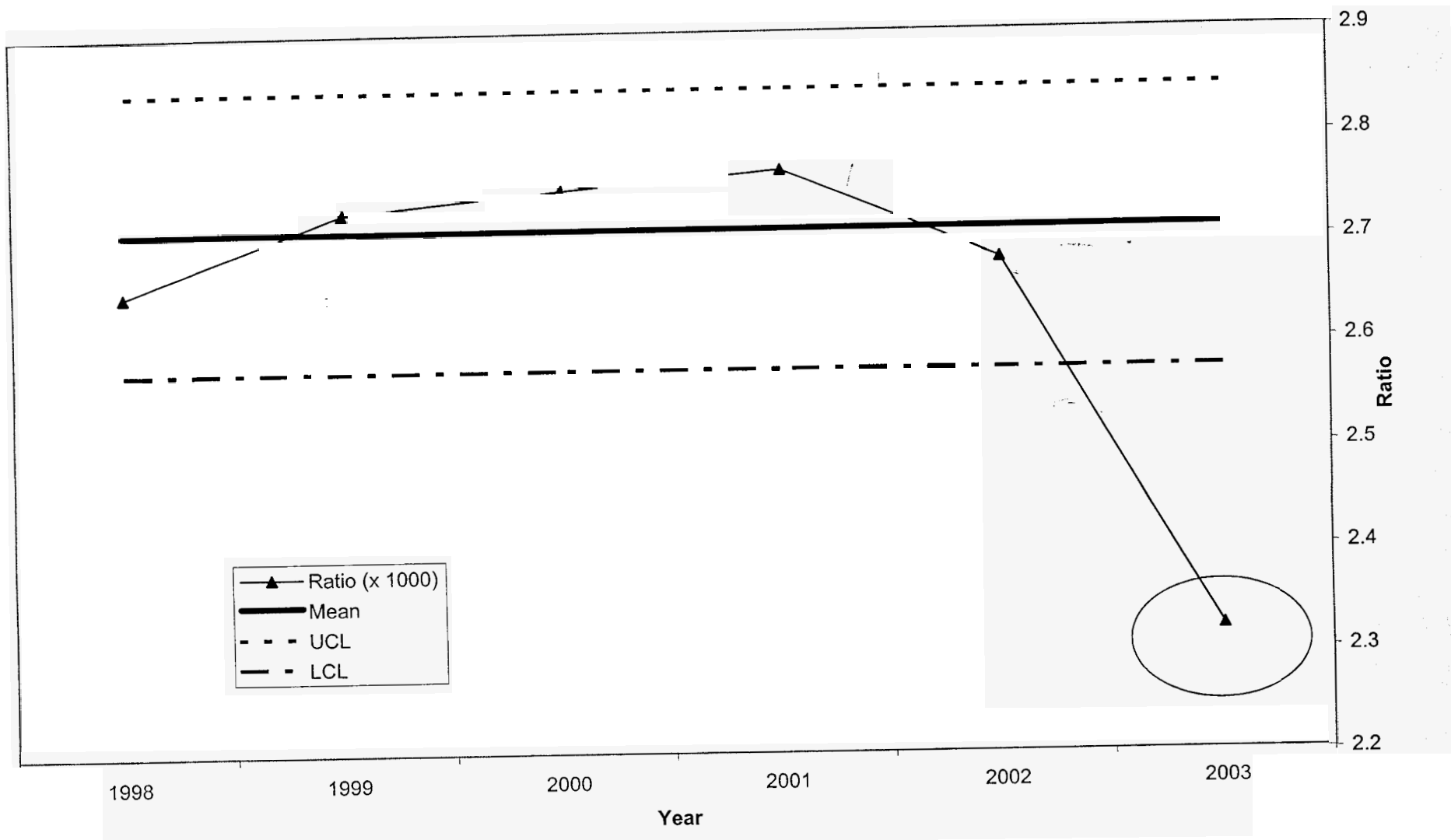


Customer Target Pt. Charlotte

Refund	Demand/Consump. Ratio (x 1000)		Mean	UCL	LCL	
2003		2.43	2.49	2.631	2.349	
2002		2.50	2.49	2.631	2.349	0.042
2001		2.54	2.49	2.631	2.349	0.017
2000		2.52	2.49	2.631	2.349	0.050
1998		2.57	2.49	2.631	2.349	0.000
1998		2.57	2.49	2.631	2.349	0.068
1997		2.51	2.49	2.631	2.349	0.004
1996		2.51	2.49	2.631	2.349	0.181
1995		2.33	2.49	2.631	2.349	0.065
1994		2.39	2.49	2.631	2.349	
1995						

	2.49	0.053
UCL		2.631
LCL		2.349

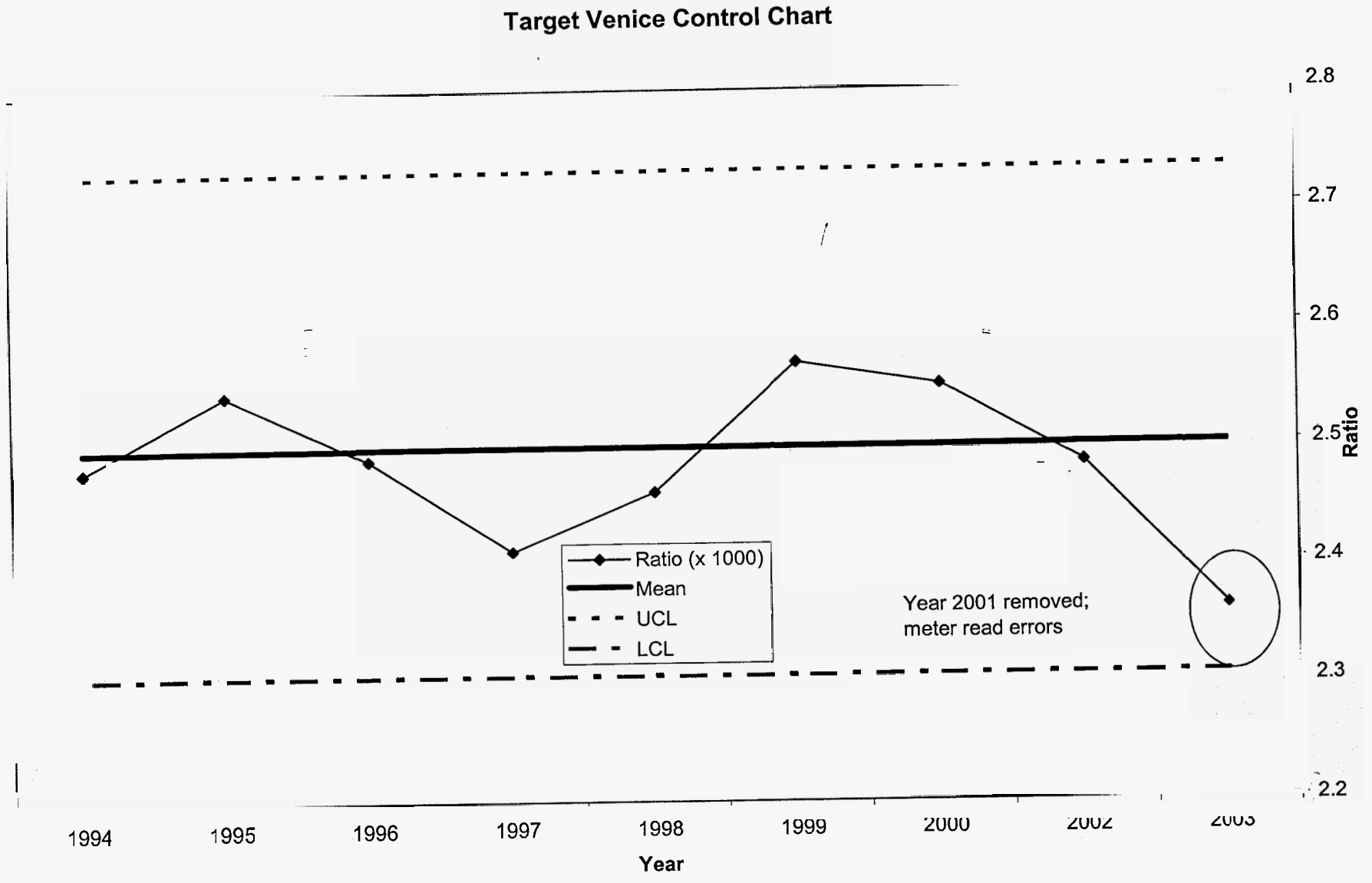
Target Fruitville Control Chart



Customer Target Fruitville Sarasota

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2.322	2.71	2.846	2.574	
2002	2.68	2.71	2.846	2.574	0.087
2001	2.77	2.71	2.846	2.574	0.019
2000	2.75	2.71	2.846	2.574	0.021
1999	2.73	2.71	2.846	2.574	0.078
1998	2.65	2.71	2.846	2.574	
1999					
2000					
2001					
2002					
2003					

	2.71		0.051
		UCL	2.846
		LCL	2.574

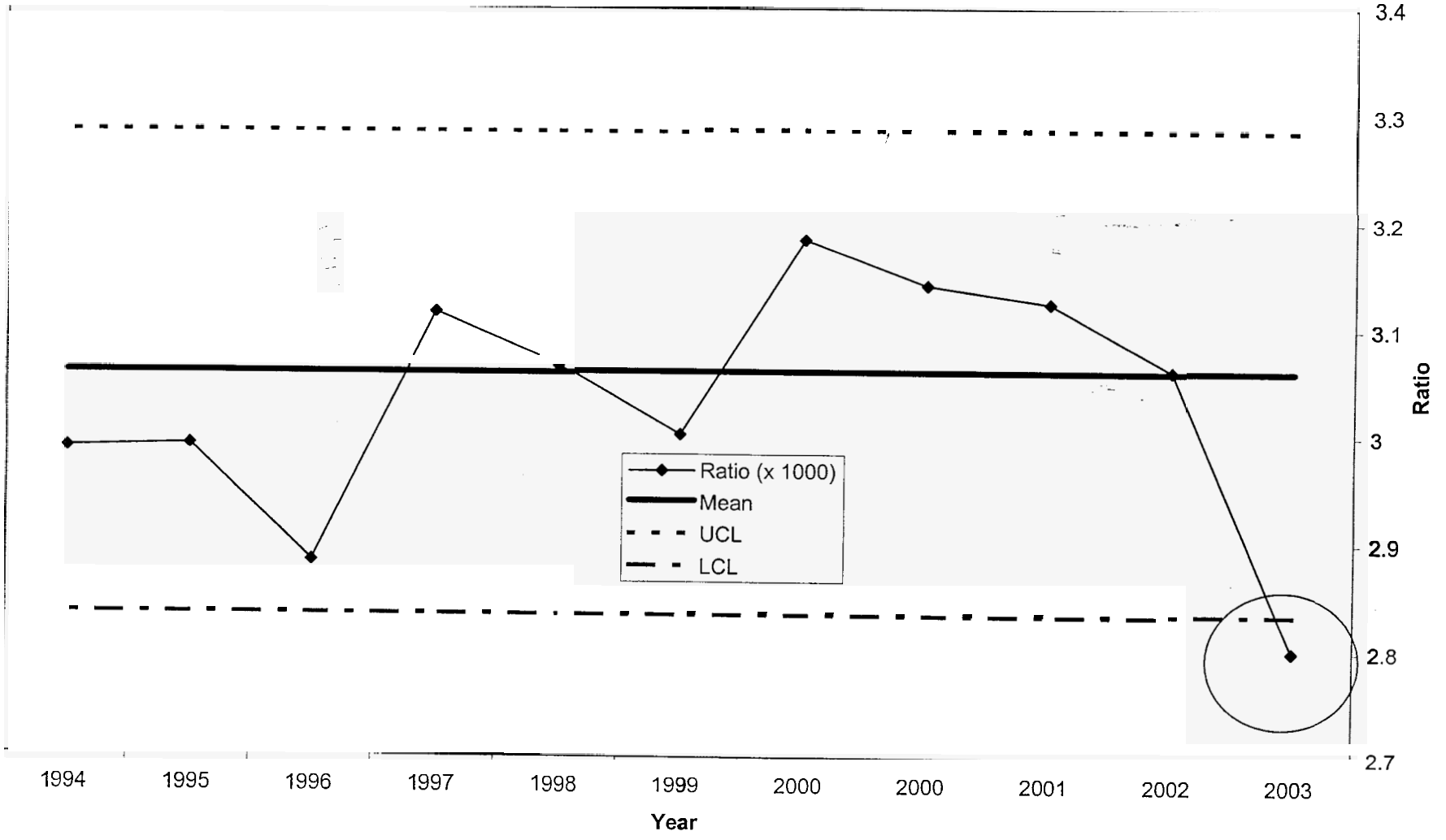

Target Venice Control Chart
2.8
2.7
2.6
2.5
2.4
2.3
2.2
Ratio
Ratio (x 1000)
Mean
UCL
LCL
Year 2001 removed;
meter read errors
1994
1995
1996
1997
1998
1999
2000
2002
2003
Year

Customer target Venice

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2.36	2.52	2.732	2.305	
2002	2.48	2.52	2.732	2.305	0.169
2001	2.65	2.52	2.732	2.305	0.103
2000	2.55	2.52	2.732	2.305	0.019
1999	2.57	2.52	2.732	2.305	0.108
1998	2.46	2.52	2.732	2.305	0.050
1997	2.41	2.52	2.732	2.305	0.078
1996	2.49	2.52	2.732	2.305	0.056
1995	2.54	2.52	2.732	2.305	0.063
1994	2.48	2.52	2.732	2.305	

	2.52		0.081
		UCL	2.735
		LCL	2.305

JC Penney Bradenton Control Chart

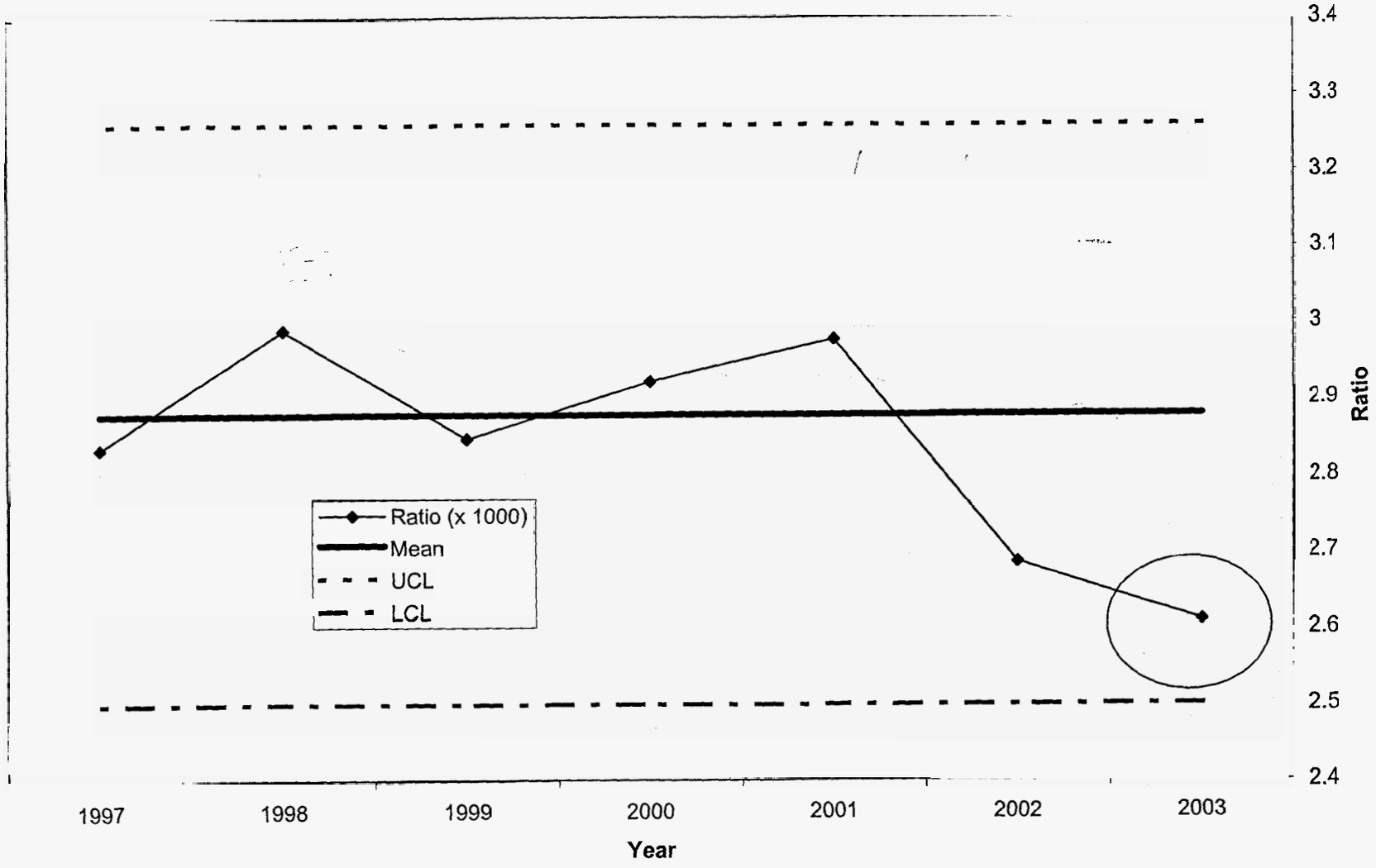


Customer JC Penney Bradenton

Refund	Demand/Consump. Ratio (x 10	Mean	UCL	LCL	
2003	2.8	3.06	3.286	2.834	
2002	3.06	3.06	3.286	2.834	0.063
2001	3.12	3.06	3.286	2.834	0.017
2000	3.14	3.06	3.286	2.834	0.042
2000	3.18	3.06	3.286	2.834	0.182
1999	3.00	3.06	3.286	2.834	0.065
1998	3.07	3.06	3.286	2.834	0.049
1997	3.12	3.06	3.286	2.834	0.231
1996	2.88	3.06	3.286	2.834	0.108
1995	2.99	3.06	3.286	2.834	0.003
1994	2.99	3.06	3.286	2.834	

	3.06		0.085
		UCL	3.286
		LCL	2.834

JC Penney Naples Control Chart

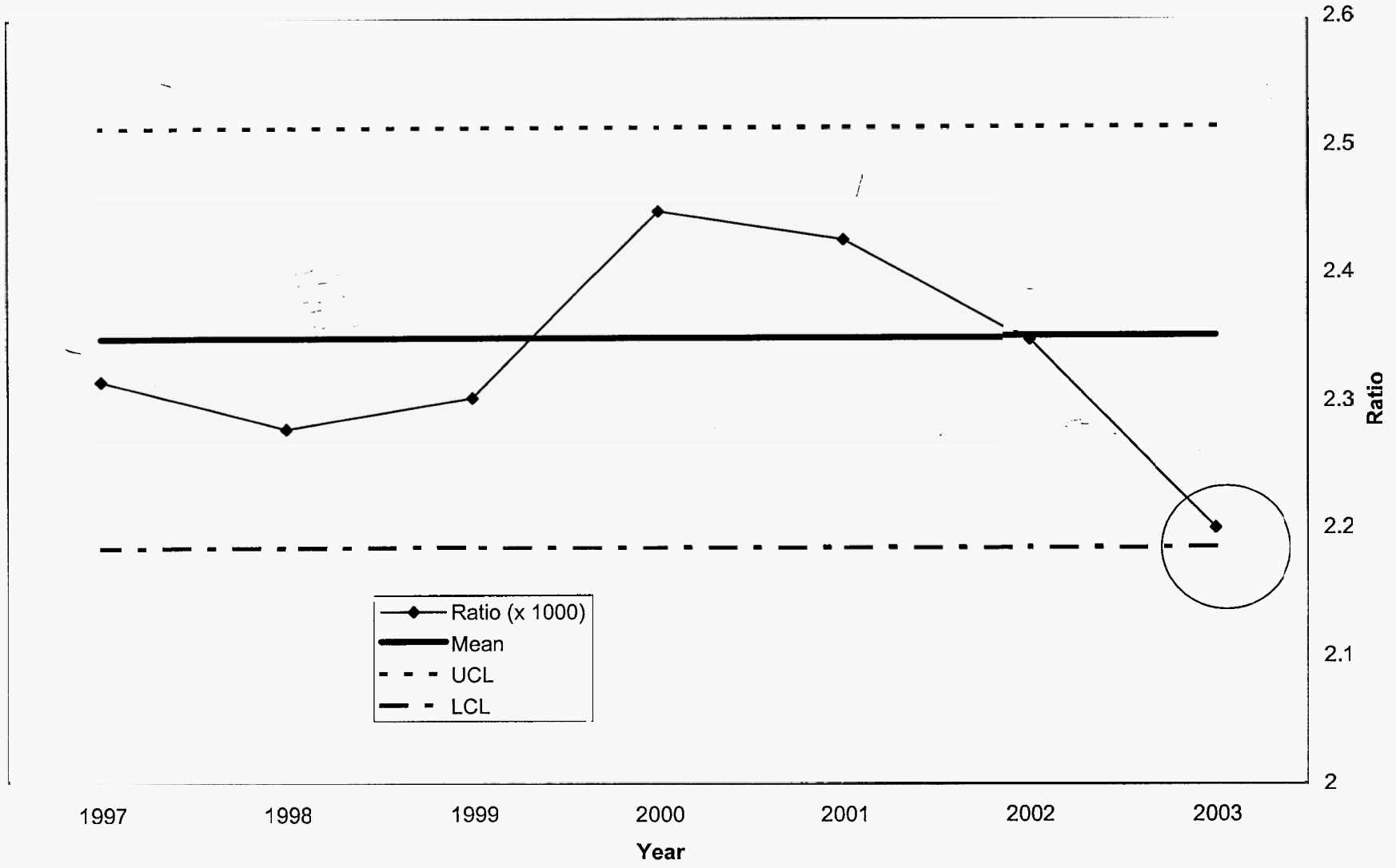


Customer JC Penney Naples

Refund	Demand/Consump. Ratio (x 10	Mean	UCL	LCL		
2003	2.61	2.88	3.26	2.5		
2002	2.69	2.88	3.26	2.5	0.292	
2001	2.98	2.88	3.26	2.5	0.054	
2000	2.92	2.88	3.26	2.5	0.075	
1999	2.85	2.88	3.26	2.5	0.142	
1998	2.99	2.88	3.26	2.5	0.154	
1997	2.84	2.88	3.26	2.5		

			0.143
	2.88	UCL	3.260
		LCL	2.500

Ocean Properties Control Chart

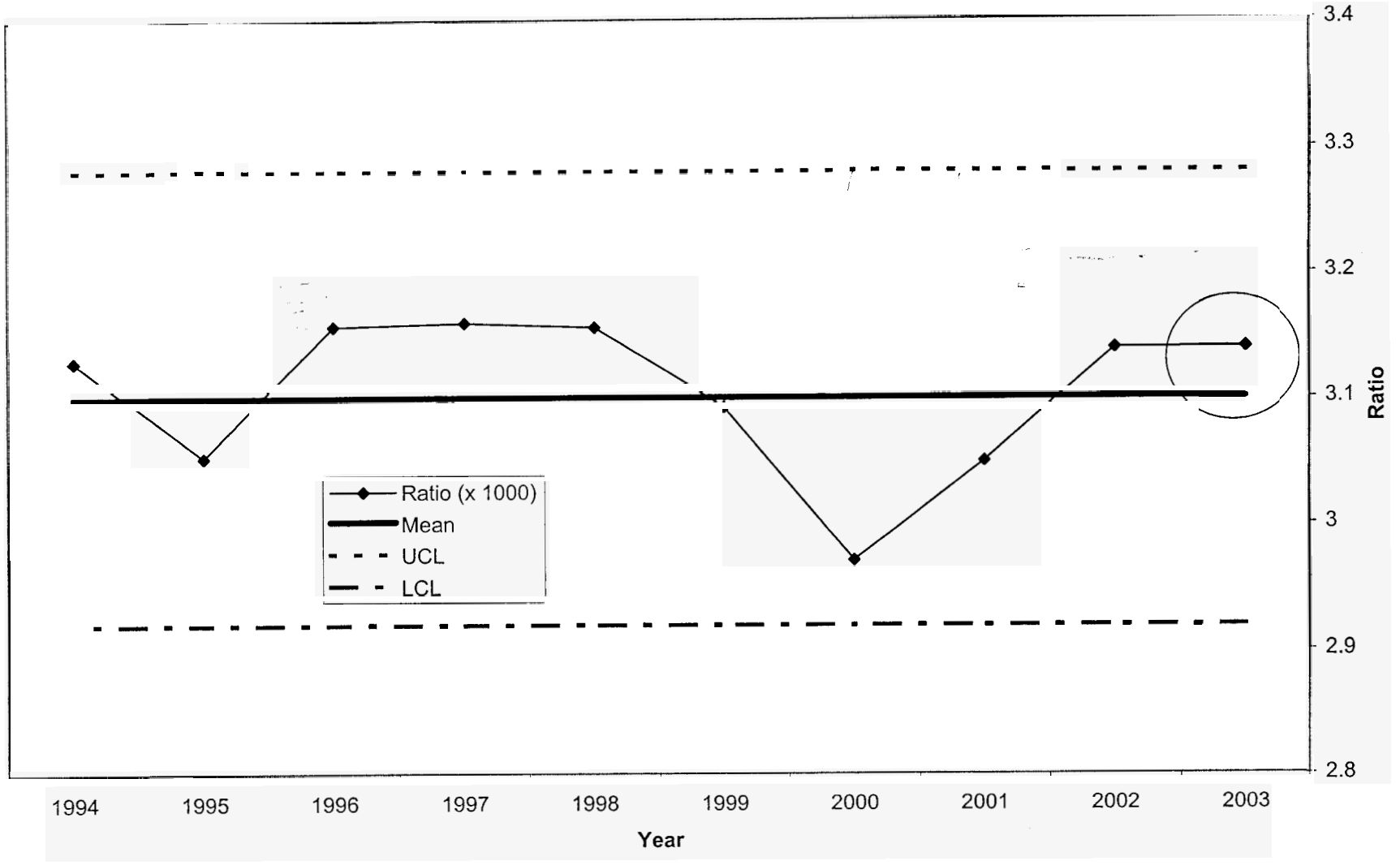


Customer Ocean Properties

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2.2	2.35	2.515	2.185	
2002	2.35	2.35	2.515	2.185	0.080
2001	2.43	2.35	2.515	2.185	0.022
2000	2.45	2.35	2.515	2.185	0.146
1999	2.30	2.35	2.515	2.185	0.024
1998	2.28	2.35	2.515	2.185	0.038
1997	2.32	2.35	2.515	2.185	

	2.35		0.062
		UCL	2.515
		LCL	2.185

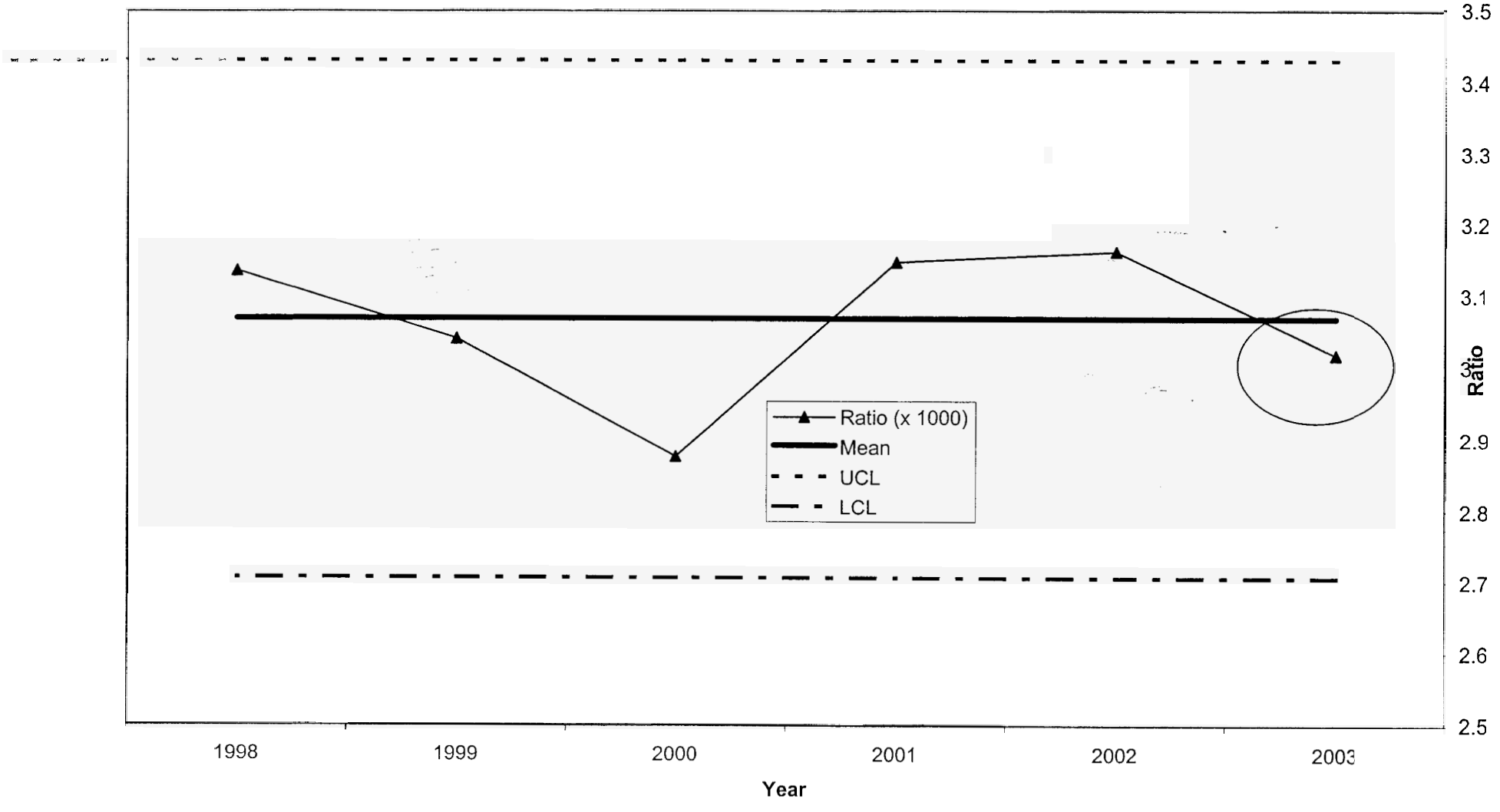
Dillards Pt Charlotte Control Chart



Customer Dillards Port Charlotte

Refund	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	3.14	3.1	3.281	2.919	
2002	3.14	3.1	3.281	2.919	0.090
2001	3.05	3.1	3.281	2.919	0.079
2000	2.97	3.1	3.281	2.919	0.122
1999	3.09	3.1	3.281	2.919	0.064
1998	3.16	3.1	3.281	2.919	0.004
1997	3.16	3.1	3.281	2.919	0.003
1996	3.16	3.1	3.281	2.919	0.104
1995	3.05	3.1	3.281	2.919	0.076
1994	3.13	3.1	3.281	2.919	
	3.10				0.068
				UCL	3.281
				LCL	2.919

Dillards coral Spgs Control Chart



Dillards Coral springs

	Demand/Consump. Ratio (x 1000)	Mean	UCL	LCL	
2003	2	3.07	3.432	2.708	
2002	3.16	3.07	3.432	2.708	0.015
2001	3.15	3.07	3.432	2.708	0.271
2000	2.88	3.07	3.432	2.708	0.164
1999	3.04	3.07	3.432	2.708	0.095
1998	3.14	3.07	3.432	2.708	

	3.07		0.136
		UCL	3.432
		LCL	2.708

CONTROL CHART SUMMARY

Customer	Location	Control Status	
Target	SR 7	Out of Control	
Target	1901 Congress	Out of Control	
Target	14th St. Bradenton	Out of Control	
Target	Delray	Out of Control	
Target	Ft. Meyers	Out of Control	
Target	Hollywood	In Control	1
Target	Port Charlotte	Out of Control	
Target	Fruitville - Sarasota	Out of Control	
Target	Venice	In Control	
JC Penney	Bradenton	Out of Control	
JC Penney	Naples	In Control	
Ocean Properties	Bradenton	In Control	1
Dillards	Port Charlotte	In Control	
Dillards	Coral Springs	In Control	

Note 1: The last data point is close to the LCL, but within the control limit