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BEFORE THE  
PUBLIC UTILITIES COMMISSION OF OHIO

WEST OHIO GAS COMPANY ) CASE NO. 96-221-GA-GCR

REBUTTAL TESTIMONY OF  
THOMAS S. CATLIN AND JEROME D. MIERZWA

ON BEHALF OF  
~~THE STAFF OF THE~~  
PUBLIC UTILITY COMMISSION OF OHIO

FEBRUARY 1997

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**EXETER**

Associates, Inc.

12510 Prosperity Drive  
Suite 350  
Silver Spring, MD 20904

BEFORE THE  
PUBLIC UTILITIES COMMISSION OF OHIO

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THOMAS S. CATLIN AND JEROME D. MIERZWA

**I. Introduction**

1   Q.        WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

2   A.        Our names are Thomas S. Catlin and Jerome D. Mierzwa. Each of us is a principal with  
3       Exeter Associates, Inc. Our offices are located at 12510 Prosperity Drive, Silver Spring,  
4       Maryland 20904. Exeter is a firm of consulting economists specializing in issues  
5       pertaining to public utilities.

6   Q.        MR. CATLIN, PLEASE DESCRIBE YOUR EDUCATIONAL BACK-  
7       GROUND.

8   A.        I hold a Master of Science Degree in Water Resources Engineering and Management  
9       from Arizona State University (1976). Major areas of study for this degree included  
10      pricing policy, economics, and management. I received my Bachelor of Science Degree  
11      in Physics and Math from the State University of New York at Stony Brook in 1974. I  
12      have also completed graduate courses in financial and management accounting.

13  Q.        MR. CATLIN, WOULD YOU PLEASE DESCRIBE YOUR PROFES-  
14      SIONAL EXPERIENCE?

15  A.        From August 1976 until June 1977, I was employed by Arthur Beard Engineers in  
16      Phoenix, Arizona, where, among other responsibilities, I conducted economic feasibility,

1 financial and implementation analyses in conjunction with utility construction projects. I  
2 also served as project engineer for two utility valuation studies.

3 From June 1977 until September 1981, I was employed by Camp Dresser & McKee,  
4 Inc. Prior to transferring to the Management Consulting Division of CDM in April 1978,  
5 I was involved in both project administration and design. My project administration  
6 responsibilities included budget preparation and labor and cost monitoring and forecast-  
7 ing. As a member of CDM's Management Consulting Division, I performed cost of  
8 service, rate, and financial studies on approximately 15 municipal and private water,  
9 wastewater and storm drainage utilities. These projects included: determining total costs  
10 of service; developing capital asset and depreciation bases; preparing cost allocation  
11 studies; evaluating alternative rate structures and designing rates; preparing bill analyses;  
12 developing cost and revenue projections; and preparing rate filings and expert testimony.

13 In September 1981, I accepted a position as a utility rates analyst with Exeter  
14 Associates, Inc. I became a principal and vice-president of the firm in 1984. Since  
15 joining Exeter, I have continued to be involved in the analysis of the operations of public  
16 utilities, with particular emphasis on utility rate regulation. I have been extensively  
17 involved in the review and analysis of utility rate filings, as well as other types of  
18 proceedings before state and federal regulatory authorities. My work in utility rate filings  
19 has focused on revenue requirements issues, but has also addressed service cost and rate  
20 design matters. I have also been involved in analyzing affiliate relations, alternative  
21 regulatory mechanisms, and regulatory restructuring issues. This experience has involved  
22 electric, telecommunications and water utilities, as well as natural gas transmission and  
23 distribution companies.

1 Q. MR. CATLIN, HAVE YOU PREVIOUSLY TESTIFIED IN REGULA-  
2 TORY PROCEEDINGS ON UTILITY RATES?

3 A. Yes. I have previously presented testimony on more than 125 occasions before the  
4 Federal Energy Regulatory Commission and the public utility commissions of Arizona,  
5 California, Colorado, Delaware, the District of Columbia, Florida, Idaho, Illinois,  
6 Indiana, Kentucky, Louisiana, Maine, Maryland, Montana, Nevada, New Jersey, Okla-  
7 homa, Pennsylvania, Rhode Island, Utah, Virginia and West Virginia, as well as before  
8 this Commission. I have also filed rate case evidence by affidavit with the Connecticut  
9 Department of Public Utility Control.

10 Q. MR. MIERZWA, PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND  
11 AND EXPERIENCE.

12 A. I graduated from Canisius College in Buffalo, New York, in 1981 with a Bachelor of  
13 Science Degree in Marketing. In 1985, I received a Master's Degree in Business  
14 Administration with a concentration in finance, also from Canisius College. In July  
15 1986, I joined National Fuel Gas Distribution Corporation ("NFG Distribution") as a  
16 Management Trainee in the Research and Statistical Services Department ("RSS"). I was  
17 promoted to Supervisor RSS in January 1987. While employed with NFG Distribution, I  
18 conducted various financial and statistical analyses related to the company's market  
19 research activity and state regulatory affairs. In April 1987, as part of a corporate  
20 reorganization, I was transferred to National Fuel Gas Supply Corporation's ("NFG  
21 Supply's") rate department where my responsibilities included utility cost of service and  
22 rate design analysis, expense and revenue requirement forecasting and activities related to  
23 federal regulation. I was also responsible for preparing NFG Supply's Purchase Gas  
24 Adjustment ("PGA") filings and developing interstate pipeline and spot market supply

1 gas price projections. These forecasts were utilized for internal planning purposes as well  
2 as in NFG Distribution's purchased gas cost proceedings.

3 In April 1990, I accepted a position as a Utility Analyst with Exeter Associates, Inc.  
4 In December 1992, I was promoted to Senior Regulatory Analyst. Effective April 1,  
5 1996, I became a principal of Exeter Associates. Since joining Exeter Associates, I have  
6 specialized in evaluating the gas purchasing practices and policies of natural gas utilities,  
7 utility class cost of service analysis and rate design analysis, sales and rate forecasting,  
8 performance-based incentive regulation and revenue requirement analysis.

9 Q. MR. MIERZWA, HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY  
10 PROCEEDINGS ON UTILITY RATES?

11 A. Yes. I have provided testimony on more than three dozen occasions in proceedings  
12 before the Federal Energy Regulatory Commission ("FERC"), and the Public Service  
13 Commissions of Georgia, Illinois, Indiana, Louisiana, Montana, Nevada, Pennsylvania  
14 and Rhode Island, as well as before this Commission.

15 Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

16 A. We are testifying on behalf of the Staff of the Public Utilities Commission of Ohio.

17 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

18 A. Exeter Associates was selected by the Public Utilities Commission of Ohio ("PUCO" or  
19 "Commission") to conduct a management performance audit of the gas purchasing  
20 practices and policies of the West Ohio Gas Company ("West Ohio" or "the Company").  
21 Our conclusions and recommendations concerning West Ohio's gas purchasing practices  
22 and policies were presented in a report submitted to the PUCO in November 1996.  
23 Through direct testimony filed on January 10, 1997 by Company witnesses John M.  
24 Harris, Gregory W. Theirl and Jeffrey A. Murphy, West Ohio expressed its disagreement  
25 with several of the recommendations included in our audit report. The primary purpose

1 of our rebuttal testimony is to respond to the issues raise by West Ohio in its direct  
2 testimony. Our rebuttal testimony also addresses limited aspects of the testimony of Mr.  
3 Frank J. Hollewa who submitted testimony in the instant proceeding on behalf of the  
4 Office of Ohio Consumers' Counsel ("OCC") on January 21, 1997.

5 Q. BRIEFLY SUMMARIZE THE AUDIT REPORT RECOMMENDATIONS AD-  
6 DRESSED BY THE COMPANY IN ITS DIRECT TESTIMONY.

7 A. The Company's direct testimony addresses our recommendation to adjust GCR custom-  
8 ers' rates to reflect the elimination of costs associated with high priced spot market gas  
9 purchased during February 1996 to accommodate the delivery deficiencies of transporta-  
10 tion customers. The Company also addresses our recommendation to adjust GCR  
11 customers' rates to exclude costs associated with reserving interstate pipeline capacity  
12 which is utilized and necessary to serve transportation customers.

13 Q. WHAT ASPECTS OF THE OCC'S TESTIMONY DO YOU ADDRESS IN YOUR  
14 REBUTTAL TESTIMONY?

15 A. Our rebuttal testimony addresses the OCC's comments concerning our recommendation  
16 that West Ohio consider increasing the diversity of its gas supply portfolio.

17 Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR TESTIMONY?

18 A. Yes, PUCO Exhibit Nos. 1 through 6 are attached to our testimony.

19 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

20 A. In the section immediately following this introductory section, we address issues raised  
21 by Mr. Harris concerning our recommendation to adjust GCR customers' rates to reflect  
22 the elimination of costs associated with high priced spot market gas purchased during  
23 February 1996 to accommodate the delivery deficiencies of transportation customers. In  
24 the next section, we address issues raised by Messrs. Theirl and Murphy concerning our  
25 recommendation to adjust GCR customers' rates to eliminate the costs associated with

1 reserving interstate pipeline capacity which is utilized and necessary to serve transporta-  
2 tion customers. The fourth section of our testimony addresses issues concerning increas-  
3 ing the diversity of West Ohio's gas supply portfolio raised by Mr. Hollewa. Our  
4 conclusions and recommendations are summarized in the final section of our testimony.  
5

## 6 **II. High Priced Spot Market Gas Purchases**

7 Q. PLEASE DESCRIBE IN GREATER DETAIL THE CONCLUSIONS AND  
8 RECOMMENDATIONS EXPRESSED IN THE AUDIT REPORT CONCERNING  
9 WEST OHIO'S FEBRUARY 1996 HIGH PRICED SPOT MARKET GAS PUR-  
10 CHASES.

11 A. Our audit report noted that spot market gas commodity prices reached unprecedented  
12 highs during early February 1996. At that time, the Company's transportation customers  
13 were in a cumulative imbalance situation. That is, consumption by transportation  
14 customers cumulatively exceeded deliveries to West Ohio on behalf of transportation  
15 customers. During the period February 1-6, 1996, transportation customers delivered  
16 significantly less gas to West Ohio than they consumed on a daily basis. As a result of  
17 these daily delivery deficiencies, it was necessary for West Ohio to purchase additional  
18 quantities of high priced spot market gas. Although West Ohio had, by tariff, options  
19 available to reduce the delivery deficiencies of transportation customers, it neglected to  
20 exercise those options.

21 The costs of West Ohio's high priced spot market purchases made during the period  
22 February 1-6, 1996 were allocated by West Ohio entirely to GCR customers. This is  
23 inappropriate because the delivery deficiencies of transportation customers contributed  
24 significantly to the need for West Ohio to purchase high priced spot market gas. In our  
25 audit report, we recommended that GCR customers' rates be reduced by \$540,877 to

exclude the incremental costs associated with high priced spot market gas attributable to meeting the delivery deficiencies of transportation customers. Our adjustment to GCR customers' rates was determined based on the incremental costs associated with West Ohio's high priced spot market purchases and the daily delivery deficiencies experienced by transportation customers as shown below:

Date	High Priced Spot Market Purchases (Dth)	Average Price (Dth)	Incremental Cost <sup>(a)</sup> (Dth)	Transportation Customer Deficiency Purchases <sup>(b)</sup> (Dth)	Transportation Allocation
February 1, 1996	17,000	\$9.54	\$7.79	11,899	\$ 92,693
February 2, 1996	22,000	9.62	7.87	19,482	153,323
February 3, 1996	37,459	9.67	7.92	8,352	66,148
February 4, 1996	25,459	9.74	7.99	11,975	95,680
February 5, 1996	36,759	11.72	9.97	9,193	91,654
February 6, 1996	30,000	11.08	9.33	4,435	41,379
Total	168,677			65,336	\$540,877
<p>(a) Average price of spot market gas less estimated commodity cost of gas in Columbia Gas FSS storage of \$1.75 Dth. The price of Columbia Gas storage was utilized because if the deficiencies of transportation customers did not occur, gas from Columbia Gas FSS storage would have been available to accommodate GCR customer requirements.</p> <p>(b) Lesser of total high priced spot market purchases or actual transportation customer delivery deficiency.</p>					

Q. DOES MR. HARRIS AGREE WITH YOUR RECOMMENDED ADJUSTMENT TO GCR CUSTOMERS' RATES TO REFLECT THE ELIMINATION OF COSTS ASSOCIATED WITH HIGH PRICED SPOT MARKET GAS PURCHASED TO ACCOMMODATE THE DELIVERY DEFICIENCIES OF TRANSPORTATION CUSTOMERS?

A. Mr. Harris agrees with the general methodology employed by Exeter to calculate an appropriate adjustment to GCR customers' rates to reflect the costs associated with high



1        priced spot market gas purchased to accommodate the delivery deficiencies of transporta-  
2        tion customers. That is, Mr. Harris agrees that costs allocable to transportation customers  
3        should be determined by multiplying the daily quantity of high priced spot market gas  
4        purchased to accommodate transportation customers delivery deficiencies by the incre-  
5        mental cost associated with those purchases. However, Mr. Harris disputes our calcula-  
6        tion of the quantity of spot market gas purchased to accommodate transportation custom-  
7        ers daily delivery deficiencies and the incremental costs associated with West Ohio's high  
8        priced spot market gas purchases. Mr. Harris recommends that GCR customers' rates be  
9        reduced by \$179,995 to reflect the incremental costs associated with high priced spot  
10       market purchases made to accommodate transportation customer delivery deficiencies.

11    Q.        WHICH ASPECTS OF YOUR CALCULATION DOES MR. HARRIS DISPUTE?

12    A.        First, Mr. Harris claims that Exeter overstated the quantity of high priced spot market  
13       purchased during the period February 1-3, 1996 and failed to reflect an additional  
14       purchase of 5,000 Dth of high priced gas on February 5, 1996. Second, Mr. Harris claims  
15       that Exeter has misstated the daily delivery deficiencies of transportation customers  
16       during the period February 1-6, 1996. Finally, Mr. Harris contends that Exeter incor-  
17       rectly calculated the incremental cost of the high priced spot market purchases because it  
18       used the wrong cost for gas withdrawn from storage.

19    Q.        WHAT ADJUSTMENTS TO THE PURCHASE QUANTITIES OF HIGH PRICED  
20       SPOT MARKET GAS HAS MR. HARRIS IDENTIFIED?

21    A.        Mr. Harris claims that 17,000 Dth of spot market gas identified as purchased on each day  
22       during the period February 1-3, 1996, was actually purchased on February 9. Mr. Harris  
23       also claims that an additional 5,000 Dth of spot market gas was purchased on February 5.

24    Q.        ARE MR. HARRIS' ADJUSTMENTS TO THE QUANTITY OF HIGH PRICED  
25       SPOT MARKET GAS PURCHASED BY WEST OHIO ACCURATE?

1 A. Yes. It appears, based on the information presented in Mr. Harris' testimony, that West  
2 Ohio's purchases of high priced spot market gas were actually less than the purchase  
3 quantities which we had previously been provided by West Ohio.

4 Q. WHAT WAS THE SOURCE OF THE DATA WHICH YOU RELIED UPON IN  
5 YOUR AUDIT REPORT?

6 A. Exeter relied upon West Ohio's response to data request number 27. Data request  
7 number 27 asked West Ohio to provide its spot market bid sheets which, among other  
8 things, identified its daily spot market purchase activity during the audit period. The  
9 duration of West Ohio's spot market purchases, as identified on its bid sheets, ranged  
10 from one day to 31 days. The spot market bid sheet relied upon by Exeter to reach the  
11 conclusion that West Ohio purchased certain spot market gas during the period February  
12 1-3, 1996 indicated that the start date of those purchases was February 1, 1996 and the  
13 end date was February 3, 1996. Therefore, Mr. Harris' implications that Exeter incor-  
14 rectly applied the data given to it concerning spot market purchase activity during the  
15 period February 1-3, 1996 is misleading.

16 In addition, it should be noted that in response to data request number 27, West Ohio  
17 provided nearly 100 spot market bid sheets. Of the spot market bid sheets provided, 40  
18 were unsigned. As such, Mr. Harris' testimony that one bid sheet, "unlike all the others,  
19 was not signed or approved" is factually inaccurate. We don't know why Mr. Harris  
20 would make such a misleading claim when it is obviously not true.

21 Q. HAVE YOU PREPARED A CALCULATION TO REVISE YOUR ADJUSTMENT  
22 TO GCR CUSTOMERS' RATES TO REFLECT THE COSTS ASSOCIATED  
23 WITH HIGH PRICED SPOT MARKET GAS PURCHASED TO ACCOMMO-  
24 DATE TRANSPORTATION CUSTOMERS' DELIVERY DEFICIENCIES BASED  
25 ON PURCHASE QUANTITIES IDENTIFIED BY MR. HARRIS?

A. Yes. A revised calculation is presented below. As shown there, incorporating the purchase quantity adjustments identified by Mr. Harris would reduce our adjustment to GCR customer rates by \$206,738 to \$334,139.

Date	High Priced Spot Market Purchases (Dth)	Average Price (Dth)	Incremental Cost <sup>(a)</sup> (Dth)	Transportation Customer Deficiency Purchase <sup>(b)</sup> (Dth)	Transportation Allocation
February 1, 1996	0	\$0.00	\$0.00	0	\$ 0
February 2, 1996	5,000	9.90	8.15	5,000	40,750
February 3, 1996	20,459	9.78	8.03	8,352	67,067
February 4, 1996	25,459	9.74	7.99	11,975	95,680
February 5, 1996	41,759	11.46	9.71	9,193	89,264
February 6, 1996	30,000	11.08	9.33	4,435	41,379
Total	122,677			38,955	\$334,139

(a) Average price of spot market gas less estimated commodity cost of gas in Columbia Gas FSS storage of \$1.75 Dth. The price of Columbia Gas storage was utilized because if the deficiencies of transportation customers did not occur, gas from Columbia Gas FSS storage would have been available to accommodate GCR customer requirements.

(b) Lesser of total high priced spot market purchases or actual transportation customer delivery deficiency.

Q. PLEASE SUMMARIZE MR. HARRIS' SECOND CRITICISM OF YOUR ADJUSTMENT ASSOCIATED WITH WEST OHIO'S HIGH PRICED SPOT MARKET PURCHASES.

A. Mr. Harris indicates that Exeter has overstated the daily delivery deficiencies of transportation customers during the period February 1-6, 1996. Rather than relying on data provided by West Ohio, Mr. Harris has proposed to revise the delivery deficiencies of transportation customers to reflect confirmed delivery information provided by the interstate pipelines which serve West Ohio. That is, the delivery deficiencies calculated by Mr. Harris reflect volumes delivered to West Ohio on behalf of transportation

1 customers as reported by the interstate pipelines serving West Ohio less the actual  
2 consumption of transportation customers as reported by West Ohio.

3 Q. IS MR. HARRIS CORRECT THAT EXETER HAS INCORRECTLY REPORTED  
4 THE DAILY DELIVERY DEFICIENCIES OF TRANSPORTATION CUSTOM-  
5 ERS DURING THE PERIOD FEBRUARY 1-6, 1996?

6 A. Our adjustment to GCR customers' rates is based on transportation customers' delivery  
7 and consumption data provided directly by West Ohio. Therefore, if the daily delivery  
8 deficiencies reflected in the audit report are incorrect, it was because the information  
9 provided to the auditors was inaccurate. Again, Mr. Harris has inappropriately attempted  
10 to characterize the auditor's analysis as flawed.

11 Q. ARE MR. HARRIS' REVISIONS TO THE DAILY DELIVERY DEFICIENCIES  
12 OF TRANSPORTATION CUSTOMERS ACCURATE?

13 A. No. As subsequently explained, Mr. Harris' revisions to the daily delivery deficiencies of  
14 transportation customers are based on an inaccurate and incomplete analysis.

15 Q. PLEASE ELABORATE UPON THE DIFFERENT RESPONSES TO THE SAME  
16 DATA REQUEST DISCUSSED BY MR. HARRIS.

17 A. Data request number 46 of our audit asked West Ohio to identify the quantity of gas  
18 delivered to the Company on behalf of transportation customers and the actual consump-  
19 tion of transportation customers on a daily basis for several select months. Our review  
20 revealed inconsistencies between the Company's response to data request number 46 and  
21 several other data requests. Therefore, we asked West Ohio to reconfirm its initial  
22 responses. West Ohio subsequently revised its response to data request number 46.  
23 However, the Company's response continued to reflect inconsistencies with other  
24 responses which identified transportation customer imbalances on a monthly basis. We  
25 then asked West Ohio to investigate why the data discrepancies continued to exist. The

1 Company then provided a third response to data request number 46, and indicated that the  
2 two previous responses to the request were incorrect. The Company also explained that  
3 discrepancies between request number 46 which identified daily transportation customers  
4 delivery and consumption volumes and the other responses which identified monthly  
5 volumes existed because they were prepared from two different data sources. The daily  
6 information was taken from electronic metering equipment while the monthly numbers  
7 reflected financial accounting data.

8 Q. DID THE COMPANY'S SEVERAL RESPONSES TO DATA REQUEST NUM-  
9 BER 46 REVEAL SIGNIFICANTLY DIFFERENT DATA FOR THE PERIOD  
10 FEBRUARY 1-6, 1996 AS CLAIMED BY MR. HARRIS?

11 A. No. As shown below, with the exception of deliveries on February 2, 1996, the responses  
12 were fairly consistent:

Response	Transportation Customer Deliveries (Mcf)			Transportation Customer Consumption (Mcf)		
	1	2	3	1	2	3
February 1	24,305	24,305	23,574	36,614	35,623	35,171
February 2	21,753	21,753	15,310	35,737	34,770	34,298
February 3	22,918	22,918	22,227	31,767	30,908	30,363
February 4	21,407	21,407	21,457	34,555	33,620	33,129
February 5	25,705	25,705	25,630	36,013	35,039	34,590
February 6	25,788	25,788	25,711	31,376	30,528	30,034

21  
22  
23 Q. IS THE DELIVERY INFORMATION WHICH IS PROVIDED BY INTERSTATE  
24 PIPELINES AND RELIED UPON BY MR. HARRIS GENERALLY ACCURATE  
25 AND RELIABLE?

26 A. Generally, yes. In fact, it is the interstate pipelines which confirm the quantity of gas  
27 delivered to West Ohio on behalf of transportation customers. However, Mr. Harris has

1 misapplied the information provided by West Ohio's interstate pipelines in computing the  
2 daily delivery deficiencies of transportation customers. In addition, information concern-  
3 ing deliveries to West Ohio on behalf of transportation customers reported by Columbia  
4 Gas Transmission Corporation ("Columbia Gas") was inaccurate for certain days.

5 Q. HOW HAS MR. HARRIS MISAPPLIED THE INFORMATION HE RECEIVED  
6 FROM WEST OHIO'S INTERSTATE PIPELINES?

7 A. In calculating the delivery deficiency of West Ohio's transportation customers, Mr.  
8 Harris neglected to reduce the deliveries on behalf of transportation customers by West  
9 Ohio's fuel retention factor of 3 percent. That is, Mr. Harris has failed to account for the  
10 losses or shrinkage which occurs as gas is transported across the West Ohio system to the  
11 facilities of transportation customers. The delivery deficiencies calculated by Mr. Harris  
12 reflect deliveries to West Ohio's citygate on behalf of transportation customers. It is  
13 upon quantities delivered to the facilities of transportation customers which the delivery  
14 deficiencies should be calculated.

15 Q. YOU INDICATED THAT DELIVERY INFORMATION PROVIDED BY INTER-  
16 STATE PIPELINES IS GENERALLY ACCURATE AND RELIABLE. ON WHAT  
17 BASIS DO YOU BELIEVE THAT DATA REPORTED FOR CERTAIN DAYS BY  
18 COLUMBIA GAS WAS INACCURATE?

19 A. As shown on the spot market bid sheet presented as PUCO Exhibit No. 1, during the  
20 period February 2-5, 1996 West Ohio purchased 5,000 Dth per day from SEMCO. As  
21 further shown on the bid sheet, the gas that West Ohio purchased was available because  
22 the transportation customer which originally purchased and delivered that gas to West  
23 Ohio's citygate was curtailed and could no longer flow its gas supplies. That is, the gas  
24 which was originally purchased and delivered to West Ohio citygate on behalf of a West  
25 Ohio transportation customer was, instead, purchased and delivered to West Ohio on

1       behalf of GCR customers during the period February 2-5, 1996. This change in deliveries  
2       was not reflected in Columbia Gas' confirmed deliveries.

3       Q.       WHY WOULD SUCH A CHANGE IN DELIVERY ARRANGEMENTS NOT BE  
4       REFLECTED IN COLUMBIA GAS' CONFIRMED DELIVERIES?

5       A.       Apparently, it was unnecessary for either West Ohio or SEMCO to inform Columbia Gas  
6       of the change because the gas continued to flow to the West Ohio system and the identity  
7       of the shipper, SEMCO, remained unchanged.

8       Q.       DOES WEST OHIO MAINTAIN INFORMATION CONCERNING CONFIRMED  
9       DELIVERIES BY ITS INTERSTATE PIPELINES?

10      A.       Yes. Information concerning confirmed deliveries by Columbia Gas and ANR Pipeline is  
11      routinely maintained on a daily basis by West Ohio. Confirmed delivery information for  
12      Columbia Gas and ANR for the month February 1996 is presented as PUCO Exhibit  
13      No. 2.

14      Q.       HOW DOES THE CONFIRMED DELIVERY INFORMATION PROVIDED BY  
15      WEST OHIO'S INTERSTATE PIPELINES COMPARE WITH INFORMATION  
16      MAINTAINED BY WEST OHIO FOR THE PERIOD FEBRUARY 2-5, 1996?

17      A.       As shown below, if deliveries on behalf of transportation customers are adjusted to  
18      exclude the 5,000 Dth of curtailed SEMCO volumes, the numbers are identical:

	Confirmed Transportation Customer Deliveries per Interstate Pipelines (Dth)			Confirmed Transportation Customer Deliveries per West Ohio (Dth)		
	ANR	Columbia Gas <sup>(a)</sup>	Total	ANR	Columbia Gas	Total
February 2	4,000	17,753	21,753	4,000	17,753	21,753
February 3	4,000	18,918	22,918	4,000	18,918	22,918
February 4	3,282	18,125	21,407	3,282	18,125	21,407
February 5	3,282	22,423	25,705	3,282	22,423	25,705
Note: (a) Adjusted to reflect 5,000 Dth of curtailed deliveries.						

1 Q. HOW DO THE CONFIRMED DELIVERIES OF TRANSPORTATION CUSTOM-  
2 ERS REPORTED BY THE INTERSTATE PIPELINES COMPARE WITH DELIV-  
3 ERIES ON BEHALF OF TRANSPORTATION CUSTOMERS REPORTED BY  
4 WEST OHIO IN ITS FINAL RESPONSE TO DATA REQUEST NUMBER 46?

5 A. Adjusting transportation customer deliveries confirmed by the interstate pipelines for fuel  
6 retention and converting deliveries from a Dth to Mcf equivalent reveals the following  
7 differences with the Company's response to data request number 46. As shown there,  
8 over the entire February 1-6, 1996 period, the difference between information provided  
9 by West Ohio and its interstate pipelines is de minimis:

	Transportation Deliveries per Interstate Pipelines (Mcf)	Transportation Deliveries per West Ohio Data Request 46 (Mcf)	Difference
February 1	22,971	23,574	(603)
February 2	20,560	15,310	5,250
February 3	21,661	22,227	(566)
February 4	20,230	21,457	(1,227)
February 5	24,289	25,630	(1,341)
February 6	24,368	25,711	(1,343)
Total	134,079	133,909	170

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20 Q. WHAT DO YOU CONCLUDE WITH RESPECT TO THE DAILY DELIVERY  
21 DEFICIENCIES OF TRANSPORTATION CUSTOMERS FOR PURPOSES OF  
22 CALCULATING AN ADJUSTMENT TO GCR CUSTOMERS' RATES FOR THE  
23 HIGH PRICED SPOT MARKET GAS PURCHASED TO ACCOMMODATE  
24 TRANSPORTATION CUSTOMERS?

25 A. We conclude that after adjusting for fuel retention and SEMCO purchases, it would not  
26 be unreasonable to calculate our adjustment based on the information provided by West



Ohio's interstate pipelines as recommended by Mr. Harris in lieu of the information originally provided by West Ohio.

Q. HAVE YOU PREPARED A CALCULATION REVISING YOUR ADJUSTMENT TO GCR CUSTOMERS' RATES TO REFLECT HIGH COST SPOT MARKET PURCHASES MADE TO ACCOMMODATE TRANSPORTATION CUSTOMER DELIVERY DEFICIENCIES BASED ON PIPELINE CONFIRMED DELIVERIES ADJUSTED FOR FUEL RETENTION AND SEMCO CURTAILED VOLUMES AND YOUR EARLIER ADJUSTMENT TO SPOT MARKET PURCHASE QUANTITIES?

A. Yes. A revised calculation is presented below. As shown there, utilizing data supplied by West Ohio's interstate pipelines and incorporating our previous adjustment to spot market purchase quantities results in an adjustment to GCR customers' rates of \$375,081.

Date	High Priced Spot Market Purchases (Dth)	Average Price (Dth)	Incremental Cost <sup>(a)</sup> (Dth)	Transportation Customer Deficiency Purchases <sup>(b)</sup> (Dth)	Transportation Allocation
February 1, 1996	0	\$0.00	\$0.00	0	\$ 0
February 2, 1996	5,000	9.90	8.15	5,000	40,750
February 3, 1996	20,459	9.78	8.03	8,933	71,732
February 4, 1996	25,459	9.74	7.99	13,234	105,739
February 5, 1996	41,759	11.46	9.71	10,569	102,625
February 6, 1996	30,000	11.08	9.33	5,813	54,235
Total	122,677			43,549	\$375,081
<p>(a) Average price of spot market gas less estimated commodity cost of gas in Columbia Gas FSS storage of \$1.75 Dth. The price of Columbia Gas storage was utilized because if the deficiencies of transportation customers did not occur, gas from Columbia Gas FSS storage would have been available to accommodate GCR customer requirements.</p> <p>(b) Lesser of total high priced spot market purchases or actual transportation customer delivery deficiency.</p>					

1 Q. DO YOU HAVE ANY ADDITIONAL OBSERVATIONS CONCERNING THE  
2 DELIVERY DEFICIENCIES OF TRANSPORTATION CUSTOMERS AND THE  
3 PURCHASE OF HIGH COST SPOT MARKET GAS?

4 A. Yes. On a daily basis, West Ohio prepares what it referred to during our audit as  
5 "capacity summary sheets." Those sheets separately show on a daily basis the amount of  
6 gas being delivered to West Ohio to meet GCR and transportation customer demands,  
7 and are prepared to determine whether adjustments to scheduled purchase quantities are  
8 necessary. Capacity summary sheets for the period February 2-5, 1996 are attached to  
9 our testimony as PUCO Exhibit No. 3. The transportation customer delivery nominations  
10 shown on those sheets generally reflect pipeline reported confirmed deliveries as adjusted  
11 for SEMCO volumes. As such, West Ohio made its purchasing decisions based on what  
12 it believed were the delivered volumes of its transportation customers. If that information  
13 inaccurately underestimated transportation customer deliveries as Mr. Harris claims,  
14 West Ohio would have arranged for the purchase of more high cost spot market gas than  
15 was necessary. GCR customers should not be held responsible for transportation  
16 customer data inaccuracies which cause West Ohio to purchase excessive quantities of  
17 high cost spot market gas. However, in order to resolve this issue, we are prepared to  
18 utilize the pipeline delivery information as the basis for the calculation as proposed by  
19 Mr. Harris. As noted above, the pipeline deliveries must be adjusted to account for fuel  
20 retention and the SEMCO purchases.

21 Q. TURNING TO MR. HARRIS' FINAL CRITICISM OF YOUR ADJUSTMENT  
22 ASSOCIATED WITH WEST OHIO'S HIGH PRICED SPOT MARKET PUR-  
23 CHASES WHICH IS THAT EXETER INCORRECTLY CALCULATED THE  
24 INCREMENTAL COSTS ASSOCIATED WITH THE HIGH COST PURCHASES,  
25 PLEASE EXPLAIN MR. HARRIS' POSITION.

1 A. Exeter prepared its calculation of the incremental costs associated with West Ohio's high  
2 cost spot market purchases based on the average estimated commodity cost of gas  
3 injected into Columbia Gas FSS storage during the proceeding summer. Incremental  
4 costs were determined on this basis because it was assumed that had transportation  
5 customers not experienced daily delivery deficiencies, gas from Columbia Gas FSS  
6 storage would have been available to accommodate GCR customer requirements. Mr.  
7 Harris has not disagreed with this assumption. However, Mr. Harris claims that our  
8 calculation of the incremental costs of the high cost spot market purchases based on  
9 summer injection commodity costs does not properly reflect how the GCR mechanism  
10 treats the cost of gas in storage. Specifically, Mr. Harris claims that our calculation  
11 should be based on West Ohio's LIFO Storage rate of \$3.3383 per Dth.

12 Q. HOW DOES WEST OHIO'S LIFO STORAGE RATE DIFFER FROM THE  
13 AVERAGE COMMODITY COST OF GAS INJECTED INTO STORAGE DUR-  
14 ING THE SUMMER?

15 A. The LIFO Storage rate includes the demand charges which West Ohio pays for storage  
16 service from its interstate pipelines. In addition, the LIFO storage rate reflects West  
17 Ohio's average annual average cost of gas, not the average cost of gas of the gas injected  
18 into storage.

19 Q. PLEASE ELABORATE UPON MR. HARRIS' POSITION CONCERNING  
20 INCORPORATING STORAGE DEMAND CHARGES IN DETERMINING THE  
21 INCREMENTAL COSTS ASSOCIATED WITH WEST OHIO'S HIGH COST  
22 SPOT MARKET PURCHASES.

23 A. In our audit report, we did not include storage demand charges in our determination of the  
24 incremental cost associated with West Ohio's high cost spot market purchases. We found  
25 this appropriate because GCR customers had already paid for these storage demand

1 charges at the time of storage injection. Mr. Harris takes issue with our calculation of  
2 incremental costs because he claims that under the Company's GCR procedures, storage  
3 demand charges are paid for at the time gas is withdrawn from storage and are included in  
4 the cost of gas withdrawn from storage.

5 Q. IS THERE ANY MERIT TO MR. HARRIS' POSITION CONCERNING STOR-  
6 AGE DEMAND CHARGES FOR PURPOSES OF DETERMINING THE INCRE-  
7 MENTAL COSTS OF WEST OHIO'S HIGH COST PURCHASES?

8 A. No. Regardless of whether GCR customers pay for storage demand charges at the time of  
9 injection or withdrawal, Mr. Harris does not dispute the fact that GCR customers pay for  
10 all of West Ohio's storage demand charges. Transportation customers paid for none of  
11 West Ohio's storage demand charges. Therefore, the incremental costs associated with  
12 West Ohio's high cost purchases for transportation customers should be based solely on  
13 differences in commodity costs.

14 Q. HOW DO YOU RESPOND TO MR. HARRIS' POSITION THAT THE AVERAGE  
15 ANNUAL COST OF GAS SHOULD BE UTILIZED FOR PURPOSES OF DETER-  
16 MINING THE INCREMENTAL COSTS OF WEST OHIO'S HIGH COST PUR-  
17 CHASES?

18 A. We do not necessarily agree with Mr. Harris that it is appropriate to determine incremen-  
19 tal costs based on West Ohio's average annual cost of gas. However, in order to resolve  
20 this issue, we are willing to base our adjustment to GCR customers' rates based on West  
21 Ohio's average annual commodity cost of gas in storage of \$2.02 per Dth. We are  
22 accepting Mr. Harris' position on this issue because of the relatively minor impact it has  
23 on our adjustment.

24 Q. ARE YOU PROPOSING ANY ADDITIONAL ADJUSTMENTS TO GCR  
25 CUSTOMERS' RATES TO REFLECT THE COSTS ASSOCIATED WITH HIGH

1 PRICED PURCHASES MADE TO ACCOMMODATE THE DELIVERY DEFICI-  
2 CIENCIES OF TRANSPORTATION CUSTOMERS DURING FEBRUARY 1996?

3 A. No, we are not.

4 Q. HAVE YOU PREPARED A FINAL REVISED CALCULATION SUPPORTING  
5 YOUR ADJUSTMENT TO GCR CUSTOMERS' RATES TO REFLECT THE  
6 COSTS ASSOCIATED WITH HIGH PRICED PURCHASES MADE TO ACCOM-  
7 MODATE TRANSPORTATION CUSTOMER DELIVERY DEFICIENCIES?

8 A. Yes. As shown below, our recommended adjustment to GCR customers' rates is  
9 \$363,323.

Date	High Priced Spot Market Purchases (Dth)	Average Price (Dth)	Incremental Cost <sup>(a)</sup> (Dth)	Transportation Customer Deficiency Purchases <sup>(b)</sup> (Dth)	Transportation Allocation
February 1, 1996	0	\$0.00	\$0.00	0	\$ 0
February 2, 1996	5,000	9.90	7.88	5,000	39,400
February 3, 1996	20,459	9.78	7.76	8,933	69,320
February 4, 1996	25,459	9.74	7.72	13,234	102,166
February 5, 1996	41,759	11.46	9.44	10,569	99,771
February 6, 1996	30,000	11.08	9.06	5,813	52,666
Total	122,677			43,549	\$363,323

(a) Average price of spot market gas less commodity cost of gas in Columbia Gas FSS storage of \$2.02 Dth. The price of storage gas was utilized because if the deficiencies of transportation customers did not occur, gas from storage would have been available to accommodate GCR customer requirements.

(b) Lesser of total high priced spot market purchases or actual transportation customer delivery deficiency.

30 Q. DO YOU HAVE ANY OTHER COMMENTS CONCERNING THE DELIVERY  
31 DEFICIENCIES OF TRANSPORTATION CUSTOMERS?

1 A. Yes. We have revised Table VI-3 of our audit report to reflect transportation customer  
2 delivery deficiencies based on confirmed pipeline deliveries. The revised table is  
3 presented as PUCO Exhibit No. 4.  
4

5 **III. Pipeline Capacity Requirements of Transportation Customers**

6 Q. PLEASE DESCRIBE IN GREATER DETAIL THE CONCLUSIONS AND  
7 RECOMMENDATIONS EXPRESSED IN THE AUDIT REPORT CONCERNING  
8 COSTS ASSOCIATED WITH RESERVING INTERSTATE PIPELINE CAPAC-  
9 ITY WHICH IS UTILIZED AND NECESSARY TO SERVE TRANSPORTATION  
10 CUSTOMERS.

11 A. Our audit noted several concerns with respect to the amount of interstate pipeline  
12 capacity reserved by West Ohio to serve GCR customers. These concerns stemmed from  
13 flaws in the Company's design peak day demand forecasting procedures. West Ohio  
14 relies on its design peak day forecast to determine the amount of interstate pipeline  
15 capacity to reserve.

16 First, we noted that West Ohio's design day criterion of 70 heating degree days had a  
17 higher frequency of occurrence than the criteria utilized by most gas utilities. We  
18 suggested that a design peak day of 76 heating degree days would be more consistent  
19 with observed industry selection standards; however, we also recommended that the  
20 Company continue to evaluate whether a less conservative criterion was reasonable.

21 Second, we observed that the Company adjusts average annual residential and  
22 commercial usage per heating degree day by 20 and 10 percent, respectively, to account  
23 for increased usage per degree day under peak conditions which it claims to have  
24 observed in a study conducted in the mid-1980s. Our analysis revealed that the Com-  
25 pany's adjustments to average usage per degree day were inaccurate. Moreover, studies

1 conducted by the Company also indicated that those usage per degree day assumptions  
2 under design day conditions were inaccurate. Even though West Ohio made a number of  
3 decisions with respect to capacity entitlements during the audit period, it failed to re-  
4 examine its design peak day forecasting procedures. We stated that West Ohio should  
5 have re-examined its design peak day demand forecasting procedures prior to making  
6 those decisions.

7 Our analysis indicated that the estimated demands of GCR customers during the  
8 1994-95 winter season under design day conditions of 76 heating degree days would have  
9 been approximately 112,000 Dth. Therefore, at that time, the capacity reserved on behalf  
10 of GCR customers by West Ohio exceeded design peak day requirements by approxi-  
11 mately 4,000 Dth. During the summer of 1995, a number of small commercial GCR  
12 customers with an estimated design day demand of 4,000 Dth converted to agency  
13 transportation service. Our audit revealed that these small commercial customers were  
14 encouraged to convert to West Ohio's agency transportation program by West Ohio  
15 personnel. In our report, we recommend that it would have been appropriate to assign to  
16 West Ohio's agency program upon conversion, the capacity initially reserved by West  
17 Ohio to accommodate the demands of the converting customers.

18 Effective April 1, 1996, West Ohio reduced its FSS storage and related ETS trans-  
19 portation capacity on ANR by the 4,000 Dth which West Ohio recognized was no longer  
20 required to serve the customers that converted to agency service. West Ohio also had the  
21 opportunity to reduce its ANR FSS/FTS-1 capacity reservation by 4,000 Dth effective  
22 April 1, 1996, but chose to extend its arrangement with ANR to the year 2000. Had West  
23 Ohio properly analyzed its GCR customers' requirements prior to its decision, it would  
24 have recognized that, based on 1994-95 usage, the capacity it was reserving to accommo-  
25 date GCR customer requirements continued to exceed requirements by at least 4,000 Dth.

1 In addition, based on experience during the 1994-95 and 1995-96 winter seasons, it was  
2 clearly evident that its transportation customers regularly experienced a peak day delivery  
3 deficiency. That is, transportation customers did not deliver to West Ohio sufficient  
4 quantities of gas to accommodate their requirements on peak days. As a result, capacity  
5 in excess of GCR customers' design peak day requirements was necessary and was  
6 utilized by West Ohio to accommodate transportation customer delivery deficiencies in  
7 order to maintain system reliability.

8 Given that West Ohio had 4,000 Dth of capacity that was not needed to serve GCR  
9 customers which could have been shed and that the capacity was and is necessary to serve  
10 transportation customers, we recommended that beginning April 1, 1996, the costs  
11 included in the GCR be reduced to exclude the costs associated with capacity  
12 entitlements of 4,000 Dth per day. We calculated those costs to be \$275,087 for the  
13 period April 1, 1996 through October 31, 1996. Our calculation was based on West  
14 Ohio's weighted average cost of design peak day capacity rather than the 4,000 Dth of  
15 ANR FSS storage and related FTS-1 transportation which could have been shed effective  
16 April 1, 1996. We believe this was appropriate because West Ohio relies on all of its  
17 capacity resources to accommodate its sales and transportation customer requirements,  
18 including the delivery deficiencies of the GCR customers West Ohio persuaded to  
19 convert to agency transportation. In addition, as described in greater detail in our report,  
20 we believed there were system benefits associated with the diversification provided by  
21 ANR.

22 During the summer of 1996, West Ohio again forecasted its GCR customers' design  
23 peak day requirements and included its inaccurate adjustments to the average annual  
24 usage per degree day for residential and commercial customers. Had West Ohio properly  
25 determined its requirements without including its adjustments to usage per heating degree



1 day, it would have observed that the 4,000 Dth of capacity reserved in excess of GCR  
2 customers during the 1994-95 winter season had increased to nearly 11,000 Dth. West  
3 Ohio had the opportunity to reduce or terminate its ETS arrangement under Contract No.  
4 03000 for 9,335 Dth per day effective November 1, 1996. However, in January 1996, it  
5 elected to forego this flexibility and extended this arrangement until the year 2000.  
6 Moreover, this excess of 11,000 Dth per day was less than the capacity utilized on peak  
7 days to meet the needs of transportation customers. Therefore, we recommended that  
8 effective November 1, 1996, the costs included in the GCR be reduced to exclude an  
9 additional 6,000 Dth per day of capacity, bringing the total capacity reduction to 10,000  
10 Dth per day. We recommended a reduction of 10,000 Dth rather than 11,000 Dth to be  
11 conservative and to recognize the uncertainties associated with forecasting design peak  
12 day requirements. We calculated these costs to be \$1,156,308 annually. As with our  
13 adjustment of 4,000 Dth per day effective April 1, 1996, this adjustment was also based  
14 on West Ohio's weighted average cost of capacity. We recommended that West Ohio  
15 could recognize that this capacity is required to accommodate transportation customer  
16 peak day delivery deficiencies and collect the associated costs accordingly. Alternatively,  
17 we recommend that West Ohio could permanently release the 10,000 Dth of capacity not  
18 required to accommodate GCR customer requirements. If West Ohio elected to release  
19 the capacity which was excess to the needs of GCR customers, we recommend that the  
20 selection of the capacity to be released should be consistent with least cost gas procure-  
21 ment principles for GCR customers.

22 Q. HAVE YOUR CONCLUSIONS AND RECOMMENDATIONS AS EXPRESSED  
23 IN THE AUDIT REPORT CHANGED AFTER YOUR REVIEW OF THE COM-  
24 PANY'S AND OCC'S TESTIMONY?

1 A. No. We continue to recommend that GCR customers' rates be adjusted to reflect 10,000  
2 Dth of capacity which is utilized and necessary to accommodate the delivery deficiencies  
3 of transportation customers. However, after review of the Company's and OCC's  
4 testimony concerning our forecast of GCR customer design peak day requirements, we  
5 re-examined our initial analysis. Our re-examination revealed that, like much of the other  
6 data provided to us during our audit, the heating degree information provided by West  
7 Ohio for the 1995-96 winter season was inaccurate.<sup>1</sup> For example, heating degree days  
8 reported by West Ohio on its sendout sheets for December 1995 totaled 1,415, while data  
9 from the National Oceanic Atmospheric Administration ("NOAA") indicated that actual  
10 heating degree days during December 1995 totaled 1,268. Therefore, we recalculated the  
11 1995-96 projected design peak day requirements of GCR customers based on NOAA  
12 data. Our revised estimate of GCR customers' design peak day requirements for the  
13 1995-96 winter season is 107,500 Dth. As such, it is our conclusion West Ohio maintains  
14 7,500 Dth of interstate pipeline capacity which is excess to the needs of GCR customers.  
15 PUCO Exhibit No. 5 presents our revised analysis. PUCO Exhibit No. 6 reflects our  
16 calculation of excess GCR customer capacity entitlements. Our revised analysis and  
17 rationale for continuing to adjust GCR customers' rates for the costs associated with  
18 10,000 Dth of capacity rather than 7,500 Dth are discussed later in our testimony.

19 Q. WHAT IS THE PURPOSE OF MR. THEIRL'S TESTIMONY?

20 A. The purpose of Mr. Theirl's testimony is to show that it would not be appropriate for  
21 West Ohio to reduce its contractual capacity entitlements on ANR Pipeline due to  
22 operational requirements on West Ohio's system.

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<sup>1</sup>NOAA data was initially utilized to estimate 1994-95 winter season design peak day requirements. Therefore, no revisions to our initial observations concerning capacity entitlements for the 1994-95 winter season are necessary.

1 Q. DID EXETER PREVIOUSLY RECOMMEND OR DOES EXETER NOW REC-  
2 OMMEND THAT WEST OHIO REDUCE ITS CAPACITY ENTITLEMENTS ON  
3 ANR PIPELINE?

4 A. No. Exeter did not, and Exeter does not now recommend that West Ohio reduce its  
5 capacity entitlements on ANR Pipeline. In fact, our audit report noted that there are  
6 system benefits associated with the diversification provided by ANR Pipeline. It is  
7 Exeter's recommendation that a portion of West Ohio's costs associated with reserving  
8 interstate pipeline capacity be recovered from transportation customers. This is appropri-  
9 ate because a portion of the capacity reserved by West Ohio is utilized by and is neces-  
10 sary to serve transportation customers. Alternatively, if West Ohio did not assign these  
11 costs to transportation customers, we recommend that West Ohio permanently release  
12 capacity which is not required to accommodate GCR customer requirements. If West  
13 Ohio were to elect this latter approach, we recommend that selection of the capacity to be  
14 released should be consistent with least cost gas procurement principles for GCR  
15 customers. Mr. Theirl's testimony does not address a recommendation presented in our  
16 audit report.

17 Q. WHAT IS THE PURPOSE OF MR. MURPHY'S TESTIMONY?

18 A. Mr. Murphy's testimony addresses our findings related to the design day capacity  
19 requirements of West Ohio's GCR customers.

20 Q. BRIEFLY SUMMARIZE MR. MURPHY'S CONCLUSIONS WITH RESPECT TO  
21 YOUR RECOMMENDATIONS CONCERNING THE CAPACITY REQUIRE-  
22 MENTS OF GCR CUSTOMERS.

23 A. Mr. Murphy claims that Exeter's recommendations concerning GCR customers' capacity  
24 requirements are inconsistent with the prior management audit conducted by Vantage  
25 Consulting, Inc. ("Vantage"), are based on a flawed regression analysis and fail to

1 properly consider a reserve margin. Therefore, Mr. Murphy recommends that the  
2 Commission should dismiss our recommendations.

3 Q. DOES MR. MURPHY'S TESTIMONY ADDRESS THE FACT THAT TRANS-  
4 PORTATION CUSTOMERS EXPERIENCE DELIVERY DEFICIENCIES DUR-  
5 ING PEAK PERIODS AND IT IS NECESSARY FOR THE COMPANY TO  
6 RESERVE CAPACITY TO ACCOMMODATE THOSE DEFICIENCIES?

7 A. No. Mr. Murphy completely ignores the delivery deficiencies of transportation customers  
8 in his testimony. As such, Mr. Murphy is incomplete in addressing our recommendations  
9 concerning the allocation of interstate pipeline capacity costs.

10 Q. DOES MR. MURPHY PRESENT AN INDEPENDENT ANALYSIS OF GCR  
11 CUSTOMERS' CAPACITY REQUIREMENTS OR ATTEMPT TO JUSTIFY  
12 WEST OHIO'S CURRENT FORECASTING PROCEDURES?

13 A. Mr. Murphy presents no analysis of the design peak day capacity requirements of GCR  
14 customers, nor does he attempt to justify the Company's current forecasting procedures.

15 Q. PLEASE IDENTIFY THE DIFFERENCES BETWEEN THE VANTAGE AND  
16 EXETER AUDIT REPORTS CITED BY MR. MURPHY.

17 A. Mr. Murphy claims that the Exeter audit report is not consistent with the Vantage report  
18 with respect to the design peak day capacity needs of GCR customers.

19 Q. PLEASE EXPLAIN.

20 A. The Vantage audit report found that the peak day requirements of GCR customers were  
21 approximately 120,000 Dth (117,000 Mcf) on January 18, 1994. Mr. Murphy claims that  
22 conditions in West Ohio's service territory on this day of 77 heating degree days were  
23 very close to the design day conditions of 76 heating degree days recommended by  
24 Exeter in its audit report. We identified the estimated design peak day requirements of  
25 GCR customers to be 112,000 Dth (109,000 Mcf) for the 1994-95 winter season and a

1 revised 107,500 Dth (104,800 Mcf) for the 1995-96 winter season. Mr. Murphy claims  
2 that the significant differences in design day peak day requirements cannot be explained  
3 by the passage of time and, therefore, the two audit reports are inconsistent with respect  
4 to the design peak day requirements of GCR customers. Mr. Murphy then faults Exeter  
5 for not completely explaining why the decline in GCR customer design peak day  
6 demands occurred.

7 Q. CAN EXETER EXPLAIN THE APPARENT 8,000 DTH DECLINE IN GCR  
8 CUSTOMER DESIGN PEAK DEMAND WHICH OCCURRED IN THE 1994-95  
9 WINTER SEASON FROM THE 1993-94 WINTER SEASON?

10 A. Yes. GCR customer sendout on peak day during the 1993-94 winter season (January 18,  
11 1994) was discussed at length during our on-site audit visits. Because Mr. Murphy was  
12 not present at any of those visits, he did not receive the benefit of those discussions.  
13 First, contrary to Mr. Murphy's assertions, West Ohio did not install real-time metering  
14 on all of its transportation customers until the summer of 1994. The peak day sendout  
15 figure reflected on page 28 of the Vantage audit report for transportation customers  
16 reflects only the consumption of transportation customers with real-time metering. GCR  
17 customer consumption of 117,000 Mcf reflects the consumption of all customers without  
18 real-time metering, including transportation customers without real-time metering. It  
19 appears that Vantage was misled with respect to real-time metering capabilities in the  
20 previous audit.

21 Second, 77 heating degree days were experienced on that day. The additional  
22 heating degree day experienced on January 18, 1994 above our recommended design  
23 peak day recommendation of 76 heating degree days accounts for approximately 1,500  
24 Dth of the 8,000 Dth difference. Therefore, the lack of real-time metering on all transpor-

1       tation customers and the colder than design day conditions likely accounts for the  
2       observed 8,000 Dth decline in GCR customer design peak day demands.

3   Q.       MR. MURPHY CONSISTENTLY FOCUSES ON THE DECLINE IN GCR  
4           CUSTOMER DESIGN PEAK DAY REQUIREMENTS TO CAST DOUBT ON  
5           THE REASONABLENESS OF YOUR CAPACITY COST ALLOCATION AD-  
6           JUSTMENT. WHAT DID YOUR ANALYSIS REVEAL WITH RESPECT TO  
7           DESIGN PEAK DAY SENDOUT FOR ALL CUSTOMERS ON THE WEST OHIO  
8           SYSTEM?

9   A.       Our analysis revealed the following with respect to total design peak day system sendout  
10           during the three most recent seasons:

Season	Design Peak Day Sendout (Dth)
1993-94	143,144 <sup>(a)</sup>
1994-95	142,066
1995-96	139,585
<b>Note:</b> <sup>(a)</sup> Actual January 18, 1994 sendout adjusted to reflect recommended design peak day criteria of 76 heating degree days.	

22       Our analysis revealed a slight 1.2 percent annual percent decline in total design day  
23       sendout over the period rather than the roller coaster ride depicted by Mr. Murphy.

24   Q.       CAN EXETER EXPLAIN THE REVISED ESTIMATED DECLINE OF APPROXI-  
25           MATELY 12,000 DTH IN GCR CUSTOMER DESIGN PEAK DAY DEMANDS  
26           EXPERIENCED DURING THE 1995-96 WINTER SEASON OVER THE 1993-94  
27           WINTER SEASON?

1 A. Yes. The Vantage report indicated the sendout of transportation customers to be 24,580  
2 Dth (23,958 Mcf) on January 18, 1994. Our estimate of design peak day sendout for  
3 transportation customers for the 1995-96 winter season is 34,649 Dth, or 10,069 Dth  
4 higher than design day sendout for the 1993-94 winter season. I would note that our  
5 estimate of transportation customer design peak day sendout is consistent with peak  
6 usage observed during the 1995-96 winter season. For example, on February 1, 1996,  
7 actual transportation customer consumption totaled 36,085 Dth, or 11,505 Dth higher  
8 than 1993-94 winter season peak usage. As such, the shift in design peak day demands  
9 from sales service to transportation service accounts for nearly all of the decline in GCR  
10 customer design peak day sendout.

11 Q. MR. MURPHY CLAIMS THAT VANTAGE EXPRESSED NO RESERVATIONS  
12 IN ITS AUDIT REPORT WITH RESPECT TO THE ADDITIONAL QUANTITY  
13 OF ANR PIPELINE CAPACITY WEST OHIO PROPOSED TO ACQUIRE IN  
14 1994. DO YOU HAVE ANY COMMENTS?

15 A. Yes. The Vantage report indicated that West Ohio planned on acquiring 5,000 Dth of  
16 ANR Pipeline storage. However, West Ohio actually purchased 8,000 Dth of ANR  
17 Pipeline storage.

18 Q. DID THE VANTAGE AND EXETER AUDITS CONCUR WITH RESPECT TO  
19 WEST OHIO'S GAS PROCUREMENT PRACTICES AND POLICIES?

20 A. Yes, at page 25 of the Vantage audit report, it notes that West Ohio "is not currently  
21 expending adequate resources on development and management of its long-term strategic  
22 gas supply plan." In our audit at page IV-55, we noted that "West Ohio has not dedicated  
23 sufficient resources to evaluating its GCR customers' requirements in order to determine  
24 the mix of firm transportation and storage capacity services which would minimize costs

1 for GCR customers.” As such, both Vantage and Exeter agree that West Ohio’s gas  
2 supply planning was inadequate.

3 Q. DO YOU HAVE ANY OTHER COMMENTS WITH REGARD TO MR. MUR-  
4 PHY’S CRITICISM THAT YOU FAILED TO COMPLETELY EXPLAIN THE  
5 OBSERVED DECLINE IN GCR CUSTOMER DESIGN PEAK DAY REQUIRE-  
6 MENTS?

7 A. Yes. It is not the auditor’s role in the management audit to explain each and every  
8 change with gas supply requirements, particularly if the Company is not even aware that  
9 these changes occurred. Proper management of the gas procurement function by West  
10 Ohio would have both identified the changes in requirements and the cause of those  
11 changes.

12 Q. PLEASE SUMMARIZE MR. MURPHY’S CRITICISMS OF THE REGRESSION  
13 ANALYSIS UPON WHICH YOUR ESTIMATED DESIGN PEAK DAY RE-  
14 QUIREMENTS ARE BASED.

15 A. Mr. Murphy identifies as deficiencies the following concerning the regression analysis  
16 utilized to project GCR customer design peak day demands:

- 17 • failure to reflect additions to West Ohio’s customer base;
- 18 • failure to adequately consider day of the week;
- 19 • model misspecification; and
- 20 • inaccurate results compared to actual experience.

21 Q. WHAT IS MR. MURPHY’S CONCERN WITH RESPECT TO FAILING TO  
22 REFLECT ADDITIONS TO WEST OHIO’S CUSTOMER BASE?

23 A. Mr. Murphy first claims that the failure to consider the number of customers as an  
24 independent variable in our regression equation raises concerns. However, he then  
25 diffuses his own argument by stating that within the relatively short 5-month time frame



1 utilized in our regression analysis, "new customer additions are unlikely to lead to a  
2 substantial difference in the relationship between total GCR sales and the remaining  
3 variables used to explain the variance in throughput." He then further dispels his own  
4 argument by recognizing that the effects of new customer additions "would offset much,  
5 if not all, of the effects of end use conservation." That is, Mr. Murphy claims that the  
6 impact on GCR customer design peak day demands of new customer additions is offset  
7 by customer conservation efforts. Stated alternatively, the two cancel each other out.  
8 Therefore, Mr. Murphy's claim that the failure to consider customer additions is without  
9 merit.

10 It appears that Mr. Murphy raises the customer addition issue simply to reiterate his  
11 now disproved claim that the auditors have not fully accounted for the decline in GCR  
12 customer design peak day demands observed since the 1993-94 winter season. As  
13 previously explained, we have fully accounted for the decline in GCR customer demands  
14 and Mr. Murphy's claims should be dismissed.

15 Q. DID YOUR OWN ANALYSIS SUPPORT MR. MURPHY'S CONTENTION  
16 THAT CONSIDERATION OF CUSTOMER ADDITIONS WOULD NOT SIGNIF-  
17 ICANTLY IMPACT YOUR REGRESSION RESULTS?

18 A. Yes.

19 Q. PLEASE ELABORATE ON MR. MURPHY'S CONCERN THAT YOUR FORE-  
20 CAST OF GCR CUSTOMER DESIGN PEAK DAY REQUIREMENTS DID NOT  
21 ADEQUATELY CONSIDER DAY OF THE WEEK.

22 A. Mr. Murphy states that the day of the week can have a significant impact on system  
23 requirements due to the different consumption patterns that occur from day-to-day. He  
24 then acknowledges that we have attempted to account for these differences in our  
25 regression analysis by separately modeling consumption which occurs on Monday

1 through Thursday from consumption on Friday through Sunday. Mr. Murphy then claims  
2 that we have not adequately accounted for variability which occurs in Monday through  
3 Thursday consumption. Mr. Murphy then asserts that based on consumption patterns  
4 observed on the East Ohio system, consumption on Mondays on the West Ohio system is  
5 likely to be 4 percent higher than average Monday through Thursday consumption.  
6 Therefore, if design peak day conditions were to occur on a Monday, actual demands  
7 could exceed our forecasted demands by 1,975 Dth.

8 Q. WHAT EVIDENCE DOES MR. MURPHY PRESENT TO VALIDATE HIS  
9 ASSUMPTION THAT THE VARIABILITY IN DAY OF THE WEEK CONSUMP-  
10 TION WHICH OCCURS ON THE EAST OHIO SYSTEM IS SIMILAR TO THAT  
11 WHICH OCCURS ON THE WEST OHIO SYSTEM?

12 A. None.

13 Q. HAS WEST OHIO CONDUCTED ANY LOAD RESEARCH WITH RESPECT TO  
14 VARIABILITY IN DAY OF THE WEEK CONSUMPTION?

15 A. Yes. West Ohio has conducted some limited research in this area. That research reveals  
16 the following with respect to variability in day of the week consumption on its system  
17 (Response to data request number 98).

18

	Day of the Week Consumption Factors	
	East Ohio	West Ohio
Monday	1.11	1.02
Tuesday	1.08	1.03
Wednesday	1.05	1.06
Thursday	1.03	.99
Friday	.93	.96
Saturday	.90	.96
Sunday	.90	.96

27

1 As shown above, variability in day of the week consumption on the West Ohio and East  
2 Ohio systems are not similar as Mr. Murphy suggests.

3 Q. WHAT IS YOUR EXPERIENCE WITH RESPECT TO HOW LDCS INCORPO-  
4 RATE VARIABILITY IN DAY OF THE WEEK CONSUMPTION IN PLANNING  
5 TO ACCOMMODATE DESIGN PEAK DAY REQUIREMENTS?

6 A. It is our experience that LDCs often consider weekday and weekend variability in  
7 consumption in their design peak day forecasts. However, we are not aware of LDCs  
8 further considering variability in weekday consumption, nor do we believe it is appropri-  
9 ate. For example, if the probability of design day conditions occurring in West Ohio's  
10 service territory were once in 15 years, the probability of that day also occurring on  
11 Wednesday, West Ohio's peak weekday, would be once in 105 years. Such planning  
12 criteria are inconsistent with observed industry standards and inconsistent with least cost  
13 gas procurement.

14 Q. CAN YOU IDENTIFY AN LDC WHICH CONSIDERS VARIABILITY IN  
15 WEEKDAY AND WEEKEND CONSUMPTION BUT DOES NOT FURTHER  
16 CONSIDER VARIABILITY IN WEEKDAY CONSUMPTION?

17 A. Yes. The Peoples Natural Gas Company ("Peoples"), West Ohio's and East Ohio's  
18 affiliate which serves the Pittsburgh, Pennsylvania area, utilizes a regression model  
19 nearly identical to the model we have utilized to forecast West Ohio's design peak day  
20 sendout. That model accounts for variability in weekday and weekend consumption, but  
21 Peoples does not further consider variability in weekday consumption for capacity  
22 planning purposes.

23 Q. PLEASE ELABORATE UPON MR. MURPHY'S CONCERNS THAT THE  
24 REGRESSION MODEL RELIED UPON IS MISSPECIFIED.

1 A. A regression model is misspecified if it excludes an independent variable which should  
2 be included or includes an independent variable which should not be excluded. Mr.  
3 Murphy suggests that our regression model may be misspecified because (1) the coeffi-  
4 cients that reflect consumption per heating degree day over each of the five winter  
5 months used in our analysis are counterintuitive; and (2) the presence of an auto-regres-  
6 sive term in the equation.

7 Q. PLEASE ELABORATE UPON MR. MURPHY'S CONCERNS THAT YOUR  
8 MODEL PRODUCES COUNTERINTUITIVE RESULTS.

9 A. One would normally expect that usage per customer per heating degree day would be  
10 higher in the December through February period than in the shoulder months of Novem-  
11 ber and March. Our initial regression analysis did not yield those precise results.  
12 However, as previously explained, our initial regression results were based on inaccurate  
13 heating degree day information provided to us by the Company. As shown in PUCO  
14 Exhibit No. 6, correcting for the inaccurate data reveals coefficients consistent with Mr.  
15 Murphy's and generally accepted expectations. Therefore, although we do not agree that  
16 our initial results should be dismissed had they been based on accurate data, Mr.  
17 Murphy's testimony on this issue is no longer relevant.

18 Q. WHY HAVE YOU EXCLUDED DATA FOR MARCH 1996 IN YOUR REVISED  
19 REGRESSION ANALYSIS?

20 A. Re-examination of the sendout data provided by West Ohio for March 1996 showed a  
21 significant increase in confirmed interstate pipeline deliveries on behalf of transportation  
22 customers without a concomitant increase in daily deliveries on behalf of transportation  
23 customers. For example, data request 46 reports monthly deliveries on behalf of trans-  
24 portation customers of 830,624 Dth. However, the Company's sendout sheets report  
25 confirmed pipeline deliveries of 1,011,501 Dth on behalf of transportation customers.

1 We have no explanation for this large discrepancy and, therefore, have excluded March  
2 1996 data from our analysis. Since one would normally expect usage per heating degree  
3 day to be highest in the December through February period rather than the shoulder  
4 months of November and March, exclusion of March data is not of significant concern.

5 Q. PLEASE ELABORATE UPON MR. MURPHY'S CONCERNS WITH RESPECT  
6 TO USE OF AN AUTO-REGRESSIVE TERM IN YOUR REGRESSION ANALY-  
7 SIS.

8 A. Mr. Murphy claims that the presence of an auto-regressive term can mean that some  
9 explanatory variable has been excluded from the regression equation which could  
10 increase the explanatory power of the equation. Given the counterintuitive results  
11 observed in the monthly degree day coefficients in our initial model, Mr. Murphy  
12 concludes that it is very possible that such was the case with Exeter's model.

13 Q. HOW DO YOU RESPOND TO MR. MURPHY'S CONCERNS WITH REGARD  
14 TO THE USE OF AN AUTO-REGRESSIVE TERM?

15 A. First, while Mr. Murphy is correct that the presence of an auto-regressive term can mean  
16 that some explanatory variable has been excluded from the regression equation, it does  
17 not affirmatively indicate that an explanatory variable was excluded. Furthermore, Mr.  
18 Murphy has conducted no tests to determine what that variable might be. Second, our  
19 revised model no longer produces the counterintuitive results cited by Mr. Murphy.  
20 Therefore, Mr. Murphy has no basis to conclude our model is misspecified.

21 Q. DOES PEOPLES, WEST OHIO'S AFFILIATE, UTILIZE AN AUTO-REGRES-  
22 SIVE TERM IN ITS DESIGN PEAK DAY FORECAST EQUATION?

23 A. Peoples included an auto-regressive term in its design peak day forecast equation for a  
24 number of years. Peoples eliminated the auto-regressive term in its most recent forecast.

1 As such, it is not unusual to include such an auto-regressive term in a design peak day  
2 forecast equation.

3 Q. MR. MURPHY DISCUSSES THE ACCURACY OF YOUR REGRESSION  
4 EQUATION ON FEBRUARY 4, 1996, PEAK DAY DURING THE 1995-96  
5 WINTER SEASON, AND CONCLUDES THAT THE ERRONEOUS HEATING  
6 DEGREE DAY DATA RAISES YET ANOTHER QUESTION REGARDING THE  
7 ANALYSIS USED AS THE FOUNDATION FOR YOUR REALLOCATION OF  
8 CAPACITY COSTS. DO YOU HAVE ANY COMMENTS?

9 A. Yes. Our revised regression equation which corrects for the inaccurate heating degree  
10 day data provided by West Ohio more accurately projects peak day sendout on February  
11 4, 1996. The error observed on that day was 1,432. Mr. Murphy concludes that this level  
12 of precision is reasonable, and only raises the issue as an additional concern given his  
13 other concerns. Given that all of his previous concerns have been addressed and satisfied,  
14 there is no longer any basis for concern.

15 Q. MR. MURPHY VIEWS YOUR FAILURE TO DISCUSS THE NECESSITY FOR  
16 A RESERVE MARGIN IN YOUR DISCUSSION OF SUPPLY PLANNING AS A  
17 SERIOUS OMISSION GIVEN THE LIFE THREATENING CONSEQUENCES OF  
18 A SUPPLY FAILURE. PLEASE COMMENT ON WEST OHIO'S NEED FOR A  
19 RESERVE MARGIN.

20 A. Mr. Murphy implies that a reserve margin of 5,000 Dth is appropriate for West Ohio.  
21 However, Mr. Murphy points to no operational history demonstrating that such a reserve  
22 is reasonable. To the contrary, West Ohio's operational history reveals that when its  
23 customer requirements exceed the Company's capacity entitlements, such has occurred  
24 on January 18, 1994, the Company utilizes overrun service provided by its interstate  
25 pipelines. Second, Mr. Murphy has failed to consider that West Ohio's interstate

1 pipelines currently allow, without penalty, a 3 percent overrun allowance. Third, Mr.  
2 Murphy doesn't explain how an operational failure on one of the pipelines serving West  
3 Ohio can be alleviated by a reserve margin. If a pipeline serving West Ohio experienced  
4 an operational failure and could not deliver gas to West Ohio, an additional 5,000 Dth on  
5 that pipeline would not provide any additional reliability. Finally, it must be remembered  
6 that West Ohio actually utilized a design peak day planning criterion of 70 heating degree  
7 days during the audit period. The probability of occurrence of a 70 heating degree day in  
8 West Ohio's service territory, as determined by West Ohio, was once every 4 years.  
9 West Ohio did not believe a reserve margin above its design peak day capacity needs was  
10 necessary. In calculating our adjustment, we have utilized a conservative 76 heating  
11 degree day design peak day criterion. If the personnel most knowledgeable with West  
12 Ohio system operations did not believe an operational reserve was necessary based on a  
13 70 heating degree day design peak day, certainly it is not necessary at a 76 heating degree  
14 day design peak day.

15 Q. DO YOU HAVE ANY COMMENTS ON THE FOSTER ASSOCIATES, INC.  
16 STUDY CITED BY MR. MURPHY WHICH REVEALS 50 PERCENT OF THE  
17 COMPANIES SURVEYED MAINTAIN AN OPERATIONAL RESERVE WHICH  
18 AVERAGES ABOUT 5 PERCENT OF PEAK DAY REQUIREMENTS?

19 A. Yes. The referenced study surveyed the design peak day forecasting procedures of 13  
20 LDCs. The study identified 5 LDCs as maintaining a reserve margin. One of the studied  
21 LDCs, Peoples, West Ohio's affiliate, is shown to be maintaining a reserve margin of 10  
22 percent. This is factually incorrect. Peoples does not maintain a reserve margin. Of the  
23 remaining LDCs maintaining a reserve margin, two maintain a reserve margins of less  
24 than 1.0 percent. The two LDCs maintaining reserve margins of greater than 1 percent  
25 are Atlanta Gas Light (1.6 percent) and Baltimore Gas & Electric (10.7 percent). These

1 two LDCs maintain reserve margins largely to protect against failure of their on-system  
2 LNG or Propane-air facilities. West Ohio does not operate LNG or Propane-air facilities  
3 and, therefore, an operational reserve for this purpose is unnecessary.

4 Q. PLEASE EXPLAIN WHY YOU ARE CONTINUING TO RECOMMEND THAT  
5 GCR CUSTOMERS' RATES BE ADJUSTED TO REFLECT THE DISALLOW-  
6 ANCE OF COSTS ASSOCIATED WITH 10,000 DTH OF INTERSTATE PIPE-  
7 LINE CAPACITY WHEN YOUR REVISED FORECAST INDICATES THAT  
8 THE COMPANY RESERVES 7,500 DTH OF CAPACITY WHICH IS IN EXCESS  
9 OF GCR CUSTOMERS' REQUIREMENTS.

10 A. As shown on PUCO Exhibit No. 4, the delivery deficiencies of transportation customers  
11 are frequently in excess of 12,000 Dth, and have been as high as 16,000 Dth. That is,  
12 transportation customers utilize and require up to 16,000 Dth of capacity to meet their  
13 delivery deficiencies. If this capacity, which is currently paid for in its entirety by GCR  
14 customers, was not required to accommodate transportation customers delivery deficien-  
15 cies, the capacity could be released and GCR customers would receive the benefit of the  
16 capacity release revenues generated by those releases. Since it is difficult to quantify  
17 those potential release revenues and transportation customers have a demonstrated need  
18 for 16,000 Dth of interstate pipeline capacity, 10,000 Dth strikes a reasonable balance  
19 between the needs of GCR and transportation customers.  
20  
21



1 **IV. Diversity of Gas Supply Portfolio**

2 Q. PLEASE SUMMARIZE YOUR RECOMMENDATION CONCERNING THE  
3 DIVERSITY OF WEST OHIO'S GAS SUPPLY PORTFOLIO WHICH WERE  
4 EXPRESSED IN YOUR AUDIT REPORT AS THEY RELATE TO MR.  
5 HOLLEWA'S TESTIMONY.

6 A. Our audit observed that West Ohio currently purchases nearly all of its gas supplies under  
7 arrangements in which the applicable commodity price of gas is based on the prevailing  
8 market price just prior to delivery each month. Therefore, we recommended that West  
9 Ohio consider purchasing a portion of its gas supplies at market prices at varying lengths  
10 of time prior to delivery. For example, West Ohio could purchase a portion of its  
11 December gas supplies during July. Both the July price for December deliveries and the  
12 December cash price are market based prices. By diversifying its pricing alternatives,  
13 West Ohio would no longer experience the risk it is currently exposed to by its reliance  
14 on current cash prices for gas.

15 Q. DOES MR. HOLLEWA CONCUR WITH YOUR RECOMMENDATION?

16 A. No. Mr. Hollewa endorses West Ohio's current purchasing practices for two reasons.  
17 First, he likens our recommendation to commodity trading which he considers a zero sum  
18 game. Second, he observed that following such an approach during the 1983 through  
19 1995 time frame would have resulted in higher costs to ratepayers.

20 Q. DO MR. HOLLEWA'S OBSERVATIONS CHANGE YOUR INITIAL RECOM-  
21 MENDATION?

22 A. No. We are not recommending that West Ohio enter into long-term, fixed price arrange-  
23 ments as Mr. Hollewa implies. We recommend that West Ohio purchase its gas supplies  
24 no earlier than one year prior to delivery. All acquisitions would be based on revealed  
25 market prices. Total reliance on either current cash prices or on current prices for future

1 deliveries would be avoided. Our recommendation will result in additional moderation of  
2 price volatility, such as that which occurred during December 1996 and January 1997.  
3

4 **V. Summary of Recommendations**

5 Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING THE  
6 COSTS ASSOCIATED WITH WEST OHIO'S HIGH PRICED SPOT MARKET  
7 PURCHASES DURING FEBRUARY 1996.

8 A. We recommend that GCR customers' rates be reduced by \$375,081 to reflect the costs  
9 associated with high priced spot market gas purchased to meet the delivery deficiencies  
10 of transportation customers.

11 Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING THE  
12 COSTS ASSOCIATED WITH RESERVING INTERSTATE PIPELINE CAPAC-  
13 ITY WHICH IS UTILIZED AND IS NECESSARY TO SERVE TRANSPORTA-  
14 TION CUSTOMERS.

15 A. We continue to recommend that beginning April 1, 1996, the costs reflected in GCR  
16 customers' rates be reduced to exclude the costs associated with 4,000 Dth of capacity  
17 which was excess to the needs of GCR customers and was utilized and is necessary to  
18 serve transportation customers. We continue to recommend that effective November  
19 1996, GCR customers' rates be adjusted to exclude 10,000 Dth of capacity which is  
20 utilized and necessary to accommodate the delivery deficiencies of transportation  
21 customers.

22 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

23 A. Yes, it does.

BEFORE THE  
PUBLIC UTILITIES COMMISSION OF OHIO

WEST OHIO GAS COMPANY     )     CASE NO. 96-221-GA-GCR

EXHIBITS ACCOMPANYING THE  
REBUTTAL TESTIMONY OF  
THOMAS S. CATLIN AND JEROME D. MIERZWA

ON BEHALF OF  
THE STAFF OF THE  
PUBLIC UTILITY COMMISSION OF OHIO

FEBRUARY 1997

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**EXETER**  
Associates, Inc.

12510 Prosperity Drive  
Suite 350  
Silver Spring, MD 20904

SPOT MARKET GAS PURCHASE  
WEST OHIO GAS COMPANY

DATE: 2-2-96 LOCATION RAYNE OR TCO POOL

VOLUME: 20,000 dth/day TYPE: SWING

PERIOD: start: 2-2-96 end: 2-5-96

SUPPLIER	PHONE		PRICE	PRICE	NOTES
PAN ENG	713-260-8582	ken	\$10.000	\$9.750	<5,000 at each price, only gas
AMOCO	713-366-4976	christian			<avail.; got reduct on 2n buy
AQUILLA	402-498-4522	bob / jeff	N/I		
ANARDARKO	713-874-3263	jake			
CNG	412-787-4008	carl/ken	N/I		
CHEVRON	713-754-2776	john			
COAST	713-778-6218	buck	N/A		pool is short
CO ENERGY	313-963-3632	monte	N/A		
COASTAL	313-496-5207	phil	N/A		
CONOCO	713-293-3624	jackie			
EASTERN	703-317-2269	mike/jeff	\$9.500	\$9.750	started at \$11. did 2 pkgs
ENRON	713-853-5136	dick			
HADSON	214-640-6728	scott	\$14.000		tco only
KCS	713-964-9477	eric	N/A		
MIDCON	713-963-3226	robin	N/A		thru next week
MOBIL	413-775-2825	dave			
NOBLE	713-876-8835	brian	N/A		pool is short
SEMCO	914-781-5030	cynthia	\$9.900		<5,000 city gate, curtailed gas
	810-989-4120	cynthia			<from eastern cust.
TEXACO	713-752-7881	bill			
	713-752-7822	donna	N/A		last moved at \$15
UNION PAC	817-877-6696	denise			
SONAT	713-840-4905	jeff brandt			
TENNECO	713-757-1788	john			
	713-757-2805	linda	N/A		
NGTS	713-404-9353	scot j. x194	N/A		

COMPANY	POOL #	VOLUME	PRICE	TIME
PAN ENG	P1039810	5,000	\$10.000	2-3 / 2-5
PAN ENG	P1039810	5,000	\$9.750	2-3 / 2-5
EEM	P1037154	5,459	\$9.500	2-3 / 2-5
EEM	P1037154	4,000	\$9.500	2-4 / 2-5
EEM	P1037154	1,000	\$9.750	2-4 / 2-5
SEMCO	CITY GATE	5,000	\$9.900	2-2 / 2-5

market really tight. no rayne gas avail. freeze offs, use, maxes pipe cap, weather and storage levels seem to be drivers on price; supply very hard to find; buys to delay tco stor. ratchet & insure supply

N/A: gas not available  
N/C: not called  
N/I: not in/left mess.  
R/P: request price

Purchased by:

*Paul Brueckner*  
Paul Brueckner

Approved by:

*Anthony A. Doster*  
Anthony Doster

spotnom

WEST OHIO GAS COMPANY  
TRANSPORTATION VOLUMES (DTH)  
NOMINATION/DELIVERED - System & End Users

Negative ( ) - Injected in Storage  
Positive - Withdraw from storage

FEB. 1996	SYSTEM FIS	AGENCY END-USE	NOM. ENDUSER	CNG SWAP	DAILY STORAGE NOMINATED	TOTAL CITY GATE NOMINATION	ANR DELIVERED	DAILY STORAGE NNS DELIVERY
1	9,335	4,000	0	3,001	9,934	26,270	27,487	1,217
2	9,335	4,000	0	3,001	10,934	27,270	26,973	(297)
3	9,335	4,000	0	3,001	11,934	28,270	26,826	(1,444)
4	7,675	3,282	0	3,001	11,934	25,892	27,048	1,156
5	7,675	3,282	0	3,001	11,934	25,892	25,855	(37)
6	8,735	3,282	0	3,001	11,934	25,952	25,156	1,204
7	8,735	4,000	0	3,001	8,820	24,656	25,394	738
8	8,879	4,000	0	3,000	8,820	24,799	24,984	185
9	9,335	4,000	0	3,000	5,934	22,269	22,036	(233)
10	9,335	4,000	0	3,000	4,434	20,769	20,665	(104)
11	9,335	4,000	0	0	7,985	21,320	21,060	(260)
12	9,335	4,000	0	0	8,362	21,697	22,357	660
13	9,335	4,000	0	0	8,434	21,769	21,855	86
14	9,335	4,000	0	0	8,434	21,769	22,759	990
15	9,335	7,001	0	0	8,434	24,770	24,958	188
16	9,335	4,000	0	0	8,434	21,769	22,209	440
17	9,335	4,000	0	0	8,434	21,769	21,358	(411)
18	9,335	4,000	0	0	8,434	21,769	22,150	381
19	9,335	4,000	0	0	5,934	19,269	19,253	(16)
20	9,335	4,000	0	0	5,201	18,536	18,344	(192)
21	9,335	4,000	0	0	3,280	16,615	15,476	(1,139)
22	9,335	4,000	0	0	5,111	18,446	18,440	(6)
23	9,335	4,000	0	0	(3,659)	9,676	9,539	(137)
24	9,335	4,000	0	0	5,489	18,824	18,225	(599)
25	9,335	4,000	0	0	(2,295)	11,040	10,371	(669)
26	9,335	4,000	0	0	(1,884)	11,451	10,285	(1,166)
27	9,335	4,000	0	0	(2,556)	10,779	10,770	(9)
28	9,335	4,000	0	0	4,934	18,269	18,593	324
29	9,335	4,000	0	0	4,934	18,269	18,170	(99)
30						0	0	
31						0	0	
	235,739	116,847	0	30,007	188,252	600,845	601,596	751

WEST OHIO GAS COMPANY  
TRANSPORTATION VOLUMES (DTH)  
NOMINATION/DELIVERED - System & End Users  
COLUMBIA

Negative ( ) - Collected in Storage  
Positive - Withdrew from storage

FEB. 1996	SYSTEM FTS	CNG GAS SERV. AGENCY	END-USER	IPP POOL	STORAGE FOR SDI	TOTAL NOMINATION EXCEPT STORAGE	TCO DELIVERED	COL'S ACTUAL (IN/OUT STORAGE)
1	16,351	9,629	10,676	1,804	0	36,656	93,739	58,958
2	22,847	10,872	5,881	1,804	0	40,600	98,831	60,209
3	27,155	10,872	8,048	1,804	0	46,073	90,761	46,257
4	30,513	10,872	7,253	1,804	0	48,638	100,249	53,393
5	54,006	10,872	11,551	1,804	0	76,429	95,552	20,166
6	42,403	9,597	12,909	1,804	0	64,909	68,118	3,705
7	38,104	9,800	12,909	1,804	0	60,913	52,811	(7,794)
8	28,151	9,597	12,656	1,804	0	48,404	41,901	(6,231)
9	29,142	9,597	13,488	1,804	0	52,527	40,087	(12,173)
10	26,407	9,049	12,218	1,804	0	47,674	33,919	(13,539)
11	26,407	8,815	12,218	1,804	0	47,440	64,001	17,333
12	31,163	8,815	13,488	1,804	0	53,466	78,181	25,740
13	27,134	9,471	13,488	1,804	0	50,793	68,646	18,872
14	27,158	12,503	13,488	1,804	0	53,349	61,900	9,125
15	27,158	9,507	13,488	1,804	0	50,353	63,317	13,617
16	32,115	9,507	13,488	1,804	2,000	55,110	69,411	15,013
17	32,590	12,127	13,057	1,804	2,000	57,774	70,178	13,112
18	32,590	12,127	10,168	1,804	2,000	54,895	65,873	11,603
19	32,590	12,127	13,488	1,804	2,000	58,205	54,012	(3,871)
20	13,090	12,127	13,538	1,804	2,000	38,755	39,666	1,150
21	13,090	12,127	20,053	1,804	2,000	45,270	49,951	5,075
22	13,090	13,257	21,274	1,804	0	47,621	57,464	12,411
23	13,090	13,259	22,384	1,804	2,000	48,733	45,946	(2,520)
24	13,090	13,259	21,475	1,804	1,000	47,824	42,146	(5,412)
25	13,090	13,257	21,473	1,804	1,000	47,820	38,210	(9,359)
26	13,090	13,257	22,384	1,804	1,000	48,731	37,287	(11,223)
27	13,090	13,259	22,384	1,804	1,000	48,733	33,800	(14,699)
28	13,090	13,259	22,384	1,804	0	48,733	87,163	39,871
29	13,090	13,259	22,384	1,804	0	48,733	89,079	48,868
30						0	0	
31						0	0	
	714,384	326,076	434,691	52,316	18,000	1,475,151	1,832,199	387,457



95195#capsm2-B



CAPACITY SUMMARY &gt; 11-1-95 THRU 1-30-96

**GAS DAY:**

215 / 1998

[illegible]

**TOTAL SYSTEM THROUGHPUT NOW**

**MINIMUM MUST TAKE -- TCO III**

<b>SYSTEM TOTAL TAKE MINIMUM III</b>	<b>71,932</b>
--------------------------------------	---------------

SYSTEM TOTAL TAKE AVAILABLE RI 1747.500

**ITCO TOTAL TAKE WITH STORAGE**

**parking return**

**Legal**

**CAP AVAILABLE**

10

230

CAP REL: 210700 1-29

**000**

**CAPACITY AVAILABLE**

15701

9595 McCaskey 2-B



CAPACITY SUMMARY &gt; 11-1-85 THRU 4-30-86

**GAS DAY: 21 5 / 1996**

PIPELINE RETAINAGE									
DESCRIPTION	IPP POOL #48521	city gate delivery	0.97709 SST #30800	FTS #38117	FTS #38134	FTS-1 #38001	WELL HEAD	CITY GATE NOM	PRICE
MCO	1,804		0	31,051	2,700	31,623			
MCO OVER/UNAUTH.									
CNG-ESC				208		213	219		
CNG-ESC				2,625			2,687		
MIDCON				2,832		2,823	2,694		
HADSON				4,984		5,101	5,240		
E E MKTG					2,690		2,753		
SEMCO - SPOT	5		4,201				4,300		
SEMCO - CITY GATE	3-6						0		
EEM - SPOT	3-6	8,000		5,334			5,459		
PAN ENG - SPOT	3-6			9,771			10,000		
EEM - SPOT	4-5			4,985			5,000		
TENNECO SPOT	5		11,725				12,000		
IPP POOL									
PARKING SERVICE	(1,804)								
CNG-ESC SWAP									
COM									
COM									
ANADARKO									
SPOT									
ANR W/D # 31450	<								3,046
ANR W/D # 33850	<								2,432
ANR W/D # 33800	<								2,340
ANR W/D # 98031	<								2,406
SYS SUPPLY	0	5,000	15,927	30,441	2,690	7,937	50,352		
CITY/GT SIS NOM									
CITY/GT TRANS NOMS									
TOT. SYS. THROUGH NOM		-37448	slow wd						
<div> <div>MINIMUM MUST TAKE - I G O III</div> <div>54,057</div> </div>									
<div> <div>MINIMUM MUST TAKE - A N R III</div> <div>22,423</div> </div>									
<div> <div>MINIMUM MUST TAKE - A N R III</div> <div>78,480</div> </div>									
<div> <div>SYSTEM TOTAL TAKE MINIMUM III</div> <div>103,135</div> </div>									
<div> <div>SYSTEM TOTAL TAKE AVAILABLE III</div> <div>151,890</div> </div>									
<div> <div>TOT. TAKE WITH STORAGE</div> <div>125,235</div> </div>									

**parking return**

CAP AVAILABLE

CAP REL :  
#10700  
1-20

CAPACITY AVAILABLE

05/95/capam2-8

## CAPACITY SUMMARY - 11-1-83 THRU 4-30-86

**GAS DAY: 21 FEB 1998**

PIPELINE RETAINAGE									
DESCRIPTION	IPP POOL #49521	city gate delivery	SST #38090	FTS #38117	FTS #38134	FTS-1 #38001	WELL HEAD	CITY GATE NOM	PRICE
MDQ	1,804		(11,723)	31,051	2,700	31,023			
MDQ OVERLUN AUTH.	6-12 hotly blend		(20,000)						
CHG-ESC				208		213			
CHG-ESC				2,825		2,887			
MIDCON				2,632		2,823			
HADSON				4,984		5,181			
E.E.MKTO					2,690	2,753			
SPOT - HADSON	1-3			0		0			
SEMCO - CITY GATE	2-5					0			
EEM - SPOT	6	9,771		9,771		10,000			
PAN ENG - SPOT	6			9,771		10,000			
SEMCO - SPOT	6			9,771		10,000			
IPP POOL	(1,804)								
PARKING SERVICE									
CHG-ESC SWAP									
CGM									
CGM									
ANADARKO									
SPOT									
ANR WID # 31450									
ANR WID # 33660									
ANR WID # 33900									
ANR WID # 98031									
SYS SUPPLY									
CITYGT SYS NOM									
CITYGT TRANS NOMS									
TOT SYS THRU PUT NOM									
	0	0	9,771	20,992	2,690	7,937	43,593		
								42,453	
								19,773	
								30,503	
MINIMUM MUST TAKE - T C Q M									
SYSTEM TOTAL TAKE MINIMUM III									
SYSTEM TOTAL TAKE AVAILABLE III									
TCC TOTAL TAKE WITH STORAGE									
TOT SYS THRU PUT NOM									
	0	0	9,771	20,992	2,690	7,937	43,593		
								42,453	
								19,773	
								30,503	
MINIMUM MUST TAKE - T C Q M									
SYSTEM TOTAL TAKE MINIMUM III									
SYSTEM TOTAL TAKE AVAILABLE III									
TCC TOTAL TAKE WITH STORAGE									
TOT SYS THRU PUT NOM									
	0	0	9,771	20,992	2,690	7,937	43,593		
								42,453	
								19,773	
								30,503	
MINIMUM MUST TAKE - T C Q M									
SYSTEM TOTAL TAKE MINIMUM III									
SYSTEM TOTAL TAKE AVAILABLE III									
TCC TOTAL TAKE WITH STORAGE									
TOT SYS THRU PUT NOM									
	0	0	9,771	20,992	2,690	7,937	43,593		
								42,453	
								19,773	
								30,503	
MINIMUM MUST TAKE - T C Q M									
SYSTEM TOTAL TAKE MINIMUM III									
SYSTEM TOTAL TAKE AVAILABLE III									
TCC TOTAL TAKE WITH STORAGE									
TOT SYS THRU PUT NOM									
	0	0	9,771	20,992	2,690	7,937	43,593		
								42,453	
								19,773	
								30,503	
MINIMUM MUST TAKE - T C Q M									
SYSTEM TOTAL TAKE MINIMUM III									
SYSTEM TOTAL TAKE AVAILABLE III									
TCC TOTAL TAKE WITH STORAGE									
TOT SYS THRU PUT NOM									
	0	0	9,771	20,992	2,690	7,937	43,593		

Table VI-3

**WEST OHIO GAS COMPANY**Summary of Transportation Customer Daily Imbalances  
(Mcf)

<u>Date</u>	<u>Quantity Delivered</u>	<u>Quantity Consumed</u>	<u>Imbalance (Under)/Over</u>
January 23, 1996	20,817	25,225	(4,408)
January 24, 1996	20,817	30,788	(9,971)
January 25, 1996	18,802	28,230	(9,428)
January 26, 1996	19,236	23,203	(3,967)
January 27, 1996	13,997	23,997	(10,000)
January 28, 1996	20,968	24,503	(3,535)
January 29, 1996	16,155	28,557	(12,402)
January 30, 1996	16,155	31,831	(15,676)
January 31, 1996	15,834	23,671	(7,837)
February 1, 1996	22,971	35,171	(12,200)
February 2, 1996	20,560	34,298	(13,738)
February 3, 1996	21,661	30,368	(8,707)
February 4, 1996	20,231	33,129	(12,898)
February 5, 1996	24,290	34,590	(10,300)
February 6, 1996	24,369	30,034	(5,665)
TOTAL	296,866	437,595	(140,729)

LS // Dependent Variable is SYSTOT  
Date: 01/31/97 Time: 12:11  
Sample(adjusted): 11/02/1995 2/29/1996  
Included observations: 120 after adjusting endpoints  
Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33673.98	2948.784	11.41962	0.0000
DECHDD	1222.850	82.79972	14.76877	0.0000
FEBHDD	1373.590	79.11879	17.36112	0.0000
FRI	-1817.247	1847.870	-0.983428	0.3276
HOL	-7110.703	3712.429	-1.915378	0.0580
JANHDD	1347.019	77.74725	17.32562	0.0000
NOVHDD	1131.077	105.1569	10.75608	0.0000
SAT	-4391.475	1986.830	-2.210292	0.0292
SUN	-4597.205	1864.156	-2.466106	0.0152
AR(1)	0.298261	0.101599	2.935679	0.0041
R-squared	0.878475	Mean dependent var	78609.67	
Adjusted R-squared	0.868532	S.D. dependent var	19195.60	
S.E. of regression	6960.048	Akaike info criterion	17.77554	
Sum squared resid	5.33E+09	Schwarz criterion	18.00783	
Log likelihood	-1226.805	F-statistic	88.35120	
Durbin-Watson stat	2.007505	Prob(F-statistic)	0.000000	
Inverted AR Roots	.30			

LS // Dependent Variable is SALES  
Date: 01/31/97 Time: 12:12  
Sample(adjusted): 11/02/1995 2/29/1996  
Included observations: 120 after adjusting endpoints  
Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15354.95	2399.203	6.400021	0.0000
DECHDD	1059.240	66.33488	15.96807	0.0000
FEBHDD	1110.363	65.01400	17.07883	0.0000
FRI	-726.0208	1580.272	-0.459428	0.6468
HOL	-3122.035	3161.464	-0.987528	0.3256
JANHDD	1137.902	62.42377	18.22866	0.0000
NOVHDD	1023.407	85.38729	11.98547	0.0000
SAT	239.7323	1675.176	0.143109	0.8865
SUN	-934.4950	1592.312	-0.586879	0.5585
AR(1)	0.240322	0.101950	2.357246	0.0202
R-squared	0.865605	Mean dependent var	54839.62	
Adjusted R-squared	0.854609	S.D. dependent var	15522.44	
S.E. of regression	5918.722	Akaike info criterion	17.45141	
Sum squared resid	3.85E+09	Schwarz criterion	17.68370	
Log likelihood	-1207.357	F-statistic	78.72056	
Durbin-Watson stat	2.001809	Prob(F-statistic)	0.000000	
Inverted AR Roots	.24			

LS // Dependent Variable is TRANS

Date: 01/31/97 Time: 12:12

Sample(adjusted): 11/02/1995 2/29/1996

Included observations: 120 after adjusting endpoints

Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18130.24	1006.575	18.01182	0.0000
DECHDD	167.3153	29.60489	5.651610	0.0000
FEBHDD	279.2578	26.85708	10.39792	0.0000
FRI	-1091.720	585.6467	-1.864127	0.0650
HOL	-2880.340	1254.555	-2.295905	0.0236
JANHDD	205.7940	27.37499	7.517591	0.0000
NOVHDD	107.6947	36.93333	2.915921	0.0043
SAT	-4573.640	654.7722	-6.985086	0.0000
SUN	-3636.631	594.6109	-6.115984	0.0000
AR(1)	0.462023	0.097857	4.721430	0.0000
R-squared	0.796216	Mean dependent var	23770.04	
Adjusted R-squared	0.779542	S.D. dependent var	4823.775	
S.E. of regression	2264.903	Akaike info criterion	15.53023	
Sum squared resid	5.64E+08	Schwarz criterion	15.76252	
Log likelihood	-1092.086	F-statistic	47.75404	
Durbin-Watson stat	2.149205	Prob(F-statistic)	0.000000	
Inverted AR Roots	.46			



## WEST OHIO GAS COMPANY

Calculation of Design Peak Day Requirements and Excess Capacity Entitlements  
Based on Usage During the 1995 - 1996 Winter Season  
(Dth)

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TOTAL SYSTEM USAGE

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Usage per Heating Degree Day	1,382
Design Peak Day Heating Degree Days	<u>76</u>
Heat Sensitive Usage	105,035
Non-Heat Sensitive Usage	34,550
Total Design Day Usage	139,585

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TRANSPORTATION CUSTOMER USAGE

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Usage per Heating Degree Day	211
Design Peak Day Heating Degree Days	<u>76</u>
Heat Sensitive Usage	16,047
Non-Heat Sensitive Usage	18,602
Total Design Day Usage	34,649

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GCR CUSTOMER USAGE

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Usage per Heating Degree Day	1,167
Design Peak Day Heating Degree Days	<u>76</u>
Heat Sensitive Usage	88,729
Non-Heat Sensitive Usage	<u>15,754</u>
Total Design Day Usage	104,483
Design Peak Day Capacity Entitlements	111,999
Excess Capacity Entitlements	<u>7,516</u>

