Exhibit No.:
Issue: Noranda Rate and Cost Of Service
Witness: Donald Johnstone
Type of Exhibit: Direct Testimony
Sponsoring Party: Noranda
Case Number: GR-2006-0387
Date Testimony Prepared: Sep. 26, 2006

Atmos Energy Corporation

Case No. GR-2006-0387

Prepared Direct Testimony of

Donald Johnstone

On behalf of

Noranda Aluminum, Inc.

September 2006

BEFORE THE

PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Atmos Energy Corporation's Tariff Revision Designed to Consolidate Rates and Implement a General Rate Increase for Natural Gas Service in the Missouri Service Area of The Company.	))))))	Case No. GR-2006-0387

Affidavit of Donald Johnstone

State of Missouri)
) ss
County of Miller)

Donald Johnstone, of lawful age, on his oath states: that he has reviewed the attached written testimony in question and answer form, all to be presented in the above case, that the answers in the attached written testimony were given by him; that he has knowledge of the matters set forth in such answers; that such matters are true to the best of his knowledge, information and belief.

Donald Johnstone

Subscribed and sworn before me this 26th day of September, 2006

Notary Public

SEAL]

DENISE BAKER
Notary Public - Notary Seal
STATE OF MISSOURI
Miller County
My Commission Expires: June 17, 2007

My Commission expires: 6/17/07

Before the
Missouri Public Service Commission

Atmos Energy Corporation

Case No. GR-2006-0387

Prepared Direct Testimony of Donald Johnstone

Q PLEASE STATE YOUR NAME AND ADDRESS.

A Donald Johnstone. My address is 384 Black Hawk Drive, Lake Ozark, Missouri, 65049.

Q BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A I am employed as President of Competitive Energy Dynamics, L. L. C.

Q PLEASE SUMMARIZE YOUR EDUCATION AND EXPERIENCE.

A My qualifications and experience are set forth in Appendix A.

Q WHAT ARE THE PURPOSES OF YOUR TESTIMONY?

A My purposes are to provide an estimate of the cost of the natural gas transportation service provided to Noranda at its plant located near New

Madrid, Missouri, to recommend that the Gas Transportation Agreement between Atmos and Noranda (the "Agreement") be honored, and to recommend the Agreement be adopted as a rate schedule.

The Noranda facility that receives service from Atmos is described in the testimony of Mr. George Swogger that is also being filed on the date. Like Mr. Swogger, I will refer to the facility as the "Smelter."

Q WHAT SERVICE DOES ATMOS PROVIDE TO THE SMELTER?

A Atmos provides interruptible transportation service. This service consists of accepting delivery of natural gas owned by Noranda from an interstate pipeline and delivering the natural gas to Noranda. However, Atmos does not have sufficient capacity to enable it to deliver natural gas to the Smelter during periods of high system demand. Consequently, the transportation service is interruptible. Noranda maintains a propane system to use when natural gas is unavailable. But natural gas is the preferred fuel and it is used when it is available.

Q DOES THE SMELTER USE LARGE QUANTITIES OF NATURAL GAS?

A Yes. Historically the Smelter has been the largest customer of Atmos and its predecessor, Associated Natural Gas Company ("ANG"). Prior to the Agreement Noranda was the only customer receiving service under the large volume rate schedule.

Q DOES THE SIZE OF THE SMELTER LOAD INFLUENCE THE FACILITIES THAT ARE USED TO PROVIDE THE SERVICE?

A Yes. As a consequence of the size of the load the Smelter is served via an 8 inch transmission line and none of the smaller distribution or service lines are used in providing the required service. This is a fact established by Noranda in the last case and ascertained by the company, which was Associated Natural Gas at the time.

Q WHO WAS THE EXPERT THAT APPEARED ON BEHALF OF NORANDA IN THE LAST CASE?

A The witness was John Mallinckrodt. At the time both Mr. Mallinckrodt and I were employed by Brubaker and Associates, Inc.

Q WHAT WAS THE PROFESSIONAL RELATIONSHIP BETWEEN YOU AND MR. MALLINCKRODT?

A I was a principal of the firm and Mr. Mallinckrodt was a consultant. In the context of GR-97-272 Mr. Mallinckrodt worked under my direction and supervision.

Q ARE YOU FAMILIAR WITH MR. MALLINCKRODT'S WORK ON THE CLASS COST-OF-SERVICE STUDY THAT HE SUBMITTED IN GR-97-272?

A Yes. I have reviewed the study and related testimony to refresh my recollection. At the time of the 1997 case I had asked Mr. Mallinckrodt to

investigate the possibility that the service to Noranda utilized only transmission facilities and did not utilize distribution facilities such as distribution lines, regulators and service lines. In fact, that was the finding and it was confirmed by ANG.

Q IS IT IMPORTANT TO DETERMINE WHICH FACILITIES ARE USED TO PROVIDE SERVICE?

A Yes. In order to correctly determine the cost of providing any service the first step is to define the service and to identify the facilities used to provide the service. For a large customer like the Smelter it is not unusual to find that the myriad facilities that are needed to provide service to the multitude of smaller customers are simply unneeded and not used in providing the large volume service.

For example, the Smelter is connected to an 8 inch transmission line. It is probably obvious, but to illustrate the point I will discuss service lines in contrast to the transmission line. The many service lines, that are typically less than 1 inch in diameter for the smaller customers, could not possibly be used in providing service to Noranda. There is no physical proximity, no physical path for the gas, and no way to move the quantities of gas needed by the Smelter though such small pipes. This same situation extends to the distribution lines that are not used in providing service to the Smelter.

Q WAS THE COST OF THE 8 INCH TRANSMISSION LINE THAT PROVIDES SERVICE TO NORANDA DISCOVERED?

A Yes. ANG provided the information. The original cost was $77,416.64 when it was placed in service in 1970 and the net undepreciated cost in 1997 was much less, $49,852.45

Q WHAT IS THE COST OF THE ANG EQUIPMENT THAT CONNECTS THE SMELTER TO THE TRANSMISSION LINE?

A The cost of the equipment is $28,869, as provided by ANG in a response to a data request.

Q ARE THERE OTHER COSTS ALSO?

A Yes, there are many joint and common costs that are properly allocated among customers including Noranda, but these are the major direct costs.

Q WHAT WAS THE MONTHLY CUSTOMER CHARGE PAID BY NORANDA AT THE TIME OF THE 1997 CASE?

A It was $12,500 per month. Clearly there was no cost basis for this level of charge. It was set so high that this charge by itself would have paid for the original cost of the transmission facilities and connection facilities used to provide service to the Smelter. The payback would have been in about 9 months. Of course, what should have been recovered in the rate is only the annual depreciation expense and a return on the net investment. For the

transmission facilities the depreciation rate is 2.43%. Unfortunately, over the years Noranda has provided revenues far in excess of cost and it has been very difficult to resolve the problem.

Q DO THESE FIGURES ILLUSTRATE WHY NORANDA WOULD CONSIDER A BYPASS OF ANG OR ATMOS?

A At a very rough level these figures illustrate the low cost of the facilities necessary to move natural gas from a pipeline to Noranda. They also illustrate on the same very rough level how easy it would be for Atmos to compete with a bypass in an economic sense. I must point out, however, that I was not the consultant used by Noranda in the context of the bypass and the negotiation of the current contract. Consequently, I have no knowledge of the costs actually considered by Atmos or Noranda.

Instead, what I am here to address is the work that went into properly identifying the ANG/Atmos costs incurred to serve the Smelter. The lack of any progress towards an equitable cost-based rate before the Commission was a cause of serious concern for Noranda that gave rise to the appeals of the Commission decision and later the Agreement between Noranda and Atmos. The Agreement allowed the case to finally be dismissed as moot in January of 2003, six years after it started.

Q HOW DOES THE TOTAL COST OF SERVICE TODAY COMPARE TO THE COST IN 1997, EXCLUDING THE COST OF GAS?

A In its filing in this case Atmos has applied for an increase of $3.4 million in the overall nongas revenues, the first since 1997. In contrast, Staff proposes a rate decrease. In the Southeast Missouri District Staff recommends a decrease of $1.3 million, which amounts to a 5.6% decrease in the non-gas revenues.

Q UNDER THESE CIRCUMSTANCES WOULD IT BE REASONABLE TO USE A 1997 CLASS COST-OF-SERVICE STUDY FOR THE LIMITED PURPOSE OF GAINING AN IDEA OF THE COST TO SERVE THE SMELTER?

A I believe so. For that limited purpose I am attaching the direct testimony and schedules of Mr. Mallinckrodt. The class cost-of-service study described in the testimony documents a cost to serve Noranda of 6.1 cents per MCF. Depending on the results of this case that cost may go up or down by a few percent, assuming the relative costs and usage levels have not changed.

Q DO YOU AT THIS TIME RECOMMEND THE DEVELOPMENT AND APPROVAL OF A COST BASED RATE FOR SERVICE TO THE SMELTER?

A No. Under the circumstances of this proceeding I see no reason to develop a rate applicable for transportation service to the Smelter that is strictly cost based. Given the Agreement, such a rate would be moot at this time. Also, while I believe that cost is fundamentally a good place to start for the

development of a rate, I am advised by my client, Mr. Swogger, that Noranda fully intends to honor its commitments under the Agreement between Noranda and Atmos. Noranda expects the same from Atmos and is hopeful that the possibilities of relitigating the Noranda rate/Agreement will be minimized. The contract has a ten year term that began January 1, 2003. Thus the parties are in the fourth year of the Agreement and six years remain.

Q SHOULD THE COMMISSION TAKE ANY ACTION WITH RESPECT TO THE CONTRACT?

A I recommend that it be adopted as a confidential rate schedule and made a part of the Atmos tariff.

Q WOULD THAT MAKE IT SUBJECT TO CHANGE BY THE COMMISSION?

A While I am not an attorney, it is my understanding that rates for regulated service are subject to review and change pursuant to a proper order of the Commission.

On the other hand, the contract prices for the remaining six years of the agreement are defined and set at a level that is substantially above the current 6.1 cent per MCF estimated cost to serve the Smelter. Inasmuch as Noranda and Atmos are both satisfied with the Agreement I believe it is appropriate to allow it to stand and be made a rate schedule. All of the other customers will

receive the continuing benefit of Noranda contributions in excess of the cost of service so it is more than equitable with respect to the other customers.

The advantages I see to making the contract a rate schedule are several. First, in consideration of the present circumstances I believe it is appropriate to recognize the contract rate levels as reasonable. As such, other customers will continue to receive the benefits of Noranda revenue contributions under the Agreement. Second, as a rate schedule the Agreement will provide a starting point for rates subsequent to the Agreement. I understand that the Agreement as a rate schedule would be presumed to be just and reasonable so it would provide that weight as a point of departure for future rate determinations. Third, the possibility of relitigating the revenue and rate implications of the Agreement during the remaining term of the ten year Agreement will be minimized for the Commission, Staff, Noranda, Atmos and other parties. Fourth, while there are no absolute guarantees, it would be a benefit to Noranda to have the stability that would likely be the result if the Agreement were adopted as a rate schedule.

A final advantage is that a reasonable rate for the Smelter will contribute to its continuing viability. And a viable Noranda Smelter is of vital interest to the State of Missouri, as explained in the testimony of Mr. Swogger, and in the statement of Mr. Cooper at the Sikeston public hearing.

1 Q **DOES THIS CONCLUDE YOUR TESTIMONY?**

2 A Yes it does.

Appendix A

Qualifications of Donald E. Johnstone

Q PLEASE STATE YOUR NAME AND ADDRESS.

A Donald E. Johnstone. My address is 384 Black Hawk Drive, Lake Ozark, MO 65049.

Q PLEASE STATE YOUR OCCUPATION.

A I am President of Competitive Energy Dynamics, L. L. C. and a consultant in the field of public utility regulation.

Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A In 1968, I received a Bachelor of Science Degree in Electrical Engineering from the University of Missouri at Rolla. After graduation, I worked in the customer engineering division of a computer manufacturer. From 1969 to 1973, I was an officer in the Air Force, where most of my work was related to the Aircraft Structural Integrity Program in the areas of data processing, data base design and economic cost analysis. Also in 1973, I received a Master of Business Administration Degree from Oklahoma City University.

From 1973 through 1981, I was employed by a large Midwestern utility and worked in the Power Operations and Corporate Planning Functions. While in the Power Operations Function, I had assignments relating to the peak

demand and net output forecasts and load behavior studies which included such factors as weather, conservation and seasonality. I also analyzed the cost of replacement energy associated with forced outages of generation facilities. In the Corporate Planning Function, my assignments included developmental work on a generation expansion planning program and work on the peak demand and sales forecasts. From 1977 through 1981, I was Supervisor of the Load Forecasting Group where my responsibilities included the Company's sales and peak demand forecasts and the weather normalization of sales.

In 1981, I began consulting, and in 2000, I created the firm Competitive Energy Dynamics, L.L.C. As a part of my twenty-four years of consulting practice, I have participated in the analysis of various electric, gas, water, and sewer utility matters, including the analysis and preparation of cost-of-service studies and rate analyses. In addition to general rate cases, I have participated in electric fuel and gas cost reviews and planning proceedings, policy proceedings, market price surveys, generation capacity evaluations, and assorted matters related to the restructuring of the electric and gas industries. I have also assisted companies in the negotiation of power contracts representing over $1 billion of electricity.

I have testified before the state regulatory commissions of Delaware, Hawaii, Illinois, Iowa, Kansas, Massachusetts, Missouri, Montana, New Hampshire, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia, and the Rate Commission of the Metropolitan St. Louis Sewer District.

Attachment One To The Testimony Of Donald Johnstone

Copy of Testimony of

John W. Mallinckrodt

MPSC Case No. GR-97-272

Competitive Energy
DYNAMICS

Exhibit No.: _____
Issues: Class Cost of Service/Rate Design
Witness: John W. Mallinckrodt
Type of Exhibit: Direct Testimony
Sponsoring Party: Noranda Aluminum, Inc.
Company: Associated Natural Gas Company
Case No.: GR-97-272

Before the
Missouri Public Service Commission

In the Matter of Associated Natural Gas Company's Tariff Revised Designed to Increase Rates for Gas Service to Customers in the Missouri Service Area of the Company	)	Case No. GR-97-272

Testimony and Schedules of

John W. Mallinckrodt

On Behalf of

Noranda Aluminum, Inc.

July 1997
Project 6707

Brubaker & Associates, Inc.
St. Louis, MO 63141-2000

Before the
Missouri Public Service Commission

In the Matter of Associated Natural Gas Company's Tariff Revised Designed to Increase Rates for Gas Service to Customers in the Missouri Service Area of the Company	)	**Case No. GR-97-272**

Affidavit of John W. Mallinckrodt

State of Missouri)
) **SS**
County of St. Louis)

John W. Mallinckrodt, being first duly sworn on his oath, states:

1. My name is John W. Mallinckrodt. I am employed by Brubaker & Associates, Inc., having its principal place of business at 1215 Fern Ridge Parkway, Suite 208, P. O. Box 412000, St. Louis, Missouri 63141-2000. We have been retained by Noranda Aluminum, Inc. to testify in this proceeding on their behalf.

2. Attached hereto and made a part hereof for all purposes is my testimony consisting of Pages 1 through 11, inclusive; and attached Schedule A and Schedules 1 through 8; all of which testimony and schedules were prepared in written form for introduction into evidence in the Missouri Public Service Commission Case No. GR-97-272 on behalf of said intervenor.

3. I hereby swear and affirm that my answers contained in the testimony are true and correct, and that the attached schedules were prepared under my supervision and direction and truly and accurately shows the matters and things it purports to show.

John W. Mallinckrodt

Subscribed and sworn to before me this 3rd day of July 1997.

Carol Schulz
Notary Public

My Commission expires February 26, 2000.

Before the
Missouri Public Service Commission

In the Matter of Associated Natural Gas Company's Tariff Revised Designed to Increase Rates for Gas Service to Customers in the Missouri Service Area of the Company	**Case No. GR-97-272**

Direct Testimony of John W. Mallinckrodt

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A John W. Mallinckrodt, 1215 Fern Ridge Parkway, Suite 208; St. Louis, Missouri 63141-2000.

Q PLEASE DESCRIBE YOUR EDUCATION AND EXPERIENCE.

A This is set forth in Schedule A to my testimony.

Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A I am appearing on behalf of Noranda Aluminum, Inc.

Q ON WHAT SUBJECTS HAVE YOU BEEN ASKED TO TESTIFY?

A I have been asked to testify in regard to cost as the appropriate basis for establishing class revenue requirements and the design of the large industrial interruptible rates.

Rates Should Be Based on Costs

Q HOW SHOULD ASSOCIATED NATURAL GAS COMPANY (ANG) RATES BE DESIGNED?

A Just as cost of service is the basis for the determination of ANG's overall revenue requirement, it should also be the basis used to determine the revenues to be derived from each customer class, and to design the specific rate schedules for each customer class. The fundamental starting point and guideline should be the cost of serving each customer and each class. To the extent rates for a class deviate from cost of service, movement of the rates to cost of service is essential considering factors such as simplicity, gradualism, and ease of administration.

Q WHY SHOULD COST BE USED FOR THESE PURPOSES?

A The basic reasons for adhering to the cost of service principle throughout the rate design process may be summarized as stability, conservation, engineering efficiency (cost-minimization), and equity.

With respect to stability, when rates are closely tied to costs, and when customer use patterns change, the earnings impact on the utility will be minimized as changes in revenues will tend to track changes in the level of costs. From the customer's perspective, cost-based rates provide a more stable basis for determining future levels of energy costs. If rates are based on factors other than cost, it is much more difficult to translate expected utility-wide cost changes into changes in the rates charged to particular customer classes. This reduces the attractiveness of expansion by new and existing industries because of the lessened ability to plan.

With respect to conservation, which is properly defined as the avoidance of wasteful or inefficient use (and not just less use), only when rates are based on costs do

customers receive a balanced price signal against which to make their consumption decisions. If rates are not based on costs, then the choices can be distorted.

In terms of engineering efficiency, when rates are designed so that demand, customer and commodity costs are properly reflected in the rate structure, customers are provided with the proper incentive to minimize their costs, which will in turn minimize the costs to the utility.

With respect to equity, when rates are based on costs, each customer pays what it costs the utility to serve him, no more and no less. To the extent rates are not based on costs, some customers are required to pay part of the costs associated with service supplied to other customers, which clearly violates the principle of equity.

Also, to the extent that rates do not reflect costs, multi-plant firms will be encouraged to shift production from high energy cost plants to lower energy cost plants in order to remain competitive. Such a shifting of production would reduce employment and the overall contribution of the manufacturing concern to the state and local economies. This would require that the rates to the remaining customers be increased if ANG's fixed cost coverage were to be maintained, which, in turn, would be self-defeating to the presumed beneficiaries of below-cost rates. To the extent that industrial customers are intentionally overcharged in an attempt to extract from them a higher contribution to fixed costs, the potential for load loss is greatly increased.

Customer Class Characteristics

Q DO THE CUSTOMER CLASSES HAVE DIFFERENT CHARACTERISTICS WHICH LEAD TO DIFFERENT COST RESPONSIBILITIES?

A Yes, they do. Two class characteristics that I have examined for the Southeast Missouri Division (SEMO) of ANG are load factor and average monthly use per customer.

Q PLEASE DEFINE LOAD FACTOR.

A Load factor expresses the ratio of average daily use to peak use on a percentage basis. If a customer used the same amount of gas every day, for example 100 Mcf, then the average daily use would be 100 Mcf and the peak daily use would also be 100 Mcf; and therefore, the load factor would be 100%. However, if the customer had a peak usage of 400 Mcf with the same average daily usage of only 100 Mcf, then the load factor would be 100/400 times 100%, or 25%. With the 25% load factor, four times as much capacity is required to provide the same annual quantity of gas.

Q WHAT ARE THE LOAD FACTORS OF THE CUSTOMER CLASSES OF ANG'S SEMO DIVISION?

A The load factors of the residential, commercial firm, and industrial firm customer classes are in the range of 19% to 38%, as set forth on Schedule 1.

Since the usage by interruptible customers could be expected to be reduced to zero on the peak day, the class load factor based on peak day usage approaches infinity. However, even if the interruptibility is disregarded, the industrial large interruptible class in particular has a load factor that is quite high. In the test year, it was 78% based on non-coincident peak usage. Noranda is the sole customer in this class.

Q HOW DOES THE AVERAGE MONTHLY USE PER CUSTOMER VARY AMONG THE CUSTOMER CLASSES?

A The residential class has the smallest average monthly use at 7 Mcf per customer. In contrast, the average monthly usage of Noranda is 105,298 Mcf. Hence, this customer uses more than 15,000 times as much gas as the typical residential customer in any month. The average monthly consumption of each class is set forth on Schedule 2.

Q **DO THESE CUSTOMER CLASS CHARACTERISTICS HAVE AN IMPACT ON THE AVERAGE COST TO SERVE THE CUSTOMER CLASSES?**

A Yes. A high load factor indicates that the customer's use of utility facilities is quite efficient. The result is that the fixed cost associated with the facilities to serve a high load factor customer is spread over a relatively large amount of consumption, and therefore the per unit cost is significantly less than for low load factor customers. Of course, when a customer not only has a high load factor but is also interruptible, efficiency is further increased as the utility is not required to make investments that would be needed to serve the interruptible customer at the time of the system peak.

A high average use per customer also is an indication of a lower average cost. This occurs because customer-related costs, such as meters, services and billing, are spread over many more units of consumption with the result being a much lower unit cost.

ANG Class Cost of Service

Q **HAS ANG PREPARED A CLASS COST OF SERVICE STUDY?**

A Yes. ANG has prepared a study based on the test year ended July 31, 1996. The study develops the cost to serve customers under the Company's existing rate schedules.

Q **HAS ANG ALSO PREPARED AN ADJUSTED CLASS COST OF SERVICE STUDY?**

A Yes. ANG in response to Noranda's First and Second Set of Data Requests has provided corrections and changes in its class cost of service study. ANG submitted in response to Data Request No. 7 of Noranda's Second Set of Requests, revised Schedules H-1-a, H-1-b and H-1-c for SEMO. These revised schedules were utilized to prepare the comparisons shown in the following schedules and to prepare the Noranda recommended cost of service study.

Q HOW DO THE PRESENT REVENUES OF THE CLASSES RELATE TO THE COST RESPONSIBILITIES INDICATED BY THE ADJUSTED COMPANY COST OF SERVICE STUDY?

A Schedule 3-1 shows the rate base, operating income, rate of return and index of return for the SEMO Division under the adjusted ANG study. This study indicates that all commercial and industrial customers are currently providing above-average returns, and revenues well in excess of the costs they impose on the system. The residential customers, however, do not provide revenues sufficient to cover their share of the system cost.

Q WHAT IS THE RELATIVE RATE OF RETURN FOR THE INDUSTRIAL INTERRUPTIBLE CUSTOMER CLASSES UNDER PRESENT RATES?

A According to the adjusted Company study under present rates, the industrial interruptible customers provide relative rates of return that vary from 2096 to 2900. (The relative rate of return is defined as the class rate of return expressed as a percent of the system average rate of return. This is called the "index.") With an index of 2096, the Noranda rate of return is approximately 21 times the test year system average under present rates. Thus, the average charge to Noranda was $0.36/Mcf higher than that necessary to provide a return equal to the average return of the SEMO Division. This amounts to $456,223 per year as set forth on Schedule 3-2.

Company Proposed Increase

Q WHAT INCREASE HAS BEEN PROPOSED BY THE COMPANY IN THE ADJUSTED STUDY AND HOW HAS THE INCREASE IN REVENUES BEEN SPREAD AMONG THE CUSTOMER CLASSES?

A ANG has proposed an overall increase of approximately $3.1 million for the SEMO Division. In partial recognition of the current variation from cost as shown by its class cost of service study, ANG has proposed a rate reduction for the interruptible customers and the industrial firm customers. The increase is spread among the other rate schedules as set forth on Schedule 4. The rate reduction for the interruptible customers and the industrial firm customers is also set forth on Schedule 4.

Q WHAT IMPACT DOES THE PROPOSED RATE INCREASE HAVE ON THE ANG'S SEMO DIVISION CLASS COST OF SERVICE RESULTS?

A Since there is a proposed decrease in the industrial firm, the commercial interruptible and the small and large industrial interruptible revenues to cost of service, the rate of return is 8.69% under the Company's study for all classes. Since the total SEMO average return also increases to 8.69% according to the ANG proposal, the index of return for all classes is 100. The results of the adjusted ANG study under proposed rates are summarized on Schedule 5.

Under the Company study and the proposed rate level, the revenues collected from Noranda annually are at the cost of service as defined in the study submitted with ANG's direct testimony. It is very appropriate for Associated to propose rates that recover the cost of service. However, ANG's study overstates the cost to serve Noranda since the study does not properly reflect interruptibility, includes the allocation of distribution costs to the industrial large interruptible class (Noranda) and an allocation of take or pay

to Noranda which is not properly collected from transportation customers. Therefore, a further cost of service adjustment must be made to remove Noranda from the allocation of the cost of all distribution mains and associated facilities since none of these facilities are used in providing service to Noranda.

Class Cost of Service Adjusted to Reflect Removal of Distribution Cost Allocation to Noranda and Take or Pay Cost

Q IN YOUR OPINION, DO THERE NEED TO BE ADJUSTMENTS TO THE ANG CLASS COST OF SERVICE ANALYSIS?

A Yes. I have reviewed the study and found that it overstates the cost to interruptible customers while it does not fully reflect cost attributable to firm customers. This occurs because costs have been allocated without full recognition of interruptibility. In addition, ANG has allocated distribution costs to the industrial large interruptible class. The only customer in this class is Noranda who is served off of the transmission system and does not use the distribution system at all. The maps provided in response to Data Request 2-9 illustrate that Noranda is not served by ANG's distribution system. See Schedule 6.

ANG has also included in rate base take or pay cost which has been allocated to the interruptible classes. This cost should not be allocated to transportation customers who are not sales customers of ANG. In addition, this issue is pending in the courts. See Response to Noranda's Second Data Request No. 4 attached as Schedule 7.

Q **HAVE YOU MADE ADJUSTMENTS TO THE CLASS COST OF SERVICE STUDY THAT FULLY REFLECT THE REMOVAL OF DISTRIBUTION COST AND TAKE OR PAY COST?**

A Yes. From the stand point of cost-causation, it is necessary to recognize that ANG provides only transportation service to the industrial large interruptible class utilizing only its transmission system (the distribution system is not used to serve Noranda) and that take or pay cost which relate to providing of sales gas should not be allocated to transportation customers. Hence, from an appropriate cost-causation point of view, these costs should not be allocated to the industrial large interruptible customer.

Q **HAVE YOU PREPARED A CLASS COST OF SERVICE STUDY WHICH FULLY RECOGNIZES THE REMOVAL OF DISTRIBUTION COST AND OF TAKE OR PAY IN REGARD TO COST-CAUSATION?**

A Yes, I have. As compared to the Company's studies, this study also removes the distribution costs and the take or pay costs allocated to the industrial large interruptible service.

Q **WHAT IS THE RELATIVE RATE OF RETURN FOR CUSTOMERS UNDER PRESENT RATES WHEN THE FULL EFFECT OF REMOVAL OF DISTRIBUTION COST AND OF TAKE OR PAY IS RECOGNIZED IN THE CLASS COST OF SERVICE STUDY?**

A Under present rates industrial interruptible customers provide relative rates of return that range from 3375 to 6750. The rates of return for the customer classes and the variation from cost under present rates are summarized on Schedules 8-1 and 8-2.

Q **WHAT ARE THE RESULTS OF THE NORANDA RECOMMENDED CLASS COST OF SERVICE STUDY?**

A The Noranda study shows that the Residential rate is below cost, while the rates for the industrial firm, the commercial interruptible and the small and large industrial interruptible customers are currently priced above cost. These results represent the cost of serving the customer classes more accurately than the ANG's study because the adjustments are designed to better track the cost responsibilities of the customer classes.

Recommendation for Cost-Based Rates

Q **DO YOU HAVE A RECOMMENDATION THAT WILL RESOLVE THE VARIATIONS FROM COST OF SERVICE?**

A Yes. It is my recommendation that the rates for all of the services provided by ANG be adjusted to reflect the cost of providing the services. Also, I believe it is important that the rates be moved to cost so as to resolve the inequities that are created by rates that are not based upon costs.

Q **WHAT IS YOUR RECOMMENDED RATE FOR THE INDUSTRIAL LARGE INTERRUPTIBLE TRANSPORTATION CLASS?**

A Under the assumption that the requested increase is approved, I recommend a customer charge of $506.37 per month and throughput charge of $0.0787/Mcf. I also recommend that the charges for Arkansas Western Gas Company's (AWG) gathering and transmission costs be removed from ANG's tariff.

Q WHY DO YOU RECOMMEND THESE CHARGES BE REMOVED?

A These charges appear to be in the nature of gathering which has been deregulated by the Federal Energy Regulatory Commission (FERC) or transmission that would more appropriately be a part of the delivered gas cost. I find no testimony from the Company that would support the proposition that this is an appropriate service to be regulated by the Missouri Commission.

Q HAVE YOU MADE ADJUSTMENTS TO THE CLASS COST OF SERVICE STUDY THAT FULLY REFLECT THE INTERRUPTIBLE NATURE OF INTERRUPTIBLE CLASS LOADS?

A No. From the stand point of cost-causation, it is necessary to recognize that ANG incurs production and transmission costs to provide firm service and that no additional costs are incurred to provide interruptible service. Hence, from a strict cost-causation point of view, the allocation of these costs to the interruptible customers should be zero. As compared to the Company's study, the transmission cost allocation factor for interruptible customers normally should be reduced to zero to reflect the fact that no peak capacity costs are incurred for these customers. In addition, the production cost allocation factor for Noranda has been reduced to zero by ANG in its studies as Noranda only purchases transportation service from ANG.

However, in this particular proceeding, the adjustment to fully reflect the interruptible nature of the interruptible class was not done. The impact is partially recognized by the Company's use of Average and Peak. Noranda does not object to this allocation factor for allocating cost in this particular case.

Q DOES THIS CONCLUDE YOUR TESTIMONY?

A Yes, it does.

Qualifications of John W. Mallinckrodt

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A John W. Mallinckrodt. My business mailing address is P. O. Box 412000, St. Louis, Missouri 63141-2000.

Q WHAT IS YOUR OCCUPATION?

A I am a consultant in the field of public utility regulation and am employed by Brubaker & Associates, Inc., regulatory and economic consultants.

Q PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A I hold a Bachelor's degree in Engineering from the University of Missouri, and a Master of Business Administration degree from the University of Chicago.

From 1969 through 1989, I was employed by Natural Gas Pipeline Company of America (NGPL), a subsidiary of MidCon Corporation. At NGPL, the positions I held included Assistant Vice President of Engineering and Assistant Vice President of Planning. My responsibilities as AVP of Engineering included system design, storage reservoir engineering, code compliance and environmental matters. As AVP of Planning I was responsible for strategic and business planning for the Company. During my years with MidCon/Peoples Energy, I also worked for The Peoples Gas Light and Coke Company as Field Superintendent of Distribution and Administrative Assistant to the President. I also have experience in pipeline design, construction and operations.

In 1989, I was employed by K&W Design/Construction as General Manager of Engineering and Construction. I directed the engineering, design and construction of projects for major food, pharmaceutical and petrochemical client companies.

I joined the firm of Drazen-Brubaker & Associates, Inc. (DBA) in June of 1991. In April 1995 the firm of Brubaker & Associates, Inc. was formed. It includes most of the former DBA principals and staff. Since 1991 I have been engaged in the preparation of studies relating to utility rate matters and have participated in interstate pipeline, intrastate pipeline, oil pipeline, gas distribution and electric rate cases.

Q **HAVE YOU PREVIOUSLY APPEARED BEFORE A REGULATORY COMMISSION OR A PUBLIC AUTHORITY?**

A I have submitted testimony and appeared before the Federal Energy Regulatory Commission, the Delaware Public Service Commission, the Iowa Utilities Board and the Public Utility Commission of Texas. In addition, I have submitted testimony in cases before the Illinois Commerce Commission, the Louisiana Public Service Commission, and the Missouri Public Service Commission.

Q **ARE YOU A REGISTERED PROFESSIONAL ENGINEER?**

A I am a registered professional engineer in the State of Illinois.

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Load Factors by Customer Class
Test Year Ended July 31, 1996

Line	Customer Class	Annual Sales (Mcf) (1)	Average Daily Usage (Mcf) (2)	Peak Daily Usage (Mcf) (3)	Load Factor (4)
1	Residential	2,577,761	7,062	36,925	19%
2	Commercial Firm	1,054,353	2,889	15,316	19%
3	Industrial Firm	24,843	68	179	38%
4	Commercial Interruptible	114,665	314	736	43% [1]
5	Industrial Small Interruptible	1,112,389	3,048	5,416	56% [1]
6	Industrial Large Interruptible	1,263,580	3,462	4,426	78% [1]
7	Total	6,147,591	16,843	62,998	27%

[1] The actual load factor for the interruptible classes is very large when curtailability is recognized. However, the peak daily usage for the interruptible classes, which does not recognize the right of ANG to curtail usage, produced a 43% load factor for the commercial class, a 56% load factor for the industrial small interruptible class, and a 78% load factor for the industrial large interruptible class. These interruptible load factors are therefore for comparative illustration only.

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Average Monthly Usage per Customer
Test Year Ended July 31, 1996

Line	Customer Class	Annual Sales (Mcf) (1)	Average Number of Customers (2)	Average Monthly Use per Customer (Mcf) (3)
1	Residential	2,577,761	32,929	7
2	Commercial Firm	1,054,353	4,283	21
3	Industrial Firm	24,843	4	518
4	Commercial Interruptible	114,665	25	387
5	Industrial Small Interruptible	1,112,389	48	1,952
6	Industrial Large Interruptible	1,263,580	1	105,298
7	Total	6,147,591	37,289	108,182

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Results of Adjusted Company Class Cost-of-Service Study
Rate Base, Operating Income, Rate of Return
and Index of Return Under Present Rates
Test Year Ended July 31, 1996

Line	Customer Class	Rate Base (1)	Operating Income (2)	Rate of Return (3)	Index of Return (4)
1	Residential	$19,606,493	($656,991)	-3.35%	(185)
2	Commercial Firm	5,193,621	185,570	3.57%	197
3	Industrial Firm	63,143	7,589	12.02%	664
4	Commercial Interruptible	191,983	58,582	30.51%	1,686
5	Industrial Small Interruptible	1,142,195	599,509	52.49%	2,900
6	Industrial Large Interruptible	774,868	293,844	37.92%	2,096
7	Total	$26,972,303	$488,103	1.81%	100

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Results of Adjusted Company Class Cost-of-Service Study
Variation from Cost of Service
Under Present Rates
Compared to Current Revenue
Test Year Ended July 31, 1996

Line	Customer Class	Current Rate Revenue (1)	Variation From Cost (2)	Percent Variation From Cost (3)
1	Residential	$17,000,609	($1,649,646)	-9.70%
2	Commercial Firm	6,498,418	149,320	2.30%
3	Industrial Firm	139,183	10,510	7.55%
4	Commercial Interruptible	540,082	89,848	16.64%
5	Industrial Small Interruptible	2,569,776	943,745	36.72%
6	Industrial Large Interruptible	576,458	456,223	79.14%
7	Total	$27,324,526	($0)	0.00%

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Adjusted Company Proposed Increase
Test Year Ended July 31, 1996

Line	Customer Class	Present Rate Revenue (1)	Proposed Revenue (2)	Proposed Increase Amount (3)	Proposed Increase Percent (4)
1	Residential	$17,000,609	$20,849,673	$3,849,064	22.64%
2	Commercial Firm	6,498,418	6,931,708	433,290	6.67%
3	Industrial Firm	139,183	135,756	(3,427)	-2.46%
4	Commercial Interruptible	540,082	471,770	(68,312)	-12.65%
5	Industrial Small Interruptible	2,569,776	1,754,160	(815,616)	-31.74%
6	Industrial Large Interruptible	576,458	207,158	(369,300)	-64.06%
7	Total	$27,324,526	$30,350,225	$3,025,699	11.07%

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Results of Adjusted Company Class Cost-of-Service Study
Rate Base, Operating Income, Rate of Return
and Index of Return Under Proposed Rates
Test Year Ended July 31, 1996

Line	Customer Class	Rate Base (1)	Operating Income (2)	Rate of Return (3)	Index of Return (4)
1	Residential	$19,606,493	$1,703,804	8.69%	100
2	Commercial Firm	5,193,621	451,326	8.69%	100
3	Industrial Firm	63,143	5,487	8.69%	100
4	Commercial Interruptible	191,983	16,683	8.69%	100
5	Industrial Small Interruptible	1,142,195	99,257	8.69%	100
6	Industrial Large Interruptible	774,868	67,336	8.69%	100
7	Total	$26,972,303	$2,343,893	8.69%	100

Associated Natural Gas Company
Response to Noranda Aluminum Data Request No. 2
Case NO. GR-97-272

9. a. Attached is a copy of ANG's system map indicating transmission lines, sizes, and maximum allowable operating pressures.

b. Attached is a copy of ANG's Marston, Missouri system. Diameters of the various pipelines in this area are indicated as is the point of connection for Noranda Aluminum. This copy is representative of similar maps covering the entire ANG operating area. These maps are voluminous and ANG proposes to make them available for examination in its Engineering Department in Fayetteville, Arkansas. If specific areas are desired, ANG can provide copies of those areas on a case by case basis.

10. ANG operates its pipeline systems at various pressures ranging from a maximum allowable operating pressure of 500 psia to 60 psia. Actual operating pressures can range from 500 psia to 10-15 psia, depending upon on system throughput, linepack, and forecast conditions.

In general, ANG will receive gas from its pipeline suppliers at pressures up to 500 psia. This will flow through the system to meet customer demand with the pressure being reduced through normal pipeline drop. As necessary, the pressure is reduced through the use of regulator settings to levels from 400 psia down to 20-30 psia.

11. Transmission facilities are not necessarily qualified by size of pipe and operating pressure. ANG has transmission lines as large as 10" nominal diameter and as small as 2". The general definition of a transmission line is found in the definitions section of the Missouri Pipeline Safety Rules. In section (1)(B)27, of 4 CSR 240.030, it is stated as follows:

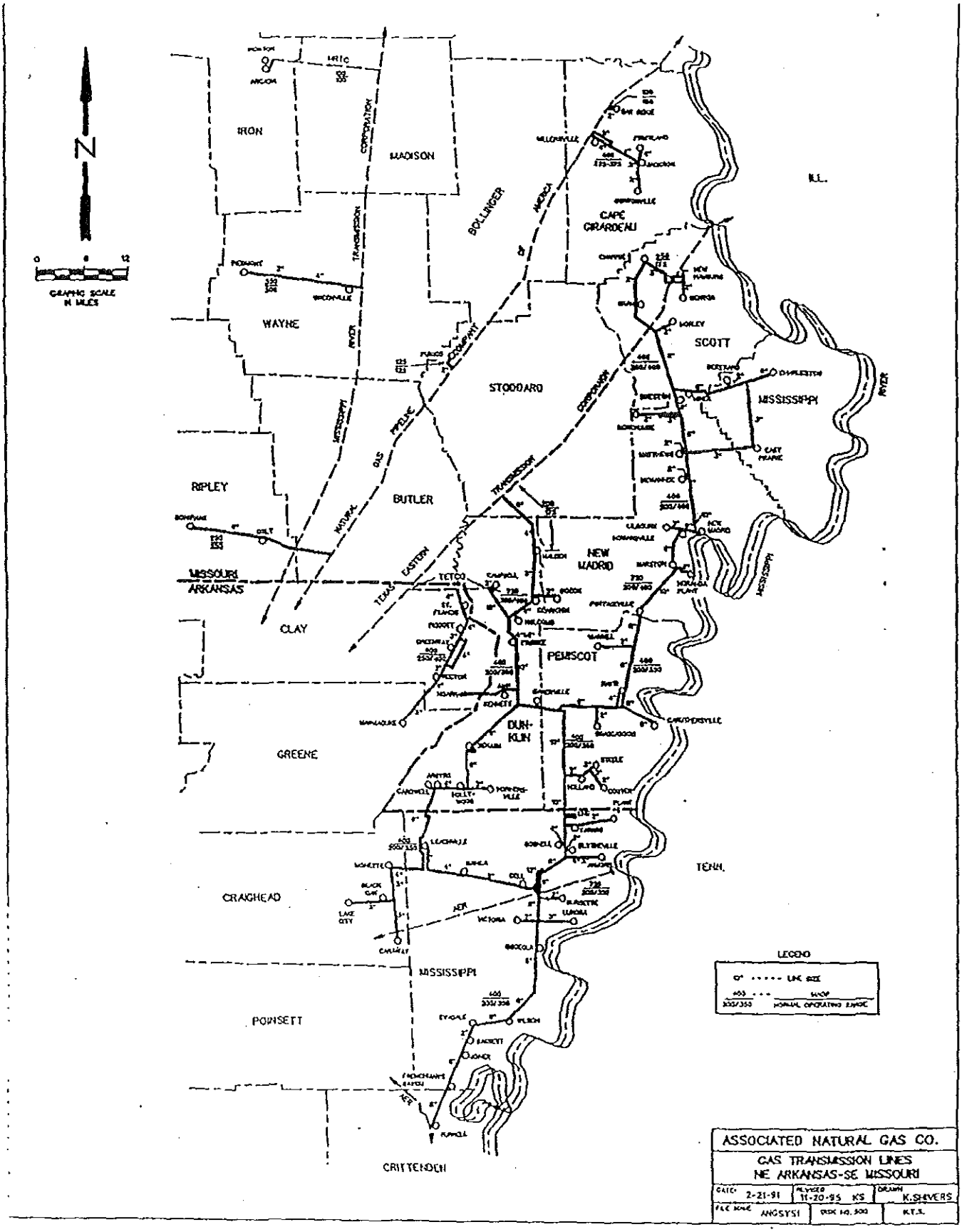
Transmission line means a pipeline, other than a gathering line, that–

A. Transports gas from a gathering line or storage facility to a distribution center or storage facility;

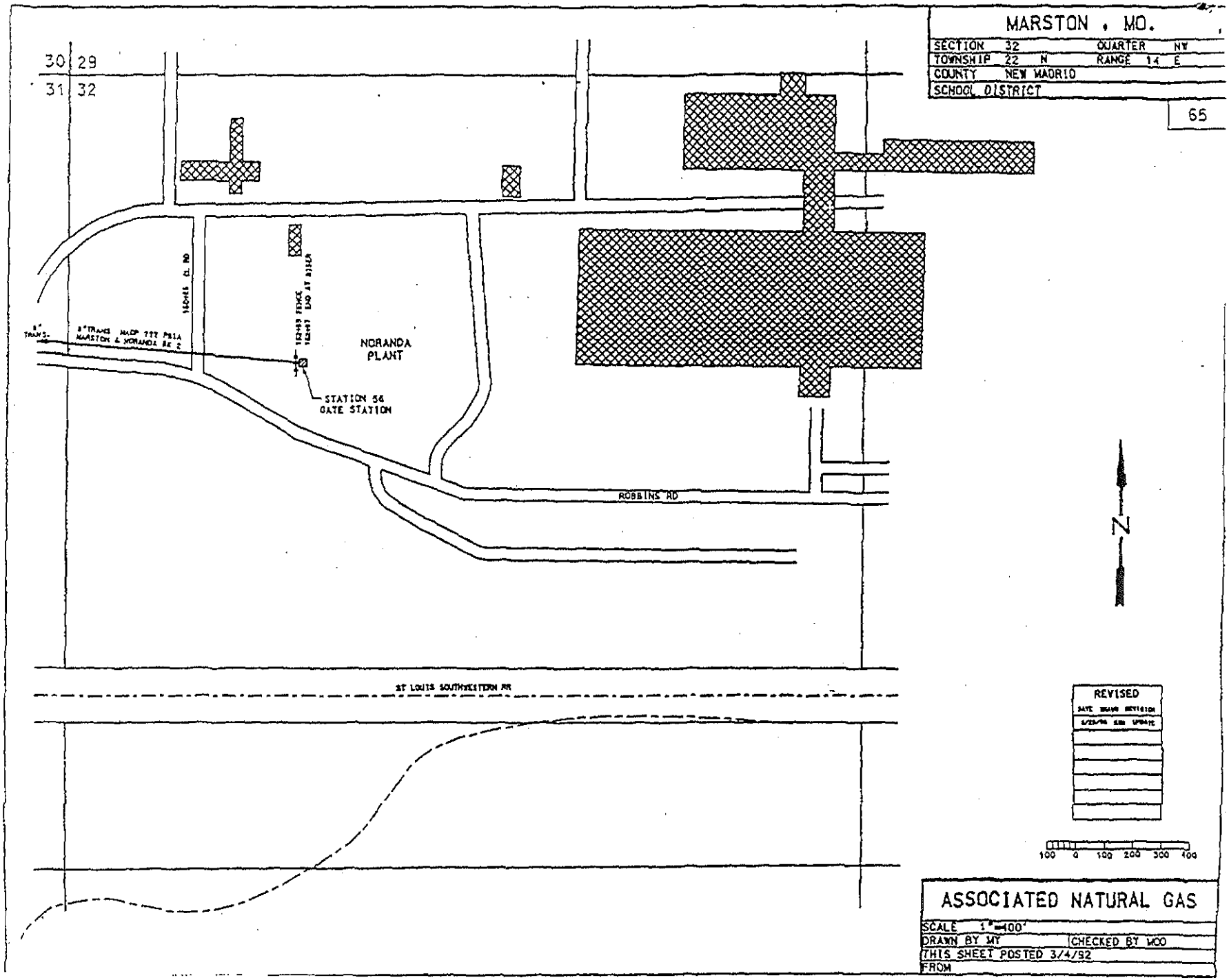
B. Operates at a hoop stress of twenty percent (20%) or more of SMYS; or

C. Transports gas within a storage field.

12. ANG's distribution lines are not necessarily qualified by size of pipe and operating pressure. ANG has distribution lines as large as 10" nominal diameter and as small as ½", operating at pressures from a few psia to in excess of 125 psia. The definition of a distribution line is found in the definitions section of the Missouri Pipeline Safety Rules. In Section (1)(B)4,


N
0 6 12
GRAPHIC SCALE IN MILES
IRON
MADISON
WAYNE
STODDARD
BUTLER
RIPLEY
CLAY
GREENE
CRAIGHEAD
POINSETT
CRITTENDEN
SCOTT
CAPE GIRARDEAU
NEW MADRID
PEMISCOT
DUNKLIN
MISSOURI
ARKANSAS
MISSISSIPPI
ILL.
TENN.
BOLLINGER AUGUSTA CORPORATION
TRANSMISSION
MISSISSIPPI RIVER
OLD
NATURAL GAS PIPELINE
TEXAS EASTERN
TRANSMISSION
CHEROKEE
LEGEND
LINE SIZE
NOMINAL OPERATING PRESSURE
ASSOCIATED NATURAL GAS CO.
GAS TRANSMISSION LINES
NE ARKANSAS-SE MISSOURI
DATE 2-21-91
REVISED 11-20-95 KS
DRAWN K.SHIVERS
FILE NAME ANGSYS1
DISK NO. 500
K.T.S.

Schedule 6-3


MARSTON , MO.
SECTION 32 QUARTER NW
TOWNSHIP 22 N RANGE 14 E
COUNTY NEW MADRID
SCHOOL DISTRICT
65
30 29
31 32
NORANDA PLANT
STATION 56 GATE STATION
ROBBINS RD
ST LOUIS SOUTHWESTERN RR
N
REVISED
100 0 100 200 300 400
ASSOCIATED NATURAL GAS
SCALE 1"=400'
DRAWN BY MY
CHECKED BY WCO
THIS SHEET POSTED 3/4/92
FROM

Schedule 6-4

ASSOCIATED NATURAL GAS
DIVISION OF ARKANSAS WESTERN GAS COMPANY
Case No. GR-97-272
Response to Noranda's Second Data Request No. 4

Request: On Schedule H-1-a, Line 118, the SEMO Take or Pay is all allocated to Industrial Interruptible customers. Please explain what this item represents. Please explain why all the cost is allocated to Industrial Interruptible customers. Please explain why the cost is not allocated to the sales customers.

Response: The amount on Schedule H-1-a, Line 118 represents the unrecovered portion of SEMO's take or pay costs. Sales customers have already paid their share of take or pay costs. There is no current provision in place for recovery of the transporters' share of take or pay. Future recovery of this amount is based on the outcome of a current court case.

ASSOCIATED NATURAL GAS COMPANY
SOUTHEAST MISSOURI DIVISION

Noranda Recommended Class Cost-of-Service Study
under Present Rates
Variation from Cost of Service
Compared to Current Revenue
Test Year Ended July 31, 1996

Line	Customer Class	Current Rate Revenue (1)	Variation From Cost (2)	Percent Variation From Cost (3)
1	Residential	$17,000,609	($1,683,966)	-9.91%
2	Commercial Firm	6,498,418	140,904	2.17%
3	Industrial Firm	139,183	10,441	7.50%
4	Commercial Interruptible	540,082	89,604	16.59%
5	Industrial Small Interruptible	2,569,776	943,556	36.72%
6	Industrial Large Interruptible	576,458	499,462	86.64%
7	Total	$27,324,526	$0	0.00%