

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the complaint of QUICKSILVER)
RESOURCES, INC. AND TERRA ENERGY, LTD.)
against MICHCON GATHERING COMPANY)
and MICHIGAN CONSOLIDATED GAS COMPANY.)
_____)

Case No. U-14821

QUALIFICATIONS
AND
DIRECT TESTIMONY
OF
ARTHUR RAYMOND LYLE II

MICHCON GATHERING COMPANY AND
MICHIGAN CONSOLIDATED GAS COMPANY
QUALIFICATIONS OF ARTHUR RAYMOND LYLE II

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1 **Q. What is your name, business address and by whom are you employed?**

2 A. My name is Arthur Raymond Lyle II. My business address is 2000 Second
3 Avenue, Detroit, Michigan 48226. I am employed by Michigan Consolidated
4 Gas Company ("MichCon") as a Staff Engineer.

5

6 **Q. What is your educational background?**

7 A. I graduated in December 1993 from the University of Michigan, Dearborn,
8 Michigan with a Bachelor of Science Degree in Mechanical Engineering.

9

10 **Q. What is your professional experience?**

11 A. In February of 1994, I began my career as a Staff Engineer in the Facility
12 Planning department of ANR Pipeline Company in Detroit, Michigan. Through
13 June of 2001, I remained with the same department of ANR with increasing
14 responsibilities, ultimately as a Project Engineer. My duties included flow
15 simulations of various pipeline systems, design of new connections, economic
16 analyses and preparation and support of Federal Energy Regulatory
17 Commission filings. From June 2001 through September 2005, I consulted for
18 various companies including El Paso Corporation, DTE GSPP and MichCon.
19 In September of 2005, I became an employee of MichCon. My duties currently
20 include the analysis and handling of northern Michigan pipeline operations and
21 analysis of CO₂ treating requirements.

22

23 **Q. Have you previously submitted testimony to the MPSC?**

24 A. Yes, I submitted testimony in MPSC case number U-14754.

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2 A. My testimony will discuss the contractual and operational issues raised by
3 Complainant relating to the transportation and treating of natural gas in
4 northern Michigan, more specifically as it relates to the Antrim Expansion
5 Project ("AEP"). My testimony will: Describe the history and function of an
6 agreement for CO₂ treating services, Address the responsibility regarding
7 delivery point CO₂ requirements and Address a number of issues raised in the
8 Complainant witnesses' testimony. Throughout my testimony, I will use
9 MichCon Gathering Company ("MGAT") when referring to the owner and
10 operator of various facilities, although historically they may have been under
11 Michigan Consolidated Gas Company ("MichCon").

12

Exhibit No. MGAT-3 (ARL-1) – Capacity Agreement and Executed
Amendments (“Capacity Agreement”)

17

19 **Q. How does MGAT treat the gas under its transportation and treating**
20 **agreements (“ASATT”)?**

21 **A.** Under normal conditions, the gas is treated under the Capacity Agreement
22 MGAT has with CMS Antrim Gas LLC (“CMS”). This was executed in April
23 1995, with MGAT as the sole customer of CMS for treating services. At that
24 time, MGAT owned the treating plant at South Chester in partnership with

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1 CMS, and CMS was interested in purchasing MGAT's partnership share.

2

3 **Q. Under what conditions did CMS agree to the Capacity Agreement?**

4 **A.** CMS required a guaranteed level of treating commitments satisfactory to
5 lending institutions in order to finance the existing treating plants and to finance
6 the construction and ownership of additional treating facilities. The Capacity
7 Agreement includes a minimum payment on a monthly basis for a period of
8 fifteen years. MGAT made this commitment to guarantee the construction of
9 sufficient capacity to treat the majority of the Antrim production expected to
10 flow onto the AEP.

11

12 **Q. Why did MGAT agree to a fifteen year reservation charge with no**
13 **reservation rate in its transportation and treating agreements?**

14 **A.** MGAT used agreements, known as dedications, which dedicated a producer's
15 reserves to the services on the pipeline, including transportation and treating,
16 as an alternative means to secure the volume necessary to cover the
17 reservation charges under the Capacity Agreement. This was, however, not
18 without risk.

19

20 **Q. What risk is involved in these dedications?**

21 **A.** There is a risk that the estimated production will not appear, or that the decline
22 rate will be higher than expected. Under these scenarios, there is risk that
23 certain costs may not be recovered.

24

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1 **Responsibility for CO₂ Content at Delivery Points**

2 **Q. What is MGAT's responsibility as it relates to CO₂ requirements?**

3 **A.** My understanding is that the Commission Order authorizing the construction
4 and operation of the AEP in Case No. U-10547 specified that the operator of
5 the AEP was to maintain deliveries of gas from its system at a level of 2% or
6 less CO₂. Mr. Persells in his testimony addresses a follow up letter received
7 from the Commission Staff after the AEP went into operation that reinforces
8 the existence of this obligation. Additionally, the Commission's Order included
9 the capability to allow blending of gas, meaning the indirect treating of volumes
10 of high CO₂ content gas with lower CO₂ content gas in such a manner as to
11 obtain an overall gas mixture with CO₂ levels within the required specification
12 of 2% or less at the delivery points.

13

14 **Q. Did the subsequent Commission Order in Case No. U-12342 (the**
15 **Dominion complaint on the rates charged by MGAT on the AEP) affect**
16 **the CO₂ requirements at the delivery points or the capability to blend**
17 **volumes?**

18 **A.** No. It is my understanding that the Commission Order in that case simply
19 reset the rate charged for transportation services on the AEP.

20

21 **Q. Referencing Mr. Murray's answer on page 5 of his testimony at lines 23-**
22 **27, do you agree with his interpretation of what the Commission Order in**
23 **Case No. U-10547 indicated relating to treating gas to a 2% CO₂ level?**

24 **A.** No. The order specified that the gas must be at 2% or less CO₂ content when
25 it reaches the off system delivery points at the end of its transportation such as

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1 Kalkaska, but the Order did not specify that treating gas upstream at a location
2 upstream of a delivery point to a 2% specification meets those requirements.

3
4 **Q. Have the obligations of the AEP operator at the delivery points remained**
5 **constant since AEP operations began?**

6 **A.** Yes. However, because of the geographic location of the receipt points, and
7 the continuous changes in the number of receipt points, the volumes of gas at
8 the receipt points and the CO₂ content of the receipt point, MGAT, as the AEP
9 operator, must constantly reassess and actively manage the amount and
10 location of CO₂ treating in order to balance the entire AEP gas stream such
11 that it contains 2% or less CO₂ at the delivery points.

12
13 Based on reserve reports provided to the MPSC in 1995 when the AEP began
14 operations, there was a volume level of approximately 355 MMcf/d of Antrim
15 production (operationally reported after losses and shrink or approximately 390
16 MMcf/d pre-shrunk) and a CO₂ content of 10.5% on average from production
17 contracted to flow on the AEP. At that time, there were approximately 135
18 Receipt locations delivering volumes for transportation on the AEP. With that
19 level of volume and the majority being treated through the capacity agreement,
20 the balancing equation to meet the required delivery standards was an easier
21 task than today because the historic changes in the production volumes, the
22 CO₂ content of the gas and the total number of receipt points.

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1 **Q. What historic changes have occurred with the production in this area?**

2 **A.** The volumes delivered to the AEP have been declining since approximately
3 1997, and the overall CO₂ content of the gas stream has been increasing since
4 the production first began to flow.

5

6 **Q. What makes maintaining the delivery point CO₂ levels more difficult**
7 **today?**

8 **A.** As mentioned above, there are variables such as lower volumes and higher
9 relative CO₂ contents today than in the past and the geographic location of the
10 receipt points that place production volumes in the transported gas stream.
11 Today there are approximately 170 Receipt locations bringing production to the
12 AEP, including a number that are downstream of the treating facilities. In
13 March 2006 on the AEP, the Antrim production volume levels were
14 approximately 253 MMcf/d and the CO₂ content averages 16.6%. With CMS
15 having contracts for treating to a level of only 2%, the potential for large
16 volumetric deliveries at Goose Creek and the volumes blended on the system,
17 the delicate balance of maintaining 2% or less at the delivery points has
18 become a much more complex task. The balance is dependent on all of these
19 factors, and requires the solution to an equation that begins with the variables
20 of volume and CO₂ content at the outlet of the CMS plant, includes the
21 variables of volume and CO₂ content from each of the eleven receipts on the
22 AEP downstream of the CMS plant, needs to factor in the volume and CO₂
23 content of deliveries to ANR at South Chester, Great Lakes and Consumers
24 energy at Goose Creek, and tracks the requirements at Kalkaska to maintain
25 the required delivery specification, which includes the volume and CO₂ content

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from the Merit hydrocarbon treating plant, the volumes and CO₂ content of the volumes flowing into or out of Kalkaska from the various MichCon pipelines and the volumes and CO₂ content from the Saginaw Bay system. All of these factors are managed to meet the required delivery specifications.

Testimony of Complainant Witnesses

Q. Do you agree with the statements in Mr. Murray's testimony on Page 5, lines 12-17, in regards to the treating of Dominion Resources?

A. No. What he does not state is that CMS may have amended the outlet treating level to 0.75%, but they also required that Dominion Reserves deliver the gas to CMS with a CO₂ content of 12.75% instead of the previous specified inlet standard of 14%.

Q. Do you agree with the statements on Page 5, line 30 through Page 6, line 5, of Mr. Murray's testimony relating to standard CO₂ content?

A. No. I would disagree with his implication that 2% CO₂ content is a standard. In my experience, I would say that a 2% maximum CO₂ content is standard in the industry, with the average CO₂ content on the overall systems being at levels under that specification.

Q. Can you clarify the description of Exhibit FMM-3 provided on page 6 in lines 7-19 of Mr. Murray's testimony?

A. Mr. Murray apparently has taken monthly average data to calculate the various totals in the Exhibit. His numbers are a fair approximation of the average operation for November of 2005. However, what Mr. Murray's calculation

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1 ignores is that the operations, receipts, and deliveries on the system
2 continuously change.

3

4 **Q. Do you agree with Mr. Murray's assertion that MGAT receives revenues**
5 **for blending "without incurring additional costs for treating or the**
6 **construction of additional lateral lines" as stated on Page 7, lines 2-4?**

7 **A.** No. Mr. Murray leaves out two key factors in his statement. The first is that
8 MGAT has incurred costs for treating, including reservation cost obligations at
9 the CMS treating plant that provides treating to 0.75%. The second is that the
10 MPSC allowed this blending service to occur to avoid the construction of the
11 very facilities that Mr. Murray appears to recommend be constructed.

12

13 **Q. Would you like to add any additional information to Mr. Murray's**
14 **description of MGAT's blending capacity in reference to exhibits FMM-4**
15 **and FMM-5?**

16 **A.** Yes. The actual daily operations and CO₂ content at the outlet of the CMS plants
17 vary outside of MGAT's control, which can cause the level of CO₂ at the delivery
18 points to temporarily exceed 2% when the plant outlet exceeds the target CO₂
19 content. MGAT has the ability to monitor the outlet CO₂ content, but does not
20 actually operate the CMS treating plants at South Chester. As the plants operate
21 within only a few tenths of a percent of CO₂ content of safety margin below their
22 target, if not right at the target CO₂ level, upsets can and do occur.

23

24 Additionally, MGAT had requested CMS to provide some additional
25 interruptible treating services at the outlet of the plant to safeguard the

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1 specification of 2% or less CO₂ at the delivery points during those periods.

2 The total time of the occurrences of CO₂ greater than 2% shown on FMM-5
3 was less than eight hours during the period from 1/31 through 2/4/06. These
4 were all temporary upset conditions that were monitored by MichCon Gas
5 Control. The reason listed as "Plant #1 down for repairs" was true, but
6 perhaps calling it "temporary upset of pipeline operating conditions" would
7 have better described the reason for the upset conditions.

8

9 **Q. Do you agree with the assertion that the Company has insufficient blending**
10 **capacity as indicated on Page 7, lines 8-23 of Mr. Murray's testimony?**

11 **A.** No. What Mr. Murray does not reveal in his description of the operation,
12 outside of the fact that there was a CO₂ plant that was being rehabilitated over
13 an extended period of time, is that there are operational issues that MGAT
14 does not currently have the authority to control. More specifically, if MGAT
15 were able to limit the level of gas deliveries nominated to be delivered to
16 Goose Creek, the balance of Kalkaska would not have been impacted during
17 this period. In order to allow all the nominations submitted to continue during
18 this dispute, MGAT has nominated additional services for treating under the
19 Interruptible Agreement, when CMS is able to provide such service.

20

21 **Q. Do you agree with the assertion that MGAT had no incremental costs to**
22 **offset blending revenues as stated on Page 7, lines 25-28 of Mr. Murray's**
23 **testimony?**

24 **A.** No. While the costs incurred by MichCon are not broken out specifically
25 between direct treating services and blend treating services, MGAT incurs

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1 costs via the Capacity Agreement in the form of reservation or demand
2 charges and usage charges. CMS refused to provide treating to 0.75% CO₂
3 for shippers that request a contract directly from CMS, instead of via an
4 ASATT, at the same price offered under an ASATT. CMS is also indicating
5 that services provided under a treating agreement directly with CMS will
6 receive a higher priority than gas treated under the Capacity Agreement that
7 MGAT has with CMS for which MGAT pays reservation charges.

8

9 **Q. Do you agree that MGAT is attempting to impose a 0.75% standard on**
10 **Quicksilver as asserted on Page 8, lines 2-4 of Mr. Murray's testimony?**

11 **A.** No. MGAT is not imposing a 0.75% standard; MGAT is indicating the
12 requirements to be requested for treating services under an ASAT. The actual
13 standard that was approved by the MPSC in the ASAT agreements, which
14 were filed in Case No. U-10547 and executed prior to the AEP being placed in
15 service, was 2% or less at both the delivery and receipt points, with no option
16 for downstream treating. The only standard for treating services is based on
17 the Capacity Agreement for treating ASATT gas to a level of 0.75% at the
18 treating facility to assure that the required facilities to maintain the 2% or less
19 CO₂ standard at the delivery points would be maintained even with gas
20 blended downstream of the treating facilities.

21

22 **Q. What does Mr. Murray's testimony on page 8, lines 7-24, infer with regard**
23 **to CMS having the ability to commit to a higher level of service for**
24 **Dominion?**

25 **A.** CMS has apparently promised that gas will be provided a higher level of

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1 service, under an agreement directly with CMS, than what CMS is providing
2 MGAT for identical treating services associated with the AEP. CMS has
3 chosen to treat contracts with parties requiring no long term reservation
4 payment as having a higher overall priority than for the services provided
5 under an agreement with reservation payments, which does not make much
6 sense. CMS cannot place those parties at a higher level of service than
7 MGAT since MGAT has a comparable firm service agreement and should be
8 treated the same if an interruption were to occur. On both Exhibits FMM-6 and
9 FMM-7, another imposed standard that applies only to MGAT can be seen, as
10 CMS reduces the capacity level available, not based on the 260 MMcf/d
11 provided in the Capacity Agreement, but with a breakdown of what CMS
12 indicates are MDQ and Overrun volumes, terms not defined in the Capacity
13 Agreement. Effectively, this again takes the only customer paying reservation
14 type demand charges, in order to support the financing of the plants, and gives
15 that customer a lower priority than other customers for services that do not pay
16 reservation or demand charges, only commodity charges.

17

18 **Q. Would you please respond to Mr. Murray's statement as to the level of**
19 **treating received by gas delivered to CMS under the ASATT agreements**
20 **on Page 8, line 27 through Page 9, line 3?**

21 **A.** All gas delivered under the Capacity Agreement is treated to a level of 0.75%
22 CO₂ under the terms of that agreement. This provides that the gas will be at
23 2% or less CO₂ at the delivery points. While there is no specific reference to
24 the level of treating received, the actual level of service performed is clear from
25 the Capacity Agreement.

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2 **Q. If gas from another pipeline system is switched over to the AEP, as**
3 **described on Page 9, lines 3 through 10 of Mr. Murray's testimony, does**
4 **that change the requirements for the AEP?**

5 **A.** No. To insinuate that the level of service provided under different agreements
6 with another pipeline and processing plant set the requirements for
7 transportation and treating services on any other pipeline or treating facility is
8 quite a stretch. The operation required from the Bagley plant, which delivered
9 gas into MichCon's Gaylord pipeline, is irrelevant to the operational
10 requirements of the AEP.

11

12 **Q. Do you agree with Mr. Murray's description of the requirements for**
13 **Paxton and Chevron on Page 9, lines 19-24?**

14 **A.** No. Paxton has an agreement with the language, not approved by a MPSC
15 order, allowing treating to a maximum of 2% CO₂ at a downstream treating
16 plant, if the gas at the receipt point exceeds 2%. Chevron does not have an
17 ASAT with MGAT.

18

19 **Q. What are the issues behind the Aurora production referenced on Page 9,**
20 **lines 29 of Mr. Murray's testimony?**

21 **A.** Aurora's production is currently tied in to the Wet Header, not the AEP, and
22 requested that they be allowed to test out their production from new wells prior
23 to long term arrangements for treating facilities to be constructed or pipelines
24 to be built. The gas flowed in May 2006 with a CO₂ content of 1.53%, which is
25 below the required level on the Wet Header. The agreement is of a short term

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1 nature, currently month to month.

2 **Q. What would you project to be the incremental revenue to CMS if**
3 **Quicksilver was to execute a treating agreement at \$0.11/Mcf for the**
4 **Bagley production on an annual basis?**

5 **A.** CMS would realize approximately \$16,000 on an annual basis, assuming a
6 \$0.02/Mcf revenue increase and a May 2006 flow rate of 2,260 Mcf/d based on
7 an annual decline rate of 6.6%. This would be in addition to approximately
8 \$74,000 CMS currently receives for the services performed for the Bagley
9 production under the agreement with MGAT.

10

11 **Q. What is missing from Mr. Fogle's testimony on Page 4, lines 2-6,**
12 **characterizing what MGAT priced the CO₂ treating service to provide and**
13 **what would be accepted?**

14 **A.** What is missing is the fact that the shippers contracted with MGAT to meet the
15 shippers' obligation to satisfy the 2% or less standard at the delivery points.
16 MGAT signed the Capacity Agreement with CMS to provide treating to a level
17 of 0.75% CO₂ to ensure the requirement would be met. The MPSC received
18 and approved the standard for ASAT agreements providing 2% or less at both
19 the receipt and delivery points.

20

21 **Q. Would you agree that the Niagaran gas provides a safety net on the AEP,**
22 **as suggested by Mr. Fogle on Page 4, lines 8-9?**

23 **A.** The Niagaran gas that is received for transport on the AEP is all located
24 upstream of the CMS treating plant, and thus does not provide a safety net to
25 reduce the outlet stream, as this gas is commingled upstream of the plant.

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1

2 **Q. What should be added to clarify Mr. Fogle's testimony on Page 4, lines**
3 **11-16 in regards to CO₂ plant operations?**

4 **A.** While some CO₂ treating plants do bypass a portion of the inlet volume to be
5 blended with the downstream outlet of the gas, the majority of the volumes
6 received at the CMS plant flow through the treating plants, with only a marginal
7 portion not flowing through the plants. A prudent CO₂ treating plant operator
8 would maintain a margin of safety in its operations to keep within its
9 downstream requirements, and is not likely to aim for 2%, with or without
10 blending. As MGAT does not operate the CMS plants, it is unable to control
11 the outlet CO₂ level, but the blend gas Mr. Fogle references for the AEP is
12 actually the untreated production downstream of the plant.

13

14 **Q. Would you clarify Mr. Fogle's response on Page 5, lines 2-5 regarding**
15 **treating at CMS?**

16 **A.** Yes. CMS provides treating to a level of 0.75% for all volumes received under
17 the Capacity Agreement. MGAT does not earmark specific revenue to pay
18 CMS for the services provided.

19

20 **Q. What is inferred by Mr. Fogle's testimony on Page 5, lines 7-9?**

21 **A.** It appears that CMS is offering assurance to producers that it will give them a
22 higher level of service than it gives to MGAT.

23

24 **Q. Do you agree that MGAT is passing a burden on to producers as**
25 **suggested by Mr. Fogle on Page 5, lines 9-16?**

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1 **A.** No. Shippers have always had the obligation to deliver gas to meet pipeline
2 CO₂ requirements (just like dehydration and compression) before a pipeline
3 will accept gas for transportation. It is the shippers' ultimate responsibility to
4 remove CO₂ from their gas. MGAT did not choose blending for production
5 downstream of the treating facilities. The MPSC authorized the blending of
6 gas in order to minimize the required pipeline lateral and CO₂ processing
7 facilities that would be required if blending were not a part of the operation of
8 the AEP. Allowing blending avoided additional expenses and charges that
9 would have been recovered from all the producers flowing gas on the AEP.
10 This burden has been carried by all the parties involved with the AEP,
11 including all the producers and the operator. CMS providing contracted
12 treating service to levels not to be below 2% CO₂, instead of at the same level
13 provided to MGAT (0.75% CO₂) is exacerbating the problems with maintaining
14 the 2% or less at the delivery points from the AEP.

15

16 **Q.** Would you clarify the description of the services provided by MGAT on
17 the AEP by Mr. Shumway on Page 3, lines 11-14?

18 **A.** Yes. Many of the Receipt Point locations are actually transported on various
19 non-MGAT pipelines prior to transportation on the AEP.

20

21 **Q.** While the order provides that MGAT not discriminate for transportation
22 on the AEP in Mr. Shumway's testimony on Page 4, lines 1-5, what was
23 provided in the transportation only contracts originally included in case
24 U-10547?

25 **A.** The original ASAT agreements provided transportation only services and

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1 required that the gas be at 2% or less both at the receipt points and the
2 delivery points. No provision for downstream treating or a required level of
3 treating was provided.

4

5 **Q. Do you agree with Mr. Shumway's statement on Page 4, lines 21-24 that a**
6 **dedication of reserves is for the term of the (ASATT) contract?**

7 **A.** No. The actual term of the dedication of reserves is spelled out in the dedication
8 agreement itself, which is a separate negotiated agreement. These are more
9 typically given with a term of the life of the reserves or the life of the pipeline.

10

11 **Q. How are the Vienna and Turtle Lake CO₂ treating plants operated and**
12 **why would the suggestions of Mr. Shumway on Page 6, line 17 through**
13 **Page 7, line 6 not be an effective means of increasing the blending**
14 **capability on the AEP?**

15 **A.** The operation of the Vienna CO₂ treating plant, owned by a MGAT affiliate,
16 provides that the outlet of the facility flows into the AEP via a connection
17 downstream of the Vienna plant's outlet. The outlet of the plant can flow to
18 three pipelines: the Wet Header system, ANR Pipeline Company ("ANR") or
19 the AEP. As the shippers on the Vienna system contract to have the gas
20 transported on the AEP, the gas flows to that location. Delivering the gas to
21 the Wet Header or ANR would entail additional costs, which would need to be
22 contracted for separately, at additional cost to the shippers that requested
23 such transportation service.

24

25 The Turtle Lake CO₂ processing plant is also owned by an affiliate of MGAT,

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1 and operates in a manner to provide out of specification ("OOS") treating
2 services to shippers on the AEP. OOS means that the CO₂ content of the gas
3 exceeds 14% at the receipt point. Turtle Lake provides OOS service to bring
4 the CO₂ content back within the specification of 14%, prior to treating at the
5 CMS plant.

6
7 The suggestion of using these gas streams to blend gas at delivery points is not
8 worth pursuing further for the reasons that follow. Turtle Lake provides an OOS
9 service for shippers upstream of the CMS plant. If that gas is diverted directly to
10 the AEP downstream of the CMS plant, the volumes flowing to CMS would
11 remain OOS. This suggestion would not enhance the AEP's ability to blend at
12 delivery points. CMS calculates a level of CO₂ at their plant outlet based on the
13 volumes flowing through the plant and the level of treating it provides to those
14 volumes. CMS would recalculate the treating level at the outlet of their plant
15 based on the Turtle Lake diverted volume not being a part of the CMS plant inlet
16 stream, resulting in an even larger problem if the Turtle Lake outlet is greater
17 than 0.75%. Similarly, the Vienna plant is contracted to deliver volumes into its
18 connection to the AEP, and flowing the volumes into ANR or the Wet Header
19 would not necessarily enhance the ability of the AEP to blend volumes at the
20 delivery points similar to a diversion of the Turtle Lake volumes.

21
22 **Q. What is the current situation with the Wet Header shippers described on**
23 **Page 7, lines 20-23 in Mr. Shumway's testimony?**

24 **A.** These producers are currently under month to month treating agreements with
25 an affiliate of MGAT. The producers were informed that they would need to

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1 find long term treating arrangements for their production. It is my
2 understanding that the majority of the production under these agreements will
3 be treated at a new facility under construction as part of a new Niagaran gas
4 treating facility that will replace the existing one at Kalkaska.

5

6 **Q. Do the shippers have no control and are they subject to a new policy as**
7 **suggested on Page 8, lines 5-9 of Mr. Shumway's testimony?**

8 **A.** No. The shippers control their nominations, which actually control the
9 requirements behind the physical flow and delivery of gas. The policy is
10 actually a reversion attempting to mirror the originally approved ASAT
11 agreement's requirement of 2% or less at the receipt and delivery points,
12 requiring that treating facilities downstream of the receipt points provide the
13 same level of CO₂ removal provided under an ASATT agreement.

14

15 **Q. Would diverting the outlet of the Wilderness-Chester Limited Partnership**
16 **CO₂ removal facility Mr. Shumway mentions on Page 8, line 20 through**
17 **Page 9, line 2 help in the blending capability of the AEP?**

18 **A.** No. This plant operates in a manner that it would be unable to directly deliver
19 to any downstream pipeline requiring 2% or less CO₂, and would be unable to
20 provide any blending capability to any pipeline.

21

22 **Q. What can you add to Mr. Shumway's description of the Quicksilver**
23 **production formerly treated at the Bagley plant on Page 10, lines 1-10?**

24 **A.** Production treated at a different plant on a different pipeline that is brought to
25 the AEP must agree to the terms and conditions specified for the AEP,

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1 regardless of what was provided at the other plant. The production mentioned
2 must be evaluated as to CO₂ content, volume and location as to MGAT's
3 capability to transport the volumes. The other ASAT agreements were a
4 divergence from the original filed agreements signed under the knowledge that
5 Antrim volumes requiring treating services exceeded 260 MMcf/d, MGAT's
6 capacity level under the Capacity Agreement.

7
8 **Q. Would you clarify what MGAT's position is in relation to Mr. Shumway's**
9 **response on Page 10, line 17 through Page 11, line 2?**

10 **A.** Yes. MGAT is not in fact enforcing a new policy as described above, just
11 attempting to maintain the original intent of the contracts on the AEP. If a
12 producer wants to supply its own treating arrangements, it needs to make
13 them at the same level provided to MGAT at the CMS plant, to ensure the
14 system operates within the 2% or less specification at the delivery points. An
15 ASATT agreement asks MGAT to treat on the shippers' behalf and MGAT
16 receives treating to a level of 0.75% CO₂ at the CMS plant. The requirement is
17 inherently contained in the ASATT based on the service provided under the
18 Capacity Agreement.

19
20 **Q. Do you agree with Mr. Shumway's assertion of a violation of Act 9 on**
21 **page 11, lines 8-20?**

22 **A.** No. The 0.75% CO₂ requirement for treating is compatible with the original order
23 requiring 2% or less at the delivery points. That is what is provided under the
24 treating services under the Capacity Agreement utilized for all ASATT gas that
25 receives treating services at the CMS plant. Effectively, treating to 0.75% places

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1 ASAT and ASATT shippers under the same requirements.

2 **Q. Do you agree with the statements made by Mr. Shumway on Page 11,**
3 **lines 23 through Page 12, line 3?**

4 **A.** No. MGAT is not providing a preference to shippers with ASATT agreements
5 over ASAT agreements. MGAT is simply requesting that going forward all
6 ASAT agreements provide the same level of treating, 0.75% CO₂ at the plant
7 outlet, which is provided for all ASATT gas treated under the Capacity
8 Agreement.

9

10 **Q. Would you agree Mr. Shumway's assertion that MGAT's actions in**
11 **requiring treating to 0.75% violate the standards in effect since the**
12 **certification of the AEP on Page 9, lines 5-12?**

13 **A.** No. In fact, this is a return to the standards in place at the time of the AEP's
14 certification. The ASAT agreements allowing treating downstream of the receipt
15 points, instead of 2% or less at both receipt and delivery points, to a different level
16 than provided to ASATT production treated downstream of the receipt points, is
17 the cause of the current problem. These ASAT agreements in the period of
18 1998, appear to have been part of various issues between the producers and
19 MichCon at the time. They occurred in a time when production levels on the AEP
20 were well above the 260 MMcf/d provided under the Capacity Agreement, and to
21 the extent that the volumes had continued at that level, may have been less of an
22 issue than is currently at hand. It is further unclear if a treating agreement stating
23 that the treating will occur to provide a minimum level of CO₂ of 2% at the outlet
24 meets the requirement of not exceeding 2% CO₂. Any marginal violation in the
25 level of CO₂ at the outlet of the plant could be considered a violation of that

**Line
No.**

1 requirement and result in shutting in all production flowing through the plant under
2 that situation.

3 **Q. Is MGAT responsible for increased treating costs as asserted on Page**
4 **12, lines 15-23?**

5 **A.** No. If a third party has rates for services that are not within the bounds of what
6 MGAT can offer and provide, MGAT has no ability to control that third party.
7 When the same party provides a service to MGAT and is unwilling to offer the
8 same service under the same terms, it would appear that that party is the
9 responsible one, both for discriminating and for any additional charges for the
10 service. Asserting that MGAT's AEP is a monopoly system following a
11 statement that a third party will charge higher rates to meet the services
12 provided under an agreement with MGAT that includes treating is absurd. To
13 some extent, if Quicksilver desires that every change to terms and conditions
14 requires MPSC approval, then all the ASAT agreements with gas quality
15 conditions other than 2% or less at both receipt and delivery points should
16 return to the same language. The alternative offered would be to sign an
17 ASATT agreement as originally offered as the only alternative to an ASAT on
18 the AEP.

19

20 **Q. Are Quicksilver and Terra limited and forced to incur higher costs than**
21 **under the conditions established under U-10547 as asserted by Mr.**
22 **Shumway on Page 13, lines 7-20?**

23 **A.** No. In fact, the approved agreements under U-10547 were an ASATT
24 providing deliveries of gas at 2% or less, and an ASAT agreement providing
25 transportation only with a requirement of 2% or less at each receipt and

**Line
No.**

1 delivery point. Any additional costs incurred by Quicksilver and Terra are
2 outside of the control of MGAT. MGAT has offered to extend service under an
3 ASATT agreement providing treating services under the Capacity Agreement,
4 which results in an outlet of 0.75% CO₂. To the extent Quicksilver and Terra
5 were offered more reliable service at the same treating facility MGAT has a
6 long term agreement with required minimum monthly payments through 2010,
7 reflects discrimination on the part of the party offering treating services, not
8 MGAT.

9
10 **Q. How do the various facts throughout your testimony reconcile with the**
11 **matters of the case?**

12 **A.** The Commission gave the operational responsibility for maintaining the level of
13 CO₂ at all delivery points to MGAT under the initial Commission Order related
14 to authority to construct the AEP. The Commission has reinforced that point in
15 the interim and MGAT retains the operational responsibility to maintain that
16 standard today. The methodology for achieving that standard also remains
17 with MGAT, which makes the decisions necessary to maintain the proper and
18 mandated operation of its facilities. It is MGAT's operational responsibility to
19 meet the 2% or less CO₂ specification at the delivery points off of the AEP. By
20 the MPSC allowing gas to be blended, the producers saved from investments
21 in additional pipeline and treating facilities that would have been a part of the
22 AEP. The original ASAT agreements required that the gas have 2% or less
23 CO₂ at both the delivery and the receipt points. The only agreement allowing
24 treating services was the ASATT, which received treating services at CMS to
25 0.75% CO₂ at the outlet of the plant. This insured that any additional facilities

**Line
No.**

1 that would otherwise be required, such as lateral pipelines or treating plants at
2 locations other than South Chester, would not be needed to attain the 2% or
3 less CO₂ at the delivery points required with the approval of the AEP.

4

5 **Q. Does this complete your testimony?**

6 **A. Yes.**

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the complaint of QUICKSILVER)
RESOURCES, INC. AND TERRA ENERGY, LTD.)
against MICHCON GATHERING COMPANY)
and MICHIGAN CONSOLIDATED GAS COMPANY.)
_____)

Case No. U-14821

EXHIBITS
OF
ARTHUR RAYMOND LYLE II

CAPACITY AGREEMENT

THIS CAPACITY AGREEMENT is made as of the 18th day of April, 1995 by and between Michigan Consolidated Gas Company ("MichCon") and Antrim Limited Partnership ("ALP").

RECITALS

This Agreement was negotiated following termination of a CO₂ Treating Facility Agreement between MichCon and the Antrim Limited Partnership dated June 1, 1994. That agreement was terminated by the parties after testimony filed by the MPSC staff in Case No. U-10547 recommended that the operation of CO₂ treating facilities in Northern Michigan, originally included in the application for approval, be excluded from review by the MPSC.

The treating facilities owned by ALP at South Chester are capable of removing carbon dioxide from Antrim gas to be transported on the pipeline MichCon seeks authority to build in MPSC Case No. U-10547. It is anticipated that if the MPSC grants MichCon's application in Case No. U-10547, construction of the pipeline will be conditioned on MichCon having sufficient CO₂ treating capacity for the volumes of gas that will be moved on the pipeline.

ALP desires to sell and MichCon desires to purchase CO₂ treating capacity at the South Chester treating facilities.

Accordingly, the Parties agree as follows:

1. DEFINITIONS

1.01 "Affiliate" means any corporation, partnership or other entity which directly or indirectly controls, is controlled by, or is under common control of either party to this Agreement.

1.02 "Antrim Gas" or "Gas" means natural gas produced from the Antrim shale formation in Michigan.

1.03 "Antrim Gas Service Agreement" means those agreements between MichCon and shippers of Antrim Gas which require MichCon to transport and Treat dedicated volumes of Antrim Gas on the Pipeline.

1.04 "British thermal unit" ("Btu") means the amount of heat required to raise the temperature of one avoirdupois pound of water one degree fahrenheit at 60 degrees Fahrenheit. Btu will be measured on a dry basis.

1.05 "CO₂" means carbon dioxide.

1.06 "Commodity Rate" equals \$0.11/Mcf minus the Demand Rate.

1.07 "Demand Rate" at the time ALP obtains financing for the Treating Facility the demand rate will be fixed and set forth on the attached Exhibit A. It is the parties' intent that the Demand Rate will be \$0.07/Mcf. In the event that such a Demand Rate is insufficient for ALP to arrange project financing for the Treating Facility of \$15,400,000.00 at a rate of interest that does not exceed the lowest rate of interest, then being offered by NBD Bank, N.A. for similarly sized and secured projects, the Demand Rate will be increased by an amount sufficient to gain the above level of financing, but in no event may the Demand Rate exceed \$0.075/Mcf and MichCon will have the right, at its discretion, to accompany ALP to a financing entity to inquire into any Demand Rate that exceeds \$0.07/Mcf.

1.08 "Demand Volumes" means those volumes of Antrim Gas, shown on Exhibit B, on which the Demand Rate will be calculated.

1.09 "Firm Processing Date" means the latter of (i) the in-service date of the Pipeline; or (ii) November 1, 1995.

1.10 "Inlet Flange" means the interconnection of facilities of MichCon and/or third Parties and the Treating Facility at which point natural gas is received for Treating.

1.11 "Mcf" means one thousand cubic feet of gas at a base temperature of 60 degrees Fahrenheit and a base pressure of 14.65 pounds per square inch absolute (psia).

1.12 "Mcf/d" means Mcf's per day.

1.13 "MMBtu" means one million British thermal units.

1.14 "Overrun Rate" equals \$0.09/Mcf.

1.15 "Person" means an individual, a partnership, a corporation, an association, a joint stock company, a trust, a joint venture, an unincorporated organization, or a governmental entity (or any department, agency, or political subdivision thereof).

1.16 "Pipeline" means those facilities and operations set forth in MPSC Case U-10547 and as contemplated in Exhibit SEK-9 of such MPSC Case.

1.17 "Receipt Point" means the tailgate of the Treating Facility.

1.18 "Run Time Percentage" means (the actual quantity of CO₂ determined at the Inlet Flange minus the actual quantity of CO₂ determined at the Outlet Flange) divided by (the actual quantity of CO₂ determined at the Inlet Flange minus the estimated amount of CO₂ that would be present if the Treating Facility outlet CO₂ concentration were .75%).

1.19 "Shipper" is a Person who has entered into an Antrim Gas Service Agreement for the removal of CO₂ from and transportation of Shipper's Gas on the Pipeline.

1.20 "Shrinkage" means the volumetric gas stream loss associated with carbon dioxide removal at the Treating Facility together with the fuel actually experienced/used at the Treating Facility.

1.21 "Treat (or any form or tense of the verb)" means the actual removal of carbon dioxide from Antrim Gas at the Treating Facility so that the CO₂ concentration at the Receipt Point is .75%.

1.22 "Treating Capacity Fee" means the fee which MichCon pays to ALP for the Treating Facility Capacity as more fully described in Section 4 below.

1.23 "Treating Facility" means one or more carbon dioxide removal plants located in Section 10 of South Chester Township (T29N, R2W), Michigan owned and operated by ALP.

2. CAPACITY, DELIVERY AND REPORTING OBLIGATIONS

2.01 MichCon will use its best efforts to deliver or cause to be delivered to the Treating Facility 67% of all Antrim Gas dedicated to MichCon for CO₂ treatment and flowing on the Pipeline. However, the maximum total volume delivered to the Treating Facility may not exceed 260 MMcf/d.

2.02 Nothing in this Agreement prevents ALP from constructing additional capacity, however, MichCon is not obligated to contract for more than the 260 MMcf/d contemplated by this Agreement and ALP may sell such excess capacity to third parties at terms and conditions agreeable to ALP in its sole discretion.

2.03 MichCon shall nominate all quantities of Gas that will be Treated pursuant to this Agreement. Written nominations specifying the daily quantities of Gas to be Treated during each month must be submitted to ALP via fax as designated in Section 14.01 at least two business days prior to the first day of each month in which Gas will be Treated.

2.04 MichCon will deliver or cause to be delivered the Gas to the Inlet Flange, ALP will receive, Treat and redeliver the Gas, less Shrinkage, to MichCon's possession at the Receipt Point.

2.05 ALP must promptly report to MichCon any scheduled shut downs and non-routine occurrences at the Treating Facility.

2.06 ALP will have access to information available to MichCon regarding all volumes of Antrim Gas by receipt point dedicated for CO₂ treatment and flowing on the Pipeline 30 days after the end of each month for the term of this Agreement.

3. TREATING FACILITY PERFORMANCE WARRANTY

3.01 Subject to events of force majeure, in the event that the average Run Time Percentage is less than 94% for any calendar year including time allowed for shutdowns due to scheduled and routine repairs and maintenance and (i) as a result a Shipper cannot get its gas to market because its untreated gas would not be received, transported or exchanged by a designated downstream pipeline; and (ii) as a result of (i), MichCon must pay a penalty to Shipper under the Antrim Gas Service Agreement, then for each 1% deficiency below 94%, ALP must pay MichCon one cent for each MMBtu of gas that cannot reach its intended market.

3.02 Nothing contained in Section 3.01 herein shall be construed to be MichCon's sole remedy in the event of ALP's failure to perform under this Agreement.

4. TREATING CAPACITY FEE

4.01 The monthly Treating Capacity Fee is the sum of the following: (i) the Demand Rate multiplied times those volumes set out on Exhibit B; (ii) the Commodity Rate multiplied times those volumes actually Treated for the month; and, if applicable, (iii) the Overrun Rate multiplied times all volumes Treated at the Treating Facility in excess of those specified in Exhibit B.

4.02 On or before the 10th day of each calendar month, ALP must render a statement to MichCon for the Treating Capacity Fee to be calculated as provided in Section 4.01. MichCon must pay the Treating Capacity Fee by the 20th day of the month or within 10 days after receipt of the statement, whichever is later. All such payments must be made either: (i) by wire transfer directly to the bank account designated by ALP; or (ii) by check to the address designated by ALP in Section 14.01. All undisputed amounts due will bear an interest rate until paid, at an annual rate (which shall in no event be higher than the rate permitted by applicable law) equal to the prime rate published by Citibank, N.A. from time to time during the period from the date payment was due under this Section to and including the date the payment is received by ALP.

4.03 If MichCon disputes a statement, in full or in part, it may withhold payment of the disputed portion of the statement, but if the disputed portion is shown to be correct, MichCon must promptly pay the disputed amount plus interest as provided in Section 4.02.

4.04 MichCon and ALP have the right at all reasonable times to examine and audit the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, charge or computation made under any provision of this Agreement.

4.05 If at any time within 12 months after the close of any month, either Party finds that there has been an error in any statement charge or computation made pursuant to any provisions of this Agreement, and if it makes a claim therefore within 60 days from the date of discovery, if verified, the error will be corrected within 30 days.

5. TERMINATION AND SUSPENSION

5.01 This Agreement is effective on the Firm Processing Date and continues in effect until December 31, 2011.

5.02 ALP may suspend performance under this Agreement upon 30 days written notice to MichCon, if, for a period of 60 days, MichCon withholds any payments due under this Agreement for any reason other than a disputed bill as provided in Section 4.03.

6. POSSESSION AND RESPONSIBILITY

6.01 As between the Parties, MichCon is deemed in exclusive control and possession of the Antrim Gas and responsible for any damage or injury caused thereby prior to the time it is delivered to ALP at the Inlet Flange and from the time it has been redelivered to MichCon at the Receipt Point. Except as provided in Section 8.02 herein, ALP is deemed in exclusive control and possession of the Antrim Gas and responsible for any damage or injury caused thereby while it is in the Treating Facility, including any related pipe, valves or facilities owned by ALP.

7. RIGHTS TO CO₂ BYPRODUCT

7.01 MichCon assigns all interest, right and title, if any, that it has in CO₂ contained in the Antrim Gas to ALP.

8. WARRANTY/INDEMNIFICATION

8.01 As between the Parties, MichCon warrants that at the time it delivers Antrim Gas to the Inlet Flange it has the right to deliver the gas and that it will indemnify ALP, defend, and save it harmless from suits, action, debts, accounts, damages, costs, losses and expenses arising from or out of adverse claims of any and all persons to said gas or to royalties (except for royalties arising out of claims to the CO₂ removed hereunder from the Gas), taxes, license fees or charges thereon.

8.02 MichCon will indemnify ALP, defend, and save it harmless from all suits, action, debts, accounts, damages, costs, losses and expenses arising out of damage or malfunction to the Treating Facilities caused by Gas delivered hereunder by MichCon to the Treating Facilities that does not meet the quality specifications set forth in Exhibit C attached hereto. Provided; that this Section 8.02 shall not apply in the event that ALP knows that the Gas delivered hereunder does not meet the quality specifications set forth on Exhibit C and accepts such Gas.

9. LAWS, ORDERS, RULES AND REGULATIONS.

9.01 The performance by the Parties of their obligations as set forth in this Agreement is subject to all valid and applicable laws, orders, rules and regulations of any duly constituted authority having jurisdiction.

9.02 This Agreement is governed by the laws of the State of Michigan. In the event of any dispute arising under or by virtue of this Agreement or any difference of opinion between the Parties hereto concerning their rights and obligations under this Agreement, the Parties will attempt to resolve such dispute amicably by discussion and mutual accord. If the matter cannot be resolved within 90 days after discussion among the senior management of the Parties it must be settled by arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association and the following:

- (a) The arbitration panel will consist of three arbitrators, one arbitrator to be chosen by each Party, and the third arbitrator to be chosen by the other two arbitrators.
- (b) The arbitration hearing must be held in Detroit, Michigan on ten days' notice to the Parties.
- (c) No arbitration proceeding may consider a matter designated by this Agreement to be within the judgment or discretion of one Party and the arbitration proceeding may not revoke or revise any provisions of this Agreement.
- (d) The arbitrators have no authority to fashion a remedy that includes punitive damages.
- (e) An award rendered by the arbitrators is final and binding on all Parties to the proceeding.
- (f) Unless the arbitrators, for good cause shown, apportion the costs of the arbitration proceeding between the Parties, the arbitrators' award must direct the losing Party to pay the costs of the arbitration proceeding, including the arbitrators' bill for services, any amounts charged by the American Arbitration Association in connection with the arbitration proceeding, and any costs, internal charges and out-of-pocket expenses incurred by the prevailing Party in connection with the preparation for or conduct of the proceeding, including charges of attorneys for the prevailing Party, which attorneys may be employees of the prevailing Party.
- (g) In no event may either Party be required to arbitrate any dispute based on transactions or occurrences which occurred more than 24 months prior to the date of the demand for arbitration.

Judgment upon the award rendered by the arbitrators may be entered in any court located within the State of Michigan having jurisdiction thereof.

10. MEASUREMENT, SAMPLING AND ANALYSIS

10.01 The Gas delivered to ALP at the Inlet Flange must be measured, sampled, and analyzed in a manner consistent with industry standards.

11. GAS QUALITY

11.01 Antrim Gas (at base conditions of 14.65 psia and 60 degrees F) delivered at the Inlet Flange must meet the quality specifications set forth in Schedule A.

11.02 In the event the Gas delivered by MichCon at the Inlet Flange fails to meet the quality specifications of Exhibit C for a period of 48 consecutive hours, ALP must notify MichCon and thereupon may, at its option, refuse to accept delivery as long as the Gas fails to meet the quality specifications. Upon demonstration acceptable to ALP that the Gas being tendered meets the quality specifications of Exhibit C, ALP must resume taking delivery of Gas. In the event ALP does accept delivery of any Gas not in conformance with Exhibit C, the performance warranty provided in Section 3.01 is waived.

11.03 All Antrim Gas redelivered at the Receipt Point must have an H₂O content less than 7 lbs/MMSCF.

12. FORCE MAJEURE

12.01 Neither MichCon nor ALP will be liable in damages, or in any other remedy, legal or equitable, to the other for any act, omission or circumstances occasioned by or in consequence of any acts of God, strikes, lockouts, acts of the public enemy, wars, sabotage, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests, and restraints of rulers and peoples, civil disturbances, explosions, breakage or accident to machinery, lines of pipe, or CO₂ treating facilities or the necessity to make unscheduled shutdowns (for purposes of necessary maintenance, repairs, tests, or alterations to machinery, lines of pipe or CO₂ treating facilities), line freeze-ups, the binding order of any court of governmental authority which has been resisted in good faith by all reasonable legal means, or any other cause, whether of the kind herein enumerated, or otherwise, not within the control of the Party claiming suspension hereunder and which by the exercise of due diligence such Party is unable to prevent or overcome. A failure to settle or prevent any strike or other controversy with employees or with anyone

purporting or seeking to represent employees may not be considered to be a matter within the control of the Party claiming suspension.

12.02 Such causes or contingencies affecting the performance of this Agreement by either Party, however, do not relieve it of liability in the event of its concurring negligence or in the event of its failure to use due diligence to remedy the situation and remove the cause in an adequate manner and with all reasonable dispatch, nor do such causes or contingencies affecting the performance of this Agreement relieve either Party from its obligation to make payments of amounts then due thereunder, nor do such causes or contingencies relieve either Party of liability unless such Party gives notice and full particulars of the same in writing or by telefax to the other Party as soon as possible after the occurrence relied on.

13. NON-WAIVER OF FUTURE DEFAULTS

13.01 No waiver by either Party of any one or more defaults by the other in the performance of any provision of this Agreement may operate or be construed as a waiver of any future default or defaults, whether of a like or a different character.

14. NOTICE

14.01 Any notice, request, demand, statement or payment provided for in this Agreement must be sent to the Parties at the following addresses:

MichCon:

For Notices:

Manager of Supply Services
Michigan Consolidated Gas Company
500 Griswold Street, 26th Floor
Detroit, Michigan 48226
Tel. (313) 256-5541
Telecopy (313) 256-6416

For Billings:

Manager, Accounts Payable
Michigan Consolidated Gas Company
500 Griswold Street
Detroit, Michigan 48226

ALP:

Antrim Limited Partnership
c/o CMS Gas Transmission and Storage Company
330 Town Center Drive
Suite 1100
Dearborn, Michigan 48126
Tel. (313) 436-9414
Telecopy (313) 436-9225

14.02 Either Party may change its address under this Agreement by notice to the other Party. Unless otherwise provided, all notices given by one Party to the other must be sent by registered mail, overnight mail, telecopy or fax and will be effective upon receipt. Routine communications, including monthly invoices, will be considered as duly delivered when mailed by either registered, overnight or ordinary mail.

15. MISCELLANEOUS PROVISIONS

15.01 Neither Party may broker, assign, convey or transfer its interests under this Agreement without the prior written consent of the other. Either MichCon or ALP may, however, without relieving itself of its obligations under this Agreement, assign any of its rights and obligations under this Agreement to an Affiliate without obtaining written consent. ALP may also, without relieving itself of its obligations under this Agreement, assign any of its rights and obligations under this Agreement to a financial institution for purposes of obtaining financing for construction of Treating Facility without obtaining written consent.

15.02 The headings used throughout this Agreement are inserted for convenience of reference only and are not to be considered or taken into account in construing the terms or provisions nor are they to be deemed in any way to qualify, modify or explain the effect of any such provisions or terms.

15.03 Unless the context otherwise requires, words importing the singular include the plural and vice versa, and words importing gender include all genders.

15.04 This Agreement binds and inures to the benefit of the Parties and their respective successors and permitted assigns.

15.05 Any company which succeeds by purchase, merger, or consolidation to the properties, substantially as an entirety, of MichCon or ALP, as the case may be, is entitled to the rights and subject to the obligations of its predecessor in title under this Agreement.

15.06 This Agreement constitutes the entire Agreement between MichCon and ALP concerning the subject matter hereof. Any prior understandings, representations, promises, undertakings, Agreement or inducements, whether written or oral, concerning the subject matter hereof not contained herein have no force and effect. This Agreement may be modified or amended only by a writing duly executed by both Parties.

The Parties executed this Agreement as of the day and year first above written.

MICHIGAN CONSOLIDATED GAS COMPANY

By: Carl Crosby

Title: Senior Vice President

RECEIVED
AS TO FORM
4-11-95

ANTRIM LIMITED PARTNERSHIP
CMS Antrim Gas Company, its general partner

By: Karl Venturini

Title: VICE PRESIDENT

EXHIBIT A
DEMAND RATE

ALP and MichCon agree that for the term of this Agreement, the Demand Rate will be
____/Mcf.

MICHIGAN CONSOLIDATED GAS COMPANY

By: _____

Title: _____

Date: _____

ANTRIM LIMITED PARTNERSHIP
CMS Antrim Gas Company, its general partner

By: _____

Title: _____

Date: _____

EXHIBIT B
DESIGN ANTRIM SHALE PRODUCTION

<u>YEAR</u>	<u>DEMAND CHARGE VOLUMES</u> <u>MMcf/DAY</u>
Firm processing date - 12/31 1996	213
1/1 - 12/31 - 1997	250
1/1 - 12/31 - 1998	250
1/1 - 12/31 - 1999	250
1/1 - 12/31 - 2000	250
1/1 - 12/31 - 2001	237
1/1 - 12/31 - 2002	221
1/1 - 12/31 - 2003	204
1/1 - 12/31 - 2004	188
1/1 - 12/31 - 2005	173
1/1 - 12/31 - 2006	159
1/1 - 12/31 - 2007	146
1/1 - 12/31 - 2008	133
1/1 - 12/31 - 2009	121
1/1 - 12/31 - 2010	107

EXHIBIT C

QUALITY SPECIFICATIONS

Site General Location:

Site Elevation:

Ambient Temperature:

Inlet Gas Condition:

Maximum Allowable Working Pressure: 1070 Psig
Normal Pressure Differential: 40 Psig
Minimum Operating Pressure: 800 Psig
Temperature (Minimum): 30 °F
CO₂ Content (Maximum): 14.0%

Inlet Gas Quality:

1. The gas must be commercially free from dust, gum, gum-forming constituents and liquids and solids which may become separated from the gas under delivery conditions.
2. The gas may not contain anything which might adversely affect the safe and efficient operation of the Treating Facility.
3. The water content of the gas may not exceed 7 pounds per million cubic feet.
4. The gas may not contain oxygen.
5. The gas may not contain more than 1/4 grain of hydrogen sulfide per 100 cubic feet.
6. The gas may not contain any mercaptan sulfur per 100 cubic feet.

SAm

AMENDMENT #1
TO
CAPACITY AGREEMENT
dated April 18, 1995

WHEREAS, CMS Gas Antrim Company, a Michigan corporation and successor in interest to Antrim Limited Partnership ("CMS") and Michigan Consolidated Gas Company, a Michigan corporation ("MichCon") (collectively the "Parties") are parties to a certain Capacity Agreement dated as of April 18, 1995 ("Capacity Agreement") for the purchase by MichCon of CO₂ treating capacity at CMS's South Chester treating facilities; and

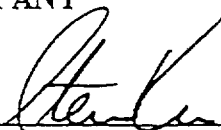
7th WHEREAS, pursuant to the terms of a certain Settlement Agreement dated as of March 1996 CMS and MichCon have agreed to execute this Amendment #1 to the Capacity Agreement.

NOW, THEREFORE, in consideration of the mutual promises, agreement and undertakings hereinafter set forth, MichCon and the Partnership agree as follows:

1. The following sections of the Capacity Agreement are amended in their entirety as follows:
 - (i) 1.06 "Commodity Rate" shall mean \$0.035 per Mcf.
 - (ii) 1.07 "Demand Rate" shall mean \$0.075 per Mcf.
 - (iii) 1.09 "Firm Processing Date" shall mean November 10, 1995.
 - (iv) 4.01 The monthly Treating Capacity Fee is the sum of the following: (i) the Demand Rate multiplied by those volumes set out on Exhibit B multiplied by the number of days in the month; (ii) the Commodity Rate multiplied by those volumes less than or equal to those volumes set out on Exhibit B that are actually Treated for MichCon for each day during the month; and (iii) the Overrun Rate multiplied by all volumes Treated for MichCon at the Treating Facility in excess of those specified in Exhibit B for each day during the month.
2. In all other respects, the Capacity Agreement remains in full force and effect. Subject to approval by NBD Bank N.A., this Amendment shall become effective as of November 10, 1995.

The Parties executed this Amendment as of the 7th day of March, 1996.

MICHIGAN CONSOLIDATED GAS
COMPANY

By: 

Its: Managing Director

CMS GAS ANTRIM COMPANY

By: 

Its: VICE PRESIDENT

Provisions Expired

Case No. U-14821

Witness: A.R. Lyle II

Exhibit No. MGAT-3 (ARL-1)

Page: 17 of 24

AMENDMENT #2
to
CAPACITY AGREEMENT (Dated April 18, 1995)

This second Amendment to the Capacity Agreement dated April 18, 1995 ("Capacity Agreement") is entered into effective January 1, 1997 between MichCon Gathering Pipeline Company ("MichCon Gathering"), a Michigan corporation, and CMS Antrim Gas Company ("CMS"), a Michigan corporation.

WHEREAS, Michigan Consolidated Gas Company ("MichCon") and Antrim Limited Partnership are parties to a certain Capacity Agreement, which agreement addresses various issues related to the treating of natural gas to remove carbon dioxide at the South Chester Treating Facility, as defined in the Capacity Agreement; and

WHEREAS, MichCon assigned its rights and duties under the Capacity Agreement to its affiliate, MichCon Gathering, effective January 1, 1997; and

WHEREAS, CMS, a successor in interest to Antrim Limited Partnership, and MichCon entered into a Settlement Agreement and Amendment #1 to the Capacity Agreement effective March 7, 1996; and

WHEREAS, the current demand for treating Antrim natural gas raises performance issues not addressed in previous agreements between MichCon and CMS;

NOW THEREFORE, in consideration of the mutual promises set forth in this second Amendment, the parties agree to modify and supplement the Capacity Agreement as follows:

1. The terms and conditions of the Capacity Agreement shall remain in full force and effect except to the extent modified by this second Amendment, which shall control to the extent its terms and conditions differ from those of the Capacity Agreement.
2. While the term of the Capacity Agreement described in Section 5.01 shall remain unchanged, the term of this second Amendment commences on January 1, 1997 and terminates on the first day of the calendar month following notice from CMS to MichCon Gathering that a fifth treating plant at the Treating Facility has commenced commercial operation, but in any event, shall terminate no later than July 1, 1997. ✓
3. As established by Exhibit B to the Capacity Agreement, overrun gas is gas tendered for treating at the Treating Facility in excess of 250 MMcf on any day. Any Gas in excess of 250 MMcf/d shall be established as flowing in the following sequence for purposes of Paragraph 4 below.
 - a) Gas for which CMS has executed Treating Agreements with Parties other than MichCon Gathering and Terra Energy Ltd. ("Third Party Gas").

- b) Gas tendered for treating by MichCon Gathering in excess of 250 MMcf/d ("MichCon Overrun Gas").

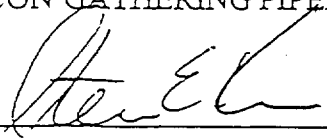
4. CMS shall Treat the first 250 MMcf/d and any MichCon Overrun Gas to a standard of 0.75% carbon dioxide content as required by Section 1.21 of the Capacity Agreement. During the term of this second Amendment, the actual removal of carbon dioxide from overrun gas attributable to Third Party Gas shall meet a standard as defined by the contracts between CMS and Third Parties, but, not to exceed a concentration of 2% carbon dioxide content regardless of the specifications in such third party agreements. The relative percentages of MichCon Overrun Gas and Third Party Gas comprising total Overrun Gas for purposes of this section shall be determined from the application of a formula assigning a 2% weighting to nominated volumes of Third Party Gas and a 0.75% weighting to all remaining volumes in the total projected throughput (280 MMcf/d) at the Treating Facility for that month's nominations for purposes of establishing the Treating Facility's treatment specifications for that month. For purposes of the calculation of CO₂ outlet specifications, Terra Energy Ltd. is specifically excluded from the definition of Third Party:

- a) Attachment 1 is an illustration of the type of computation that the parties will make each month for the proper application of the formula to determine the Treating Facility's outlet carbon dioxide specification for that month; and
- b) In order to verify the Third Party Gas, CMS shall provide MichCon Gathering with proof, satisfactory to MichCon Gathering, of the existence of the Third Party agreements and the CO₂ outlet specifications CMS is obligated to meet under such agreements.

5. The separate treatment of Terra Energy Ltd. from other third party producer gas for purposes of this second Amendment is done for convenience only and is not intended to serve as a precedent in any other context for either party to characterize the name of Terra Energy Ltd., including any issues relating to dedication of such gas.

The parties have caused this second Amendment to be executed in multiple counterparts, each of which shall be considered to be an original document, by their duly authorized representatives, effective as of the date first written above.

MICHCON GATHERING PIPELINE COMPANY

By: 

Printed Name: Steven E. Kurmas

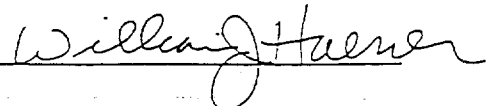
Title: President

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APPROVED
AS TO FORM

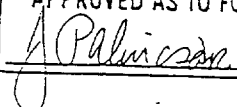
MC
12/19/97

CMS ANTRIM GAS COMPANY

By: 

Printed Name: William J. Haener

Title: President & CEO

APPROVED AS TO FORM


ATTACHMENT I

Example of Monthly CO₂ Outlet Specification Calculation

Estimated nominations for Third Party Gas -- 20,960 Mcf/d

Based on the above nominations, the outlet CO₂ would be calculated as follows:

MichCon capacity	250,000	@	.75%	=	1,875
Third Party Gas	20,960	@	2.0%	=	419
MichCon Overrun	<u>9,040</u>	@	.75%	=	<u>68</u>
	280,000 Mcf/d				2,362 Mcf/d

The outlet CO₂ limit (2,362 Mcf/d) divided by the nominated inlet gas volume (280,000 Mcf/d) provides the outlet CO₂ value of .84%.

AMENDMENT #3
to
CAPACITY AGREEMENT (Dated 18, 1995)

This third Amendment to the Capacity Agreement dated April 18, 1995 ("Capacity Agreement") is entered into effective July 1, 1997 between MichCon Gathering Company ("MichCon Gathering"), a Michigan corporation, and CMS Antrim Gas Company ("CMS"), a Michigan Corporation.

WHEREAS, Michigan Consolidated Gas Company ("MichCon") and Antrim Limited Partnership are parties to a certain Capacity Agreement, which agreement addresses various issues related to the treating of natural gas to remove carbon dioxide at the South Chester Treating Facility, as defined in the Capacity Agreement; and

WHEREAS, MichCon assigned its rights and obligations under the Capacity Agreement to its affiliate, MichCon Gathering, effective January 1, 1997; and

WHEREAS, CMS, a successor in interest to Antrim Limited Partnership, and MichCon entered into a Settlement Agreement and Amendment #1 to the Capacity Agreement effective March 1, 1996; and,

WHEREAS, CMS and MichCon Gathering entered into a Letter Agreement and Amendment #2 to the Capacity Agreement effective January 1, 1997 whose term expired July 1, 1997;

NOW THEREFORE, in consideration of the mutual promises set forth in this third Amendment, the parties agree to modify and supplement the Capacity Agreement as follows:

1. The terms and conditions of the Capacity Agreement shall remain in full force and effect except to the extent modified by this third Amendment, which shall control to the extent its terms and conditions differ from those of the Capacity Agreement.
2. The term of the Capacity Agreement described in Section 5.01 shall remain unchanged. The term of this third Amendment shall be effective July 1, 1997 and terminate concurrently with the Capacity Agreement.
3. CMS shall Treat the MichCon Gathering volumes established on Exhibit B to the Capacity Agreement ("Contract Volume") and any volumes tendered by MichCon Gathering in excess of the Contract Volume ("Overrun Volume") to a standard of 0.75% carbon dioxide content as required by Section 1.21 of the Capacity Agreement. During the term of this third Amendment, the actual removal of carbon dioxide from volumes of gas attributable to parties other than MichCon Gathering ("Third Party Volumes") shall meet a standard as defined by the contracts between CMS and parties other than MichCon Gathering ("Third Parties"), but, not to exceed a concentration of two percent (2%) carbon dioxide content regardless of the specifications in such Third Party agreements. The

relative percentages of MichCon Gathering Contract Volumes, MichCon Gathering Overrun Volumes and Third Party Volumes shall be determined from the application of a formula assigning actual contractual standards for the removal of carbon dioxide not to exceed a concentration of two percent (2%) weighting to nominated Third Party Volumes and a 0.75% weighting to all remaining volumes in the total nominated throughput at the Treating Facilities for purposes of establishing the Treating Facility's treatment specification for that month.

- a) Attachment 1 is an illustration of the type of computation that the parties will make each month for the proper application of the formula to determine the Treating Facility's outlet carbon dioxide specification for that month; and
- b) In order to verify the Third Party Volumes, CMS shall provide MichCon Gathering with proof, satisfactory to MichCon Gathering, of the existence of the Third Party agreements and the carbon dioxide outlet specifications CMS is obligated to meet under such agreements.

The parties have caused this third Amendment to be executed in multiple counterparts, each of which shall be considered to be an original document, by their duly authorized representatives, effective as of the date first written above.

CMS ANTRIM GAS COMPANY

By: William J. Haener

Printed Name: William J. Haener

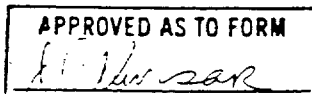
Title: President and CEO

MICHCON GATHERING COMPANY

By: William J. Wolter

Printed Name: William J. Wolter

Title: Vice President



ATTACHMENT 1

Example of Monthly Carbon Dioxide Outlet Specification Calculation

Estimated Third Party Volumes	=	55,900 Mcf/d
Estimated MichCon Contract Volumes	=	250,000 Mcf/d
Estimated MichCon Overrun Volumes	=	21,100 Mcf/d

Based upon the above nominations, the outlet carbon dioxide would be calculated as follows:

Third Party Volumes	=	55,900	@	2.00%	=	1,118
MichCon Contract Volumes	=	250,000	@	0.75%	=	1,875
MichCon Overrun Volumes	=	<u>24,100</u>	@	0.75%	=	<u>181</u>
		330,000 Mcf/d				3,174 Mcf/d

The outlet carbon dioxide limit (3,174 Mcf/d) divided by the nominated inlet gas volume (330,000 Mcf/d) provides the outlet carbon dioxide value of 0.96%.

**AMENDMENT #4 TO THE CAPACITY AGREEMENT DATED APRIL 18, 1995
BETWEEN MICHIGAN CONSOLIDATED GAS COMPANY AND ANTRIM
LIMITED PARTNERSHIP**

THIS AMENDMENT #4 to the Capacity Agreement dated April 18, 1995, as amended, is made by and between MichCon Gathering Company ("MichCon Gathering") and CMS Antrim Gas LLC ("CMS").

WHEREAS, Michigan Consolidated Gas Company ("MichCon") and Antrim Limited Partnership are parties to a certain Capacity Agreement dated April 18, 1995 as amended (the "Capacity Agreement"), which agreement addresses various issues related to the Treating of natural gas at the Treating Facility, and

WHEREAS, MichCon assigned its rights and obligations under the Capacity Agreement to its affiliate, MichCon Gathering Company, effective January 1, 1997; and

WHEREAS, CMS Antrim Gas LLC is the successor to the Antrim Limited Partnership; and

WHEREAS, MichCon Gathering and CMS are parties to Fuel Allocation and Oxygen Specification Agreements entered into with various shippers and receipt point operators ("FAOS Agreements") and desire to clarify and modify the gas quality provisions of the Capacity Agreement with respect to the permissible oxygen content;

Now therefore, MichCon Gathering and CMS agree as follows:

1. Paragraph 4 of Exhibit C to the Capacity Agreement is deleted and replaced with Exhibit B to the FAOS Agreements, which sets forth permissible oxygen content in gas delivered to the facilities of MichCon Gathering and CMS.
2. By the eighth day following the month of production, MichCon Gathering will provide to CMS the daily average of the actual monthly volumes of Third-Party Volumes.
3. CMS and MichCon Gathering agree that the Treating Surcharge, as defined in the FAOS Agreements, will be billed as follows:
 - a. CMS shall directly bill Third Parties that are party to the FAOS Agreements.
 - b. CMS shall compute the Treating Surcharge billed to MichCon Gathering by using the total volume of gas, in Mcf, delivered to the Inlet Flange of the Treating Facility less the Third Party Volumes
 - c. MichCon Gathering shall pay any invoices per the terms of Section 4 of the Capacity Agreement,

4. CMS submitted an invoice to MichCon Gathering dated February 17, 2003 referenced as an oxygen invoice in the amount of \$165,460.98. CMS hereby agrees to accept \$143,992.73 from MichCon Gathering and MichCon Gathering agrees to pay as payment in full for the oxygen invoice dated February 17, 2003.

Except to the extent modified by this Amendment #4, all terms and conditions of the Agreement shall continue in effect. Any capitalized term not defined in this Amendment #4 or referred to as defined in another agreement, shall have the meaning ascribed in the Capacity Agreement, or amendments thereto.

This Amendment #4 is executed by the parties' duly authorized representatives in multiple, original counterparts and shall be effective as of the effective date of Exhibit B to the FAOS Agreements.

MICHCON GATHERING COMPANY

By: Dennis A. Lambert

Title: Director

CMS ANTRIM GAS LLC

By: Kevin T. Miller

Its: VP