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June 30, 2010

Ms. Mary Jo Kunkle
Executive Secretary
Michigan Public Service Commission
P.O. Box 30221
Lansing, MI 48909

Re: MPSC Case Number U-16230

Dear Ms. Kunkle:

Attached for electronic filing are the Written Comments of Delta Oil Company. Also enclosed is a proof of service.

Should you have any questions, please contact me.

Sincerely,

DINGEMAN, DANCER &
CHRISTOPHERSON, P.L.C.

James Christopherson
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Date: 2010.06.30 15:53:30 -04'00'

James A. Christopherson

JAC:mll
Enclosure
Cc w/enc: Delta Oil Company
Hon. Mark A. Eyster
All Interested Parties

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commission's own motion to consider the appropriate regulatory response to proposals by various producers of natural gas from Antrim Shale Formation to operate their wells under a vacuum.	))))))	Case No. U-16230

WRITTEN COMMENTS OF DELTA OIL COMPANY

Delta Oil Company, Inc., and RCS Services Company, LLC, acting as authorized agent on behalf of Delta Oil Company, Inc., wishes to provide their comments and state their position in this case.

Delta Oil Company, Inc. (Delta Oil Company) is an Oak Brook, Illinois corporation in the business of exploring for and producing oil and natural gas in the state of Michigan, and is engaged, among other things, in the production and sale of natural gas. Its principle place of business in located at 125 Windsor, Suite 101, Oak Brook, Illinois, 60523. Delta Oil Company has been conducting business in Michigan since the early 1970's and became actively involved in the development of the Antrim Shale Formation gas wells in 1988. Delta Oil Company currently owns and operates twenty-six (26) Antrim Gas Projects (AGP(s)), which are located in Otsego, Montmorency, and Oscoda counties. There are

four hundred twelve (412) Antrim Shale gas wells and sixteen (16) Salt Water Disposal wells (SWD(s)) comprised within these AGP's.

In order to accurately depict our position, it is necessary to give a statement on the history regarding the development of the Antrim Shale Formation.

EARLY ANTRIM SHALE GAS DEVELOPMENT

The Antrim Shale Formation, considered a non-conventional gas source, is a complex two-phase, gas and water reservoir which is naturally fractured. As much as 70% of the total gas in place is adsorbed organics, with the remainder in the pore space or natural fractures. It demonstrates a very high permeability commanded by its natural fracture system. These wells require hydraulic fracturing stimulation in order to obtain economic production volumes. These wells must be dewatered utilizing production equipment. With the complexities of this formation, there was very little done in terms of reservoir engineering.

The terminology and understanding of what constitutes the Antrim Shale Formation has had different interpretations since the early development. Early formation cuttings being evaluated by mudlogger's on site during drilling operations identified two primary zones of production. They determined an Upper Antrim, which today is identified as the Lachine, and the Lower Antrim, which is called the Norwood. Separating these two zones is unproductive gray shale, called the Paxton. The thickness of these formations is approximately 80-feet, 25-feet, and 40-feet thick respectively. Today, there is another productive zone above the Lachine and Norwood, which is identified as the Upper Antrim. For these analysis purposes, we are concerned with the Lachine and Norwood only. The Traverse Formation is immediately below the Norwood.

Nearly half of Delta Oil Company's earliest wells were drilled openhole, whereby the production casing was set and cemented and secured above the Lachine and Norwood. By Michigan Department of Environmental Quality (MDEQ), Oil and Gas rules, a well drilled in this manner could only penetrate the Traverse Formation 15-feet. Here, problems arose over time. As noted earlier, Antrim Shale well must be dewatered to maximize production. With an openhole well, assuming the production tubing string is sitting on bottom, and for sake of discussion, that the static fluid level in the well is at the bottom of the production casing/top of the Lachine, there would be 160-feet of fluid that would need to be lifted off of the formation over time to achieve maximum production. As the bottomhole pressures decline (which is discussed later in these comments), the fluid level will drop accordingly, as will the ability to effectively lift the fluid off of the formation. Therefore, reducing the backpressure at the wellhead would significantly increase the ability to allow more water to flow into the wellbore, increasing the efficiency of the lift system being utilized and maximize the recovery of the reserves. Gas Research Institute (GRI) has carried out numerous research programs related to the Antrim Shale Formation since 1989. They have determined that the Antrim produces most effectively with the fluid level below the completed interval. With a "rathole" of only 15-feet, it is very difficult to keep the fluid off of the Lachine and Norwood sections.

Producers today have reached the same conclusions as GRI in their studies and will drill an additional 100 to 500-feet of rathole below the Norwood section. This allows them to have their production tubing and equipment operating efficiently, keeping the fluid level far below the Norwood and Lachine and enhancing recovery.

Due to the economics to successfully produce these wells, this dictated a low cost facility/pipeline infrastructure. The early AGP's generally utilized steel as the material for these lines. There were two pipelines, or 2-line system in the typical early AGP, the first; a short lateral would transmit gas and water from the well to a larger, two-phase mainline or trunkline, which carried the production of gas and water to a Central Production Facility (CPF). The second pipeline, a single, smaller diameter steel line would transmit high pressure, dehydrated gas from the CPF back to the well. The high pressure gas would be used for various systems, such as fuel for the engines of pump-jack's and progressive cavity pumps, or for plunger-lift systems, to assist in dewatering the well. These systems were designed to keep the hydraulic head pressure off of the well. The more water you could keep off of the wellbore, the better the well produced. So in short, there were two pipelines to each well, one carrying product to the CPF and the second line returning high pressure gas back to the well.

In Delta Oil Company's early development of the Antrim, their AGP's consisted of an average of 10 to 30 wells per project. As part of the early development of the AGP, it was necessary to drill an SWD well. Each Antrim Shale project had the potential for producing large volumes of water. It wasn't economically feasible to outsource the disposal of this water, and therefore, the SWD well was considered to be the heart of the project.

As described earlier, the production of most of these wells, with the exception of those nearest the CPF, were commingled. It was typical that several wells (4-8) be drilled and completed at the time an AGP was put online. And in Delta Oil Company's case, the first wells drilled and put into production were those closest in proximity to the newly constructed CPF, thus limiting the risk of surface impact and minimizing waste if a non-

economical project was the final result. Also, engineering the proper pipeline sizes was very difficult as production volumes from multiple wells were so varied. The lines were designed with the limited information learned from post completion well tests. Once the AGP exhibited signs that it was going to make a successful project, a new phase of drilling would take place.

It is obvious today that the location of the CPF is one of the most critical decisions in the development process. But, historically this was not the case. As these AGP's began to show signs of success, the projects would expand outwardly. New wells would be drilled and extensions to the main pipelines would be constructed, with smaller laterals connecting each new line. As the project grew, the newest wells had to compete with the production/pressures of the upstream wells in order to produce. By the time that the last well is drilled in an AGP consisting of 30 wells, there was always the potential that it may have as many as 29 wells to compete with.

As the newly drilled wells continued to range increasingly further from the CPF, the pipeline sizes would reduce in size. This was in due to the fact that the potential to drilling had reached the AGP's boundaries of the pooled acreage of the project. Pipelines at the furthest well would be minimal in size where it would enter a slightly larger trunk line. Continuing toward the CPF, more wells would enter the system, consequently, line sizes increased in size proportional to the number of wells flowing into the pipeline infrastructure.

For example, the wells furthest from the CPF might flow into a single, 2-inch diameter, two-phase lateral. Where the system picked up an additional well, line size might increase to 3-inch diameter. The next well(s) laterals picked up might flow into a 4-inch diameter line. This increase in size would never exceed the largest line installed in the very first phase of

drilling. It was typical that the largest line to the CPF in the first phase to be 6-inch in diameter. 30 wells flowing into a 6-inch line would be inadequate with the acquired data that we know today. Therefore, it becomes evident that the wells at the project boundaries would be subjected to the greatest backpressure. AGP's constructed today incorporate a 3-line system. The 2-line and the 3-line systems perform the same functions, only in the 3-line system; there is separate pipeline for water production and another pipeline dedicated strictly for gas production.

The earliest of Delta Oil Company's Antrim wells exhibited a bottomhole pressure average of 300-400psig (other producers pressures varied). Some wells initially did not require much assistance to flow, while others required constant assistance, and some flowed on their own without help. Each well certainly had its own individual characteristics. This temporarily negated the backpressure issues we would come to contend with in the future.

Initially, minimal consideration was given to the fact that the bottomhole pressures of these wells would someday fall, which is of vital importance to production. But as more and more wells were drilled, it became very apparent where the future of production was heading. Drilling Antrim wells on the 40-acre spacing rule was an additional factor that accelerated the falling bottomhole pressures. Plotting production data indicated that the typical AGP well (see "Attachment – A"), had a steep initial production curve of both gas and water until it would peak. This was followed by a sharp drop in production as the free gas within the matrix depletes and there was a significant drop in bottomhole pressures. In the following phase, production would flatten out with an extended rate of decline. Studies conducted by GRI in the mid 1990's estimated a production decline rate of approximately 10% per year, after the well had reached its peak. GRI studies at the time had projected an Antrim Shale

well, based on 40 to 60-acre spacing, would produce approximately 0.2-0.6bcf (billion cubic feet) through its lifetime.

As the bottomhole pressures of the Antrim well continued to fall, water began collecting wherever there was a low elevation. The topography of Northern Michigan is not flat and therefore, water collects in every low elevation. It is not uncommon to have 100 foot, or larger, elevation changes between a well and the CPF.

As the Antrim production continues its slow decline and the bottomhole pressures of the wells continued their downward slope, it became necessary to evaluate solutions that would maximize the recovery of these reserves while at the same time, preventing waste and environmental impact. This enigma becomes even more complex as time passes.

Considering all of the information described, it might be inferred that there was a multitude of errors in engineering, but this simply was not the case. The data required was just not available at the time that many of the AGP's were being developed.

CONCLUSIONS

Delta Oil Company's development of their AGP's mirrored that of the majority of the producers seeking the non-conventional Antrim Shale Formation gas. With time and advances in drilling and completion technology, the ability to recover reserves has improved tremendously. Other factors include cased holes, the Michigan Department of Environmental Qualities rule expanding the drilling unit from 40-acre to 80-acre spacing, as well as the drilling of horizontal legs, etc. But these developments do not provide a viable remedy for the older AGP's.

Delta Oil Company has concluded that due to the conditions being confronted, that at some juncture, it will become an absolute necessity to include supplemental compression on all of their AGP's for the maximum recovery of reserves and the prevention of waste. They have also determined that at some point in time, their AGP's, and that of all Antrim Shale gas producers, in order to maximize reserves recovery more efficiently, will find it imperative, due to the complications indicated in this paper, and among other issues not included and detailed here, to reach a vacuum state on their systems. As they continue to gain more knowledge of the Antrim Shale Formation, it will be necessary use that knowledge to anticipate and adapt solutions to move forward.

Delta Oil Company is also confident that in this matter before the Michigan Public Service Commission, Case No. U-16230 Regarding Operation of Antrim Shale Formation Gas Wells Under a Vacuum, will be resolved swiftly, as the impact to the oil and gas industry and the countless jobs in this area on a whole would suffer significantly, as would the economic impact of a reduction in gas production royalties and other revenues to the State of Michigan and constituting a waste of natural resources.

Respectfully submitted,

DINGEMAN, DANCER & CHRISTOPHERSON PLC
Attorneys for Delta Oil Company and RCS Services, LLC

Dated: June 30, 2010

By: James Christopherson

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EXHIBIT A TO COMMENTS OF DELTA OIL COMPANY

CASE NO. U-16230

STATE OF MICHIGAN

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In the matter, on the Commission's own motion to consider the appropriate regulatory response to proposals by various producers of natural gas from Antrim Shale Formation to operate their wells under a vacuum.	)	Case No. U-16230

PROOF OF SERVICE

James Christopherson states that on June 30, 2010 a copy of the Written Comments of Delta Oil Company were served upon the attached service list by electronic mail.

I declare the above statement is true.

Dated: June 30, 2010

James Christopherson

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James A. Christopherson

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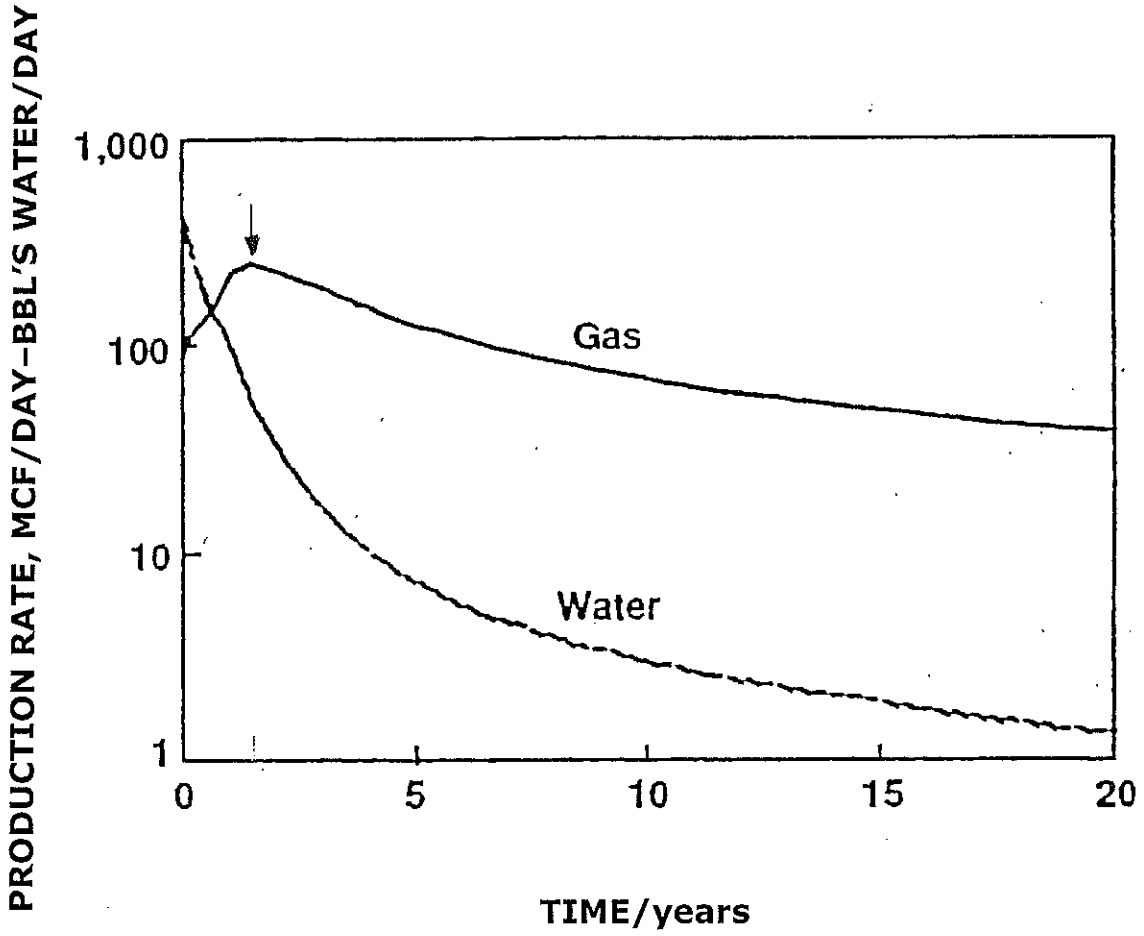
"Attachment – A"



Typical Performance for New Antrim Well

***Note that gas peaks within 1-2 years after being put online and water immediately begins to decline.**