

BRADFORD GORDON

AN OIL & GAS INVESTMENT FIRM

Antrim Research on Bradford Gordon's Mineral Properties in the Michigan Basin

Introduction

This report is included to inform a prospective purchaser of the relationship existing between our holdings and the shallow Antrim Shale formation. It was prepared for us in 2004 by Barratt Consulting, LLC. Mike Barratt was asked to evaluate all of Bradford Gordon's holdings for potential Antrim production. Barratt Consulting, LLC was selected for this report based upon their extensive experience with Michigan Basin geology. This experience includes the publishing of several in depth studies involving geological structures in Michigan.

With activity during the 1990s highly focused on the Antrim play in Michigan, we were interested in the potential Antrim Shale formation reserves available from our locations.

Since there was an interesting WSJ article about the Barnett Shale (Texas), dated August 9, 2006, Mike Barratt explained that the shale is similar to the Antrim Shale in Michigan. His quote was as follows:

“The Barnett Shale play currently covers a larger area than the Antrim but the Antrim underlies all of the lower peninsula of Michigan, so it has as much potential as the Barnett but it is necessary to have a good fracture system in the Antrim in order for it to produce.”

The implication is that the Antrim Shale exists in almost every County in Michigan. It is deeper in the central part than along the fringes where the Niagaran Reef exists. The Antrim has not been fully exploited; in fact, it is just those shallow areas along the Niagaran Reef areas, which have been exploited.

In the U.S Geological Survey's National Assessment of United States oil and gas, Gordon L. Dalton (1995) estimates that, at a mean value, 4.9 trillion cubic feet (TCF) of Antrim Shale gas are recoverable in the productive area of the Northern Michigan trend. He also suggests that undiscovered Antrim Shale gas exists in other parts of the Michigan basin. Gordon estimates the undeveloped area for the gas, at a mean value, 13.9 trillion cubic feet (TCF) with an 80% success ratio.

Even though Bradford Gordon has been focusing on the deep drilling for PDC, located in the central part of Michigan, especially in Osceola County, it has considerable exposure in the Antrim Formation. For instance, 15 Antrim producing properties are producing gas at a rate higher than 20 MCFGPD per well. Further, it has significant holdings in fractured Antrim Shale gas in Counties such as Alcona, Grand Traverse, Kalkaska, Livingston, Manistee and Oscoda. Should gas ever get to be in short supply, it may be economical to go deeper for the Antrim oil by moving into Osceola, Newaygo, Mecosta and Montcalm where it is not at the surface but at least 2,500' deep.

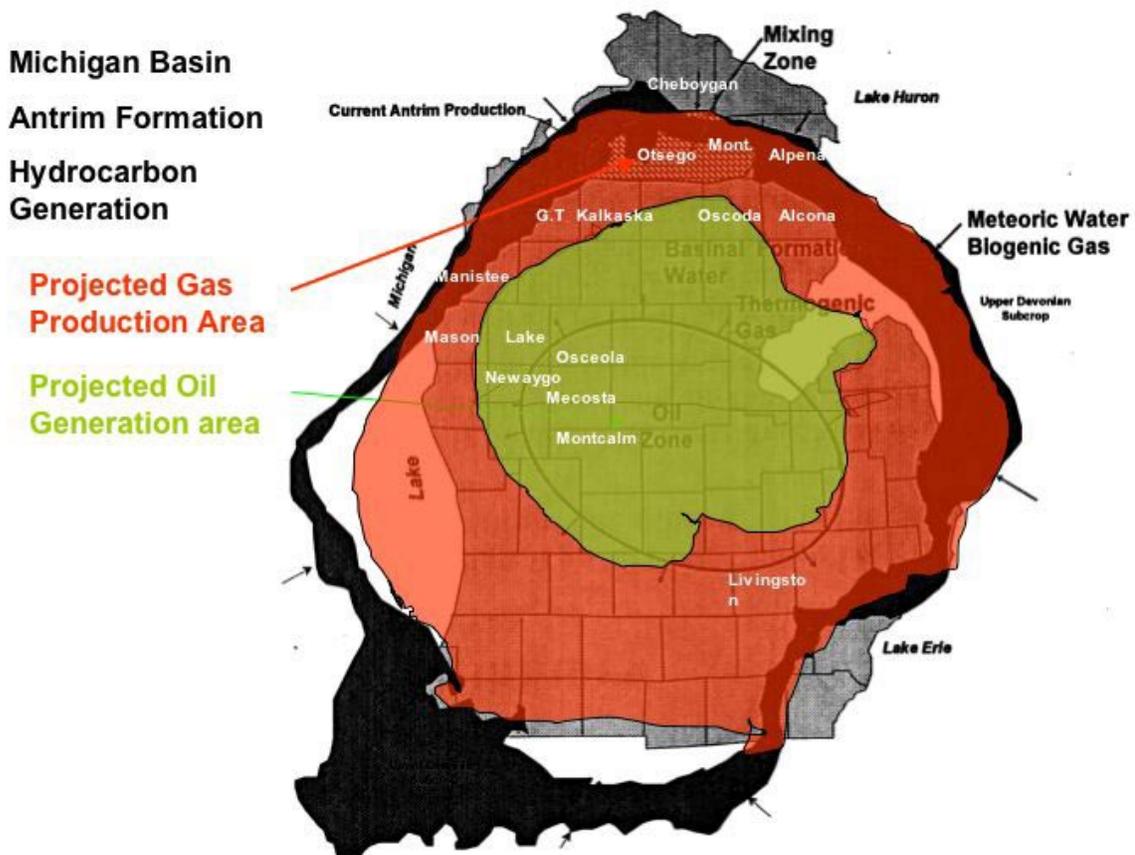
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The Bradford Gordon's holdings of eighteen properties, located in Manistee County, which are in close proximity to existing Antrim gas production, should be reviewed. The geologist indicated that it may have the best chance of being developed for Antrim gas production.

There appears to be a lesser chance of success when drilling for the Antrim Formation below about 2,000' – 2,500' since fracturing may be limited, unless associated with structures and would likely produce small quantities of oil. The geologist has classified these deep Antrim properties as having Limited Potential. However, seventeen properties in Osceola County could have some success in the Antrim Formation because of structures associated with currently producing fields.

A map, shown below, entitled "Michigan Basin, Antrim Formation Hydrocarbon Generation" is included to show the Antrim sub crop on the outside margins of the Basin. The area, in red, labeled "Projected Gas Production Area" is the area within the Michigan Basin projected to be Antrim gas production and the green area labeled "Projected Oil Generation Area" is the area projected to produce oil from the Antrim.

From Mike Barratt's geological research of the Antrim Formation on Bradford Gordon's properties, dated October 19, 2004, the summary of his research was reviewed and updated to reflect BG's exposure in the Antrim. The summary begins on the next page.



Michigan Basin, Antrim Formation Hydrocarbon Generation

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Summary

Counties selected for the evaluation included counties, which currently have Antrim gas production on the northern margin of the Michigan Basin and in some of the counties in the Southern and central basin areas where Bradford Gordon mineral property ownership is concentrated. The following counties were chosen based upon their proximity to existing Antrim gas production and based on the amount of mineral holdings by Bradford Gordon partnerships: Alcona, Alpena, Cheboygan, Grand Traverse, Kalkaska, Lake, Livingston, Manistee, Mason, Mecosta, Montcalm, Montmorency, Newaygo, Osceola, Oscoda, and Otsego.

Alcona County

Three of the properties are located in areas where the Antrim Formation is currently producing gas. Antrim gas is being produced from the Holcomb Creek Field located in Section 1-28N-7E and Section 7-28N-8E from 14 wells at a current rate of 31 MCFGPD per well. Also, Antrim gas is currently being produced from the Comstock Hills field, located in section 30-28N-8E at a rate of 42 MCFGPD per well from 24 wells.

Properties located in Sections 10, 11 and 14-28N-9E are approximately 3 miles east of the nearest Antrim gas production, the Antrim Formation lays at a depth of 300'-375' and there are no wells in the sections. Even though fracturing in the Antrim would be necessary for commercial wells, the geologist believes there is no reason that wells could not be comparable with the wells currently producing in Alcona County.

Alpena County

Of the four properties, those in Section 19-29N-7E have Antrim gas production in them. The Treasure Island Field, located in Section 36-29N-7E, is currently producing Antrim gas at a rate of 41 MCFGPD per well from 18 wells. Also, located in Section 36-29N-7E, the Churchill Point Field is producing Antrim gas from 30 wells at a rate of 57 MCFGPD per well.

In spite of the remaining properties located in 32N-5E, 7E, and 8E that have no Antrim potential, the three sections may have PDC potential.

Cheboygan County

-No further action is warranted.

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Grand Traverse County

Although there is currently no Antrim gas production in the county, recent Antrim wells have been drilled but not tested in Section 19-26N-10W and in Sections 12 and 24-26N-11W. Antrim drilling activity in Section 19-26N-10W should be monitored because Bradford Gordon owns mineral interests in Section 20-26N-10W.

Additional drilling to the Antrim near mineral properties should be monitored.

The geologist commented that Grand Traverse County has the potential to have just as many or more Antrim gas wells as Manistee County. The critical parameter is finding fracturing within the Antrim in the county. The properties located in Grand Traverse County are analogous to those in Manistee County which now produce gas from the Antrim Formation, only deeper by about 400'-500' to 1,300'-1,700'. All of them have a moderate potential rating.

Kalkaska County

All the ten properties have moderate potential for Antrim gas production because the Antrim Formation can be encountered at depths ranging from 1,400' to 2,400'. The geologist mentioned that there is Antrim gas production in the northern tier of township in Kalkaska County. The potential exists for additional Antrim gas production in the rest of the county as more Antrim tests are drilled.

Future drilling activity should be monitored within the county.

Lake County

Additional drilling in and around the property in Section 22-17N-20W should be monitored; it is near a recent Reed City gas discovery. Even though the property has limited potential for Antrim gas production from 2,500'-2,900', it may have potential for Reed City gas production.

The property, located in Section 19N-13W-3, has the upper Antrim at a depth of 1,930' and is located on a Traverse Limestone structural nose, which may enhance fracturing within the Antrim.

Livingston County

With all five out of six properties having penetrated the Antrim, the Livingston County properties have potential for Antrim gas production if associated with fracturing in the Antrim Formation at depths between 1,450'-1,600'.

The geologist commented that one property (Section 2-4N-5E) offers good potential for Antrim gas production if the fractures are present in the Antrim at a depth of 1,250'.

Additional Antrim Formation drilling should be monitored.

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Manistee County

Eight of the following properties are located in sections where there is current Antrim gas production:
Chief Creek Field at average rate of 21 MCFGPD from 16 wells in section 8-22N-15W,

In Section 12-22N-16W, there is one shut-in well; additional Antrim wells should be drilled in the section if the first Antrim well has a successful test,

Two Antrim gas wells were put on production at 40 MCFGPD per well in August 2004, located in Section 30-23N-14W,

Bear Lake Field from 12 wells at an average rate of 42 MCFGPD in Section 2-23-15W,

Also, in Section 2-23N-15W, the Bear Lake 2/11 Antrim Gas Field is producing 52 MCFGPD per well from five wells,

In Section 11-23N-15W, the Bear Lake Field with 12 wells at 42 MCFGPD per well,

In Section 12-23N-15W, Bear Lake 12/11 with 6 wells at 34 MCFGPD per well,

In Section 14-23N-15W, Antrim gas is produced from the following,

- a. Nystrom C1-14 (1 well-17 MCFGPD)
- b. Bear Lake 14 Field (3 wells-50 MCFGPD per well)
- c. Nystrom 14 Field (2 wells-109 MCFGPD per well)

The rest of the eighteen properties are all located in relatively close proximity to existing Antrim gas production. Also, they are all located in areas where the Antrim Formation would be encountered at depths of 775'-1,440' and produce gas from the formation if sufficient fracturing is present within the Antrim.

The geologist indicated that all of Bradford Gordon's mineral interests in the Michigan basin, those in Manistee County, probably have the best chance of being developed for Antrim gas production.

Antrim drilling activity in the county should be monitored.

Mason County

There are no wells, which currently produce gas from the Antrim in Mason County.

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There is a potential area where the Antrim is sufficiently fractured and could produce Antrim gas. Section 31-17N-15W is located on the southeast side of the Eden (Dundee and Reed City production) Field. This area is about 30 miles south of the Antrim gas production in Manistee County; the Antrim Formation is only about 300' deeper to 1,750'.

This area should be monitored for any Antrim permitting or drilling.

Mecosta County

There is no Antrim production in Mecosta County and no Antrim completion attempts have been made. The county is located within the central portion of the Michigan Basin the Antrim Formation would be encountered at depths ranging from 2,060' to 3,125'. The implication of the deep Antrim Formation in this area is that it is an oil generating formation and would not produce gas.

Seven of the 59 properties are classified as moderate potential because they were all located in areas where the Antrim Formation would be encountered at depth between 2,150'-2,450'. Four were located in 13N-10W, two in 13W-9W, and one in 16N-9W. However, if sufficient fracturing is present to increase the permeability in the Antrim Formation, then larger amounts of oil could be produced. Those properties located in Sections 17 and 20-13N-10W are located on the flank of the Hardy Dam Field and would have a higher probability of encountering fracturing in the Antrim Formation.

Montcalm County

There are no Antrim well completions in the county, but any production from properties would probably produce oil. It is worth mentioning that oil production could produce fewer equivalent MCFG relative to areas where the Antrim Formation would produce gas.

Even though the two properties, located in Sections 21 and 28-11N-7W, would encounter the Antrim Formation at about 2,660', both of them are located on the western part of the Entrician Field (Traverse and Dundee oil production) and perhaps contain fracturing in the Antrim Formation.

There is one property where the Antrim Formation would be encountered at about 2,330'. Section 3-10N-5W is in the Crystal Field (Dundee Oil Production) and has a higher probability of fracture in the Antrim than the two other properties with a moderate potential rating.

Montmorency County

-No further action is warranted.

Newaygo County

There is no Antrim gas or oil production in Newaygo County.

Two properties, located in Sections 25 and 30-13N-14W that have moderate potential, should encounter the Antrim shallower than 2,500', and would have a higher probability of producing gas from the formation. Again, to produce from the Antrim, it would be necessary to encounter fractures within the Antrim Formation.

There are five wells, which are producing a small amount of oil from the Ellsworth Shale, which overlies the Antrim Shale. All of those wells are in the Huber Field in Section 5-14N-14W, which

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Bradford Gordon owns one mineral interest. The geologist commented that the Ellsworth shale horizon just above the Antrim Formation has produced oil in an area where it has been predicted that the Antrim Formation would also produce oil in this same area. The Ellsworth does not contain as much organic material as the Antrim Formation does.

No additional evaluation is recommended at this time for properties in Newaygo County but any additional drilling, which targets the Ellsworth or Antrim Formation, should be monitored.

Osceola County

There is no Antrim hydrocarbon production in the county at this time.

All of the evaluated properties were classified as having limited potential for producing hydrocarbons from the Antrim Formation. The formation would be encountered at depths greater than 2,500'. Further, any hydrocarbons produced in Osceola County from the Antrim would most likely be oil associated.

Seventeen identified properties are located within or adjacent to producing gas and oil fields, which would affect the structural positions of the Antrim Formation and could enhance the presence of fracturing within the Antrim:

Section 10-17N-10W is located on the south side of the Reed City Field;

Section 1 and 12-18N-10W are on the south and southwest side of the Winterfield Field;

Section 26-18N-10W is on a small Traverse Limestone structure associated with the Reed City East Field;

Section 5-18N-10W is in the Ashton Field;

Section 17-18N-7W is 1/2 mi. southeast of the Sylvan Field;

Section 23-18N-8W is on the flank of the Ewart Field;

Section 27-18N-8W is in the Ewart Field;

Section 26-18N-9W is 1 mi. east of the Cedar Field;

Section 7-18N-9W is 1 mi. south of the Rose Lake Field;

Sections 22, 23, 26 and 27-19N-10W are on the north end of the Leroy Field;

Section 31-19N-10W is on the northwest side of the Ashton Field;

Section 17-19N-7W is located in the Middle Branch Field;

Section 1-19N-7W is located 1 mi. southwest of the Marion Gas Storage Field;

Section 32-19N-9W is on the northeast flank of Rose Lake field; and

Section 36-20N-7W is located in the Marion (Winterfield) Gas Storage Field.

In summary, the seventeen properties could have a better chance of success in the Antrim. There is evidence of enhanced fracture content within the Antrim because of structures associated with currently producing fields.

The geologist commented that because of the large concentration of mineral properties which Bradford Gordon owns in Osceola County, not only the Antrim Formation has some potential which may be limited, but also the Stray, Traverse Limestone, Dundee, Reed City, Detroit River, Richfield, Clinton, Glenwood, and Prairie du Chien Formations offer potential for oil and gas production. Bradford Gordon may want to take a more active role in developing the mineral properties in Osceola County by actively developing prospects in the county.

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Oscoda County

All six properties have been rated as having moderate potential because all of the properties are located in areas where the Antrim Formation should be encountered at depths less than 2,000'.

Since there is currently Antrim gas production in Oscoda County, the potential for additional gas production from the Antrim in the Areas where Bradford Gordon owns mineral interest is good. Fracturing within the Antrim is needed to make commercial Antrim gas production in this area.

Additional drilling for Antrim gas should be monitored.

Otsego County

All of the evaluated properties have Antrim gas production, at depths of about 1,400':

In Section 29-30N-1W, the Antrim Formation is producing gas from the following Fields:

Charlton 21 (25 MCFGPD per well from 21 wells),
Charlton 29 South (8 MCFGPD per well from 4 wells),
Charlton 32 Field (24 MCFGPD per well from 14 wells).

In Section 14-30N-1W, the Antrim Formation is producing from the following Fields:

Charlton 14 Field (36 MCFGPD per well from 13 wells),
Charlton 27 Field (19 MCFGPD per well from 45 wells).

In Section 13-30N-3W, the Antrim Formation is producing from the following Fields:

Chester 18 Field (21 MCFGPD per well from 21 wells).

Additional drilling in all three property areas will be primarily for infill drilling because of the current density of drilling in these areas.

Additional permitting and any hearings requesting smaller unit spacing should be monitored.

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Definitions of No Potential, Unknown Potential, Limited Potential, Moderate Potential, and Antrim Production

1. No Potential-This category was assigned to those properties that were outside of the Antrim sub crop. Three properties in Alpena and one property in Montmorency fell into this category.
2. Unknown Potential-This category was assigned to those properties where little or no well data was available. Ten properties fell into this category.
3. Limited Potential-This category was assigned to properties where the Antrim Formation is expected to be encountered deeper than 2,500' and/or where there was no apparent evidence or Traverse structural features. The 2,500' depth is the level where the Antrim Formation has a tendency to generate oil in the deeper portion of the Michigan Basin. Also, fracture content below 2,000'-2,500' tends to be less in the formation than it does above 2,000'-2,500' because of rock load above the shale and the presence of fewer open fractures below 2,000'-2,500'. 179 properties fell into this category; however, most of them (114) are in Osceola County in which the Antrim Formation is encountered below 2,500' everywhere in the county. Mecosta County would be similar with 51 of 59 properties classified as "LP".
4. Moderate Potential-Those properties, categorized by the geologist, exhibited Antrim gas production potential. These are properties where the Antrim Formation is expected to be encountered at a depth shallower than 2,500'. Ninety two properties fell into this category. It is worth mentioning that even if all of the properties have Antrim Formation depths of less than 2,500', it is necessary to have fractures within the shale in order to make commercial Antrim completions.
5. Antrim Production-This category was used for those properties which were located in Sections where the Antrim Formation is currently producing gas. Seventeen properties in Alcona, Alpena, Manistee, and Otsego fall into this category.

Recommendations

A total of 306 individual mineral properties were evaluated for Antrim gas and/or oil potential using existing geologic, production, and land data.

1. 10 of the 306 Bradford Gordon mineral properties (3%) were classified as having Unknown Potential. Although all of the properties are located in an area where the Antrim Formation is about 2,500' or deeper, the classifications were made because very few or no drilling has been done in the evaluated Sections.
2. 179 (58%) of the properties were classified as having Limited Potential based primarily on the fact that they are located in areas where the Antrim would be encountered deeper than 2,500' in wells which had been permitted and never drilled or were near existing production.
3. All of the properties, classified as Moderate Potential, should be considered as having good economic potential at today's prices. It is necessary to have fractures within the Antrim in order to have a viable producing well. As a source mentioned that those areas, which currently do not

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produce Antrim gas but as shallower than 2,000' have an 80% chance of success for an Antrim gas completion. While this may appear high, but in the geologist's view, it shows the confidence which they have that gas can be produced from the Antrim in a large area within the Michigan Basin.

4. Other points worth mentioning:

i) It is rare to drill a dry hole in the Antrim but sustained gas production rates as low as 5-8 MCF-GPD are currently being produced.

ii) A well which will not make at least 20 MCFGPD will struggle to remain economic even at today's \$5.00-\$7.00/MCFG prices.

iii) Typically, a Producing Unit will consist of 5-20 wells which produce into a central facility. Gas flow rates are reported for the Unit rather than for individual wells.