

# BRADFORD GORDON

AN OIL & GAS INVESTMENT FIRM

## Bradford Gordon Dundee Holdings

### Introduction

In October 2003, Bradford Gordon's mineral holdings were evaluated by Mike Barratt, a noted Michigan geologist, using a Contour Map of the Dundee Formation and overlaying it with their holdings. Since Bradford Gordon's/Mikado's holdings of over 500 prospective well locations on 8,000 net acres are diversified throughout the Michigan Basin, several important potential Dundee field extensions were identified along with a few new field potentials, which included a few PDC and Glenwood zones.

His report suggested focusing on the Dundee formation potential utilizing horizontal drilling techniques. Mike identified three properties in Mecosta County, located in the Fork Field. He also recommended other Bradford Gordon/Mikado properties for horizontal drilling, including properties located in close proximity to existing production from recent horizontal drilling in the Crystal Field.

The Dundee is known to provide a reasonable risk/reward because the depth is relatively shallow and both oil and natural gas are presently being produced throughout the formation.

Dundee well potential recoverables to the Bradford Gordon/Mikado mineral estate could be as high as 15 to 20 million barrels equivalent with both oil and natural gas factored in.

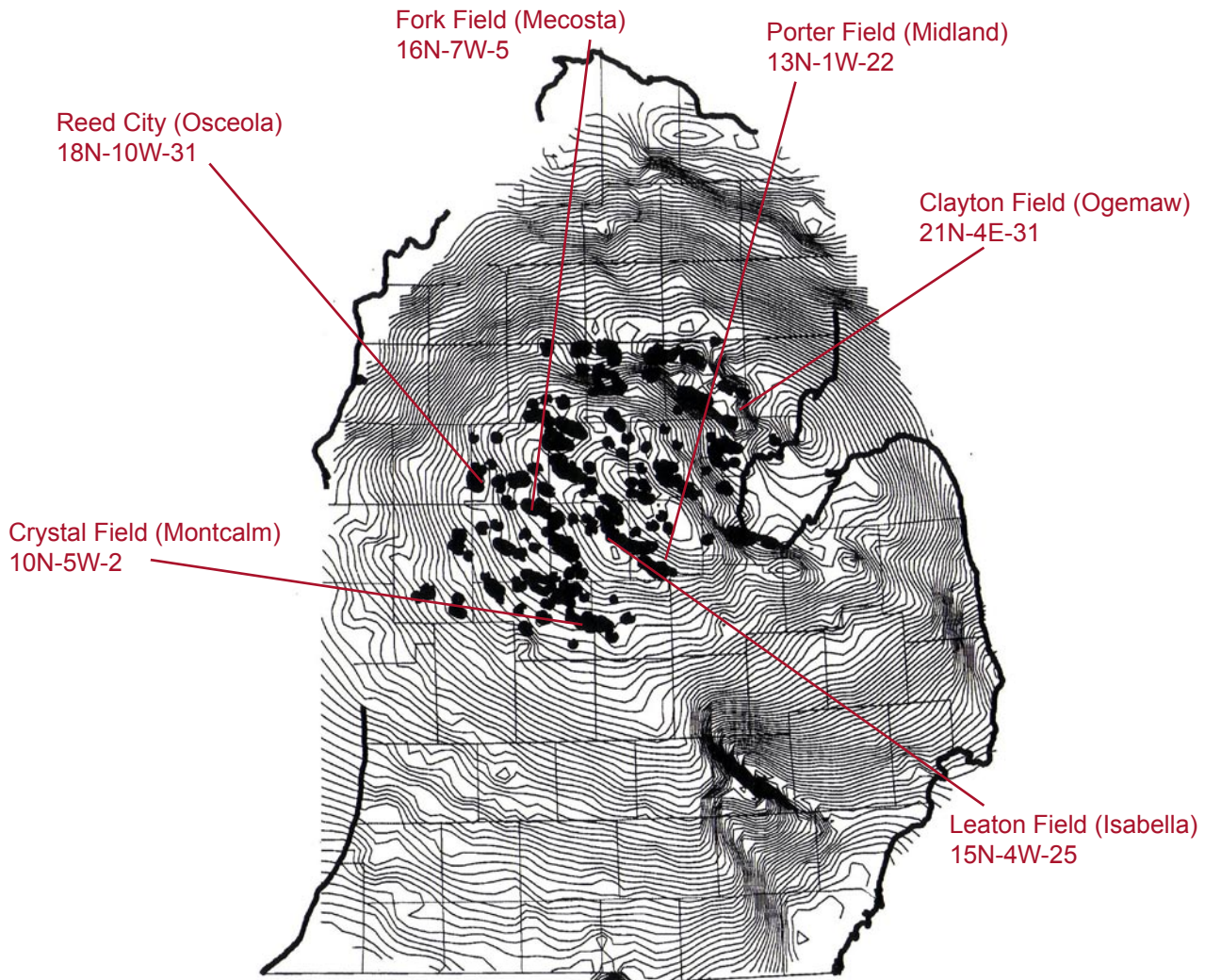
We believe that a prospective purchaser should be keenly aware of several formations above the deeper PDC holdings which provide "insurance" formations as the deep zones are tested. Additionally, present economics are favorable for drilling into the Dundee formation which is only 3,500 feet deep in most areas – providing for favorable risk/return economics and early payouts.

Lake County has little history of Dundee drilling. Interestingly, the Michigan Oil and Gas News publication entitled: "Michigan Oil & Gas Story: County by County", in examining Lake County, has the following comment: "the county stands out with its lack of gas output in the middle of a ring of strong natural gas producing counties<sup>1</sup>. "

Prospective Dundee locations in the Yates field could take as long as ten to fifteen years to drill and produce. This provides a good alternative while drilling for the deep Prairie du Chien becomes economic.

A contour map of the Dundee structure, with a brief history of the Dundee production, is shown on the next page. Major oil and gas field names are labeled with several lines to various Dundees in the Central Basin in Michigan.

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Dundee Structure C.I.: 25" • Central Basin Oil & Gas Fields – Besides the Crystal and the Porter Fields, other major Dundee fields discovered were the Clayton (Ogemaw County), Leaton (Isabella County), Fork (Mecosta), and Reed City (Osceola County).

### Brief History of Dundee Production-Fields

Several Dundee fields were discovered during the 1940s: the Crystal Field in Montcalm County and the Porter Field in Midland County are two prime examples.

Through 1987, the Crystal Field had produced over 8 million barrels from 7 wells and the Porter Field had produced over 50 million barrels from 98 wells.

By the 1990s, thirty-three fields had produced at least one billion barrels of oil from a total of 1,602 wells including eleven counties. Importantly, most of the early gas production was “flared” due to the low price. Therefore, it is not known how much potential natural gas was unaccounted for.

<sup>1</sup> The counties consist of Manistee, Wexford, Osceola, Mecosta, Newaygo, Oceana and Mason. Note that only Osceola and Mecosta Counties have some Dundee production while the rest of the counties have produced shallow gas from the Antrim Shale.

# Bradford Gordon/Mikado Dundee Holdings

## Updated Report • 11-1-06

### Background

Mike Barratt's research on each county was outlined and comments from the notebook were checked for the Dundee residual highs and potential PDC. After the conclusion of the report, the important geological areas to focus on were outlined. Then, his list of the unknown potentials, the limited potentials, and the further evaluations was summarized on the last page. The report, which was written in October 2003, was updated to reflect the current business environment.

### • Alcona County

Currently, no further evaluation is warranted.

### • Alpena County

Four out of five properties have limited potential, which is the Antrim, Sec. 36-29N-7E and Sec. 24-32N-8E and the other two properties, Sections 1-32N-5E and 2-32N-7E, may have PDC potentials.

In the future, the four properties should be investigated.

### • Arenac County

Three properties have limited potentials because of possible offsets adjacent to existing production and terminated permits were associated with the properties.

One property, Sec. 23-20N-5E should be further studied based on anomalous Dundee residual high for Devonian (Traverse Group through Richfield) and possibly PDC if a shallow structure exists at depth. The closest PDC production to the property is the Clayton Field (19BCFC & 63MBC) that is six miles northwest.

Arenac County has 12 PDC wells in three prolific fields.

### • Bay County

One property located in Sec. 14-15N-3E is recommended for further study based upon a Dundee residual anomaly.

Two properties are classified as having limited potential based on possible offset potential.

### • Branch County

No further evaluation.

### • Calhoun County

One well has limited potential because of the terminated permit. There is at least one previously producing well about 1,000' NE of the terminated permit location. In future, should evaluate the property, Sec. 27-1S-5W, using seismic survey with focus in Niagaran formation.

### • Clare County

Eight of the properties were classified as having limited potential based upon proximity to existing production or because they were located adjacent to Dundee residual highs.

At some point in the future, at least two properties (Sec. 4-18N-5W and Sec. 22-19N-3W) should be checked for Devonian/ Dundee through Richfield potential.

### • Crawford County

The mineral right's well at Section 34-28N-3W, in Maple Forest Township, was not researched. However, the comment from the Spreadsheet indicates potential redrill to the "Glenwood" (PDC).

# Bradford Gordon Dundee Holdings

## • Eaton County

Only one property (Sec. 21-2N-3W) is worth looking at as it is adjacent to producing Niagaran reefs. But it may have limited potential due to its proximity to oil and gas production.

Note that future drilling activity should be monitored within the county.

## • Genesee County

No further action is warranted at this time.

## • Gladwin County

No immediate evaluation is recommended. However, despite the lack of association with key wells, one property, Sec. 27-18N-1W, is within one mile of South Buckeye PDC Field, which has produced over eight BCFG and 135 MBG from five wells to date.

## • Grand Traverse County

Sec. 17-25N-11W may have limited potential because of existing Niagaran production in the same section.

Additional drilling near the mineral properties should be monitored.

## • Gratiot County

There is one property, Sec. 2-12N-1W, associated with a terminated PDC permit as a possible offset to the Frost 1-1 Glenwood well.

No immediate evaluation is warranted but future drilling activity should be monitored.

## • Huron County

A PDC hole; no Dundee history; no further evaluation.

## • Ingham County

The two properties, Sec. 11-2N-1E and Sec. 27-2N-2E have terminated permits due to the possibility of offset production and possibly discovery of a new Niagaran reef.

Future drilling activity should be monitored and associated with the terminated permit properties.

## • Ionia County

No further evaluation is warranted.

## • Iosco County

One property, Sec. 27-22N-5E, has PDC production; however, the property has unknown potential because of the lack of any additional drilling in the field recently.

No further evaluation is warranted but watch royalty payments for 1-27 Reno well.

## • Isabella County

One property, Sec. 31-13N-5W, should be evaluated in the future as it has a Dundee residual anomaly while the other property, Sec. 19-15N-3W, has unknown potential but was associated with a producing Dundee oil well in the Leaton Field.

A comment from the notebook on Section 4-16N-6W indicates a Dundee potential.

## • Kalkaska County

Sec. 29-25N-8W is associated with a Dundee residual anomaly and it should be evaluated in the future.

# Bradford Gordon Dundee Holdings

## • Kent County

No further evaluation is warranted at this time.

## • Lake County

Based on the comments, two properties, Sec. 2-17N-11W and Sec. 23-18N-12W, have limited potential due to high Dundee residuals.

As per petition, Sec. 22-17N-12W calls for further study, which is based upon a Reed City gas discovery by B.D.Deans.

Further, B.D. Deans petitioned and

Received approval from the state supervisor to drill up to 32 wells. Interestingly, the county has little history on the Dundee.

## • Livingston County

No further evaluation is recommended as some Dundee wells have low residuals.

## • Manistee County

As the wells are within the Antrim and Niagaran formations, no immediate evaluation is recommended but drilling activity in the county should be monitored.

## • Mason County

No further evaluation is warranted at this time.

## • Mecosta County

Dundee Horizontal Drilling Potential:

It was reported that properties located in Section 5-16N-7W, Section 1-16N-8W, and Section 6-16N-7W all have possible horizontal wells in the Dundee located in the Fork Field. A field study of the Fork Field would be necessary to make this determination.

## • Cato-Glenwood Potential:

Two properties in Section 29-15N-9W are recommended for further study because these properties offset the Anger 1-20, which has produced about 2.6 BCFG from the Glenwood and the PDC.

Two properties in Section 14-16N-10W may offer an opportunity to find an offset location. Additional information is required to determine whether to investigate further for possible PDC production.

One property, Section 31-13N-8W, is a well in the eight well Cato-Glenwood Field. This property of five wells should be evaluated in light of the potential for the Glenwood Cato zone to exist in the tri county area (Mecosta, Montcalm, and Newaygo).

In summary, eight are recommended for further study, the three for Dundee horizontal drilling in the Fork Field and the five for additional Cato-Glenwood potential.

In evaluating the comments, the seventeen properties were classified as having limited potential; the following should be researched for Dundee potential as follows:

- Sec. 9-15N-9W Possible potential on Dundee residual anomaly
- Sec. 11-16N-10W Possible potential near Dundee residual anomaly
- Sec. 29-16N-10W Possible potential by Dundee residual anomaly
- Sec. 5-16N-10W Possible Dundee potential
- Sec. 8-16N-10W Possible Dundee potential
- Sec. 20-16N-10W Possible Dundee potential in residual anomaly
- Sec. 19-16N-10W Possible Dundee potential in residual anomaly
- Sec. 17-16N-9W On edge of Dundee residual high
- Sec. 5-16N-9W On edge of Dundee residual high

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## • **Midland County**

The property, Sec. 2-13N-2W, is recommended for further study to assess the probability of additional Detroit River and/or Richfield production in the area. The additional wells have been drilled since 1997 with the two successfully completed in the Detroit River and Richfield formations.

From the comments, three properties, Sec. 15-14N-1W, Sec. 33-14N-2W and Sec. 23-16N-2E, have limited potential due to their proximity to a Dundee residual anomaly.

## • **Missaukee County**

The report stated that no evaluation is warranted at this time. However, from the comments, three possible Dundee potential locations exist on the edge of Dundee highs as follows: Section 26-21N-7W and Sections 11,12-21N-7W.

## • **Montcalm County**

Two properties, Sec. 3-10N-5W and Sec. 17-12N-5W, were classified as having limited potential because the first was adjacent to existing production at Crystal Field, (horizontal hole) and the second was associated with a Dundee residual anomaly.

To investigate the possibility of additional offsets of Glenwood wells, the three following properties, Sec. 7 and 13-12N-8W, Sec. 18-12N-9W and Sec. 12-12N-9W should be evaluated as they can be prolific producers. This study should be in concert with the recommended study of similar properties in Mecosta County.

## • **Montmorency County**

No further evaluation is warranted at this time on one property.

## • **Muskegon County**

No further evaluation is warranted at this time.

## • **Newaygo County**

From the comments, the following properties, Sec. 32-13N-11W, Sec. 13 & 14-14N-11W, and Sec. 17, 20 & 21-15N-11W, have limited Dundee potential.

Section 2-14N-11W is recommended for further evaluation because of the possibility of both Clinton and PDC potential in the area. Also, Section 1-14N-11W property is associated with a producing Clinton and a PDC well. This should be done in conjunction with the property in Section 2 that is located one mile away.

## • **Oakland County**

No evaluation is warranted at this time.

## • **Oceana County**

No evaluation is warranted at this time, although drilling activity in the county should be monitored. However, a comment stated that there is a Dundee potential at property, Sec. 26-16N-15W, which is on north end of a Dundee residual anomaly.

## • **Ogemaw County**

The report on the county was not favorable. However, based on the comments, the property, Sec. 32-21N-4E, should be checked for Dundee potential. There was a big Dundee field found in 1935: the Clayton Field (Sec. 31-21N-4E).

## • **Osceola County**

The report stated that the three properties, Sections 8-17N-10W, on the south end of the Reed City Field, 26-19N-8W and 7-20N-8W should be studied since they are all associated with Dundee residual highs. Evaluation of these properties should include an examination of well data within the subject sections and at least one mile around them. Further, the potential exists for these properties from very shallow Michigan Stray Sandstone to deep PDC structures.

The following three properties, Sections 23, 26 & 27-19N-10W, 17-20N-8W and 18-20N-8W, should be investigated based upon the possibility that offset wells may exist for PDC potential. Evaluation of the properties should include an investigation of production histories, pay zones, and any data which would help in determining if additional wells could be drilled or if the existing wells could be reworked or side tracked.

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One property, Section 1-18N-10W, is associated with a producer; it is permitted to be drilled as a 9,400' Glenwood test. This activity should be monitored.

From the comments, the following properties have limited Dundee potential as follows:

Sec. 10-17N-8W	Sec. 34-19N-8W
Sec. 27-18N-8W	Sec. 7-20N-8W
Sec. 10, 11-18N-9W	Sec. 17-20N-8W
Sec. 22-19N-10W	Sec. 4, 5-20N-9W
Sec. 27-19N-8W	

Further, the comments mentioned several PDC potential wells, as follows:

Sec. 1, 10-19N-9W	Sec. 28-20N-7W
Sec. 17-20N-8W	Sec. 33-20N9W

The report suggested, with the amount of acreage Bradford Gordon/Mikado has acquired within the county, it may be prudent to consider evaluation of the entire county for future potential instead of doing it piece meal.

## • Oscoda County

No evaluation is warranted at this time.

## • Otsego County

If the third property, Section 13-30N-3W continues to produce from an Antrim well, then it should be monitored for royalty payments.

## • Presque Isle County

Even though the report stated that the county is not for an evaluation, one property, Sections 22, 23 & 26-35N-2E, according to the comments, lies within a Dundee residual high.

## • Roscommon County

No evaluation is warranted at this time.

## • Shiawassee County

No evaluation is warranted at this time.

## • St. Clair County

No evaluation is warranted at this time.

## • Tuscola County

No evaluation is warranted at this time.

## • Wexford County

The report advised no evaluation on the six properties. However, one property, Section 33-21N-9W, was classified in the report as having limited potential because it lies within a Dundee residual high. The property was traced in the comment section in the notebook.

## • Conclusion

As the demand for oil and gas from the Michigan Basin picks up, investors and drillers/producers will focus primarily on Dundee highs, and some Antrim, PDC and Glenwood zones. The investment attraction for the Dundee is the low drilling cost for 3500' relative to a high cost of ten to twelve thousand feet. For instance, from the analysis of the petition of B.D. Deans, dated August 29, 2003, the total cost for each well amounts to \$600,000.

# Bradford Gordon Dundee Holdings

## The important areas to focus on are as follows

1. Evaluate the petition of B.D. Deans. It called for the right to drill 32 wells in Yates Township. The focus is on the Dundee formation for the gas play, located in Lake County, which could be prolific. There have been gas developments for the last two years in the Reed City just below the Dundee. It should be noted that the county has very few historical Dundee oil wells since it is located outside the Central Basin.
2. With available horizontal drilling techniques, three properties in Mecosta County, located in the prolific Fork Field, should be evaluated through seismic survey.
3. Osceola County could be the most interesting county where:
  - a. Three properties have been identified for Dundee highs.
  - b. Three properties are noted for PDCs.
  - c. One property could be successfully tested in Glenwood formation.

Because Bradford Gordon has a large minority of mineral properties in the county, it must be emphasized that further evaluation should be on an area wide basis instead of individual property evaluations.

4. Glenwood-Cato zone should not be overlooked. It should be evaluated in three counties including Mecosta, Montcalm and Newaygo.
5. One property in Arenac County should be evaluated for PDC potential and a high Dundee residual. Also, on account of high Dundee counts, various counties, such as the Clare, Mecosta, Missaukee and Osceola should be researched for merit.
6. Even though the report has focused on Dundee potential as the benchmark, and some PDCs and Glenwood zones, in major counties, Bradford Gordon's properties in the Livingston, Mason and Oscoda Counties should be studied for Antrim potential. An excellent data base now exists to evaluate the three counties. According to the Weekly Update Edition of the Michigan Oil and Gas News, dated September 5, 2003, there has been a pick up in permits to drill in both the Antrim and Niagaran Reef formations.

## Definitions of Unknown Potential, Limited Potential and Further Evaluation

- 1) 69%, or 304 out of 441, were classified as unknown potential (UP) due to lack of well control in the specific area of mineral acquisition. The report indicated that individual properties classified as having "unknown potential" in the 2003 report could be elevated to having economical potential after additional evaluation is done.
- 2) 114, or 26%, properties were classified as having limited potential (LP) based upon wells which were permitted and never drilled or were near existing production. For instance, some properties exhibited a Dundee residual anomaly.
- 3) 23 of the 441 evaluated properties (5.2%) are recommended for further evaluation based on close proximity to existing production where productive offsets may exist, and/or association with Dundee residual anomalies, when combined with well control, may indicate the presence of an undrilled structure.