STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

ORDER OF THE SUPERVISOR OF WELLS

IN THE MATTER OF:

THE PETITION OF WEST BAY EXPLORATION COMPANY FOR AN ORDER FROM THE SUPERVISOR OF WELLS APPROVING AN INCREASED ALLOWABLE FOR THE BAUER 1-9 HD1 WELL IN SECTION 9, NORVELL TOWNSHIP, JACKSON COUNTY, AS AN EXCEPTION TO ORDER NO. 18-2007.	) ORDER NO. 12-2012

OPINION AND ORDER

This case involves the Petition of West Bay Exploration Company (Petitioner) requesting an exception to the production allowables established in Order No. 18-2007, authorizing the Bauer 1-9 HD1 well to produce up to 400 barrels of oil per day (BOPD) or 300 thousand cubic feet of gas per day (MCFGPD) from the Trenton Formation. The drilling unit for the Bauer 1-9 HD1 well (PN 60494) is comprised of 80 acres and is described as the N 1/2 of SE 1/4 of Section 9, T4S, R2E, Norvell Township, Jackson County, Michigan.

Jurisdiction

The development of oil and gas in this state is regulated under Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). MCL 324.61501 *et seq*. The purpose of Part 615 is to ensure the orderly development and production of the oil and gas resources of this state, with a view to the ultimate recovery of the maximum production of these natural resources. MCL 324.61502. To the end of maximizing recovery, the Supervisor of Wells (Supervisor) regulates the establishment of drilling units and regulates the daily quantities of oil and natural gas that may be produced. MCL 324.61513(1) and (2). The evidentiary hearing in this matter is governed by the applicable provisions of the Administrative Procedures Act, 1969 PA 306, as amended, MCL 24.201 *et seq*. See 1996 MR 9, R 324.1203. The evidentiary hearing in this matter was held on February 11, 2013.

FINDINGS OF FACT

By Petition dated November 9, 2012, the Petitioner requests approval from the Supervisor to increase production above the 200 BOPD and 200 MCFGPD allowables established by Order No. 18-2007 to 400 BOPD and 300 MCFGPD (The Petitioner requested an increase to 400 MCFGPD in its verified statement). The Bauer 1-9 HD1 well was drilled on an 80-acre drilling unit approved under R 324.303.

The Administrative Law Judge determined the Notice of Hearing was properly served and published. No answers or objections to the Petition were filed with the Supervisor. Therefore, the Petitioner is the only Party to this case. The Supervisor designated the hearing to be an uncontested evidentiary hearing pursuant to R 324.1205(1)(c) and directed substantive testimony and evidence be presented in the form of verified statements.

In support of its case, the Petitioner offered the verified statements of Mr. Bill Van Sickel, geologist for the Petitioner; Mr. Matthew Johnston, geophysicist for the Petitioner; Mr. Timothy Brock, President, Brock Engineering, petroleum engineering consultant; and Mr. Timothy Baker, Vice President of Engineering Operations for the Petitioner.

Mr. Van Sickel testified the Bauer 1-9 HD1 well is in the Napoleon Field, which consists of a northwest/southeast trend in the southeast part of the state, including southeast Jackson County and part of Lenawee County. Using models based on real geologic data from pre-existing bore holes, Mr. Van Sickel testified there is a high probability of dolomitization in the targeted reservoir. Exhibits 2-4. He stated dolomite occupies less volume so it creates a void space or porosity, which allows for the storage of hydrocarbon accumulation.

Mr. Johnston testified he used a 3D seismic survey to outline the extent of the Trenton reservoir in the Napoleon Field (Exhibit 6). Mr. Johnston interpreted the reservoir outline based on the 3D seismic, and it is his opinion that both 40-acre halves of the 80-acre Bauer 1-9 HD1 drilling unit are substantially underlain by Trenton/Black River dolomite that contribute to production from the well.

Using a computer processed log from the Bauer 1-9 HD1 well, Mr. Brock testified as to the presence of dolomite and increased porosity, which is indicative of the presence of hydrocarbons in the reservoir (Exhibit 8). If the Bauer 1-9 HD1 well had been drilled as a conventional vertical or short lateral well in the south 40 acres of the drilling unit and a second well had been drilled in the north 40 acres, each well would have been granted a 200 BOPD and/or 200 MCFGPD allowable under Order No. 18-2007. It is Mr. Brock's opinion that granting the increased allowable for the 80-acre drilling unit will protect the correlative rights of owners within the drilling unit and prevent waste.

Mr. Brock testified that data compiled during a test period from July 2012 – August 2012 at the Bauer 1-9 HD1 well indicates increasing oil production from this well does not harm the reservoir in the vicinity of the well (Exhibit 11). In addition, Mr. Brock testified he reviewed production data for several offset wells and does not see a negative impact on offsetting wells as a result of the Bauer 1-9 HD1 producing at a higher rate (Exhibits 12-14).

Mr. Baker testified, in his opinion, the Petitioner's request meets the three criteria he believes are relevant for an increased allowable: both 40-acre units are underlain by and contributing to the reservoir; correlative rights of both offset owners and unit owners are considered; and a horizontal well, drilled to maximize efficiency, will increase recovery through drawdown. Mr. Baker stated the Bauer 1-9 HD1 well uses a gas lift system (Exhibit 15) that creates a normalized pressure differential and a uniform drawdown, thus decreasing likelihood of impacting offset 40-acre units.

Mr. Baker stated that since both 40-acre units are underlain and contributing, if the allowable was not increased, the owners of the expanded unit would be penalized since offset owners are allowed to enjoy the full allowable production rates. Mr. Baker further testified that in order to fully protect the correlative rights of owners in the Bauer 1-9 HD1 unit, the Petitioner now requests an increased allowable of 400 MCFGPD instead of 300 MCFGPD, as was stated in its Petition.

I find, as a Matter of Fact, that an increased allowable for the Bauer 1-9 HD1 well will protect the correlative rights of owners within the 80-acre drilling unit and not adversely affect the correlative rights of owners in offsetting units. I find that, based on

the testimony and exhibits presented, an increased allowable of 400 BOPD and 400 MCFGPD is reasonable and appropriate.

CONCLUSIONS OF LAW

Based on the findings of fact, I conclude, as a matter of law:

1. Exceptions to Order No. 18-2007 may be granted by the Supervisor after notice and hearing.

2. The Supervisor has jurisdiction over the subject matter and the persons interested therein.

3. Due notice of the time, place, and purpose of the hearing was given as required by law and all interested persons were afforded an opportunity to be heard. 1996 MR 9, R 324.1204.

DETERMINATION AND ORDER

Based on the Findings of Fact and Conclusions of Law, the Supervisor determines that increasing the gas allowable for the Bauer 1-9 HD1 well will not result in waste.

NOW, THEREFORE, IT IS ORDERED:

1. The Petitioner is authorized to produce the Bauer 1-9 HD1 well at a rate of 400 BOPD and 400 MCFGPD as an exception to Order No. 18-2007.

2. All other provisions of Order No. 18-2007 shall remain in effect.

3. The Supervisor retains jurisdiction in this matter.

4. This Order shall be effective immediately.

DATED: April 15, 2013

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS
Office of Oil, Gas, and Minerals
P.O. Box 30256
Lansing, Michigan 48909-7756

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

ORDER OF THE SUPERVISOR OF WELLS

IN THE MATTER OF:

THE PETITION OF WEST BAY EXPLORATION COMPANY FOR AN ORDER FROM THE SUPERVISOR OF WELLS APPROVING AN INCREASED ALLOWABLE FOR THE ZMIJEWSKI ZIETLOW 1-26 HD1 WELL IN SECTION 26, NORVELL TOWNSHIP, JACKSON COUNTY, AS AN EXCEPTION TO ORDER NO. 18-2007.	) ORDER NO. 15-2012

OPINION AND ORDER

This case involves the Petition of West Bay Exploration Company (Petitioner) requesting an exception to the production allowables established in Order No. 18-2007, authorizing the Zmijewski Zietlow 1-26 HD1 well to produce up to 400 barrels of oil per day (BOPD) or 300 thousand cubic feet of gas per day (MCFGPD) from the Trenton Formation. The drilling unit for the Zmijewski Zietlow 1-26 HD1 well (PN 60523) is comprised of 80 acres and is described as the S 1/2 of N 1/2 of SW 1/4 and N 1/2 of S 1/2 of SW 1/4 of Section 26, T4S, R2E, Norvell Township, Jackson County, Michigan.

Jurisdiction

The development of oil and gas in this state is regulated under Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). MCL 324.61501 *et seq.* The purpose of Part 615 is to ensure the orderly development and production of the oil and gas resources of this state, with a view to the ultimate recovery of the maximum production of these natural resources. MCL 324.61502. To the end of maximizing recovery, the Supervisor of Wells (Supervisor) regulates the establishment of drilling units and regulates the daily quantities of oil and natural gas that may be produced. MCL 324.61513(1) and (2). The evidentiary hearing in this matter is governed by the applicable provisions of the Administrative Procedures Act, 1969 PA 306, as amended,

MCL 24.201 *et seq.* See 1996 MR 9, R 324.1203. The evidentiary hearing in this matter was held on March 22, 2013.

FINDINGS OF FACT

By Petition dated November 9, 2012, the Petitioner requests approval from the Supervisor to increase production above the 200 BOPD and 200 MCFGPD allowables established by Order No. 18-2007 to 400 BOPD and 300 MCFGPD (The Petitioner requested an increase to 400 MCFGPD in its verified statement). The Zmijewski Zietlow 1-26 HD1 well was drilled on an 80-acre drilling unit approved under R 324.303.

The Administrative Law Judge determined the Notice of Hearing was properly served and published. This matter was originally scheduled for December 18, 2012. Answers were filed by Savoy Energy, L.P.; Strickler Resources, L.P.; Muskegon Development Company; and MITEP, LLC, requesting an adjournment. The hearing was rescheduled for March 22, 2013, however, on February 22, 2013, all responding parties withdrew their answers. The Supervisor then designated the hearing to be an uncontested evidentiary hearing pursuant to R 324.1205(1)(c) and directed substantive testimony and evidence be presented in the form of verified statements.

In support of its case, the Petitioner offered the verified statements of Mr. Bill Van Sickel, geologist for the Petitioner; Mr. Matthew Johnston, geophysicist for the Petitioner; Mr. Timothy Brock, President, Brock Engineering, petroleum engineering consultant; and Mr. Timothy Baker, Vice President of Engineering Operations for the Petitioner.

Mr. Van Sickel testified the Zmijewski Zietlow 1-26 HD1 well is in the Napoleon Field, which consists of a northwest/southeast trend in the southeast part of the state, including southeast Jackson County and part of Lenawee County. Using models based on real geologic data from pre-existing bore holes, Mr. Van Sickel testified there is a high probability of dolomitization in the targeted reservoir. Exhibits 2-4. He stated dolomite occupies less volume so it creates a void space or porosity, which allows for the storage of hydrocarbon accumulation.

Mr. Johnston testified he used a 3D seismic survey to outline the extent of the Trenton reservoir in the Napoleon Field (Exhibit 5). Mr. Johnston interpreted the reservoir outline based on the 3D seismic, and it is his opinion that both 40-acre halves of the 80-acre Zmijewski Zietlow 1-26 HD1 drilling unit are substantially underlain by Trenton/Black River dolomite that contribute to production from the well.

Using a computer processed log from the Zmijewski Zietlow 1-26 HD1 well, Mr. Brock testified as to the presence of dolomite and increased porosity, which is indicative of the presence of hydrocarbons in the reservoir (Exhibit 7). If the Zmijewski Zietlow 1-26 HD1 well had been drilled as a conventional vertical or short lateral well in the south 40 acres of the drilling unit and a second well had been drilled in the north 40 acres, each well would have been granted a 200 BOPD and/or 200 MCFGPD allowable under Order No. 18-2007. It is Mr. Brock's opinion that granting the increased allowable for the 80-acre drilling unit will protect the correlative rights of owners within the drilling unit and prevent waste.

Mr. Brock testified that data compiled during a test period from August 2012 - February 2013 at the Zmijewski Zietlow 1-26 HD1 well indicates increasing oil production from this well does not harm the reservoir in the vicinity of the well (Exhibit 10). In addition, Mr. Brock testified he reviewed production data for several offset wells and does not see a negative impact on offsetting wells as a result of the Zmijewski Zietlow 1-26 HD1 producing at a higher rate (Exhibits 11-14).

Mr. Baker testified in his opinion the Petitioner's request meets the three criteria he believes are relevant for an increased allowable: both 40-acre units are underlain by and contributing to the reservoir; correlative rights of both offset owners and unit owners are considered; and a horizontal well, drilled to maximize efficiency, will increase recovery through drawdown. Mr. Baker stated the Zmijewski Zietlow 1-26 HD1 well uses a gas lift system (Exhibit 15) that creates a normalized pressure differential and a uniform drawdown, thus decreasing likelihood of impacting offset 40-acre units.

Mr. Baker stated that since both 40-acre units are underlain and contributing, if the allowable was not increased, the owners of the expanded unit would be penalized since offset owners are allowed to enjoy the full allowable production rates. Mr. Baker further testified that in order to fully protect the correlative rights of owners in the Zmijewski

Zietlow 1-26 HD1 unit, the Petitioner now requests an increased allowable of 400 MCFGPD instead of 300 MCFGPD, as was stated in its Petition.

I find, as a Matter of Fact, that an increased allowable for the Zmijewski Zietlow 1-26 HD1 well will protect the correlative rights of owners within the 80-acre drilling unit and not adversely affect the correlative rights of owners in offsetting units. I find that, based on the testimony and exhibits presented, an increased allowable of 400 BOPD and 400 MCFGPD is reasonable and appropriate.

CONCLUSIONS OF LAW

Based on the findings of fact, I conclude, as a matter of law:

1. Exceptions to Order No. 18-2007 may be granted by the Supervisor after notice and hearing.

2. The Supervisor has jurisdiction over the subject matter and the persons interested therein.

3. Due notice of the time, place, and purpose of the hearing was given as required by law and all interested persons were afforded an opportunity to be heard. 1996 MR 9, R 324.1204.

DETERMINATION AND ORDER

Based on the Findings of Fact and Conclusions of Law, the Supervisor determines that increasing the gas allowable for the Zmijewski Zietlow 1-26 HD1 well will not result in waste.

NOW, THEREFORE, IT IS ORDERED:

1. The Petitioner is authorized to produce the Zmijewski Zietlow 1-26 HD1 well at a rate of 400 BOPD and 400 MCFGPD as an exception to Order No. 18-2007.

2. All other provisions of Order No. 18-2007 shall remain in effect.

3. The Supervisor retains jurisdiction in this matter.

4. This Order shall be effective immediately.

DATED: April 15, 2013

HAROLD R. FITCH
ASSISTANT SUPERVISOR OF WELLS
Office of Oil, Gas, and Minerals
P.O. Box 30256
Lansing, Michigan 48909-7756