

**STATE OF MICHIGAN  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
SUPERVISOR OF WELLS**

THE VERIFIED PETITION OF ENERGEX PETROLEUM )  
(USA), L.L.C., FOR AN ORDER FROM THE SUPERVISOR )  
OF WELLS APPROVING A PLAN OF UNITIZATION FOR )  
SECONDARY RECOVERY OF OIL, GAS, AND RELATED ) CAUSE NO. 11-2013  
HYDROCARBONS, AND ABROGATING EXISTING )  
SPACING AND PRORATION ORDERS AND RULES FOR )  
THE ADDISON 12 FIELD, ADDISON TOWNSHIP, )  
OAKLAND COUNTY, MICHIGAN.

**OPINION AND ORDER**

This case involves the Petition of Energex Petroleum (USA), L.L.C. (Petitioner) for: (i) approval of a plan for unitized operation of the Addison 12-05N-11E Field (proposed Unit Area), pursuant to Part 617, Unitization, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); (ii) approval of an enhanced and/or secondary recovery operation pursuant to Section 61506(i), Part 615, Supervisor of Wells, of the NREPA and R 324.612; and (iii) approval to operate the Addison 12-05N-11E Field as an exception to the applicable spacing provisions of Part 615 of the NREPA, and its administrative rules. At the hearing the Petitioner made an additional request for compulsory pooling of unleased mineral interests. The proposed Unit Area consists of approximately 200 acres, consisting of the E 1/2 of the NE 1/4, N 1/2 of SE 1/4, and SW 1/4 of SE 1/4 of Section 12; T5N, R11E, Addison Township, Oakland County, Michigan.

**JURISDICTION**

The development of oil and gas in this state is regulated under Part 615, Supervisor of Wells; and Part 617, Unitization; of the NREPA, MCL 324.61501, et seq. and MCL 324.61701, et seq., respectively. Part 615 authorizes the Supervisor of Wells (Supervisor) to regulate secondary recovery methods for oil and gas. MCL 324.61506(i). A person proposing secondary recovery by injection of a fluid into a producing formation must file a petition for a public evidentiary hearing. 1996 MR 9, R 324.612. Part 617 directs the Supervisor to issue an order providing for unitization

pursuant to a hearing if certain criteria are met. MCL 324.61704(4). Evidentiary hearings in these matters are 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 hearing was originally scheduled for September 10, 2013, and was adjourned at the request of the Petitioner due to a question of whether complete notice of the hearing was given. The evidentiary hearing in this matter was held on October 7, 2013.

### **FINDINGS OF FACT**

The Petitioner specifically requests that the Supervisor issue an Order allowing the Petitioner to inject reservoir gas and other approved substances into the Guelph Dolomite/Ruff Formation, the productive zone, for purposes of enhanced and/or secondary recovery operations; and to exempt the proposed Unit Area from the applicable spacing and proration rules and orders.

In support of its case, the Petitioner offered the testimony of Duncan Hamilton, chief operating officer and geologist for the Petitioner, who was recognized as an expert in petroleum geology; Joseph Lehner, Jr., consulting engineer, who was recognized as an expert in petroleum engineering; Mark Amell, oil field consultant, who was recognized as an expert in petroleum operations; Bradley French, petroleum landman for the Petitioner; and Peter Bilodeau, the Petitioner's president and CEO.

The Administrative Law Judge determined the Notice of Hearing was properly served and published. The Supervisor designated the hearing to be an evidentiary hearing pursuant to R 324.1205(1)(b) and directed substantive evidence be presented in the form of oral testimony.

Answers in opposition to the Petition were filed by William and Katherine Carroll, Thomas and Dianna Johnson, Julie and Greg Schoenherr. All of these respondents were represented at the hearing by attorney Jeffery L. Jocks. In addition timely answers were filed by Richard Cory, Bruce Township Supervisor; L.M. Panasiuk; Joel Myler, Muskegon Development Company; and Mitchell and Deborah Washer. An untimely answer was filed by Stephan Ucinski. Respondents offered the testimony of

William Carroll, Katherine Carroll, and Thomas Johnson, who all live near the wells in the proposed Unit Area. Respondents also offered the testimony of Christopher P. Grobbel, environmental consultant, who was accepted as an expert in environmental and health impacts from oil and gas operations. Statements were made at the hearing by William Goodfellow, mineral owner, and Bruce Pearson, Addison Township Supervisor. Mr. Goodfellow spoke in favor of the Petition while Mr. Pearson stated concerns with the age of the piping.

### I. Unitization

Mr. Hamilton testified there were five productive wells drilled in the proposed Unit Area, each on a 40-acre drilling unit, pursuant to R 324.301. These five wells are the Melvin F. Lanphar 1-12 (Permit Number [PN] 32168), Melvin F. Lanphar 3-12 (PN 32541), Melvin F. Lanphar 7-12 (PN 39257), Dewey Morris 4-12 (PN 32579), and Goodfellow 5-12 (PN 32842). Total primary production for the field was approximately 438,000 barrels of oil and 2.67 billion cubic feet of gas (BCF). The Goodfellow 5-12 well was subsequently abandoned and completed up hole as a brine production well.

Mr. French testified all mineral interests in the proposed Unit Area are subject to valid oil and gas leases except approximately 10 acres owned by Thomas and Diana Johnson. All oil and gas leases are held by the Petitioner. Mr. French stated the Petitioner became aware of the unleased acreage after the Petition was filed and since that time the Petitioner has made several attempts to enter into a lease with the Johnsons.

Mr. French testified that the Petitioner's Plan of Unitization (Exhibit L) constitutes a plan of unit operations containing all of the required terms and conditions as set forth in subsections 61705(a)-(j) of Part 617 of the NREPA, and expressly provides for the unitized operation of the proposed Unit Area for purposes of secondary recovery and pressure maintenance operations. As of the date of the hearing, the Plan of Unitization has been ratified by working interest owners whose interests total 94.091 percent of all production from the proposed Unit Area, including Muskegon Development Company, who notified the Petitioner of its ratification a few days before the hearing. Mr. French

stated the Plan of Unitization has been approved by persons required to pay at least 75 percent of the costs of operations and those entitled to at least 75 percent of production from the Unit Area. Mr. French testified the Petitioner made attempts to ratify all uncommitted interests in the proposed Unit Area.

I find that the Petitioner is qualified to be named Unit Operator and has obtained sufficient approval to support entry of a final order approving the Plan of Unitization and approving unit operations pursuant to Part 617 of the NREPA.

### II. Unit Area

Mr. Hamilton testified the productive portion of the reef is contained within the proposed Unit Area and has two distinct pinnacle crests (Exhibit C), and described the proposed unitized interval. The Verified Petition in this matter identifies the Unitized Formation as: "all formations lying between the top of the A-2 Carbonate formation and the base of the Gray Niagaran formation, or the stratigraphic equivalents encountered in the Lanphar 7-12, from 3,748 feet below the surface of the earth, measured from the Datum at time of drilling, to 4,390 feet below the surface of the earth, measured from the Datum at time of drilling." Mr. Hamilton testified all five wells in the proposed Unit Area were perforated in the Unitized Formation, except for the Goodfellow 5-12, which was re-completed in the Devonian Sylvania Sandstone as a brine producer.

I find the Unitized Formation as proposed by the Petitioner is reasonable and appropriate and should be approved. I find the boundaries of the proposed Unit Area are appropriate.

### III. Secondary Recovery

Mr. Hamilton testified original oil in place for the proposed Unit Area was 2.86 million barrels of oil and original gas in place was 4.3 BCF. Using well logs and pressure and production histories of the field, he was able to calculate remaining oil in place of 2.4 million barrels and remaining gas in place of 1.63 BCF (Exhibit E). Mr. Hamilton testified the Petitioner expects to recover a minimum of 90,000 barrels of the remaining oil in place from the proposed Unit Area with enhanced recovery. Due to a high gas oil ratio and limited marketability for natural gas, Mr. Hamilton believes the field has reached its economic limit on primary production. Through secondary or

enhanced recovery the Petitioner will be able to re-inject the gas back into the formation instead of flaring the gas, which will reduce odors in the area and allow the Petitioner to produce more oil.

Mr. Hamilton testified the enhanced recovery will be conducted in a closed loop system by re-injecting produced gas. The Petitioner intends to recomplete the Dewey Morris 4-12, the Melvin F. Lanphar 7-12, and the Melvin F. Lanphar 1-12 as producers by sealing off the upper perforations and producing oil through existing or added lower perforations. The Petitioner would then compress the produced gas and re-inject it into the Melvin F. Lanphar 3-12 well to maintain reservoir pressure and control odors in the field. The Melvin F. Lanphar 3-12 well has been permitted by the United States Environmental Protection Agency to be used as an injection well. Mr. Hamilton stated the Petitioner plans to inject a maximum of 500 thousand cubic feet of gas a day. At this time the Petitioner has no plans to drill new wells or inject any outside substances.

Mr. Lehner testified gas and natural gas liquids will be produced from the three producing wells to the processing facility where the liquids and gas will be separated. The liquids will go to storage tanks and the gas will either be re-injected or be sweetened and used as fuel gas to run the equipment (Exhibit K).

Mr. Lehner testified the producing wellheads will be equipped with pressure switches and safety shutdown valves designed to shut in the wells in the event the pressure is either too low or too high. The injection well will be equipped with pressure switches, safety shutdown valves, and hydrogen sulfide monitors. The facility will be equipped with pressure switches, hydrogen sulfide detectors, and a battery back-up system, causing the facility to shut-in to prevent gas from being released to the atmosphere. The injection line will have safety shutdown valves at each end and the heater treaters will have pressure switches and level switches for safety. Mr. Lehner testified the Petitioner will be conducting its operations at a maximum pressure of approximately 700 pounds, well below the 1,800 pounds per square inch design pressure of the line.

Mr. Amell testified he pressure tested the proposed injection well pipeline for the previous owner in 2005 and will test it again prior to commencement of operations.

Mr. Amell further testified the gas produced from the wells in the proposed Unit Area is sour, with a hydrogen sulfide level of 7,000 parts per million in the formation. He stated the Petitioner's operation of a closed loop system will limit the risk of exposure to hydrogen sulfide in the area. Vapors from oil trucks will be vented to the incinerator instead of the atmosphere. The incinerator will be preceded by a knockout tower and will burn continuously to prevent any releases of sour gas. Mr. Amell stated the compressor the Petitioner will be using is totally enclosed in a sound deadening building with a hospital type muffler to reduce noise. Mr. Amell testified any time there is a shut-in of a well or the facility, the operator would automatically be notified.

Mr. Hamilton's enhanced oil recovery production forecast and estimated economics indicate the project will be profitable with an estimated total revenue of five million (Exhibit G) while costs are estimated at \$1.45 million (Exhibit H). Mr. Hamilton testified the proposed operations are feasible based on the results of prior production and injection tests.

I find the testimony indicates the proposed Unit Area contains accumulation of hydrocarbons that will not be recovered by further primary production of the wells in the field, but may be recovered by enhanced and/or secondary recovery operations conducted as a part of the unitized operation. I find the estimated additional cost of unitized operations will not exceed the value of the additional hydrocarbons recovered and the unitization requested is reasonably necessary to substantially increase recovery of oil from the proposed Unit Area.

The Plan of Unitization allocates unit production among the various tracts comprising the proposed Unit Area. Tract participation is based on the proportion that the number of acres owned by a respective party in each respective tract bears to the total number of acres in the proposed Unit Area. Mr. Hamilton testified allocation of production based on mineral ownership is fair.

I find the allocation of production to the separately owned tracts is fair, reasonable, and equitable as required by Section 61705 of Part 617 of the NREPA.

Mr. Carroll, Mrs. Carroll, and Mr. Johnson testified as to nuisance odors and loud noises they experienced at their residences in the spring and summer of 2013.

Although the odors experienced were not hydrogen sulfide according to the respondents, they expressed concerns of hydrogen sulfide leaks from the wells and facility. Mrs. Carroll also testified as to her concerns about the effects of hydrogen sulfide on children and pregnant women (Exhibit 1).

Mr. Grobbel testified and submitted a letter (Exhibit 2) that addressed the areas of nuisance odors, nuisance noise, hydrogen sulfide exposure, cumulative environmental impact/alternatives analysis, prevention of waste, air pollution, and trespass. Mr. Grobbel expressed concern with hydrogen sulfide concentrating in lower elevations and chronic exposure to low levels impacting human health. Mr. Grobbel also expressed concerns regarding the possibility of pipeline leaks and the fact that the Petitioner did not submit a hydrogen sulfide contingency plan with its Petition. Other issues raised by Mr. Grobbel included the cumulative environmental impacts under the Michigan Environmental Protection Act (MEPA), and the fact that the Petitioner had not yet completed testing on all flow lines.

Mr. Bilodeau testified that the Petitioner is committed to being a responsible neighbor in the Unit Area by communicating with residents and addressing their concerns and complaints. The Petitioner has spent over one million dollars preparing the field for secondary recovery operations, and will continue to address any issues that arise. Mr. Bilodeau also testified that the proposed injection well pipeline will be tested and if any problems are identified they will be corrected before operations commence.

While many of the concerns the Respondents testified to, including nuisance odors, nuisance noise, and possible hydrogen sulfide exposure, are issues the Department of Environmental Quality (DEQ) takes seriously, they are not directly related to the Petitioner's request to conduct secondary recovery operations in the Addison 12 Field; rather, they are related to general oil and gas operations, whether the Addison 12 Field is unitized or not. Additionally, some of the issues raised in Mr. Grobbel's testimony are not requirements under Part 615, such as submitting a copy of the hydrogen sulfide contingency plan with the Petition and completing testing of flow lines prior to the hearing. The Office of Oil, Gas, and Minerals will continue to hold the Petitioner accountable to Part 615 and its administrative rules and conduct

inspections of the wells and production facilities to ensure that their operations are in compliance with Part 615 and its administrative rules. This includes ensuring that the Petitioner pressure tests all facility piping and flow lines in accordance with the Part 615 administrative rules prior to commencing unit operations.

I find the type of operations contemplated by the Petitioner are feasible, will prevent underground waste by recovering oil not otherwise recoverable, will adequately address hydrogen sulfide, and will protect correlative rights. I find abrogation of the existing spacing, and proration rules and orders is necessary to implement the Plan of Unitization and proceed with unitized operations

#### IV. Compulsory Pooling

The Petitioner was unable to obtain the agreement of all mineral interest owners in the proposed Unit Area. The Petitioner may not produce a well without first obtaining control of all of the necessary oil and gas interests. In cases like this, it is necessary for the Petitioner to request compulsory pooling from the Supervisor. A mineral or working interest owner who does not agree to voluntarily pool his, her, or its interest in a drilling unit may be subject to compulsory pooling. 1996 MR 9, R 324.304. The compulsory pooling of an interest must be effectuated in a manner that ensures "each owner...is afforded the opportunity to receive his or her just and equitable share of the production of the unit." Id. In addition to protecting correlative rights, the compulsory pooling must prevent waste. MCL 324.61502. An operator must first seek voluntary pooling of mineral interests within a proposed drilling unit prior to obtaining compulsory pooling through an order of the Supervisor.

All of the owners of oil and gas interests within the proposed Unit Area agreed to voluntarily pool their interests, with the exception of one interest comprised of approximately 10 acres. Mr. French testified the Petitioner made several attempts to lease Thomas and Dianna Johnson, the unleased mineral interest owners.

I find the Petitioner was able to lease all of the mineral interests in the proposed Unit Area except for the acreage owned by Mr. and Mrs. Johnson. I further find that compulsory pooling is necessary to form a full unitized area and to protect correlative rights of the unleased owners.

**CONCLUSIONS OF LAW**

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

1. The applicable spacing, well location, and proration requirements for the Addison 12-05N-11E Field are established by Special Order No. 1-73.
2. The Supervisor shall issue an order providing for the unit operation of a unit area if he or she finds all of the following:
  - (a) That the unitization requested is reasonably necessary to substantially increase the ultimate recovery of oil and gas from the unit area;
  - (b) That the type of operations contemplated by the plan are feasible, will prevent waste, and will protect correlative rights.
  - (c) That the estimated additional cost of conducting such operations will not exceed the value of the additional oil and gas so recovered. MCL 324.61704(4).
3. The Supervisor's Order may be declared effective if the Plan of Unitization has been approved by those persons who under the Supervisor's Order will be entitled to at least 90 percent of all production from the unit area or the proceeds of that production. MCL 324.61706.
4. The Supervisor may regulate the secondary recovery methods of oil and gas, including pulling or creating a vacuum and the introduction of gas, air, water, and other substances into the producing formations. MCL 324.61506(i).
5. A person desiring to inject water, gas, or other fluids into a producing formation or use other technology for the purpose of increasing the ultimate recovery of hydrocarbons from a reservoir shall file a petition for hearing. 1996 MR 9, R 324.612(1).

6. The operator of a secondary recovery project shall keep accurate records of all oil, gas, and brine produced, volumes of fluids injected, and injection pressures. The operator shall file reports of the data and other data as may be required with the Supervisor at regular intervals, as specified. 1996 MR 9, R 324.612(2).

7. The Petitioner was unable to voluntarily pool all mineral interests within the proposed Unit Area. The Supervisor may compulsorily pool properties when pooling cannot be agreed upon. Compulsory pooling is necessary to prevent waste and protect the correlative rights of the pooled owners in the proposed drilling unit. MCL 324.61513(4).

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

9. 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 the proposed unitization will prevent waste, and protect correlative rights.

NOW, THEREFORE, IT IS ORDERED:

1. The Petition of Energex Petroleum ( USA), L.L.C. is granted, and the proposed Unit Area is created in accordance with, and subject to, this Order and the provisions of the Plan of Unitization, which is hereby incorporated by reference. The proposed Unit Area shall hereafter be known as the Addison 12 Unit.

2. Energex Petroleum (USA), L.L.C. is appointed Unit Operator.
3. The Addison 12 Unit is described as:  
the E 1/2 of the NE 1/4, N 1/2 of SE 1/4, and SW 1/4 of SE 1/4 of Section 12; T5N, R11E, Addison Township, Oakland County, Michigan.
4. The Unitized Formation is described as:  
all formations lying between the top of the A-2 Carbonate formation and the base of the Gray Niagaran formation, or the stratigraphic equivalents encountered in the Lanphar 7-12, PN 39257, from 3,748 feet below the surface of the earth, measured from the Datum at time of drilling, to 4,390 feet below the surface of the earth, measured from the Datum at time of drilling.
5. Energex Petroleum (USA), L.L.C. shall notify the Supervisor between 30 and 60 days prior to the commencement of injection operations, and between 30 and 60 days prior to the anticipated date of abandonment of injection operations. The Petitioner shall comply with the requirements of R 324.201, R 324.610, R 324.612, and R 324.806 of the administrative rules of Part 615 of the NREPA and shall obtain such approvals as are necessary from the DEQ.
6. Each tract within the Addison 12 Unit shall participate in the unit production and other benefits and burdens of unit operations in accordance with the Plan of Unitization. Thomas and Katherine Johnson are pooled into the Addison 12 Unit and are subject to the Plan of Unitization, and shall be regarded as a working interest owner to the extent of 7/8 of their net mineral ownership in the respective tract and as a royalty interest owner to the extent of 1/8 of their net mineral ownership in the respective tract.

7. Operation of the Addison 12 Unit shall be conducted exclusive of and as an exception to all applicable spacing orders and rules. Energex Petroleum (USA), L.L.C. is authorized to produce wells on the Addison 12 Unit at rates that result in the maximum efficient recovery of hydrocarbons. All other parts of Special Order No. 1-73 and the administrative rules of Part 615 of the NREPA shall be adhered to.

8. The unitized operations shall initially be accomplished by the injection of natural gas produced from the reservoir. Other substances may only be injected with written approval from the Supervisor.

9. The Plan of Unitization, which constitutes the plan for unit operations, is hereby approved; and unit operations thereunder may be commenced as of the effective date determined by the Unit Operator consistent with Article 26 of the Plan of Unitization. Cessation of the unit operations shall be in accordance with the Plan of Unitization and only with the written approval of the Supervisor.

10. The Supervisor retains continuing jurisdiction over the Addison 12 Unit in order that the Supervisor may exercise such administrative control as is consistent with the powers and duties of the Supervisor, as established by Part 615 and Part 617 of the NREPA.

11. This Order shall be effective immediately.

Dated: November 27, 2013

  
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