

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

THE VERIFIED PETITION OF MUSKEGON)
DEVELOPMENT COMPANY, FOR AN ORDER FROM)
THE SUPERVISOR OF WELLS APPROVING A PLAN OF)
UNITIZATION FOR SECONDARY RECOVERY OF OIL,)
GAS, AND RELATED HYDROCARBONS, AND) CAUSE NO. 03-2015
ABROGATING EXISTING SPACING AND PRORATION)
ORDERS AND RULES FOR THE STRAUB UNIT,)
FRANKLIN TOWNSHIP, CLARE COUNTY, MICHIGAN.)

OPINION AND ORDER

This case involves the Petition of the Muskegon Development Company (Petitioner) for: (i) approval of a plan for unitized operation of the Straub Unit (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 a 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 proposed Unit Area as an exception to the applicable spacing provisions of Part 615 of the NREPA, and its administrative rules. The proposed Unit Area consists of approximately 600 acres, consisting of the NW 1/4, W 1/2 of NE 1/4, NW 1/4 of SW 1/4, E 1/2 of SW 1/4, SE 1/4 of Section 10; and N 1/2 of NE 1/4 of Section 15, T20N, R3W, Franklin Township, Clare 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. 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 AACS, 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 AACRS, R 324.1203. The evidentiary hearing in this matter was held on May 26, 2015.

FINDINGS OF FACT

The Petitioner specifically requests that the Supervisor issue an Order allowing the Petitioner to inject fresh water into the productive zone, identified as the top of the Detroit River Sour Zone through the base of the Amherstburg Formation, for purposes of 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, Mr. Joel Myler, Vice President, Muskegon Development Company, and Mr. William C. Myler, President, Muskegon Development Company.

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.

An answer in opposition to the Petition was filed by Mr. John G. Bascom and Ms. Nicola S. Bascom, surface and mineral owners of lands adjacent to the proposed Unit Area. The Bascoms objections were: wrongful removal of oil and gas from their property, possible adverse effects to groundwater, nuisance noise or odors, creation of an environmental hazard, and wrongful taking of the Bascom property.

I. Unitization

Mr. Joel Myler testified all mineral interests in the proposed Unit Area are subject to valid oil and gas leases except approximately 23.9 acres. Mr. Michael and Ms. Dawn LeBlanc, the Robert Hitzelberger 2012 Family Trust, and Dorchester Minerals, L.P. are owners of unleased mineral interests in the proposed Unit Area. Mr. Joel Myler stated the Petitioner has made several attempts to enter into leases with these three parties

(Exhibit 11). The Petitioner is the operator and working interest owner of oil and gas leases covering the proposed Unit Area.

Mr. Joel Myler testified that the Petitioner's Unitization Agreement (Exhibit 2) and Unit Operating Agreement (Exhibit 7) constitute 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. As of the date of the hearing, the Plan of Unitization has been ratified by persons entitled to at least 90 percent of all production from the proposed Unit Area. Mr. Joel Myler testified the Petitioner made attempts to ratify all uncommitted interests in the proposed Unit Area.

Mr. William Myler, Jr. testified the Petitioner's Unitization Agreement contemplates unitization from the surface of the earth to the base of the Amherstburg Formation; however, he contemplates actual waterflood activities will be conducted between the top of the Detroit River Sour Zone and the base of the Amherstburg Formation, with a primary focus on recovery from the Richfield Zone. Mr. William Myler reviewed drilling records, well completion histories, and actual well production to determine the productive limits of the Richfield Zone, and ultimately the boundaries of the 600-acre proposed Unit Area.

I find the Unitized Formation of the surface of the earth to the base of the Amherstburg Formation, as proposed by the Petitioner, is overly broad. I find for purposes of this Order, that Unitized Operations shall be restricted to the top of the Detroit River Sour Zone to the base of the Amherstburg Formation. I find the boundaries of the proposed Unit Area are appropriate.

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 Unitization Agreement and the Unit Operating Agreement pursuant to Part 617 of the NREPA. I further find that the terms of the Petitioner's Unit Agreement are fair, reasonable and equitable. The unleased parties shall be subject to unitization in conformance with the terms of the Petitioner's Unitization Agreement and Unit Operating Agreement, except that the

Unitized Formation is the top of the Detroit River Sour Zone to the base of the Amherstburg Formation.

II. Secondary Recovery

Mr. William Myler, Jr. testified the Straub Field was discovered in 1953 with the drilling and completion of the Irving #1 well. There are presently 11 producing wells and four plugged wells for a total of 15 wells in the proposed Unit Area. The Petitioner is the permittee and operator of all wells in the proposed Unit Area. Total primary production for the field was approximately 971,000 barrels of oil, constituting 98 percent of the original primary reserves (Exhibit 6).

Mr. William Myler, Jr. testified secondary recovery will be conducted through waterflood operations by injecting water. The proposed source of the water is ground water from the glacial drift, produced from a private water well drilled on private property owned by the Petitioner. A hydrogeological investigation report prepared at the Petitioner's request indicates the proposed waterflood operations would likely have no more than a minimal effect on nearby water wells (Exhibit 13). The Department of Environmental Quality, Office of Oil, Gas, and Minerals staff reviewed the hydrogeological investigation report and based on that review, I find the proposed water withdrawal will not have a significant impact on water resources.

The Petitioner plans to operate approximately six producing oil wells and five water injection wells. Mr. William Myler, Jr. testified that 98 percent of primary reserves have been produced, and without secondary recovery operations, there are only about 20,000 barrels of oil that could be produced from the field. In his experience, waterflood secondary recovery operations generally produce an additional amount of oil recovery equal to primary production. Based on primary production from the Richfield Formation in the amount of 498,000 barrels, the Petitioner expects to recover 415,000 barrels from the Richfield and an additional 84,000 barrels from the Detroit River Sour Zone. In addition to his experience operating five Richfield waterfloods, Mr. William Myler, Jr. based his estimates on review of production histories, including primary and secondary recoveries of waterfloods in Michigan. It is his opinion the proposed secondary recovery operations are feasible and will prevent waste.

The Petitioner estimates that secondary recovery operations would have a capital cost of \$6,000,000.00, and the cost of operations during the expected 30-year life of the project would be \$6,895,080.00. The Petitioner further estimates that well plugging and abandonment costs will be \$600,000.00. Petitioner expects to generate \$27,307,000.00 in working interest net revenue over the expected life of the project, resulting in an estimated net cash flow of \$13,811,920.00.

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 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 Unitization Agreement allocates unit production among the various tracts comprising the proposed Unit Area. Mr. Joel Myler testified tract participation in the proposed Unit Area is a calculation of 80 percent historical production, 10 percent production from the last 15 months, and 10 percent surface acreage. It is Mr. Joel Myler's opinion that allocation of tract participation in this manner is fair, reasonable, and equitable. It is the Petitioner's opinion that the proposed Unitization Agreement fairly allocates production among the mineral owners to the Unit Area and the proposed secondary recovery operations are protective of correlative rights. The correlative rights of adjacent mineral owners are not affected by the proposed operations since an adjacent mineral owner can produce his or her own minerals.

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.

In Mr. William Myler, Jr.'s opinion, abrogation of spacing within the proposed Unit Area would prevent waste and protect correlative rights through the recovery of more oil. Mr. William Myler, Jr. testified there are no other feasible or prudent alternatives to the proposed secondary recovery operation. In his opinion, without the proposed secondary recovery operation, substantial quantities of oil would not be produced.

Mr. William Myler, Jr. testified the proposed operations will be consistent with the promotion of the public health, safety, and welfare by producing substantial additional oil from the Straub Unit in a manner that creates the least detrimental environmental effect.

I find there is no feasible and prudent alternative to the secondary recovery and unitized operations proposed by the Petitioner. I find that based on the testimony and evidence placed on the record in this matter, the Petitioner's secondary recovery operations, as proposed, will not wrongfully remove gas and oil from, or adversely affect the ground water on the Bascom property, or cause a nuisance or environmental hazard, or constitute a wrongful taking of the Bascom's property. 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.

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

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 Straub Field are established by the Amended Headquarters Detroit River Formation Pools Order, effective February 18, 1954.

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 Unitization Agreement 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 AACS, 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 AACS, R 324.612(2).

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

8. 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 AACRS, 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 Muskegon Development Company is granted, and the proposed Unit Area is created in accordance with, and subject to, this Order and the provisions of the Unitization Agreement and Unit Operating Agreement, which are hereby incorporated by reference. The proposed Unit Area shall hereafter be known as the Straub Unit.

2. Muskegon Development Company is appointed Unit Operator.

3. The Straub Unit is described as:
the NW 1/4, W 1/2 of NE 1/4, NW 1/4 of SW 1/4, E 1/2 of SW 1/4,
and SE 1/4 of Section 10; and N 1/2 of NE 1/4 of Section 15, T20N,
R3W, Franklin Township, Clare County, Michigan.

4. For purposes of this Order, the Unitized Formation is described as the top of the Detroit River Sour Zone to the base of the Amherstburg Formation.

5. Muskegon Development Company 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 all applicable administrative rules of Part 615 of the NREPA and shall obtain such approvals as are necessary from the Supervisor.

6. Each tract within the Straub Unit shall participate in the unit production and other benefits and burdens of unit operations in accordance with the Unitization Agreement. Mr. Michael and Ms. Dawn LeBlanc, the Robert Hitzelberger 2012 Family Trust, and Dorchester Minerals, L.P. are pooled into the Straub Unit and are subject to unitization in conformance with the terms of the Unitization Agreement, except that the Unitized Formation is as described in paragraph 4 above; and each 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 Straub Unit shall be conducted exclusive of and as an exception to all applicable spacing orders and rules. The Muskegon Development Company is authorized to produce wells on the Straub Unit at rates that result in the maximum efficient recovery of hydrocarbons. All other parts of the administrative rules of Part 615 of the NREPA shall be adhered to.

8. The Muskegon Development Company is authorized to inject fresh or produced water into the Unitized Formation, as defined in this Order. The Muskegon Development Company may only inject other substances upon receipt of written approval from the Supervisor. The rate of withdrawal from the fresh water well shall not exceed 19 gallons per minute without first receiving written approval from the Supervisor.

9. The Unitization Agreement and Unit Operating Agreement, which constitute the plan for unit operations, are hereby approved; and unit operations thereunder may be commenced as of the effective date determined by the Unit Operator consistent with Article 15 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 Straub 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: July 29, 2015



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