

**STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
SUPERVISOR OF WELLS**

IN THE MATTER OF

THE PETITION OF LAYLINE OIL AND GAS LLC,)
FOR AN ORDER OF THE SUPERVISOR OF)
WELLS APPROVING AN ENHANCED OIL)
RECOVERY OPERATION IN THE CRANBERRY)
LAKE RICHFIELD AND DETROIT RIVER GROUP) ORDER NO. 10-2022
POOLS IN WINTERFIELD TOWNSHIP, CLARE)
COUNTY, MICHIGAN; AND ABROGATING)
EXISTING SPACING AND PRORATION ORDERS)
AND RULES FOR SUCH POOLS.)

OPINION AND ORDER

This case involves the Petition of Layline Oil and Gas LLC (Layline or Petitioner), requesting (a) approval of a unitized operation pursuant to Part 617, Unitization, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); (b) 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 (c) approval to operate the proposed Unit Area as an exception to the applicable spacing provisions of Part 615 of the NREPA, its administrative rules, and any applicable spacing orders. The proposed Unit Area consists of approximately 720 acres, and is described as:

Section 1: SW/4 SE/4 and S/2 SW/4

Section 2: SE/4, except NW/4 SE/4

Section 11: NE/4

Section 12: NW/4, NE/4 except NE/4 NE/4, and NW/4 SE/4

T20N-R6W, Winterfield 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.* The purpose of Parts 615 and 617 is to ensure the orderly

development and production of the oil and gas resources of this state, with a view to the avoidance of waste and 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 various methods for recovery of oil and gas, including the unit operation of a pool and the introduction of substances into producing formations for purposes of enhancing production. MCL 324.61506(i). A person proposing secondary recovery by injection of a substance 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 AACS, R 324.1203. The evidentiary hearing in this matter was set for December 7, 2022.

FINDINGS OF FACT

The Petitioner specifically requests that the Supervisor issue an Order allowing the Petitioner to replace the Cranberry Lake Richfield Unit established by an Order dated July 31, 1969, with the Petitioner's proposed Cranberry Lake Richfield and Detroit River Group Unit, for purposes of preventing waste, improving facilities optimization, secondary and/or enhanced oil and gas recovery, and exempting the proposed Unit Area from the applicable spacing and proration rules and prior orders.

The Supervisor determined that the Notice of Hearing was properly served and published. No answers were received. The Supervisor designated the hearing to be an uncontested evidentiary hearing pursuant to R 324.1205(1)(b) and directed evidence be presented in the form of verified statements pursuant to R 324.1205(2).

In support of its case, the Petitioner offered the testimony by verified statements of the following witnesses: Ms. Leslie A. Irish, Landman; Mr. Gary Boog, Independent Consulting Petroleum Geologist; and Mr. Christopher J. Lewis, Petroleum Engineer, and President of the Petitioner.

I. Unitization

Ms. Irish testified that all of the oil, gas, and mineral interests in the proposed Unitized Formations beneath the proposed Unit Area are subject to recorded oil and gas leases, and that Layline owns all of the leases in the Unit Area. Mr. Lewis testified that the Petitioner's Plan of Unitization (Exhibit 8) constitutes a plan of unit operations containing all 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 and/or enhanced oil and gas recovery.

Ms. Irish sponsored Exhibit 2 showing that the Plan of Unitization has been approved and ratified by sufficient owners to meet the requirements of Part 617, specifically that 87.1% of owners who will be entitled to production from the Unit Area have ratified the Plan of Unitization. Ms. Irish further testified that the Petitioner mailed the Notice of Hearing and a full copy of the Petition (except the Affidavit and list of interested parties) to all owners in the Unit Area. No objections to the Petition or the Plan of Unitization were received by Layline or the Supervisor from owners within 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. Boog sponsored Exhibit 3, showing the proposed Unit Area and the status of all wells in the unit within the Detroit River Zone and Richfield formation. Based on review of the available well logs and well data, Mr. Boog prepared Exhibit 6, a structure contour map of the top of Detroit River DR1 interval. Mr. Boog testified that the structure is a generally northwest to southeast trending anticlinal structure. Sponsoring Exhibits 4 and 5, Mr. Boog testified that the Cranberry Lake Detroit River Group Pool consists of two productive geologic intervals, which are the Richfield and the Detroit River Zone. Mr. Boog stated that productive parts of the reservoirs to be unitized underlie all tracts comprising the proposed Unit Area.

Mr. Boog testified that the Petitioner plans to conduct unitized operations within

the Unitized Formations described as the formations lying between the top of the Detroit River Group and the base of the Richfield formation, or the stratigraphic equivalents of the following:

That portion of the Detroit River Group as defined for unitization from a beginning depth at 4,396 feet MD to ending depth 4,926 feet MD on the same Baker Hughes Compensated Z-Densilog Compensated Neutron Log Gamma Ray Log from the Miltner, Miltner & Boyle Trust 11-12 well, located in Section 12, T20N-R6W, Clare County.

AND

Beginning depth 4,998 feet MD to ending depth 5,195 feet MD on the Baker Hughes Compensated Z-Densilog Compensated Neutron Log Gamma Ray Log from the Miltner, Miltner & Boyle Trust 11-12 well, located in Section 12, T20N-R6W, Clare County.

Mr. Boog and Mr. Lewis sponsored Exhibit 7 to describe the reservoir rock and fluid properties of the Unitized Formations.

I find the Unitized Formations as proposed by the Petitioner are reasonable and appropriate and should be approved for unitized operations. I find the boundaries of the proposed Unit Area to be appropriate. The reservoir underlies each tract within the proposed Unit Area.

III. Secondary and Enhanced Recovery

Mr. Boog's Exhibit 3 shows that numerous wells have been drilled into the Cranberry Lake Richfield and Detroit River Group pools. Mr. Lewis testified that the Richfield Unit has been operated as a waterflood since 1969 and has recovered 1,605,112 barrels of oil from the Richfield Formation. Mr. Lewis indicated that approximately 65,000 barrels of oil has been recovered from the Detroit River Zone through non-unitized production within the geographic area of the Richfield Unit to date. Mr. Boog's and Mr. Lewis' testimony is the Detroit River Zone identifies significantly more oil to be recovered pursuant to unitized operations, the Petitioner projects the Richfield Pool will recover an additional 186,510 barrels of oil by continuing unitized operations.

Mr. Lewis testified that the Petitioner proposes to enhance production in the Unitized Formations by designing and implementing a single shared above-ground facilities operational plan to minimize duplication of facilities. He further indicated the

operational plans may include a shared flowline system to service all wells in the Unit Area, a shared separator facility, an amine unit; a single NGL stripping facility; a single waste gas disposal facility; a single metering facility; and such other combined surface facilities as will enable the processing and sale of oil and natural gas recovered from both the Richfield and Detroit River Zone.

Mr. Lewis testified that the Petitioner would have a common gas processing facility, and sponsored Exhibit 9 to depict the proposed gas processing diagram. Mr. Lewis indicated that this would allow sour gas to be processed and sold rather than flared. He testified that such gas operating methods will have the positive results of generating revenue by sales and discontinuing the routine flaring of sour gas. Mr. Lewis testified the proposed operational techniques will substantially increase the ultimate recovery of oil and gas and prevent waste (Exhibit 10).

Mr. Lewis testified the Plan of Unitization will protect correlative rights. He referred to his Exhibits 10 and 11. He indicated that the remaining recoverable reserves in the Richfield will be allocated to each Tract using the 1969-unit tract factors. The Detroit River Zone remaining reserves will be allocated to the Tracts designated in the new Plan of Unitization (Exhibit 8). Each tract's share of remaining recoverable oil volumes to the total unit remaining reserves has been calculated and attributed to each Tract (Exhibit 11). Mr. Lewis testified that the tract factors represent each tract's fair, reasonable, and equitable share of Unit production.

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. I further find the type of operations contemplated by the Petitioner are feasible, will prevent underground and surface waste, and will protect correlative rights. I find abrogation of the existing spacing rules and orders, and abrogation of the July 31, 1969, Richfield Unitization Order, are necessary to implement the Plan of Unitization and proceed with unitized operations, except no well shall be completed in the Unitized Formations at a location closer than 330 feet from the outside boundary of the proposed Unit Area.

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 proposed Unit Area are established by the General Rule Spacing (Rule 324.301), as to the Detroit River Group wells and by the 1969 Unitization Agreement as to the Richfield Pool. Exceptions to Rule 324.301 may be granted by the Supervisor, and the 1969 Unitization Agreement can be abrogated after notice and hearing.

2. The Supervisor shall issue an order providing for the unit operation of a Unit Area if he or she finds all 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 may regulate the secondary and/or enhanced 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).

4. 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 AACCS, R 324.612(1).

5. The operator of a secondary and/or enhanced 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 AACCS, R 324.612(2).

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

7. 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. 2015 AACRS, R 324.1204.

DETERMINATION AND ORDER

Based on the Findings of Fact and Conclusions of Law, the Supervisor determines that the proposed unitization and the proposed secondary and/or enhanced oil recovery project will prevent waste and maximize the ultimate recovery of hydrocarbons from the proposed Unit Area.

NOW, THEREFORE, IT IS ORDERED:

1. The Petition of Layline Oil and Gas LLC 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 be hereafter known as the Cranberry Lake Richfield and Detroit River Zone Unit.

2. The 1969 Cranberry Lake Richfield Unit is abrogated as provided for in Paragraph 10 of this Determination and Order.

3. Layline Oil and Gas LLC is appointed Unit Operator.

4. The Cranberry Lake Richfield and Detroit River Zone Unit is described as:

Section 1: SW/4 SE/4 and S/2 SW/4

Section 2: SE/4, except NW/4 SE/4

Section 11: NE/4

Section 12: NW/4, NE/4 except NE/4 NE/4, and NW/4 SE/4.

T20N-R6W, Winterfield Township, Clare County, Michigan

5. The Unitized Formations are described as follows:

That portion of the Detroit River Group as defined for unitization from a beginning depth at 4,396 feet MD to ending depth 4,926 feet MD on the same Baker Hughes Compensated Z-Densilog Compensated Neutron Log Gamma Ray Log from the Miltner, Miltner & Boyle Trust 11-12 well, located in Section 12, T20N-R6W, Clare County.

AND

Beginning depth 4,998 feet MD to ending depth 5,195 feet MD on the Baker Hughes Compensated Z-Densilog Compensated Neutron Log Gamma Ray Log from the Miltner, Miltner & Boyle Trust 11-12 well,

located in Section 12, T20N-R6W, Clare County.

6. Layline Oil and Gas LLC shall notify the Supervisor prior to the commencement of unit operations, and between 30 and 60 days prior to the anticipated date of permanent cessation of unit operations. The Petitioner shall comply with the requirements for well conversions pursuant to R 324.802, and with the filing requirements of 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 Department of Environment, Great Lakes, and Energy.

7. Each tract comprising the Unit Area shall participate in the unit production and other benefits and burdens of unit operations in accordance with the Plan of Unitization.

8. Operation of the Cranberry Lake Richfield and Detroit River Zone Unit shall be conducted as an exception to all applicable spacing orders and rules, except no well may be completed in the Unitized Formations at a location closer than 330 feet from the outside boundaries of the Unit Area. The Unit Operator is authorized to produce wells on the Unit Area at rates that result in the maximum efficient recovery of hydrocarbons. All other parts of R 324.301 and the administrative rules of Part 615 of the NREPA shall be adhered to.

9. Unitized operations shall continue within the Richfield Formation through the injection of source water and through further development in the Detroit River Zone by way of the operation and production of all wells in the Unit Area through a common gathering system, one central production facility, and combined surface facilities. This will enable the processing and sale of natural gas and minimize the volume of gas flared. As part of unitized operations, waste gas from the Unit Operator's amine plant will be re-injected within the Detroit River Zone. Other substances may be injected into the Unitized Formations only after obtaining the written approval of the Supervisor.

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

11. The Supervisor retains continuing jurisdiction over Cranberry Lake Richfield and Detroit River Zone 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.

12. This order is effective immediately.



Dated: February 17, 2023

Adam W. Wygant
Assistant Supervisor of Wells
Oil, Gas, and Minerals Division
P.O. Box 30256
Lansing, Michigan 48909-7756