

Oil and Gas

Background

Oil and gas development began in the Pigeon River Country State Forest in July 1970, with the successful drilling and completion of the State Charlton 1-4. The resulting controversy over further development led to litigation, court orders, compromise, consent orders, and legislation. The PRCSF Hydrocarbon Development Act, 1980 PA 316; the 1980 Ingham County Circuit Court Judgment (Judgment); the 1980 Amended Stipulation and Consent Order (CO); and the 1976 Unit Agreement, as amended, established guidelines for controlled hydrocarbon development within the PRC. The PRC controversy over oil and gas development inspired the MUCC to propose a fund that became known as the Kammer Land Trust Fund, which has become the Michigan Natural Resources Trust Fund and was established in 1976. It provides for revenue from oil, gas, and mineral production on tax reverted lands statewide to be used to fund public recreation, resource protection, and acquisition of land which promotes public recreation, is environmentally significant, or has scenic beauty.

When the Concept of Management was adopted in 1973, oil and gas development in the PRC was expected under controlled circumstances, but the specifics had yet to be developed. In the years that followed, hydrocarbon development in the area covered by the CO led to drilling of 58 wells, and production of 24 wells totaling over 22 million barrels of oil and 95 billion cubic feet of natural gas as of 2005. These wells are entering a mature phase of production and contributed over \$1.6 million to the Trust Fund, and Fish and Game Fund in 2005.

In addition to the oil and gas development that was allowed by the 1980 compromises, wells have been drilled within the current PRC boundary, which falls outside the boundary of the CO. Some wells were drilled inside of the CO boundary on private land in the southern portions of the PRC, which were not part of the Unit Agreement. Since 1980, approximately 38 square miles have been added to the dedicated PRC boundary. Some of this land includes privately owned minerals, some of it is comprised of State-owned minerals with existing oil and gas wells and/or leases, and some of these added lands have been leased after their incorporation into the PRC boundary. New well applications in these areas have generally been addressed on an individual basis with no special PRC policy concerning hydrocarbon development.

Lastly, the recent interest in drilling natural gas wells into the Antrim Formation has replaced the previous interest and focus of the CO, in drilling oil and gas wells into the Guelph (aka Niagaran) Formation. As a result, many more wells have been drilled in close proximity to the PRC boundary.

Consent Order Area

The CO and amended Unit Agreement are the primary tools governing the operation and abandonment of wells within their boundaries. As the production of oil and gas declines from the wells in the CO Area, it becomes important to manage the timing and procedures for the abandonment of the wells and the restoration of the sites. In order to clarify and consolidate language from several orders, letters and agreements, the DNR and Merit Energy Company (Merit) agreed to several requirements and definitions in the Pigeon River Country State Forest Successor Unit Operator Agreement (UOA) of August 17, 2004. Specifically, three areas of special concern relating to the definition of marginal wells, site abandonment and restoration plans, and final oil and gas development plans (adopting the 1987 Final Development Plan) were addressed.

- Marginal Wells - The UOA refers to the definition from the December 15, 1980, Ingham County Circuit Court Judgment (Judgment). That Judgment defines a marginal well as “one that no longer produces in paying quantities.” Paying quantities is defined as, “that

point at which revenues from the well are less than the operating cost of the well.” The UOA requires the Unit Operator to submit an annual report to the DNR, which will include annual production records for all PRCSF wells, and an analysis of marginal and shut in wells.

- Abandonment – Prior to plugging and abandoning oil and gas wells in the PRCSF, a plugging procedure shall first be submitted and approved by the Department of Environmental Quality. A site-specific restoration plan shall be submitted to the DNR based on the criteria enclosed with the DNR’s August 20, 2004 UOA cover letter to Merit including the following requirements:

The restoration work shall not commence until the DNR has approved the restoration plan.

Pipelines (flow lines and sales lines) will be removed.

Well pads, pipelines, and the remaining Charlton 4 CPF are located in a variety of forest types. Most of these sites have a variety of vegetation present, which frequently includes exotic species. The goal is to return these sites to a forested state or in some cases, a site or part of a site may be maintained in a non-forested condition. Each site will be evaluated and addressed individually, with the general objective being to remove the exotic component and plant trees. Surface contours shall be restored, to the extent possible, to the original condition.

- Final Oil and Gas Development Plan - The Final Development Plan submitted to the DNR by Shell Western Exploration and Production, Incorporated (SWEPI), on August 3, 1987, stated that SWEPI would “...conclude exploration and drilling in the PRCSF no later than year end 1989...” The UOA, with Merit, further states that the Final Development Plan eliminates the Unit Operator’s ability for further exploration for all Unitized Substances. The Unit Agreement defines Unitized Substances as “all oil and gas in any and all formations of the unitized lands...” This effectively ends oil and gas exploration in the PRCSF within the Unit Agreement Area.

Annexed Area

An area of approximately 38 square miles has been added to the PRC boundary and is not included in the original CO Area (see map on page 4). This “Annexed Area” has potential for production from both the Antrim and Niagaran formations. The potential for Antrim production diminishes from south to north, as the formation becomes thinner and shallower until it pinches out generally north of Town Line 34 North (some Antrim potential may exist in T34N, R2W outside of the current PRCS boundary). There is no evidence at this time of other commercially productive horizons in this vicinity though this does not preclude the possibility that other productive horizons may exist.

Spacing of oil and gas wells is designed to maximize the area which can efficiently and economically be drained by one well, thereby reducing the total number of wells which are needed, and at the same time increase the ultimate production from the field. Well spacing and establishment of drilling units also provides an equitable basis to compensate mineral owners for hydrocarbons drained from their property. Nonetheless, it is possible for adverse drainage of the State’s minerals to occur around the perimeter of the PRC where a block of productive acreage may offset non-producing state acreage. Since it is the policy of the DNR to minimize or eliminate adverse drainage, and since it is appropriate for production from the PRC to continue to contribute to the Trust Fund, a policy is needed to minimize adverse drainage under terms which maintain the values of the PRC. It is possible using modern drilling technologies to directionally drill wells from outside the PRC to bottom-hole locations inside the boundary to

produce the State-owned minerals, thereby providing compensation to the State and to the Trust Fund for production of its minerals.

Some parcels in the Annexed Area have existing leases and/or wells on state and/or privately owned minerals. Abandonment and restoration of new wells and infrastructure and, if possible, of existing wells and infrastructure on state owned surface in the Annexed Area will use the same criteria as in the CO area. While the CO does not govern development of these parcels, they are subject to the contractual terms of the existing lease agreements.

Hydrocarbon Development Guidelines

The following elements constitute the guidelines for hydrocarbon development within the PRC:

- The CO Area will continue to be governed by the terms of the Judgment, the CO and the Unit Agreement, as amended. No new wells may be drilled on properties subject to the CO and Unit Agreement. The DNR will not issue new leases in this area.
- The DNR will not issue new development leases in the Annexed Area. Within the Annexed Area, the DNR is subject to existing leases. The DNR will work to implement plans of development that minimize the impacts to State-owned land. The DNR will not exercise options on existing leases to extend them beyond current terms.
- The DNR will notify the Advisory Council of proposed oil and gas development in the Annexed Area by providing copies of drilling applications and associated plans of development. The DNR will also identify the time frame available to provide comments. When time allows, the DNR will notify the Advisory Council Chair, and the Advisory Council Oil & Gas Committee Chair, when a DNR field review of development plans is scheduled.
- The following guidelines apply to any leases issued and wells drilled to prevent or reduce adverse drainage from State-owned minerals in the Annexed Area, to enable the state to capture revenue from State-owned minerals:
 - Existing drainage of State minerals must be occurring or reasonably imminent as determined by Forest, Mineral and Fire Management Division, prior to considering new wells or leases.
 - Any new leases issued will be classified Non-Development with an additional stipulation which precludes any reclassification.
 - The DNR will notify the Advisory Council Chair and the Advisory Council Oil & Gas Committee Chair when Non-Development leases are being considered.
 - All proposed wells will be subject to an approved development plan which shall, to the extent possible, use existing infrastructure to develop, produce, and market hydrocarbons, and minimize the number of wells.

Mineral Acquisition

As seen from historical developments, the State's ability to adhere to the guiding principles of the PRC is compromised when it does not control mineral rights on a given tract. It shall be a priority for the DNR to acquire mineral rights within the PRC to consolidate ownership and to provide greater control over the mineral development activities within the PRC boundary. The Pigeon River Country Advisory Council and DNR will work together to identify parcels of private mineral and surface ownership which may be available for acquisition. The Advisory Council and DNR will jointly support applications to the Michigan Natural Resources Trust Fund to consolidate State mineral and surface ownership.

When reviewing new acquisitions of property to include in the PRC, the DNR will seek to also acquire mineral rights or seek to limit development of minerals through conservation or other easements.

**A CONCEPT OF MANAGEMENT
FOR THE
PIGEON RIVER COUNTRY**



**MICHIGAN DEPARTMENT OF NATURAL RESOURCES
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