

STATE OF MICHIGAN

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1962  
SUMMARY OF OPERATIONS  
OIL AND GAS FIELDS

AS COMPILED BY  
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**CONTENTS**

Map - Oil and Gas Fields by Districts..... 1  
 General Activities..... 1  
 Table I - Exploration and Development Well Summary..... 1  
 Exploration..... 2  
 Forecast..... 2  
 Key to Core Illustrations..... 3  
 Core Illustrations..... 3  
 Generalized Columnar Section of Michigan..... 4

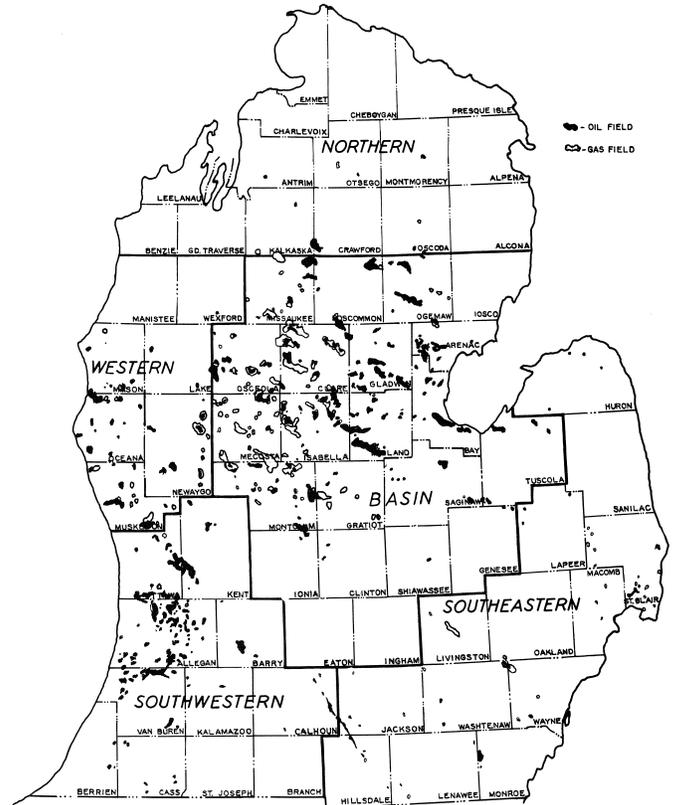
**GENERAL ACTIVITIES**

(Comparative Statistics 1961-62)

Generally speaking, oil and gas drilling activity declined from the previous year. Permits for oil and gas tests were down 14.4% with 658 permits being issued. Service wells accounted for an additional 53 permits. In 1961, there were 769 oil and gas tests and 81 service well permits issued.

As with permits, completions, excluding service wells, reworks, and deepenings, declined also "but at a somewhat lesser degree. This decline (7.4%) was equally distributed among both exploratory and development wells. Table I is a comparative summary of the exploration and development well completions for the two years in question.

**OIL AND GAS FIELDS  
SOUTHERN PENINSULA OF MICHIGAN  
BY DISTRICTS**



**TABLE I  
EXPLORATION AND DEVELOPMENT  
WELL SUMMARY**

	1961			Per- cent Success	1962			Per- cent Success
	Oil	Gas	Dry		Oil	Gas	Dry	
Exploratory Wells <sup>1</sup>	15	11	291	8.2	8	8	278	5.4
Development Wells <sup>2</sup>	182	46	195	53.9	140	54	197	49.6
Totals	197	57	486	34.3	148	62	475	30.7

1. Does not include deepenings and wells which were not directly connected with exploratory activity for 1962 (See Table IV).
2. Does not include deepenings, wells drilled in connection with underground storage, and 6 oil wells and 3 gas wells resulting from reworking of dry holes, temporarily abandoned wells, and shallower pays.

Field and exploratory drilled footage including deepenings totaled 1,896,246 feet, with 883,535 feet attributed to exploratory wells and 1,012,711 feet to development wells. An additional 133,375 feet was drilled in connection with underground storage projects.

Production figures released by the Michigan Department of Revenue showed a decrease in oil production and an increase in gas production from the previous year. In 1962, 17,114,303 barrels of oil and 27,766,129 MOP of

gas were produced. The Salina-Niagaran and Trenton-Black River formations accounted for most of the oil and gas produced.

## **EXPLORATION**

The Silurian and older sediments again played an important part in the exploratory program, but at a somewhat lesser degree than the previous year. In ascending order, a breakdown of the wildcats by systems is as follows: Precambrian 1, Cambrian 5, Ordovician 48, Silurian 106, Devonian and younger 134. The Discoveries by system were: Silurian 5, Devonian 8, and Mississippian 3.

The reported geophysical activity was quite similar to the previous year with two seismic and four gravity crews being active in the state for most of the year. As in the past, most of the surveys were conducted in the outer districts of the Basin as defined on the inside of the front cover.

The undeveloped acreage under lease picture at the end of 1962 compared favorably with the 1961 total with a small decline. Twenty-six companies reported 3,605,700 acres under lease at the end of the year. Using 22 companies who reported acreage figures for both years as a yardstick, the totals were 3,551,617 acres for 1962 and 3,718,679 acres for 1961. An estimated grand total of 4,200,000 undeveloped acres were under lease at the end of the year. The State of Michigan had 620,000 acres under lease to the oil companies at the end of the year.

## **FORECAST**

The exploration program can be expected to follow closely the pattern of the previous year with some indication of an increase. Development activity can be expected to again decline as no major discoveries were reported for 1962.

Eastern Michigan will probably again set the pace in 1963, although at a lesser degree, with the main target being the Niagaran reefs of middle Silurian. However, increased activity in western Michigan is expected with Devonian rocks as the primary target. The other district operations will be similar to the 1962 program.

Explanation for cores illustrated on page 4  
Photographs by F. W. Terwilliger

Albion-Pulaski-Scipio  
Oil and Gas Field

Sun Oil Co. - Blair #1.  
NW NE SW Sec. 20, T.4S., R.3W., Jackson County  
Producing Formation: Trenton-Black River-Ordovician.  
Depth to Trenton: 3696

Belle River Mills  
Gas Field

Sun Oil Co. - Welser & Straub #1  
NW NW NW Sec. 14, T.4N., R.16E., St. Clair County  
Producing Formation: Niagaran Reef - Silurian  
Depth to Reef: 2246

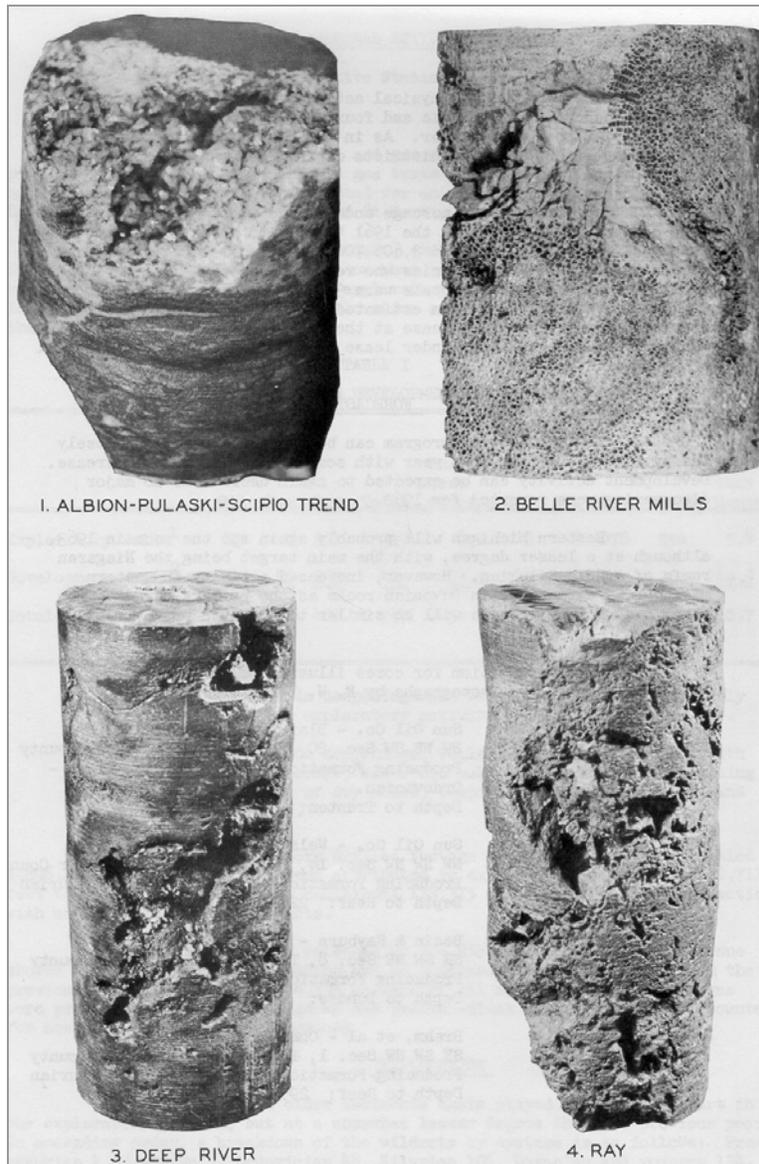
Deep River Oil Field

Basin & Rayburn - Sterling Bank #1,  
SE SW NE Sec. 8, T.19N., R.4E., Arenac County  
Producing Formation: Dundee - Devonian  
Depth to Dundee: 2777

Ray Gas Field

Brehm, et al - Ohman #1,  
SE SW NW Sec. 1, T.4N., R.13E., Macomb County  
Producing Formation: Niagaran Reef - Silurian  
Depth to Reef: 2956

**[Core Illustrations]**



**GENERALIZED COLUMNAR SECTION OF MICHIGAN**  
**MICHIGAN GEOLOGICAL SURVEY DIVISION**

SYSTEM, SERIES	FORMATION, GROUP	LITHOLOGY	THICKNESS	ECONOMIC PRODUCTS
<b>RECENT</b>				
<b>PLEISTOCENE</b>	GLACIAL DRIFT	SAND, GRAVEL, CLAY, boulders, marl	0-1000	SAND, GRAVEL, PEAT, MARL, FRESH WATER
	"PERMO-CARBONIFEROUS"	"RED-BEDS"	SHALE, CLAY, SANDY SHALE, gypsum	
<b>PENNSYLVANIAN</b>	GRAND RIVER	SANDSTONE, sandy shale	80-95	BUILDING STONE, FRESH WATER
	SAGINAW	SHALE, SANDSTONE, limestone, coal	20-535	SHALE, COAL, FRESH WATER, BRINE, GAS
<b>MISSISSIPPIAN</b>	BAY PORT	LIMESTONE, SANDY OR CHERTY LIMESTONE, SANDSTONE	2-100	LIMESTONE, FRESH WATER
	MICHIGAN	SHALE, gypsum, anhydrite, sandstone	0-500	GYPSUM
	"MICHIGAN STRAY"	SANDSTONE	0-80	GAS
	MARSHALL	SANDSTONE, sandy shale	100-400	FRESH WATER, BRINE BUILDING STONE
	COLDWATER	SHALE, sandstone, limestone	500-1100	SHALE, FRESH WATER
	SUNBURY	SHALE	0-140	
	BEREA-BEDFORD	SANDSTONE, SHALE	0-325	GAS, OIL
	ELLSWORTH-ANTRIM	SHALE, limestone	100-950	SHALE, GAS
<b>DEVONIAN</b>	TRAVERSE	LIMESTONE, SHALE	100-800	LIMESTONE, OIL, GAS, FRESH WATER
	BELL	SHALE, Limestone	0-80	SHALE
	ROGERS CITY-DUNDEE	LIMESTONE	0-475	LIMESTONE, OIL, GAS, FRESH WATER
	DETROIT RIVER	DOLOMITE, limestone, salt anhydrite	150-1400	LIMESTONE, DOLOMITE, OIL, GAS, SALT, BRINE, FRESH WATER
	SYLVANIA	SANDSTONE, SANDY DOLOMITE	0-550	GLASS SAND, FRESH WATER
	BOIS BLANC	DOLOMITE, CHERTY DOLOMITE	0-1000	
<b>SILURIAN</b>	BASS ISLAND	DOLOMITE	50-570	DOLOMITE, FRESH WATER
	SALINA	SALT, DOLOMITE, Shale, anhydrite	50-4000	SALT, GAS, OIL
	NIAGARAN (Guelph-Lockport-Engadine) (Manistique-Burnt Bluff) (Cataract)	DOLOMITE, Limestone, shale	150-800	LIMESTONE, DOLOMITE, OIL, GAS, FRESH WATER
<b>ORDOVICIAN</b>	CINCINNATIAN (Richmond) (Maysville-Eden)	SHALE, LIMESTONE	250-800	
	TRENTON-BLACK RIVER	LIMESTONE, DOLOMITE	200-1000	OIL, GAS, LIMESTONE, FRESH WATER
	ST PETER	SANDSTONE	0-150	FRESH WATER
<b>OZARKIAN OR CANADIAN</b>	PRAIRIE DU CHIEN	DOLOMITE, Shale	0-410	
	HERMANVILLE	DOLOMITE, SANDY DOLOMITE, sandstone	15-500	
<b>CAMBRIAN</b>	LAKE SUPERIOR (Munising) (Jacobsville)	SANDSTONE	500-2000	BUILDING STONE FRESH WATER
<b>ALGONKIAN</b>	KEWEENAW (Copper formations)	LAVA FLOWS, conglomerate, shale, sandstone	9800-35000	COPPER, SILVER, ROAD METAL, SEMI-PRECIOUS GEM STONES
	KILLARNEY GRANITE	GRANITE, GNEISS, diorite, syenite		
	HURONIAN (Iron formations)	SLATES, HEMATITE, SCHIST, QUARTZITE, GRANITE, marble, dolomite	2000+	IRON ORE, ROOFING SLATE, ROAD METAL, GRAPHITE MARBLE
<b>ARCHEAN</b>	LAURENTIAN	SCHIST, GNEISS, GRANITE		ROAD METAL, BUILDING STONE, VERDE ANTIQUE, TALC, GOLD
	KEEWATIN	SCHIST, GREENSTONE, SLATE		ROAD METAL