

MICHIGAN DEPARTMENT OF CONSERVATION
GEOLOGICAL SURVEY DIVISION

1953
SUMMARY OF OPERATIONS
OIL AND GAS FIELDS

Forty-five deep wildcats were drilled in twenty-nine counties. Of these deep wildcats, three reached the Trenton or deeper beds, six stopped in the Cincinnati, nineteen penetrated the Niagaran-Cataract Series, four were drilled to the Sylvania-Bois Blanc, eleven reached the Richfield, and two stopped in the Detroit River Formation. Results were the discovery of two Niagaran gas fields, three Richfield oil pools, and two Detroit River oil pools.

OIL FIELD BRINE

The production of brine from Michigan oil fields decreased during 1953 by 16,471 barrels per day as compared with the 1952 production. Michigan oil fields were producing 190,817 barrels of brine per day at the end of 1953.

Table I is a record of all Michigan oil fields which were producing in excess of 2,000 barrels per day at the end of 1953:

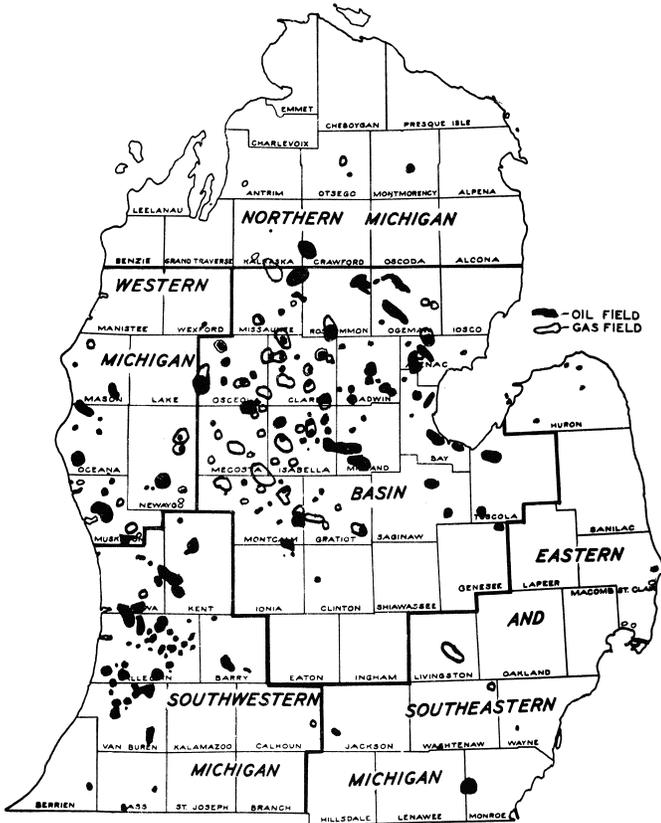
TABLE I

Field	1949	1950	1951	1952	1953
Reed City (R.C.)	33,636	32,114	32,214	34,859	30,498
Coldwater (Dd.)	12,109	14,776	17,551	21,287	22,601
Fork (Dd.)	21,224	23,398	20,494	20,695	19,109
Freeman-Redding (Dd.)	17,947	17,706	17,942	18,885	17,485
Porter (Dd.)	13,382	9,058	12,005	11,606	11,966
Kimball Lake (Tr.)	11,642	15,194	15,819	16,532	11,543
Pentwater (Tr. & Dd.)	2,005	5,459	7,201	7,233	7,473
Ewart (Dd.)	612	7,653	8,502	9,000	6,692
Adams, North (Dd.)	6,083	5,654	5,599	5,476	4,972
Stony Lake (Tr.)	1,457	2,796	4,514	4,814	4,466
Winterfield (Dd. & Rich.)	5,110	4,504	4,456	4,641	4,416
Deep River (Dd.)	135	596	953	3,898	4,368
Isabella (Dd.)	715	2,875	6,200	3,950	3,150
Prosper (Dd.)	3,213	2,917	3,363	3,060	3,060
Headquarters (Tr.)	4,930	4,216	4,470	3,085	3,042
Clayton (Dd.)	1,861	2,276	2,420	2,268	2,453
Vernon (Dd.)	3,530	3,390	2,360	2,335	2,335
Cato (Reed City)	2,815	2,526	2,728	2,760	2,320
Bloomer (Tr.)	3,689	2,933	2,233	2,384	2,179
Bloomington (Tr.)	3,689	2,933	2,233	2,384	2,159

Nearly all of the fields tabulated indicated a decrease in brine production at the end of 1953. Only the Coldwater, Deep River, Pentwater, and Porter fields had slight increases in brine production for the year. The appreciable decrease in brine production during 1953 was the result of abandonment or reworking of wells previously producing large volumes of brine.

The operators in Michigan oil fields continued their excellent record of returning production brine to approved subsurface formations. The total being returned underground, at the end of 1953 was 189,409 barrels per day. This was 99.26 per cent of the total brine produced. The less than one per cent remaining on the surface was released in small, widely scattered amounts in accordance with temporary or permanent arrangements with the operators.

The most satisfactory formations for the disposal of brine have been the Marshall, Traverse, Dundee, and Detroit River formations. Waste due to damage to property and pollution of surface and ground water resources has been eliminated by the subsurface method of oil field brine disposal.



1953

GENERAL STATEMENT

Permits issued during the year totalled 824 as compared with 694 permits issued in 1952. Of the 636 wells completed, 258 produced oil, 18 produced gas, and 360 were dry holes. Total footage drilled was 1,643,612. Wildcat footage drilled was 682,125. Oil production declined to 12,284,510 barrels - the smallest annual production since 1936. At the end of the year 133,680 acres had been proved productive of oil. The recovery was 2,706 barrels of oil per acre.

EXPLORATION

During the year core testing declined greatly. Permits were issued for 47 tests compared with 223 in 1952. Geophysical exploration, especially gravimeter, expanded considerably during the year. Of the 271 wildcat wells drilled during 1953, twenty-five were successful - a success ratio of almost 11 to 1. Results were nine new oil fields, six new gas fields, three new pay discoveries, and the extension of seven oil fields.

GENERALIZED COLUMNAR SECTION OF MICHIGAN

MICHIGAN GEOLOGICAL SURVEY DIVISION

SYSTEM, SERIES	FORMATION, GROUP	LITHOLOGY	THICKNESS	ECONOMIC PRODUCTS
RECENT				
PLEISTOCENE	GLACIAL DRIFT	SAND, GRAVEL, CLAY, boulders, marl	0-1000	SAND, GRAVEL, PEAT, MARL, FRESH WATER
"PERMO-CARBONIFEROUS"	"RED-BEDS"	SHALE, CLAY, SANDY SHALE, gypsum		
PENNSYLVANIAN	GRAND RIVER	SANDSTONE, sandy shale	80-95	BUILDING STONE, FRESH WATER
	SAGINAW	SHALE, SANDSTONE, limestone, coal	20-535	SHALE, COAL, FRESH WATER, BRINE, GAS
MISSISSIPPIAN	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
DEVONIAN	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	
SILURIAN	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
	CINCINNATIAN (Richmond) (Maysville-Eden)	SHALE, LIMESTONE	250-800	
ORDOVICIAN	TRENTON-BLACK RIVER	LIMESTONE, DOLOMITE	200-1000	OIL, GAS, LIMESTONE, FRESH WATER
	ST. PETER	SANDSTONE	0-150	FRESH WATER
OZARKIAN OR CANADIAN	PRAIRIE DU CHIEN	DOLOMITE, Shale	0-410	
	HERMANVILLE	DOLOMITE, SANDY DOLOMITE, sandstone	15-500	
CAMBRIAN	LAKE SUPERIOR (Munising) (Jacobsville)	SANDSTONE	500-2000	BUILDING STONE FRESH WATER
ALGONKIAN	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
ARCHEAN	LAURENTIAN	SCHIST, GNEISS, GRANITE		ROAD METAL, BUILDING STONE, VERDE ANTIQUE, TALC, GOLD
	KEEWATIN	SCHIST, GREENSTONE, SLATE		ROAD METAL