

STATE OF MICHIGAN

DEPARTMENT OF CONSERVATION

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GEOLOGICAL SURVEY DIVISION

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1961

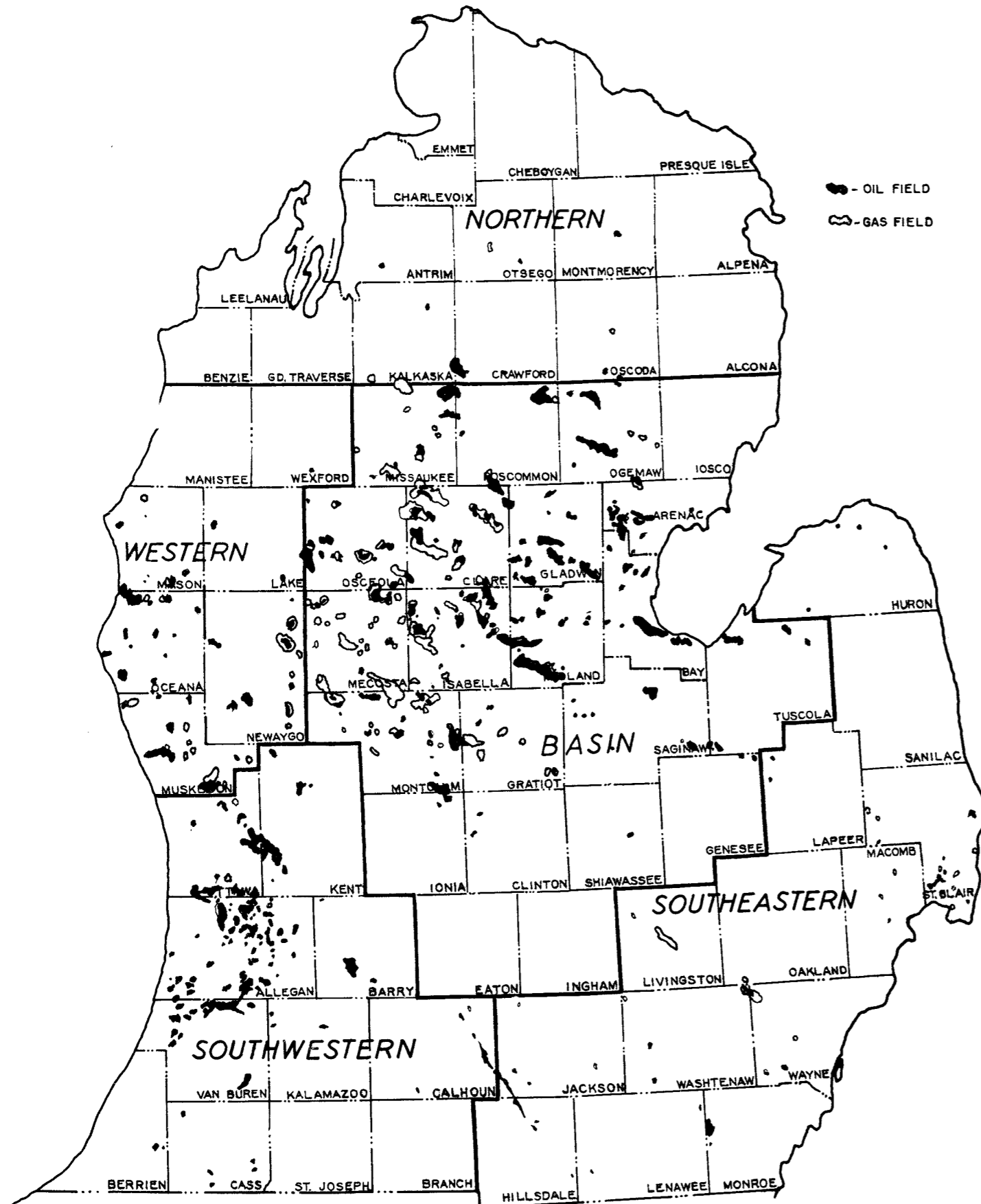
SUMMARY OF OPERATIONS
OIL AND GAS FIELDS

AS COMPILED BY
THE STAFF OF THE OIL AND GAS SECTION

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OIL AND GAS FIELDS
SOUTHERN PENINSULA OF MICHIGAN
BY DISTRICTS



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GENERAL ACTIVITIES

(Comparative Statistics 1960-61)

General oil and gas drilling statistics for 1961 reviewed a small decrease from the previous year. Permits for oil and gas tests were down 6.7% with 769 permits being issued. Service wells accounted for an additional 81 permits. In 1960, there were 824 oil and gas tests and 80 service well permits issued.

As with permits, completions excluding service wells, reworks and deepenings also declined from the previous year. This decline, 11.1%, occurred in development well drilling with exploratory well completions showing an 18.3% increase. Table I is a comparative summary of the exploration and development well completions for the two years in question:

TABLE I
EXPLORATORY AND DEVELOPMENT WELL COMPLETION SUMMARY FOR 1960 and 1961

	1960				Per- cent Success	1961				Per- cent Success
	Oil	Gas	Dry	Total		Oil	Gas	Dry	Total	
Exploratory Wells ¹	11	4	253	268	5.6	15	11	291	317	8.2
Development Wells ²	361	15	188	564	66.7	182	46	195	423	53.9
Totals	372	19	441	832	47.0	197	57	486	740	34.3

1. Does not include deepenings or wells which were not directly connected with exploratory activity for 1961.
2. Does not include wells drilled in connection with underground storage, water injection and reworks.

Field and wildcat footage totaled 2,309,437 feet with 1,002,389 feet being attributed to wildcat wells and 1,307,048 feet to development wells. An additional 170,273 feet was drilled relative to storage projects.

Production figures released by the Michigan Department of Revenue showed substantial gains in both oil and gas from the previous year. In 1961, 18,900,948 barrels of oil and 25,044,786 MCF of gas were produced. Much of the increase in gas and oil can be attributed to the Albion-Pulaski-Scipio fracture trend in the south-central part of the state.

EXPLORATION

The Silurian and older sediments played a very important part in the 1961 exploratory program. In ascending order, a breakdown of the wildcats by system is as follows: Precambrian 2, Cambrian 9, Ordovician 85, Silurian 98, Devonian and younger 123. The discoveries by system were: Ordovician 1, Silurian 14, Devonian and younger 11.

EXPLORATION - continued

The reported geophysical activity was down considerably from the previous year with only two seismic and four gravity crews being active in the state for most of the year. One resistivity crew was reported. As in the past, most of the surveys were conducted in the outer districts as defined inside the front cover.

The undeveloped acreage under lease for 1961 appeared comparative with the 1960 tabulation with an indication of a slight drop. Twenty-six companies reported 3,802,679 acres under lease. In 1960, the 18 companies who released acreage figures had 3,617,993 acres under lease. The State of Michigan had 438,530 acres under lease at the end of the year.

FORECAST

Exploration activity should be up somewhat from the 1960 level of 317 completions. However, development well activity will probably be down. This is due to the fact that most of the major new finds are fairly well drilled up. On the other hand, any new discoveries of a significant nature found in the 1962 drilling programs will affect the development program for that year.

Eastern Michigan will again be the most active drilling area as in 1961 with the main target being the Niagaran reefs of middle Silurian. Limited prospecting will be done in the south-central and southeastern part of the lower peninsula with Ordovician sediments as the objective. The south-western, western, and central Basin districts should maintain the same amount of activity as in the previous year. There also will be a small amount of drilling done in the northern district.

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



1. ALBION-PULASKI-SCIPIO TREND



3. DEEP RIVER



2. BELLE RIVER MILLS



4. RAY

TABLE II
MONTHLY SUMMARY OF OIL AND GAS OPERATIONS AND PRODUCTION FOR 1961

Month 1961	Permits Issued	COMPLETIONS					INITIAL PRODUCTION		Exploratory Wells	MONTHLY PRODUCTION				
		Oil Wells	Gas Wells	Service LPG	Service GS	Dry Holes	Oil (Bbls.)	Gas (MCF)		Oil (Bbls.)	Gas (MCF)			
January	40	20	5	0	0	47	72	1,128	58,247	33	39	1,666,501	2,464,273	
February	57	18	4	0	0	33	55	1,468	15,417	24	31	1,523,059	2,214,409	
March	43	16	3	0	0	21	40	1,083	5,175	10	30	1,666,924	2,246,715	
April	99	16	6	0	0	35	57	1,627	58,835	19	38	1,596,588	2,181,732	
May	98	18	7	4	0	38	67	980	16,827	23	40	1,662,991	2,052,783	
June	87	24	6	0	16	46	93	1,600	99,168	29	47	1,635,394	1,318,503	
July	69	14	2	0	14	45	77	838	8,700	30	31	1,540,733	2,453,373	
August	87	21	6	1	21	43	93	1,309	18,418	29	41	1,556,248	1,779,599	
September	67	14	3	0	11	41	69	1,072	35,770	27	31	1,501,596	1,854,288	
October	81	21	5	0	3	47	77	1,131	92,458	26	47	1,544,810	1,965,074	
November	67	9	7	1	0	50	67	520	107,103	36	30	1,496,601	2,058,142	
December	55	6	3	1	0	40	50	288	64,445	31	18	1,509,503	2,455,895	
Totals	850	197	57	3	69	5	486	817	13,608	580,563	317	423	18,900,948	25,044,786

Service Wells: (LPG - Liquid Petroleum Gas); (GS - Gas Storage Wells); and (OBS - Observation Wells in Gas Storage Projects)

TABLE III
MICHIGAN OPERATIONS BY DISTRICTS IN 1961

District	Permits Issued	Wells ¹		Initial Potential (MCF)		Service Wells ²		PRODUCTION		Geol. Test Permits		Wild-cat Wells		Success-ful Wildcats
		Completed	Oil Wells	Gas Wells	Initial Potential	Dry Holes	LPG	GS	Oil (Bbls.)	Gas (MCF)	Oil	Gas	Oil	
Basin	122	103	16	825	13,615	64	0	14	5,553,041	4,140,512	1	55	5	
Northern	14	11	0	0	0	11	0	0	175,778	832,275	0	11	0	
Southeastern	374	367	93	5,121	545,684	231	3	1	8,203,140	10,221,989	0	124	13	
Southwestern	256	251	75	6,431	19,164	121	0	50	4,530,888	9,289,905	0	78	3	
Western	84	85	13	667	2,100	59	0	9	438,101	260,105	0	49	5	
Totals	850	817	197	13,044	580,563	486	3	74	18,900,948	25,044,786	1	317	26	

1 - Does not include rework operations.

2 - Includes wells for Liquid Petroleum Storage (3), Gas Storage (69), and Observation Wells in Gas Storage Projects (5).

TABLE IV
1961 DISCOVERY WELLS

County	Field	Section Township Range	Operator and Lease	Permit Number	Comp. Date (Feet)	Depth (Feet)	Production		Prod. Form. and System ¹	Basis for Loc. 2
							Oil Bbls/ Day	Gas MCF/ Day		
Cass	Jefferson	26-7S-15W	Perry & Son - Kaminski #1	23290	7/25	2603	710	Not Completed	Trav-Dev.	SS
Isabella	Chippewa, 10	10-14N-3W	C. W. Collin - Darnell #1	23212	10/16	3220	3193	P 12**	Trav-Dev.	NT
Lenawee	Medina	3-8S-1E	Good & Good - Beal #GG-1	23276	9/4	3487	2897	F 20**	Trent-Ord.	SS
*Lenawee	Macon Creek	23-5S-5E	McClure - Preston #1	22834	6/24	3303	2548	P 6***	Trent-Ord.	SS
Livingston	Fowlerville	2-3N-3E	Humble Oil & Ref. - Soule Unit #1	23374	8/27	5685	3830	1,218**	Niag.-Sil.	SS-G
Macomb	Ray	1-4N-13E	Brehm et al - Ohman #1	23603	12/12	3273	2924	53,800**	Reef-Sil.	G
Macomb	Mt. Clemens	34-3N-13E	Mutch - Nyland & Ciaramitaro #1	22825	1/18	4695	2590	F 35***	A ₁ -Sil.	G
Mason	Scottville	14-18N-17W	Miller Bros. - Shaffer #1	23393	8/16	1650	1647	P 35**	Trav-Dev.	SS
Missaukee	Forward	25-21N-7W	Nuel Donley - Baas Bros. #1	23051	3/11	1406	1393	900	Stray-Miss.	SS
Montcalm	Lakeview	27-12N-8W	Hutchinson - Wandel #1	23634	11/19	2945	2941	F 45**	Trav-Dev.	NT
Oceana	Elbridge	26-15N-16W	Flory Drig. Co. - Hill #1	23325	7/20	2114	2112	P & F 80**	Trav-Dev.	SS
Oceana	Ferry, 25	25-14N-16W	Michigan Oil Co. - Mendham #1	23184	5/23	1331	1310	1,000	Berea-Miss.	SS
St. Clair	Adair	12-4N-15E	E. Brehm - Dziedzic #1	23011	4/10	2722	2719	P 45**	Niag.-Sil.	G
St. Clair	East Peters	24-4N-15E	Collin & Lenphar - Kaufman #1	22941	2/14	2607	2590	P 60** *	Sal.(A ₁)-Sil.	G
St. Clair	Capac	18-7N-13E	Fain-Porter Drlg. - Newman #1	23316	7/11	4634	4575	4,700***	Niag.-Sil	G
St. Clair	China, South	33-4N-16E	Gibson & Stratton - Babel #1	22773	2/25	2743	2324	750**	Sal.(A ₁)-Sil.	G
St. Clair	Belle River Mills	15-4N-16E	Hartman & McClure - Douglass #1	22814	1/21	2607	2215	22,800**	Reef-Sil.	G
St. Clair	Capac, South	33-7N-13E	Lanphar Co. - Glassford #1	23653	11/1	4345	4294	457***	Niag.-Sil.	G
St. Clair	Big Hand	24-5N-15E	Leonard Oil, Inc. - Brown #1	23078	4/7	2962	2894	F 35**	Niag.-Sil.	G

NEW PAYS AND NEW POOLS:

Allegan	East Pullman	5-1N-15W	Worth Exp. Company - Dubas #1	23439	8/4	2468	1645	4,800***	Sal(A ₂)-Sil.	SS-G
*Calhoun	Cal-Lee	22-1S-5W	Sun Oil Co. - Walter #1	22726	8/14	4839	3060	P 100**	Niag.-Sil.	-
Missaukee	Riverside	23-21N-7W	Sylvania & Peckham - Dieterman #1	22839	3/6	3232	3220	F 16**	Trav-Dev.	SS
Oceana	Crystal Valley	15-16N-16W	Harvey - Skidmore #2	20884	5/2	5985	4102	800**	Sal.(A ₂)-Sil.	SS
Cass	Jefferson	22-7S-15W	Hobson - Gardner #1	23513	9/27	757	748	P 30**	Trav-Dev.	SS
Oceana	Weare	12-16N-17W	Miller Bros. - Kurbatov #1	22794	1/23	1687	1683	P 5**	Trav-Dev.	SS
Osceola	North Fork	28-17N-7W	Benedum-Trees & Atha - Pattee #1	23299	7/6	3865	3864	P 12**	Dd.-Dev.	SS
St. Clair	China, South	28-4N-16E	McClure et al - Stark & Wenning #1	23428	8/12	2492	2474	392**	Sal.-Sil.	G
St. Clair	Boyd	29-4N-15E	McClure & Hartman - Gill et ux #1	23314	7/1	2661	2656	F 40**	Sal.-Sil.	G

* Not included in exploratory statistics
** Production after acid
*** Production after sandfrac

1. Stray - Michigan Stray
Trav - Traverse
Sal - Salina
A2 - A2 dolomite
A1 - A1 dolomite
Niag. - Niagaran
Trent. - Trenton
Miss. - Mississippian
Dev. - Devonian
Sil. - Silurian
Ord. - Ordovician

2. SS - Subsurface
NT - Nontechnical
G - Gravity

TABLE VII
FLUID INJECTION INTO PRODUCING FORMATIONS IN MICHIGAN OIL FIELDS

No. Field	County	Operator	Type of Project	Type of Formation	Year Comm. Opn.	Pw. Size	Inj. Fluid	Source of Fluid	INJECTION, 1961		INJECTION - CUMULATIVE		PRODUCTION, 1961		PRODUCTION - CUMULATIVE	
									Gas MCF	Water Bbls.	Gas MCF	Water Bbls.	Gas MCF	Water Bbls.	Gas MCF	Water Bbls.
1 Adams	Arenac	B.D. & P.M.	B.D. & P.M.	Trv.	15	2,032	240 Brine	Produced Brines	11,280	3,309	11,882	9	184,104			
2 Adams	Arenac	B.D. & P.M.	B.D. & P.M.	Da.	2,598	310 Brine	Produced Brines	4,164	6,108	1,182,968	21	8,975,071				
3 Adams, North	Arenac	B.D. & P.M.	B.D. & P.M.	Da.	2,595	470 Brine	Produced Brines	25,863	33,945	59,657	11	523,364				
4 Bard	Alcona	Pilot Wtr. Flood	Pilot Wtr. Flood	Da.	3,533	700 Brine	Produced Brines	11,514	27,145	292,851	20	1,426,451				
5 Beverton, South	Alcona	Sum Oil Co.	Unit	Trv.	12	3,584	700 Brine	Produced Brines	104,916	4,438	314,358	4	326,519			
6 Bally Achere	Alcona	Mobil Oil Co.	Unit	Trv.	2	2,597	20 Brine	Produced Brines	16,294	5,892	46,294	3	75,829			
7 Bevans Lake	Mecosta	B.D. & P.M.	B.D. & P.M.	Trv.	1	2,640	530 Brine	Produced Brines	215,028	34,404	504,841	10	1,761,043			
8 Bloomer	Alcona	B.D. & P.M.	B.D. & P.M.	Trv.	4	1,284	4,020 Brine	Produced Brines	395,238	16,698	485,611	32	9,899,640			
9 Bloomingdale	Van Buren	B.D. & P.M.	B.D. & P.M.	Trv.	14	3,545	3,680 Brine	Produced Brines	160,525	1,415,221	443,343	65	18,035,555		9,834	
10 Buckeye, North	Alcona	Sum Oil Co.	Unit	Trv.	14	3,545	3,680 Brine	Produced Brines	66,939	76,315	66,939	4	77,990			
11 Burdell	Oscoda	B.D. & P.M.	B.D. & P.M.	Da.-RC	6	3,578	120 Brine	Produced Brines	11,280	3,750	66,939	4	77,990			
12 Butman	Alcona	B.D. & P.M.	B.D. & P.M.	Da.	6	3,596	20 Brine	Produced Brines	3,750	3,750	66,939	4	77,990			
13 Cato	Alcona	B.D. & P.M.	B.D. & P.M.	Da.-RC	12	3,542	590 Brine	Produced Brines	391,295	57,645	586,719	17	796,804			
14 Clayton	Arenac	B.D. & P.M.	B.D. & P.M.	Da.	12	2,465	1,280 Brine	Produced Brines	676,653	92,780	11,506,182	62	5,170,072		6,295,409	
15 Coaster	Alcona	B.D. & P.M.	B.D. & P.M.	Trv.	25	3,180	70 Brine	Produced Brines	11,514	44,634	11,514	2	12,759			
16 Coaster	Alcona	B.D. & P.M.	B.D. & P.M.	Trv.	25	3,180	70 Brine	Produced Brines	11,514	44,634	11,514	2	12,759			
17 Crystal	Arenac	B.D. & P.M.	B.D. & P.M.	Da.	1	3,187	2,000 Brine	Produced Brines	409,590	1,523	1,523	3	154,327			
18 Deep River	Arenac	B.D. & P.M.	B.D. & P.M.	Da.	145	2,795	1,060 Brine	Produced Brines	2,993,500	167,693	3,246,400	55	7,469,012			
19 Diamond Springs	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	3	1,461	420 Brine	Produced Brines	95,041	5,371	65,936	8	972,207			
20 Dumplingsville	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	3	1,433	50 Brine	Produced Brines	15,576	649	15,576	1	113,723			
21 East Norvich	Misauque	P.M. - Gas & Wtr.	Unit	Rich.	13	4,398	4,560 Fresh Wtr.	Produced Brines	765,925	689,681	23,240	99	6,946,271		1,375,291	
22 Eden	Mason	Superior Oil Co.	Repressuring	Unit	15	2,240	370 Fresh Wtr.	Glacial Drift	Discontinued	1,017,639	28,670	8,453	24	2,599,245		252,779
23 Emore	Montcalm	Farmers Petr. Coop.	P.M. & B.D.	Trv.	4	3,102	500 Brine	Produced Brines	152,463	7,133,030	59,696	31	1,100,173		64,901	
24 Enterprise	Misauque	Sum Oil Co.	Unit	Rich.	15	4,205	1,280 Gas	Produced Brines	118,751	370,690	394,111	31	1,100,173		64,901	
25 Essexville	Bay	B.D. & P.M.	B.D. & P.M.	Da.	7	2,595	1,280 Brine	Produced Brines	36,320	36,320	21,169	27	1,127,375		44,028	
26 Ferry	Oshtemo	B.D. & P.M.	B.D. & P.M.	Da.	1	2,595	1,280 Brine	Produced Brines	2,308	81,769	36,928	41	2,811,778		3,267	
27 Ferry	Oshtemo	B.D. & P.M.	B.D. & P.M.	Da.	1	2,595	1,280 Brine	Produced Brines	2,308	81,769	36,928	41	2,811,778		3,267	
28 Ferry	Oshtemo	B.D. & P.M.	B.D. & P.M.	Da.	1	2,595	1,280 Brine	Produced Brines	2,308	81,769	36,928	41	2,811,778		3,267	
29 Fork	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	3	1,942	180 Brine	Produced Brines	1,143,733	1,166,614	1,143,733	18	1,346,090			
30 Freeman-Reading	Mecosta	B.D. & P.M.	B.D. & P.M.	Da.	3	1,516	770 Brine	Produced Brines	89,141	4,438	81,733	11	347,649			
31 Geneva	Van Buren	B.D. & P.M.	B.D. & P.M.	Da.	19	3,845	2,700 Brine	Produced Brines	811,730	41,203	2,458,738	25	16,281,353		1,956,096	
32 Gilets	Alcona	B.D. & P.M.	B.D. & P.M.	Trv.	2	1,042	790 Brine	Produced Brines	124,602	2,329	124,602	2	487,848			
33 Gilets	Alcona	B.D. & P.M.	B.D. & P.M.	Trv.	2	1,042	790 Brine	Produced Brines	124,602	2,329	124,602	2	487,848			
34 Grant	Alcona	B.D. & P.M.	B.D. & P.M.	Trv.	6	3,203	120 Brine	Produced Brines	74,934	6,035	74,934	2	47,347			
35 Hamilton	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	10	5,039	680 Fresh Wtr.	Glacial Drift	599,274	1,144,033	743,874	11	273,791		533,636	
36 Headquarters	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	5	5,145	1,800 Fresh Wtr.	Glacial Drift	599,274	1,144,033	743,874	11	273,791		533,636	
37 Haver	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	5	3,356	1,400 Brine	Produced Brines	575,367	17,918	575,367	7	7,376,526		1,892,298	
38 Haver	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	5	3,356	1,400 Brine	Produced Brines	575,367	17,918	575,367	7	7,376,526		1,892,298	
39 Kadowlin	Bay	Cities Service	Pilot Wtr. Flood	Unit	45	3,743	260 Fresh Wtr.	Glacial Drift	343,993	39,088	16,010	11	514,176			
40 Kadowlin	Bay	Gulf Oil Co.	Water Flood	Unit	45	2,830	6,400 Fresh Wtr.	Glacial Drift	53,772	825,141	207,404	297	11,546,983		4,590	
41 Kinball Lake	Reynolds	B.D. & P.M.	B.D. & P.M.	Trv.	6	2,332	2,120 Brine	Produced Brines	1,627,430	13,112	1,627,430	8	6,186,119		2,123,116	
42 Lake George	Alcona	B.D. & P.M.	B.D. & P.M.	Da.	1	3,968	100 Brine	Produced Brines	282,102	19,116	282,102	8	289,453			
43 Lake George	Alcona	B.D. & P.M.	B.D. & P.M.	Da.	1	3,968	100 Brine	Produced Brines	282,102	19,116	282,102	8	289,453			
44 Lake George	Alcona	B.D. & P.M.	B.D. & P.M.	Da.	1	3,968	100 Brine	Produced Brines	282,102	19,116	282,102	8	289,453			
45 Mt. Pleasant	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	11	1,959	880 Brine	Produced Brines	6,195	1,767	7,068	7	190,452			
46 Mt. Pleasant	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	11	1,959	880 Brine	Produced Brines	6,195	1,767	7,068	7	190,452			
47 Mt. Pleasant	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.	11	1,959	880 Brine	Produced Brines	6,195	1,767	7,068	7	190,452			
48 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
49 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
50 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
51 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
52 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
53 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
54 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
55 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
56 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
57 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
58 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
59 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
60 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
61 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
62 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
63 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
64 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
65 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
66 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
67 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
68 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
69 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3	1,700	3,160 Brine	Produced Brines	16,042	727,075	27,649	24	1,017,087		7,759,017	
70 Overisel	Allegan	B.D. & P.M.	B.D. & P.M.	Trv.-Da.	3											

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR DISC.	PRODUCING FORMATION	PAY ZONE		GRAV. A.P.L.	DEPTH FEET	DIPTEST TESTED	NUMBER OF OIL WELLS	OIL PRODUCTION IN BARRELS		RECOVERY PER ACRE (BARRELS)		REINE PRODUCTION		TOTAL PRODUCTION	BBLA PER DAY		
				DEPTH FEET	THICK FT/INCH					1961	1962	DRILLED ACRES	RECOVERED (BARRELS)	RECOVERED (BARRELS)	SUBSURFACE			SURFACE	
1	Adair	1961	Salina-Miagran	2719	10	D	2715	Michigan	4	0	14,574	160	94	280	0	285			
2	Adams	1937	Traverse	2032	15	L	5079	Bois Blanc	24	0	1	9	2	75	4	79			
3	Adams	1937	Dundee	2578	15	L	34-7	Bois Blanc	31	0	0	19	310	15	7	310			
4	Adams	1936	Traverse	2943	5	L	5079	Bois Blanc	31	0	0	9	1,080	0	4	4			
5	Adams, North	1940	Dundee	2905	15	D	4439	Detroit River	19	0	1	21	170	19,095	3,925	2	3,925		
6	Algon	1936	Dundee	2618	17	L	4130	Sylvania	50	0	0	38	800	80	227*	307			
7	Algon	1938	Detroit River	3122	11	D	4130	Sylvania	27	0	0	19	1,047	36	0	36			
8	Alamo	1949	Traverse	1310	2	L	1480	Traverse	16	0	2	1	27,401	160	60	0	60		
9	Albion-Eureka-Scipio-Tremont, Calhoun, Jackson, and Hillsdale Counties	1961	Michigan	3060	20	D	1912	Prairie du Chien	8	2(2 BW)	0	7	180	1,302	270	2	272		
10	Albion-Two	1936	Black River	4179	10+	D	4791	Prairie du Chien	18	5(1 BW)	0	18	360	1,353	833	0	833		
11	Albion-Two	1938	Black River	3522	7	D	4623	Prairie du Chien	125	10(3 BW)	1	124	2,480	2,078	894	221*	1,115		
12	Albion-Two	1939	Black River	4130	6	D	4520	Prairie du Chien	125	12(1 BW)	0	125	5,940,859	2,470	2,388	3,428	1,594		
13	Albion-Two	1937	Black River	3516	50+	D	4202	Prairie du Chien	128	10(1 BW)	2	124	9,395,324	2,410	3,098	921	53*	1,044	
14	Albion-Two	1939	Black River	3984	6+	D	4162	Prairie du Chien	13	4(1 BW)	0	13	568,440	320	1,776	0	82*	82	
15	Trend Total:								417	73(9 BW)	3	411	21,140,881	6,220	2,615	4,940	4,940		
16	Allagan	1937	Traverse	1963	2	L	2987	Cincinnati	18	0	1	0	19,577	180	87	-	-		
17	Archea	1946	Dundee	2577	7	L	3375	Detroit River	35	0	0	2	1,308	390	792	0	792		
18	Ashtabula, Sec. 8	1953	Traverse	2238	1	L	2239	Traverse	1	0	0	1	267	10	27	-	-		
19	Aubon	1945	Traverse	2950	4	L	3686	Detroit River	2	0	0	1	80	200	0	200			
20	Atlanta	1945	Dundee	3645	5	L	3686	Detroit River	4	0	0	4	10,694	171,463	0	2	2		
21	Atlanta	1945	Detroit River	4183	5	D	2590	Detroit River	3	0	0	1	80	30	248	0	0		
22	Audres, Sec. 11	1926	Detroit River	3822	14	L	4352	Richfield	4	0	0	3	3,457	160	163	0	0		
23	Bard	1949	Dundee	3933	6	L	4017	Dundee	17	0	0	11	523,354	170	3,079	173	0	173	
24	Barton	1947	Traverse	2927	1	L	3745	Detroit River	3	0	0	2	19,976	50	400	-	-		
25	Beaver, Sec. 31	1924	Berea	2413	16	SL	4754	Sylvania	1	0	1	0	986	10	93	-	-		
26	Beaver Creek	1947	Richfield	4160	20	D	4503	Sylvania	99	0	0	98	5,609,208	3,250	1,516	167	9	176	
27	Beaverton	1934	Dundee	3889	12	L	4295	Richfield	25	0	0	3	6,178	988,310	65	0	65		
28	Beaverton, South	1936	Dundee	3815	12	L	4295	Detroit River	33	0	0	21	28,331	10	2,049	47	5	52	
29	Beaverton, West	1943	Dundee	3876	2	L	3912	Dundee	2	1	0	2	26,743	60	446	0	0	0	
30	Belly Achers	1944	Dundee	3470	1.3	D	2635	Dundee	7	0	0	4	4,438	220	1,484	850	0	850	
31	Bentley	1937	Dundee	3510	13	L	5114	Sylvania	87	0	1	53	1,900	77	11	88	88		
32	Berlin	1922	Richfield & Sylvania	4440	14	L	5114	Sylvania	1	0	0	1	53,053	40	1,253	0	0	1,253	
33	Berlin	1920	Michigan	3800	25	Reef	4310	Cincinnati	3	0	0	3	49,515	120	677	0	0	0	
34	Bevens Lake	1921	Traverse	2927	1	L	3713	Reed City	3	0	0	3	75,822	30	2,528	110	0	110	
35	Big Hand	1961	Michigan	2898	5+	Reef	2882	Michigan	1	1	0	1	7,380	40	185	0	5*	5	
36	Billings	1949	Dundee	3549	6	L	4925	Richfield	20	0	0	19	400	2	0	2	0	2	
37	Billings, South	1920	Detroit River	4070	7	D	4925	Richfield	10	0	0	9	19,074	633,136	0	0	0	0	
38	Birch-Mela	1921	Dundee	2904	7	L	4122	Detroit River	6	0	0	6	12,069	62,774	50	1,255	0	0	
39	Birch-Mela	1921	Dundee	3536	10	L	2835	Detroit River	19	0	0	19	15,923	190	589	0	3*	3	
40	Birch Run	1924	Dundee	3536	10	L	2716	Dundee	34	0	0	34	42,397	480	677	0	10*	10	
41		1924	Berea					(Refer to abandoned fields)											

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR DISC.	PRODUCING FORMATION	PAY ZONE		GRAV. A.P.L.	DEPTH FEET	DIPTEST TESTED	NUMBER OF OIL WELLS	OIL PRODUCTION IN BARRELS		RECOVERY PER ACRE (BARRELS)		REINE PRODUCTION		TOTAL PRODUCTION	BBLA PER DAY	
				DEPTH FEET	THICK FT/INCH					1961	1962	DRILLED ACRES	RECOVERED (BARRELS)	RECOVERED (BARRELS)	SUBSURFACE			SURFACE
42	Bloomer	1944	Traverse	2610	3-3	L	3871	Detroit River	29	0	2	10	34,404	530	3,323	0	1,350	1,350
43	Bloomington	1938	Traverse	1204	4	L	3090	Trenton	429	0	3	32	16,698	4,020	2,463	19	1,774	1,774
44	Boyd	1928	Salina-Miagran	2457		Reef	2776	Clincon	31	11	0	30	259,811	1,160	106,285	224	3*	273
45	Breadsville	1943	Traverse	1061	2	L	1445	Detroit River	32	0	0	0	285,284	300	592	-	-	-
46	Buckeye, North	1936	Dundee	3615	14	L	5351	Sylvania	285	1(BW)	11	65	135,878	3,020	5,272	1,286	5	1,291
47	Buckeye, South	1936	Dundee	3570	11	L	4509	Detroit River	194	0	0	25	29,921	2,250	2,118	0	7	7
48	Burdell	1929	Dundee	3678	4	L	3804	Reed City	5	3	1	3	120	91	0	0	91	
49	Burdell	1929	Dundee	3802	2	D	3804	Reed City	1	0	0	1	48,436	40	483	34	0	34
50	Burdell	1929	Dundee	3536	6	L	5027	Sylvania	1	0	0	1	20	20	150	0	150	
51	Butam	1949	Richfield	4921	10	D	5027	Sylvania	5	0	0	5	10,656	234,461	16	0	16	
52		1920	Traverse					(Refer to abandoned fields)										
53	Cato	1944	Berea City	3542	3	D	3713	Detroit River	17	0	0	7	24,418	590	1,354	1,880	0	1,880
54	Cedar	1943	Dundee	3810	2	L	5165	Sylvania	10	0	1	7	400	1,500	0	1,500		
55	Cedar	1945	Richfield	2060	6	L	5165	Sylvania	2	0	0	2	19,896	60	2,091	0	1	1
56	Cedar	1943	Berea	2460	4	SL	3744	Detroit River	2	0	0	1	324	20	399	0	0	0
57	Chase	1943	Berea	2378	13	D	2641	Clincon	1	0	0	1	603	10	255	10	0	10
58	China, Sec. 31	1929	Salina	1393	1	L	3820	Traverse	1	1	0	1	0	0	0	0	0	0
59	Chippewa, Sec. 10	1961	Traverse	1303	2	S	3820	Dundee	7	0	0	4	1,268	66,223	0	0	0	0
60	Clare City	1932	Dundee	2465	12	SL	4163	Sylvania	79	0	1	19	66,245	1,290	0	0	0	0
61	Clayton	1947	Richfield	3700	9	D	4163	Sylvania	5	0	0	5	5,871,026	200	3,940	22	2,245	2,245
62	Clayton	1922	Detroit River	3527	9	D	4163	Sylvania	5	0	0	5	66,245	200	0	0	0	0
63	Clinton	1923	Traverse	986	2	D	3606	Trenton	2	0	0	1	Shut Down	20	105	-	-	-
64	Coaldater	1944	Dundee	3622	25	L	5090	Detroit River	81	0	0	62	448,634	1,200	6,340	29,725	0	29,725
65	Cottleville	1961	Salina-Miagran	2822	6	D	2511	Clincon	7	0	0	2	418	70	116	0	116	
66	Cranberry Lake	1943	Dundee	3835	2	L	5213	Richfield	7	0	0	0	70	8	0	0	8	
67	Cranberry Lake	1922	Traverse	4160	7	L	5213	Richfield	7	0	1	3	280	70	0	0	70	
68	Cranberry Lake	1924	Richfield	4048	15	D	5213	Richfield	17	0	0	14	49,155	680	1,350	6	6	
69	Crystal	1935	Dundee	3187	4	D	3391	Detroit River	193	0	0	8	2,000	2,000	1,100	0	1,100	
70	Crystal	1935	Dundee	2769	4	L	3391	Detroit River	2	0	0	1	16,076	50	3,810	300	0	300
71	Crystal Valley	1945	Traverse	1809	3	L	6662											

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR OF DISC.	PRODUCING FORMATION	PAY ZONE		GRAV. & P.L.	DIPPER ZONE TESTED	DEPTH IN FEET	NUMBER OF OIL WELLS				OIL PRODUCTION IN BARRELS		RECOVERY PRODUCTION		TOTAL PRODUCTION		
				DEPTH	THICK				ENTR.	COMP.	ABAND.	PROD. AT END	1961	CUMULATIVE	DRILLED ACRE	RECOVERY PER ACRE (1961)		RECOVERY PER ACRE (1961)	RECOVERY PER ACRE (1961)
86	East Berwick	1942	Richfield	4300	14	40.9	Basin Island	5520	109	0	0	97	28,927	6,946,271	1,360	1,501	57	0	57
87	Eden	1956	Detroit River SZ	4025	22	D			6	0	0	3	(1 SD)		60	1,031	0	1,031	
88		1948	Traverse	1670	3	L	34.5 Cambrian	7249	37	0	0	34	(11 SD)		370	1,048	0	1,048	
89		1948	Dundee	2945	8	D	42.8 Cambrian	7249	4	0	0	1		56,080	40	5,774	0	0	
90	Edenville	1938	Dundee	3750	8	L	41.0 Dundee	3822	36	0	0	2		2,008	370	3,661	10	2	
91	Edmore	1933	Traverse	3102	4	L	43.2 Dundee	3613	35	0	0	31		1,100,173	500	2,200	963	0	
92	Edna	1927	Traverse	2440	2	L	47.0 Dundee	3044	8	0	0	1		217	90	477	0	0	
93	Elbridge	1961	Traverse	2112	2	L	Traverse		2	2	0	2		19,044	20	922	0	2	
94	Elmwood	1945	Dundee	2740	8	L	31.3 Bois Blanc	3345	9	0	0	6	(3 SD)	19,044	90	555	0	11	
95	Elmore	1943	Richfield	4405	15	D	Richfield	4625	32	0	4	27		72,640	1,280	1,350	51	0	
96	Elmore	1944	Dundee	2838	17	L	35.3 Sylvania	4130	50	0	0	41		2,811,778	1,730	1,625	111	2	
97	Emery	1950	Traverse	3755	6	L	Sylvania	2522	22	0	0	10	(1 SD)	16,328	3,100	3,398	2,260	0	
98	Emery	1950	Traverse	2003	2	L	Traverse	2136	1	0	0	1		1,589	10	737	0	Trace	
99	Emery	1950	Traverse	1949	2	L	Traverse	1980	14	5	6	8	(1 SD)	14,050	280	479	980	0	
100	Elmore	1940	Traverse	1516	2.7	L	41.1 Salina	3045	63	0	0	11		927,649	770	1,205	72	6	
101	Fork	1942	Dundee	3045	8	L	49.0 Bois Blanc	5204	64	0	1	4		2,100	2,590	0	2,590		
102	Fork	1951	Richfield	5001	11	D	54.8 Bois Blanc	2524	1	0	0	1		7,746,102	10	2,827	0	0	
103	Fork	1951	Dundee	3788	3	D	Dundee	3855	6	1	0	1		1,519	120	1,267	0	Trace	
104	Freeman-Reading	1938	Dundee	3895	19	L	44.4 Sylvania	5462	170	0	0	25		16,287,353	2,600	5,614	8,414	0	
105	Gesam	1940	Traverse	4042	2	L	31.5 Trenton	2970	77	0	0	2		487,848	750	650	535	0	
106	Gibson, Sec. 20	1951	Dundee	3097	11	L	Detroit River	4343	3	0	0	3		10,464	30	615	0	0	
107	Gilbert Lake	1956	Traverse	2832	8	D	42.5 Reed City	2711	3	0	1	2	(1 SD)	47,347	30	1,578	15	0	
108	Gilbert Lake	1955	Dundee	3803	3	D	Dundee	3813	12	0	0	11		25,045	120	2,282	1,990	0	
109	Goodwell	1943	Traverse	2760	12	L	43.0 Basin Island	4342	31	0	0	2		1,081,012	1,240	872	3	0	
110	Grant, Sec. 29	1951	Detroit River	3358	8	D	Bois Blanc	3918	3	0	0	3		10,415	120	90	0	1	
111	Grant	1946	Dundee	5039	12	D	(Refer to abandoned fields)												
112	Grant	1958	Richfield	4601	12	D	Detroit River SZ	5240	17	0	2	14		95,877	680	837	27	1	
113	Hamilton	1940	Dundee	(Refer to abandoned fields)															
114		1952	Richfield	5145	12	D	42.2 Richfield	5325	45	0	0	34		180,292	1,800	1,200	48	0	
115	Hawver	1959	Black River	4042	100	D	43.0 Prairie duChien	4604	1	0	0	1		62,874	20	3,537	0	0	
116	Harrison	1945	Dundee	4400	13	L	39.7 Sylvania	5633	2	0	0	2		3,475	80	1,555	17	0	
117	Hendon	1941	Traverse	3356	15	D	42.3 Bois Blanc	5829	47	0	3	7		1,400	1,400	0	1,400		
118	Hendon	1952	Richfield	5147	23	D	48.9 Bois Blanc	5929	60	0	0	57		2,320	2,320	0	14		
119		1958	Dundee	3899	12	D	Dundee	5289	1	0	0	1		9,295,980	10	2,485	0	0	
120	Heath	1948	Traverse	4042	2	L	38.0 Salina	2716	25	0	1	10		3,406	270	703	0	6	
121	Hilliard	1944	Traverse	1576	1.2	L	Wagoner	3157	17	0	1	0	Aband. 1963	124,401	300	445	0	0	
122		1960	Salina	2938	30	D	On Reservoir Producing Some Oil	3147	1	0	0	0		92	0	0	0	0	
123	Ishton	1948	Traverse	1993	1	L	37.3 Dundee	2524	3	0	0	2		1,633	60	1,565	0	600	
124	Hope	1939	Traverse	1859	3	L	37.6 Prairie duChien	4944	64	0	1	42		19,064	630	793	0	6	
125	Hopkins, South	1948	Traverse	1938	3	L	38.0 Traverse	1611	35	0	0	2		1,011	330	791	0	2	
126	Hopkins, West	1941	Traverse	(Refer to abandoned fields)															
127		1956	Salina	2755	7	D	17.9 Clinton	2140	1	0	0	1		79	10	185	0	0	
128	Ruber	1955	Traverse	2109	2	L	41.3 Reed City	2730	13	0	0	11	(4 SD)	16,010	260	1,978	841	0	
129	Isabella	1948	Dundee	3783	9	D	46.9 Detroit River	3893	20	0	0	3	(1 SD)	926	370	2,209	0	0	

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR OF DISC.	PRODUCING FORMATION	PAY ZONE		GRAV. & P.L.	DIPPER ZONE TESTED	DEPTH IN FEET	NUMBER OF OIL WELLS				OIL PRODUCTION IN BARRELS		RECOVERY PRODUCTION		TOTAL PRODUCTION	
				DEPTH	THICK				ENTR.	COMP.	ABAND.	PROD. AT END	1961	CUMULATIVE	DRILLED ACRE	RECOVERY PER ACRE (1961)		RECOVERY PER ACRE (1961)
130	Jefferson	1961	Traverse	710	3	L	32.0 Prairie duChien	2603	12	12	0	12	(1 SD)	20,286	260	78	0	98
131	Jenison	1947	Dundee	3713	10	L	Detroit River	4001	12	0	0	3		207,404	260	796	7	0
132	Johnson	1951	Traverse	1870	2	L	Traverse	1899	5	0	0	2		19,036	90	381	0	0
133	Jowlesville	1938	Dundee	2830	45	L	35.0 St. Peter	10,477	390	0	20	297		6,400	6,400	453	80*	533
134		1919	Detroit River SZ	3315	5	D	42.0 St. Peter	10,447	7	0	0	6		280	280	0	1*	1
135	Kimball Lake	1941	Barna	1505	4	B	38.0 St. Peter	4044	4	0	0	4	(2 SD)	329,571	40	1,770	0	0
136		1955	Traverse	2332	6	L	39.0 St. Peter	6689	106	0	0	2		13,132	20	2,897	50	0
137		1955	Reed City	2892	37	L	39.2 St. Peter	6619	2	0	0	2		6,139,975	20	2,897	50	0
138	Lafayette	1937	Dundee	3185	12	L	Dundee	3197	1	0	0	1		21,340	10	2,114	0	0
139	Lakview	1961	Traverse	2941	4	L	Traverse	2945	1	1	0	1		0	10	0	0	0
140	Lake George	1954	Dundee	3968	2	L	43.8 Dundee	3997	19	0	1	8	(1 SD)	19,166	100	2,895	617	0
141	Leaton	1939	Traverse	1140	1	L	37.5 Trenton	2775	59	0	0	7	(4 SD)	1,767	500	323	14	2
142	Leaton	1929	Dundee	3657	7.5	L	43.0 Detroit River	4390	40	0	0	2		5,368	500	3,429	250	0
143	Lenox	1960	Salina-Wagoner	2714	46	D	Clinton	3018	On Reservoir Producing Some Oil					572	20	206	0	0
144	Lime Lake	1960	Prairie duChien	3461	5	D	44.6 Prairie duChien	3633	1	0	0	1		2,757	4,127	0	0	0
145	Lincola, Sec. 18	1957	Traverse	2717	1	L	Dundee	3062	1	0	0	1	(1 SD)	0	10	0	0	0
146	Logan	1929	Detroit River	3360	5	S	Detroit River	3330	1	0	0	1		0	10	0	0	0
147		1928	Traverse	(Refer to abandoned fields)														
148	Lucht	1949	Traverse	2230	3	L	37.2 Dundee	3240	5	0	1	2	(1 SD)	3,424	50	3,661	0	0
149	McKain	1959	Dundee	3969	15	L	45.0 Dundee	3973	24	1	0	24		154,203	920	1,105	1,496	0
150	Macom Creek	1961	Black River	2948	36	D	Trenton-Black River	3103	1	1	0	1	(1 SD)	91	10	2	0	0
151	Marathon	1951	Barna	1444	18	B	Barna	1467	4	0	0	4	(4 SD-High ORB)	186	10	5	0	0
152	Marine City	1955	Salina-Wagoner	2176	21	D	38.0 Clinton	2428	18	16	0	18		30,656	39,791	660	60	268
153	Medina	1961	Black River	2921	18	D	40 Prairie duChien	3487	1	1	0	1		972	40	24	0	Trace
154	Mills, Sec. 1	1957	Dundee	3450	2	D	Dundee	3463	1	0	0	1		91	10	479	0	7
155	Mineral Springs	1921	Dundee	3994	7	D	Dundee	3953	12	0	0	3		4,283	240	1,161	135	0
156	Mo	1946	Richfield	4419	6	D	Bois Blanc	5133	4	0	0	2		1,733	160	245	0	Trace

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR BEG. DRILLING	PRODUCING FORMATION	PAY ZONE		GRAV. A.P.L.	DEEPEST TESTED	DEPTH FEET	NUMBER OF OIL WELLS			OIL PRODUCTION IN BARRELS		BRINE PRODUCTION		TOTAL PRODUCTION	BRINE PER DAY		
				DEPTH FEET	THICK FEET				COMPL. BY END 1961	AMOUNT PROD. 1961	AMOUNT PROD. 1961	1961	1961	1961	1961			1961	1961
174	Paris Mecosta	1949	Traverse	2800	10	D	43.6	Reed City	3545	21	0	0	21,445	1,050,182	420	2,596	1,015	0	1,015
175	Pentwater Mason-Oscoda (13)	1948	Dundee	2698	10	D	43.1	Reed City	3583	143	0	0	68,646	6,160,417	2,000	4,709	4,709	0	4,709
176	Peters St. Clair	1947	Salina-Niaganan	2515	24	D	39.0	Clinton	2824	69	33	3	634,282	1,286,689	1,300	951	682	18*	710
177	Peters, East St. Clair	1961	Salina-Niaganan	2950	17	D	36.2	Detroit River	3790	12	1	1	14,433	802,592	100	8,086	450	1	451
178	Piscomung Bay	1944	Dundee	2698	7	D	45.0	Dundee	3308	2	0	0	2,735	102,330	20	5,117	75	0	75
179	Pine Montcalm	1938	Traverse	2836	1	L	45.0	Dundee	2391	2	0	0	1,081	39,559	90	440	0	2	2
181	Polkton Ottawa	1942	Traverse	3415	12	L	40.6	Sylvania	4733	528	1	19	227,086	17,710,874	6,670	7,453	10,639	4	10,643
182	Porter Midland (14)	1933	Dundee	3377	4	L	43.2	Richfield	5254	13	0	0	26,359	1,581,456	520	3,041	4,125	0	4,125
183	Prosper Missaukee	1924	Richfield	2698	1	L	43.2	Richfield	5254	13	0	0	26,359	1,581,456	520	3,041	4,125	0	4,125
184	Pullman, East Allegan	1949	Traverse	1131	2	L	39.0	Traverse	1220	25	0	0	5,578	337,438	250	1,350	147	5	152
186	Puttyguit St. Clair	1960	Salina-Niaganan	2823	60	D	36.2	Gas Reservoir Producing Zone Oil	2601	37	0	0	7,741	442,846	730	607	205	3	208
187	Ravenna Muskegon	1952	Traverse	1842	1.5	L	46.3	Detroit River	8917	288	0	0	126	5,329	15,294	1	15,295	1	15,295
188	Reed City Lake-Oscoda	1940	Dundee	3490	3	L	46.3	St. Peter	8917	288	0	0	126	5,329	15,294	1	15,295	1	15,295
189	Reed City (15)	1941	Reed City	3955	7	D	46.3	St. Peter	8917	288	0	0	126	5,329	15,294	1	15,295	1	15,295
190	Reed City Traverse	1941	Traverse	2825	5	L	45.8	St. Peter	8917	288	0	0	126	5,329	15,294	1	15,295	1	15,295
191	Reed City Richfield	1937	Richfield	4633	12	DL	43.2	St. Peter	8917	288	0	0	126	5,329	15,294	1	15,295	1	15,295
192	Reed City, East Oscoda	1955	Detroit River SZ	4184	73	DL	43.2	St. Peter	8917	288	0	0	126	5,329	15,294	1	15,295	1	15,295
193	Reed City, East Oscoda	1947	Traverse	3106	1	L	42.0	Detroit River	3840	8	0	0	9,897	309,883	80	3,760	350	0	350
194	Reeman Rosamond	1958	Traverse	2099	1	L	35.6	Traverse	2100	3	0	0	4,138	30,640	30	1,321	1,321	0	1,321
194	Reynolds Montcalm	1924	Reed City	3433	2	D	44.3	Basin Island	4300	53	0	4	43	2,100	2,926	46*	3,044	46*	3,044
195	Ridgeway, Sec. 1 Lenawee	1955	Traverse	2787	4	D	44.0	Basin Island	4300	11	2(2 BK)	0	9	342,619	1,198	573	0	573	
196	Ridgeway, Sec. 1 Lenawee	1954	Traverse	2415	4	D	44.5	Traverse	2491	1	0	0	1	1,800	10	5	0	0	
197	Riverside Missaukee	1942	Dundee	3494	1	L	44.5	Dundee	3953	1	0	0	1	47	20	0	0	0	
198	Riverton Mason	1957	Traverse	1650	6	L	43.0	Dundee	2317	19	0	4	15	80,091	1,112	408	0	408	
199	Riverton Mason	1956	Dundee	2407	7	L	44.0	Dundee	2210	2	0	0	1	142	20	283	0	1	
200	Riverson, Sec. 1 Ottawa	1945	Traverse	2804	3	L	44.0	Detroit River	2850	22	0	0	5	9,021	210	2,288	485	0	485
201	Rockford Kent	1945	Traverse	2804	3	L	44.0	Detroit River	2850	22	0	0	5	9,021	210	2,288	485	0	485
202	Rosebush Inabella	1933	Dundee	3650	6	L	42.0	Detroit River	4322	39	0	0	35	35,018	900	2,049	405	0	405
203	Rose City Ogemaw	1942	Richfield	4425	9	D	41.2	Sylvania	5367	124	3(1 BK)	1	117	193,100	4,840	894	0	42	
204	Rose Lake Oscoda	1943	Traverse	3140	5	L	45.5	Detroit River	3990	18	0	0	7	27,806	720	2,160	4	511	
205	Saginaw Saginaw	1925	Basin	1825	16	8	46.1	Sylvania	3893	1	0	0	17	6,275	1,500	1,078	0	24	
206	Salem Allegan	1937	Salina-Niaganan	1583	8	L	38.3	Traverse	4347	337	0	5	101	2,559	3,390	2,554	31	352	
207	Stairford Midland (17)	1952	Traverse	3125	2	L	42.6	Detroit River	4811	13	2	0	13	16,533	260	494	0	1	
208	Stable Lake	1942	Traverse	2111	2	L	35.6	Traverse	2156	5	0	0	2	1,825	200	700	500	0	500
209	Scottsville Mason	1961	Traverse	1646	3	L	44.0	Traverse	1650	2	2	0	2	3,275	20	164	0	17*	
210	Shelby Oscoda	1921	Traverse	1743	3	L	43.0	Dundee	2234	20	1	0	6	5,090	350	592	56	1	
211	Sherman Inabella	1936	Dundee	3650	4	D	42.0	Sylvania	4924	88	0	0	5	1,550	1,020	4,575	210	0	
212	Sheela Clare-Gladwin	1950	Dundee	3840	7	D	39.6	Sylvania	6016	5	0	0	4	1,550	1,020	4,575	210	0	
213	Shelby Oscoda	1921	Traverse	1743	3	L	43.0	Dundee	2234	20	1	0	6	5,090	350	592	56	1	
214	Shelby Oscoda	1921	Traverse	1743	3	L	43.0	Dundee	2234	20	1	0	6	5,090	350	592	56	1	
215	Springport Jackson	1960	Traverse	1646	3	L	44.0	Traverse	1650	2	2	0	2	3,275	20	164	0	17*	
216	St. Charles Saginaw	1957	Traverse	2305	3	L	43.0	Dundee	2488	1	0	0	1	1,313	10	1,102	0	0	
217	St. Helen Rosamond	1941	Richfield	4180	11	D	43.3	Salina	5440	99	0	0	80	86,752	3,960	841	0	32	

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR BEG. DRILLING	PRODUCING FORMATION	PAY ZONE		GRAV. A.P.L.	DEEPEST TESTED	DEPTH FEET	NUMBER OF OIL WELLS			OIL PRODUCTION IN BARRELS		BRINE PRODUCTION		TOTAL PRODUCTION	BRINE PER DAY	
				DEPTH FEET	THICK FEET				COMPL. BY END 1961	AMOUNT PROD. 1961	AMOUNT PROD. 1961	1961	1961	1961	1961			1961
218	Standish Arenac	1948	Richfield	4108	3	D	35.4	Richfield	4210	9	0	0	9	8,780	360	357	0	0
219	Stanton Montcalm	1951	Traverse	2916	7	DL	44.5	Dundee	3492	16	0	1	10	23,654	320	2,368	333	0
220	Sterling Arenac	1947	Dundee	2872	17	L	33.6	Richfield	4285	20	0	0	19	737,711	200	0	2	2
221	Stony Lake Oscoda	1948	Traverse	1970	5	L	36.2	Richfield	4285	22	0	0	16	164,382	390	1,282	0	0
222	Stony Lake Oscoda	1950	Richfield	5153	8	D	37.6	Richfield	4285	40	0	0	35	1,481,774	1,600	734	0	6
223	Stony Lake Oscoda	1946	Traverse	1630	19	L	44.9	Niaganan	3837	78	0	0	90	115,609	1,540	7,096	0	7,096
224	Summerfield Monroe	1949	"Beren"	290	1	SL	46.0	Niaganan	3837	2	0	0	1	52,618	20	4,701	2	2
225	Summerfield Monroe	1958	Black River	1940	10	DL	44.0	Black River	2822	1	0	0	1	1,646	10	165	0	0
226	Summerfield Monroe	1953	Traverse	2893	1	L	44.5	Dundee	3266	35	0	1	30	679,648	390	1,282	0	0
227	Sylvania Oscoda	1948	Dundee	3925	11.7	D	43.0	Dundee	4100	11	0	1	6	1,458,744	440	2,634	0	1,340
228	Tekonsha Gladwin	1959	Traverse	3553	1	DL	44.0	Prairie du Chien	4347	1	0	0	1	1,170	10	263	0	0
229	Thompson, Sec. 4 Barry	1952	Traverse	1921	2	L	44.0	Traverse	1973	2	0	1	0	2,716	20	136	0	0
230	Traverse Muskegon	1949	Traverse	2039	1	L	41.2	Traverse	2318	2	0	0	1	535	40	702	0	1
231	Trembridge Allegan	1937	Traverse	1958	2	L	41.2	Cincinnati	2928	162	0	6	20	4,879	1,840	258	165	178
232	Union Inabella	1950	Traverse	3191	1	L	44.0	Detroit River	4096	1	0	0	1	1,170	20	2,913	0	0
233	Vernon Inabella	1938	Dundee	3755	3	DL	46.0	Sois Blanche	5118	78	0	0	7	13,416	890	5,583	0	3,450
234	Walker Kent-Ottawa (21)	1940	"Beren"	1122	21	SL	36.0	St. Peter	5222	775	18	6	485	4,560,151	8,490	22	146	168
235	Wayland Allegan	1957	Detroit River	2132	12	D	46.0	St. Peter	5222	1	0	0	1	327,302	10	1,731	0	1
236	Wayland Allegan	1944	Traverse	1799	6	L	36.0	Black River	4400	54	0	2	7	1,025	530	460	0	4
237	Wayland Allegan	1957	Traverse	1696	7	L	46.0	Black River	4400	4	1	0	4	44,405	160	374	0	50*
238	Wayland Allegan	1957	Traverse	1696	7	L	46.0	Black River	4400	4	1	0	4	44,405	160	374	0	50*
239	Wayland Allegan	1957	Traverse	1696	7	L	46.0	Black River	4400	4	1							

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR OF DISC.	PRODUCING FORMATION	PAY ZONE		GRAV. A.P.L.	DIAPHR. ZONE TESTED	DEPTH IN FEET	NUMBER OF OIL WELLS			OIL PRODUCTION IN BARRELS		RECOVERY PER ACRES (TUBES)	BRINE PRODUCTION		LINE NO.				
				DEPTH	TRUCK				END TO END	COMP. IN	ABAND. IN	PROD. AT END	CUMULATIVE		DRILLED ACRES	REPAIR		REPAIR	TOTAL PRODUCTION		
255	Bauger Van Buren	1932	Traverse	1002	2	L	29.5	Tranton	2552	65	0	0	0	0	0	0	0	0	0	0	1,531
256	Benoona, Sec. 13 Oceana	1949	Traverse	1640	3	L		Detroit River	2276	2	0	0	0	0	0	0	0	0	0	0	248
257	Birch Run Saginaw	1934	Berea	1130	5	S	13.3	Dundee	2646	26	0	0	0	0	0	0	0	0	0	0	664
258	Blishop Keweenaw	1970	Traverse	2226	3	L		Traverse	2238	7	0	0	0	0	0	0	0	0	0	0	303
259	Elmore, Sec. 18 Montcalm	1936	Traverse	2717	6	L		Dundee	3138	1	0	0	0	0	0	0	0	0	0	0	81
260	Buckeye, South Gladwin	1936	Traverse	2891	2	P	12.0	Detroit River	4502	7	0	0	0	0	0	0	0	0	0	0	1,035
261	Bumell Montcalm	1935	Dundee	3105	2	L	33.9	Dundee	3125	1	0	0	0	0	0	0	0	0	0	0	103
262	Burman Gladwin	1970	Traverse	2789	2	L		Sylvania	5027	1	0	0	0	0	0	0	0	0	0	0	348
263	Casco Allegan	1940	Traverse	1097	1.5	L	36.6	Traverse	1115	2	0	0	0	0	0	0	0	0	0	0	348
264	Cedar Creek, Sec. 23 Muskegon	1949	Traverse	1971	2	L		Dundee	2953	1	0	0	0	0	0	0	0	0	0	0	1,223
265	Cherry Grove Marquette	1972	Traverse	3145	4	P		Dundee	3598	3	0	0	0	0	0	0	0	0	0	0	491
266	Cheshire Allegan	1947	Traverse	1289	2	L	35.0	Traverse	1348	1	0	0	0	0	0	0	0	0	0	0	310
267	Chester, Sec. 15 Otsego	1921	Salina	6610	5	D	17.0	Mishawaka	6870	1	0	0	0	0	0	0	0	0	0	0	69
268	Clear Lake Van Buren	1950	Traverse	1380	1	L		Traverse	1339	14	0	0	0	0	0	0	0	0	0	0	125
269	Coifree Lake Van Buren	1946	Traverse	1128	1	L		Traverse	1130	11	0	0	0	0	0	0	0	0	0	0	315
270	Colony, Sec. 5 Emmet	1921	Dundee	3739	4	D		Dundee	3743	1	0	0	0	0	0	0	0	0	0	0	547
271	Comstock, Sec. 5 Kalamazoo	1949	Traverse	1430	3	L		Traverse	1480	2	0	0	0	0	0	0	0	0	0	0	49
272	Concord Jackson	1953	Traverse	1627	1	L		Salina	2417	5	0	0	0	0	0	0	0	0	0	0	129
273	Crooked Lake Allegan	1949	Traverse	1273	1	L		Traverse	1312	2	0	0	0	0	0	0	0	0	0	0	2,686
274	Croton Keweenaw	1951	Traverse	2441	2	L		Salina	3093	10	0	0	0	0	0	0	0	0	0	0	458
275	Crump Bay	1950	Dundee	3924	7	L		Dundee	3354	1	0	0	0	0	0	0	0	0	0	0	104
276	Dallas Clinton	1942	Traverse	2482	2	L		Detroit River	2934	3	0	0	0	0	0	0	0	0	0	0	770
277	Day Montcalm	1946	Dundee	3337	2	L	13.0	Dundee	3387	2	0	0	0	0	0	0	0	0	0	0	612
278	Douglas, Sec. 3 Montcalm	1974	Traverse	3025	8	L		Dundee	3666	1	0	0	0	0	0	0	0	0	0	0	158
279	East Herrick Muskegon	1942	Dundee	3082	4	L	14.2	Sylvania	4632	1	0	0	0	0	0	0	0	0	0	0	3,125
280	Edwards Ogemaw	1944	Traverse	2410	1	L		Sylvania-Berlin Blaine	5260	1	0	0	0	0	0	0	0	0	0	0	194
281	Elkland Tuscola	1946	Dundee	2653	14	L		Sylvania	3735	2	0	0	0	0	0	0	0	0	0	0	77
282	Elkland Kalamazoo	1946	Dundee	2653	14	L		Sylvania	3735	2	0	0	0	0	0	0	0	0	0	0	77
283	Emery Keweenaw	1954	Traverse	2439	2	L		Detroit River	3018	6	0	0	0	0	0	0	0	0	0	0	120
284	Freedom Marquette	1974	Tranton	3663	20	D	13.5	Cambro-Ord.	4691	1	0	0	0	0	0	0	0	0	0	0	180
285	Frement Emmet	1938	Dundee	3596	4	D		Dundee	3700	2	0	0	0	0	0	0	0	0	0	0	102

ABANDONED FIELDS:

- (1) 9 wells includes 6 Richfield, 1 Sour Zone, 2 Richfield and Sour Zone.
- (2) 19 wells includes 2 Richfield, 12 Sour Zone, 5 Sour Zone and Dundee.
- (3) 7 wells includes 6 Tranton, 1 Muskegon.
- (4) 3 wells includes 2 Richfield, 1 Richfield and Sour Zone.
- (5) 21 wells includes 20 Dundee, 1 Dundee and Traverse.
- (6) 5 wells includes 1 Richfield, 1 Sour Zone, 1 Richfield and Sour Zone.
- (7) 14 wells includes 4 Richfield, 1 Sour Zone, 1 Richfield and Sour Zone.
- (8) 27 wells includes 4 Richfield, 1 Sour Zone.
- (9) 4 wells includes 13 Richfield, 1 Sour Zone.
- (10) 19 wells includes 19 Richfield, 2 Sour Zone, 10 Richfield & Sour Zone.
- (11) 40 wells includes 140 Dundee, 2 Traverse, 6 Dundee & Traverse.
- (12) 10 wells does not include 11 gas wells producing some oil.
- (13) 48 wells includes 34 Traverse, 27 Dundee, 37 Traverse & Dundee.
- (14) 59 wells includes 190 Dundee, 3 Traverse, 6 Dundee & Traverse.
- (15) 26 wells includes 88 Dundee-Beed City, 25 Dundee-Beed City & Traverse, 12 Traverse, 1 Berea.
- (16) 5 wells includes 30 Sour Zone, 10 Richfield, 2 Sour Zone & Richfield.

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR OF DISC.	PRODUCING FORMATION	PAY ZONE		GRAV. A.P.L.	DIAPHR. ZONE TESTED	DEPTH IN FEET	NUMBER OF OIL WELLS			OIL PRODUCTION IN BARRELS		RECOVERY PER ACRES (TUBES)	BRINE PRODUCTION		LINE NO.				
				DEPTH	TRUCK				END TO END	COMP. IN	ABAND. IN	PROD. AT END	CUMULATIVE		DRILLED ACRES	REPAIR		REPAIR	TOTAL PRODUCTION		
286	Frement, Sec. 3E Isabella	1957	Traverse	3058	2	L		Dundee	3619	1	0	0	0	0	0	0	0	0	0	0	89
287	Frement Saginaw	1946	Dundee	3125	1	L		Dundee	3140	2	0	0	0	0	0	0	0	0	0	0	100
288	Frement Barry	1949	Traverse	2031	3	L		Detroit River	2430	1	0	0	0	0	0	0	0	0	0	0	1,921
289	Garfield Clare	1946	Detroit River	5013	10	S		Sylvania	5307	1	0	0	0	0	0	0	0	0	0	0	344
290	Geneva Milan	1935	Dundee	3678	2	L	12.7	Dundee	3690	7	0	0	0	0	0	0	0	0	0	0	896
291	Ghacon Bay	1950	Dundee	2942	4	L		Detroit River	4343	1	0	0	0	0	0	0	0	0	0	0	389
292	Greenwood, Sec. 11 Clare	1952	Dundee	4054	10	L		Richfield	5432	1	0	0	0	0	0	0	0	0	0	0	132
294	Groat Gladwin	1940	Dundee	2825	4	L		Detroit River	2228	5	0	0	0	0	0	0	0	0	0	0	1,324
295	Hamilton Clare	1940	Dundee	4041	10	L	14.8	Richfield	5195	1	0	0	0	0	0	0	0	0	0	0	1,324
296	Hamlin Mason	1952	MAGRUM	4224	20	D	16.2	Cambrian	6622	1	0	0	0	0	0	0	0	0	0	0	1,513
297	Hart Oceana	1941	Traverse	1911	4	D	34.0	Dundee	2410	17	0	0	0	0	0	0	0	0	0	0	775
298	Hutton Clare	1941	Dundee	3945	2	L		Dundee	4000	4	0	0	0	0	0	0	0	0	0	0	870
299	Husband Allegan	1946	Traverse	1103	1	L	36.0	Detroit River	1385	16	0	0	0	0	0	0	0	0	0	0	427
300	Heath, Sec. 3F Allegan	1945	Traverse	1468	2	L		Traverse	1470	1	0	0	0	0	0	0	0	0	0	0	56
301	Hopkins Allegan	1939	Traverse	1633	4	L	14.5	Detroit River	1965	10	0	0	0	0	0	0	0	0	0	0	1,323
302	Hopkins, West Allegan	1941	Traverse	1371	2	L	14.5	Salina	2140	31	0	0	0	0	0	0	0	0	0	0	1,951
303	Hobbs, West Ionia	1947	Dundee	3028	5	L		Dundee	3072	5	0	0	0	0	0	0	0	0	0	0	970
304	Leora Van Buren	1946	Traverse	1110	2	L		Traverse	1206	11	0	0	0	0	0	0	0	0	0	0	433
305	Leonia Michoud	1935	Berea	2473	4	S	39.0	Dundee	2829	2	0	0	0	0	0	0	0	0	0	0	313
306	Leonaon Clinton	1948	Traverse	2548	1	L		Traverse	2570	1	0	0	0	0	0	0	0	0	0	0	104
307	Lee Allegan	1941	Traverse	1170	1	L		Traverse	1207	6	0	0	0	0	0	0	0	0	0	0	51
308	Lee, South Allegan	1949	Traverse	1171	1	L		Traverse	1422	12	0	0	0	0	0	0	0	0	0	0	759
309	Marne Ottawa	1940	"Berea"	1170	3	L		Traverse	1504	2	0	0	0	0	0	0	0	0	0	0	313
310	Martin Allegan	1948	Traverse	1617	1	L	36.0	St. Peter	4690	2	0	0	0	0	0	0	0	0	0	0	109
311	Mears Oceana	1949	Dundee	2210	3	L	22.2	Beed City	2347	3	0	0	0	0	0	0	0	0	0	0	622
312	McCarti, Sec. 3A Arcona	1951	Traverse	1745	2.5	D	36.1	Dundee	2026	11	0	0	0	0	0	0	0	0	0	0	839
313	McCarti, Sec. 3A Arcona	1953	Dundee	2904	4	L		Dundee	3026	1	0	0	0	0	0	0	0	0	0	0	3,607
314	Mc Haley Michoud	1934	Dundee	3477	3	D	39.6	Dundee	3500	1	0	0	0	0	0	0	0	0	0	0	197
315	Mc Forest, Sec. 1 Bay	1946	Dundee	2660	2	L		Dundee	3027	1	0	0	0	0	0	0	0	0	0	0	117
316	New Boston Mayne	1945	Tranton	2635	4	L		Tranton	2683	2	0	0	0	0	0	0	0	0	0	0	424
317	Milan Berrien	1																			

TABLE X
SUMMARY OF MICHIGAN OIL FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR OF DISC.	PRODUCING FORMATION	PAY ZONE		DEPTH TESTED	GRAV. A.P.I.	DEPTH FEET	NUMBER OF OIL WELLS		OIL PRODUCTION IN BARRELS		RECOVERY PERCENT (WELLS)	BRINE PRODUCTION		DRIILLED ACRES	DUELS PER DAY						
				DEPTH THICK	LITRE (GROSS)				CONP. END 1961	PROD. AT END 1961	1961	CUMULATIVE		SUBSTRATE	TOTAL PRODUCTION								
299	Pullman Allegan	1949	Traverse	1185	1 L	1942	Ben Inland	1942	9	0	0	Aband. 1951	26	880	90	268							
300	Rabbit River Allegan	1950	Traverse	1655	3 L	1676	Traverse	1676	8	0	0	Aband. 1959	12,745	80	152								
301	Richland Saginaw	1936	Traverse	2739	10 L	3654	Dundee	3654	1	0	0	Aband. 1936	3,871	10	187								
302	Secord Gladwin	1937	Dundee	3437	5 L	3500	Dundee	3500	2	0	0	Aband. 1941	12,028	20	601								
303	Sheridan, Sec. 25 Newaygo	1951	Traverse	2204	1 L	2205	Traverse	2205	1	0	0	Aband. 1955	628	10	61								
304	Sherman, Sec. 18 Isabella	1939	Traverse	3217	4 L	3835	Dundee	3835	3	0	0	Aband. 1947	1,341	20	68								
305	Wyone Kent	1952	Traverse	2979	2 L	2900	Detroit River	2900	7	0	0	Aband. 1956 (100)	31,558	140	225								
306	Victory, Sec. 10 Mason	1957	Traverse	1603	9 L	1616	Traverse	1616	1	0	0	Aband. 1958	590	10	58								
307	West, Sec. 14 Oceana	1952	Traverse	1674	1 L	2217	Dundee	2217	1	0	0	Aband. 1954	1,096	10	110								
308	West Branch Ogemaw	1913	Traverse	1786	2 L	1,012	Cambria-Ogd.	1,012	1	0	0	Aband. 1956 (Production combined with West Branch Dundee)	131,631	100	1,316								
309	Whitland Mecosta	1945	Dundee	3090	2 L	3819	Detroit River	3819	6	0	0	Aband. 1960	7,061	20	351								
310	White River Muskegon	1970	Dundee	2053	2 L	2055	Dundee	2055	1	0	0	Aband. 1951	1,437	30	148								
311	Zenland, Sec. 28 Ottawa	1954	Traverse	1451	1 L	2015	Detroit River	2015	1	0	0	Aband. 1956	1,661	109	3,359,125								
Miscellaneous Production from dry holes and abandoned pools with less than 500 barrels of production:																							
									Sub-Total Abandoned Fields:														

TABLE XI
SUMMARY OF MICHIGAN GAS FIELDS

LINE NO.	FIELD NAME AND COUNTY	YEAR OF DISC.	PRODUCING FORMATION	PAY ZONE		DEPTH TESTED	DEEPEST ZONE TESTED	DEPTH IN FEET	NUMBER OF GAS WELLS			GAS PRODUCTION IN MCF		DRIILLED ACRES	
				DEPTH THICK	LITRE (GROSS)				TO END 1961	COMP. IN 1961	ABAND. IN 1961	PROD. AT END 1961	CUMULATIVE		
1	Ashton Osceola	1946	Michigan Stray	1215	2 S	Reed City	Reed City	3779	3	0	0	1	1,052	205,680	400
2	Belle River Mills St. Clair	1961	Salina-Miagaran	2215	305 D	Miagaran	Miagaran	2607	13	13	0	13	0	0	520
3	Bevaus Lake Mecosta	1951	Dundee	3536	11 L	Reed City	Reed City	3771	2	0	0	1	11,327	599,408	320
4	Big Prairie Newaygo	1952	Michigan Stray	1244	6 S	Reed City	Reed City	3771	2	0	0	1	4,367	475,582	320
5	Big Rapids Mecosta	1944	Michigan Stray	1030	5 S	Reed City	Reed City	3322	1	0	1	0	152,864	160	
6	Big Rapids Mecosta	1943	Michigan Stray	1145	7 S	Reed City	Reed City	3595	9	0	0	3	2,333,055	1,440	
7	Boyd St. Clair	1952	Salina-Miagaran	2467	127 D	Clinton	Clinton	2772	(Combined in Oil Field Data) Refer to Oil Well Gas Production						
8	Capac St. Clair	1961	Miagaran	4505	94 D	Miagaran	Miagaran	4634	1	1	0	1	Shut in	40	
9	Capac, South St. Clair	1961	Miagaran	4294	15 D	Miagaran	Miagaran	4345	1	1	0	1	Shut in	40	
10	Cedar Osceola	1945	Michigan Stray	1190	7 S	Sylvania	Sylvania	5160	5	0	0	5	14,107	800	
11	Cherry Grove, Sec. 13 Wexford	1957	Michigan Stray	1326	35 S	Dundee	Dundee	4080	1	0	0	1	Shut in	160	
12	Chesterfield Macomb	1959	Miagaran	2504	14 D	Clinton	Clinton	2707	4	0	1	3	30,909	160	
13	China, South St. Clair	1961	Salina-Miagaran	2324	14 D	Clinton	Clinton	2743	5	5	0	5	Shut in	200	
14	Clare City Clare-Isabella	1937	Michigan Stray	1290	5 S	Dundee	Dundee	3865	8	0	0	1	Domestic Use	720	
15	Clayton Arenac	1936	Berea	1180	10 S	Sylvania	Sylvania	4163	31	0	0	18	Domestic Use	1,560	
16	Colfax Mecosta	1945	Michigan Stray	1240	8 S	Detroit River	Detroit River	4043	4	0	0	1	Domestic Use	640	
17	Cortrellville St. Clair	1957	Dundee-Reed City	3474	9 D	Detroit River	Detroit River	4043	1	0	0	1	0	160	
18	Cortrellville St. Clair	1959	Salina	2320	10 D	Clinton	Clinton	2511	3	1	1	2	7,553	80	
19	Crystal Valley Oceana	1946	Dundee	2400	7 L	Salina	Salina	3843	4	1	0	2	10,295	160	
20	Deep River Arenac	1936	Berea	4102	10 D	Trenton-Black River	Black River	5985	1	1	0	1	1,182	40	
21	Deep River Allegan	1957	Berea	1490	10 S	Sylvania	Sylvania	4311	12	0	0	3	Domestic Use	1,520	
22	Dorr Allegan	1957	Detroit River	1918	1 D	Miagaran	Miagaran	3319	1	0	0	1	Shut in	160	
23	Dorr, Sec. 17 Allegan	1951	"Berea"	953	8 D	Traverse	Traverse	1642	1	0	0	1	Domestic Use	40	
24	Dorr, Sec. 21 Allegan	1940	"Berea"	957	1 D	Traverse	Traverse	1667	1	0	0	1	Domestic Use	40	
25	Eden Mason	1958	Traverse	1960	7 L	Cambrian	Cambrian	7249	1	0	0	1	Lease Fuel	160	
26	Edenville, Sec. 5 Midland	1957	Saginaw Group	382	12 S	Dundee	Dundee	4028	3	1	0	2	Shut in	160	
27	Egalston Muskegon	1951	"Berea"	1120	5 D	Detroit River	Detroit River	2282	7	0	0	1	7,357	1,120	
28	Enaley Newaygo	1958	Marshall	826	5 S	Detroit River	Detroit River	3018	8	0	0	8	228,806	1,280	
29	Enterprise, Sec. 32 Missaukee	1953	Michigan Stray	1906	5 S	Detroit River	Detroit River	4200	2	0	0	2	Domestic Use	320	
30	Ferry, Sec. 25 Oceana	1961	"Berea"	1310	5 D	"Berea"	"Berea"	1331	1	1	0	1	Shut in	40	
31	Fillmore Allegan-Ottawa	1959	Salina	2632	32 D	Miagaran	Miagaran	3045	8	3	0	8	Shut in	1,280	
32	Fork, North Osceola	1956	Michigan Stray	1433	19 S	Reed City	Reed City	3823	1	0	0	1	Shut in	160	
33	Fork, West Mecosta	1943	Michigan Stray	1490	5 S	Sylvania	Sylvania	5198	17	0	0	2	6,410	2,880	
34	Forward Missaukee	1961	Michigan Stray	1393	7 S	Michigan Stray	Michigan Stray	1409	5	5	0	5	Shut in	800	

TABLE XIV
IMPORTANT DEEP TESTS
1961

County	Operator and Well Name	Section Township Range	Permit Number	Basis ¹ for Comp. Loc. Date	Total Depth (Feet) ²	Formation ²	System ³	Expl. Class ⁴	Status	Remarks ⁵
Allegan	Continental-Simpson #1	10-2N-12W	23685	G 11/17	4319	P.D.C.	Ord.	NFW	Dry	
Allegan	Republic-Greene #1	30-2N-11W	23361	SS 7/14	4215	P.D.C.	Ord.	NFW	Dry	East Pullman, Sel.-Niag.
Allegan	Worth Exp. Co.-Dubas #1	5-1N-15W	23439	SS 8/4	2468	Niag.	Ord.	DPT	Gas	
Barry	Indiana Farm Bureau-Brooks #1	24-3N-7W	23589	G 10/19	5568	P.D.C.	Ord.	NFW	Dry	
Barry	McClure-McClellan #1	3-4N-8W	23363	G 7/31	5663	P.D.C.	Ord.	NFW	Dry	
Barry	McClure-Schaibly #1	20-4N-7W	23572	G 12/16	5696	P.D.C.	Ord.	NFW	Dry	
Berrien	Buurma-Warman #1	34-3S-17W	23130	SS 9/8	2652	St.P.	Ord.	NFW	Dry	
Calhoun	Cities Service-Spooner #1	23-3S-7W	23292	G 6/21	4188	P.D.C.	Ord.	NFW	Dry	SO in Trenton Jefferson, Trav. Discovery
Cass	Perry & Son-Kaminski #1	26-7S-15W	23290	SS 7/25	2603	P.D.C.	Ord.	NFW	Oil	
Cass	Perry & Son-Wooden #1	8-7S-14W	23289	SS 6/12	3950	Mt. S.	Camb.	NFW	Dry	
Cass	Simpson-Kimmich #1	14-6S-14W	23698	G 11/12	2933	P.D.C.	Ord.	NFW	Dry	
Cass	Simpson-McKenzie #1	31-5S-13W	23668	G 11/1	2981	GW	Ord.	NFW	Dry	
Charlevoix	Lawton-Romaniak #1	7-32N-4W	22304	SS 11/21	5243	Cat.	Sil.	NFW	Dry	
Charlevoix	McClure-Goddard #1	19-37N-10W	23681	G-SG 12/10	3950	Ea. Cl.	Camb.	NFW	Dry	
Charlevoix	McClure-State-Beaver Island #1	27-38N-10W	23435	G-SG 9/14	5383	G.W.	Pre.C.	NFW	Dry	
Charlevoix	McClure-State-Beaver Island #2	6-37N-10W	23478	G-SG 10/27	4803	G	Pre.C.	NFW	Dry	
Clinton	Fain-Porter-Watt #1	35-8N-4W	23030	SS 3/18	5528	Sal.	Sil.	NFW	Dry	A ₁ dolomite
Hillsdale	Collin-Rynex #1	2-5S-2W	22763	NT 2/20	4378	GW	Ord.	NFW	Dry	SO in Trenton
Hillsdale	Kelly-Hostettler #1	24-6S-2W	22982	T 2/6	4150	P.D.C.	Ord.	NFW	Dry	SSO in Blk.River
Hillsdale	Leighton-Harris #1	28-7S-1W	22925	T 1/31	3661	P.D.C.	Ord.	NFW	Dry	SSO in Blk.River
Ionia	McClure-Troyer #1	28-5N-8W	23482	G 9/21	5700	P.D.C.	Ord.	NFW	Dry	
Ionia	McClure-Wildman #1	15-5N-7W	23574	G 11/16	6012	GW	Ord.	NFW	Dry	
Kalamazoo	Alexander-Bowerman #1	11-4S-10W	23004	G 2/14	3632	P.D.C.	Ord.	NFW	Dry	
Kalamazoo	Turtle Drlg. Co.-Rumsey #1	10-1S-12W	23035	G 3/10	3860	P.D.C.	Ord.	NFW	Dry	
Kent	Crawford-Hessler #1	27-9N-10W	20103	NT 7/17	6508	St. P.	Ord.	NFW	Dry	Dp. dry hole, SO in Niag.
Lenawee	American Hydrocarbons, Inc.-Wheaton #1	21-5S-1E	22781	G 1/16	4420	P.D.C.	Ord.	NFW	Dry	
Livingston	Goff-Hoffman #1	22-4N-6E	23426	G 8/4	4953	Niag.	Sil.	NFW	Dry	GSG Niag.
Livingston	Humble-Soule Unit #1	2-3N-3E	23374	G+SS 8/27	5685	Niag.	Sil.	NFW	Gas	Fowlerville Disc
Livingston	Sullivan & Leroux-McKeon #1	20-4N-6E	22995	G 2/12	4829	Cl.	Sil.	NFW	Dry	
Mason	Jetter-Carnagel Assoc. Inc. #1	20-20N-17W	22225	SS 7/20	5406	St.P.	Ord.	NFW	Dry	SG in Sal.&Tren.
Muskegon	Empire Oil Co.-Gray #1	33-9N-16W	23010	G 6/22	3637	Cat.	Sil.	NFW	Dry	SSO in A ₂ Dol.
Muskegon	Taggart-Marter #1	20-12N-17W	22909	SS 1/9	4542	Trent.	Ord.	DPT	Dry	Montague
Newaygo	Miller, Inc.-Seaman #1	15-11N-13W	22918	G 4/16	6236	St. P.	Ord.	NFW	Dry	SG in Manitoulin
Newaygo	Whitehall Oil, Inc.-Siersema #1	26-13N-14W	22866	G 1/11	5513	Cinn.	Ord.	NFW	Dry	Crystal Valley, A ₂ dolomite
Oceana	Harvey-Skidmore #2	15-16N-16W	20884	SS 5/2	4102	Sal.	Sil.	DPT	Gas	Crystal Valley VSSG in A ₁ dol. VSSG in A ₁ dol.
Oceana	Peake Petr. & Harvey-Skidmore #1	11-16N-16W	22801	SS 1/23	6062	St.P.	Ord.	DPT	Dry	Crystal Valley A ₂ dolomite
Ottawa	McClure-Wyngarden #1	32-6N-14W	23002	G 2/18	3406	Cl.	Sil.	NFW	Dry	Crystal Valley VSSG in A ₁ dol.
Presque Isle	Fain-Porter-Schweisow #1	27-34N-5E	23481	G 9/11	3373	Niag.	Sil.	NFW	Dry	VSSG in A ₁ dol.
Sanilac	Simpson-Helminger #1	20-13N-13E	23500	G 9/13	6438	Cl.	Sil.	NFW	Dry	VSSG in A ₁ dol.
Sanilac	Simpson-Zielenski #1	6-13N-14E	23616	G 10/27	6296	Niag.	Sil.	NFW	Dry	
Sanilac	Whitehall-Ode #1	25-11N-12E	22856	G 1/7	6213	Cl.	Sil.	NFW	Dry	
Shiawassee	Hadson-Dysinger #1	22-5N-2E	23376	G 11/8	7310	P.D.C.	Ord.	NFW	Dry	
Shiawassee	Hadson-Scribner #1	15-5N-3E	23375	G 9/20	6767	Blk.Rv.	Ord.	NFW	Dry	
St. Clair	Davis-Houston #1	4-8N-15E	23094	G 4/23	4536	Niag.	Sil.	NFW	Dry	Capac Disc.
St. Clair	Fain-Porter-Parker #1	28-7N-14E	23204	G 6/15	4129	Niag.	Sil.	NFW	Dry	
St. Clair	Fain-Porter-Newman #1	18-7N-13E	23316	G 7/11	4634	Niag.	Sil.	NFW	Gas	
St. Clair	Lakeland-Booth & Barr #1	31-7N-17E	22910	SS 2/7	3356	Cl.	Sil.	NFW	Dry	
St. Clair	Panhandle-Grand Trunk #1-16	16-6N-17E	23693	G 12/16	3108	Cl.	Sil.	NFW	Dry	
St. Clair	Sun Oil Co.-Evans #1	7-6N-14E	23480	G 8/25	4055	Cl.	Sil.	NFW	Dry	
Van Buren	Green-Meek #1	17-1S-14W	23460	SS 10/25	2300	Niag.	Sil.	DPT	Dry	Bloomingtondale, SSO in Niag.
Van Buren	Turtle-Kern #1	34-4S-14W	23524	SS 10/23	3117	P.D.C.	Ord.	NFW	Dry	

- SS - Subsurface Geology; NT - Nontechnical; T - Trend Geology; Gr. - Gravity; SG - Surface Geology.
- Sel. - Salina; Niag. - Niagaran; Cl. - Clinton; Cat. - Cataract; Cinn. - Cincinnati; Trent. - Trenton; Blk. R. - Black River; GW - Glenwood; S.P. - St. Peter; P.D.C. - Prairie du Chien; Mt. S. - Mt. Simon; Ea. Cl. - Eau Claire; GW - Granite Wash; Gr. - Granite
- Sil. - Silurian; Ord. - Ordovician; Cam. - Cambrian; P.C. - Precambrian.
- NFW - New Field Wildcat; D.P.T. - Deeper Pool Test.
- SO - show oil; SG - show gas

TABLE XV
ANNUAL SUMMARY OF OIL AND GAS DEVELOPMENTS BY COUNTIES FOR 1961

County	Permits Issued	COMPLETIONS						Total	PRODUCTION	
		Oil Wells	Gas Wells	LPG	GS	OBS	Dry Holes		Oil (Bbls.)	Gas (MCF)
Alcona	6	0	0	0	0	0	6	0	0	
Allegan	58	2	3	0	49	1	15	200,423	6,326,584	
Alpena	1	0	0	0	0	0	0	0	0	
Antrim	1	0	0	0	0	0	0	0	0	
Arenac	3	0	0	0	0	0	1	415,932	0	
Barry	7	0	0	0	0	0	6	20,411	0	
Bay	0	1	0	0	0	0	0	481,062	0	
Benzie	0	0	0	0	0	0	0	0	0	
Berrien	5	0	0	0	0	0	2	0	0	
Branch	6	0	0	0	0	0	6	0	0	
Calhoun	92	43	1	0	0	0	48	3,925,014	2,941,531	
Cass	54	12	0	0	0	0	31	20,286	0	
Charlevoix	4	0	0	0	0	0	4	0	0	
Cheboygan	0	0	0	0	0	0	0	0	0	
Clare	3	0	0	0	0	1	3	447,318	212,514	
Clinton	1	0	0	0	0	0	1	0	0	
Crawford	0	0	0	0	0	0	0	148,056	733,688	
Eaton	0	0	0	0	0	0	2	0	0	
Emmet	0	0	0	0	0	0	0	0	0	
Genesee	1	0	0	0	0	0	1	3,582	0	
Gladwin	7	1	0	0	0	0	2	426,950	0	
Grand Traverse	0	0	0	0	0	0	0	0	0	
Gratiot	23	0	0	0	3	0	11	164,568	11,306	
Hillsdale	57	11	0	0	0	0	39	4,177,780	2,978,349	
Huron	0	0	0	0	0	0	0	1,934	0	
Ingham	1	0	0	0	0	0	1	0	0	
Ionia	3	0	0	0	0	0	3	1,101	0	
Iosco	7	0	0	0	0	0	6	0	0	
Isabella	3	2	0	0	0	0	2	620,944	268,547	
Jackson	33	11	0	0	0	0	35	3,123,574	2,375,011	
Kalamazoo	2	0	0	0	0	0	2	635	0	
Kalkaska	0	0	0	0	0	0	0	25,910	73,014	
Kent	7	4	0	0	0	0	3	146,385	21,790	
Lake	0	0	0	0	0	0	0	7,013	0	
Lapeer	1	0	0	0	0	0	0	0	0	
Leelanau	0	0	0	0	0	0	0	0	0	

Lenawee	15	1	0	0	0	0	12	13	1,063	0
Livingston	9	0	2	0	0	0	3	5	697,139	0
Macomb	28	1	6	0	0	0	26	33	443,613	0
Manistee	0	0	0	0	0	0	0	0	0	0
Mason	17	2	0	0	0	0	12	14	91,176	8,453
Mecosta	4	0	0	0	0	0	6	6	37,743	165,672
Midland	5	3	1	0	0	0	1	5	321,221	27,649
Missaukee	26	2	5	0	0	0	7	14	786,294	617,747
Monroe	9	0	0	0	0	0	11	11	12,878	0
Montcalm	5	1	0	0	0	0	3	4	528,200	383,582
Montmorency	0	0	0	0	0	0	0	0	80	0
Muskegon	7	0	1	0	0	0	6	7	18,764	11,370
Newaygo	12	0	0	8	1	0	7	16	51,811	228,806
Oakland	7	1	0	0	0	0	5	6	9,624	1,143
Oceana	46	11	3	0	0	0	32	46	269,338	11,476
Ogemaw	5	2	3	0	0	0	1	6	440,728	796,850
Osceola	20	4	0	8	2	0	9	23	481,074	368,468
Oscoda	0	0	0	0	0	0	0	0	1,733	0
Otsego	0	0	0	0	0	0	0	0	0	25,573
Ottawa	19	14	1	0	0	0	5	20	196,884	0
Presque Isle	1	0	0	0	0	0	1	1	0	0
Roscommon	0	0	0	0	0	0	0	0	243,666	1,288,177
Saginaw	2	0	0	0	0	0	1	1	53,863	0
Sanilac	4	0	0	0	0	0	5	5	0	0
Shiawassee	2	0	0	0	0	0	2	2	0	0
St. Clair	198	68	30	1	0	0	92	191	815,726	2,301,233
St. Joseph	0	0	0	0	0	0	0	0	0	0
Tuscola	1	0	0	0	0	0	1	1	98,795	0
Van Buren	6	0	0	0	0	0	3	3	20,849	0
Washtenaw	3	0	0	0	0	0	2	2	45,248	695,643
Wayne	10	0	1	0	0	0	1	5	14,566	1,029,858
Wexford	2	0	0	0	0	0	2	2	0	0
So. Peninsula	849	197	57	3	69	5	486	817	18,900,948	25,044,786
Sub-Totals	1	0	0	0	0	0	0	0	0	0
Luce	1	0	0	0	0	0	0	0	0	0
No. Peninsula	1	0	0	0	0	0	0	0	0	0
Sub-Totals	850	197	57	3	69	5	486	817	18,900,948	25,044,786

TABLE XVI
 CUMULATIVE SUMMARY OF OIL AND GAS DEVELOPMENTS BY COUNTIES
 TO JANUARY 1, 1962

County	OIL				GAS		OBS	DRY HOLES	TOTAL COMPLETIONS	PRODUCTION	
	Oil	Gas	Storage	LPG	Gas	Gas				Oil (Bbls.)	Gas (MCF)
1. Alcona	0	0	0	0	0	0	0	20	0	0	0
2. Allegan	1,275	85	118	0	21	1,630	3,129	8	17,420,483	26,235,003	0
3. Alpena	0	0	0	0	0	8	8	0	0	0	0
4. Antrim	0	1	0	0	0	26	27	0	0	0	0
5. Arenac	402	44	0	0	0	374	820	0	43,102,082	6,722,136	0
6. Barry	72	0	0	0	0	120	192	0	540,871	0	0
7. Bay	458	1	0	0	0	209	668	0	16,553,661	7,857	0
8. Benzie	0	0	0	0	0	2	2	0	0	0	0
9. Berrien	7	0	0	0	0	54	61	0	29,672	0	0
10. Branch	0	0	0	0	0	28	28	0	0	0	0
11. Calhoun	166	6	0	0	0	154	326	0	6,705,947	3,956,942	0
12. Cass	22	0	0	0	0	95	117	0	22,079	0	0
13. Charlevoix	0	0	0	0	0	11	11	0	0	0	0
14. Cheboygan	0	0	0	0	0	11	11	0	0	0	0
15. Clare	374	170	339	0	1	336	1,220	0	30,030,130	54,829,160	0
16. Clinton	4	0	0	0	0	70	74	0	4,121	0	0
17. Crawford	78	0	0	0	0	17	95	0	4,550,772	11,113,441	0
18. Eaton	0	0	0	0	0	19	19	0	0	0	0
19. Emmet	0	0	0	0	0	3	3	0	0	0	0
20. Genesee	11	0	0	0	0	36	47	0	83,143	0	0
21. Gladwin	722	0	0	0	0	245	967	0	29,841,215	9,834	0
22. Grand Traverse	0	0	0	0	0	7	7	0	0	0	0
23. Gratiot	46	74	17	0	2	241	380	0	736,619	12,890,534	0
24. Hillsdale	139	0	0	0	0	200	339	0	9,967,921	4,262,965	0
25. Huron	5	0	0	0	0	66	71	0	41,423	0	0
26. Ingham	0	0	0	0	0	15	15	0	0	0	0
27. Ionia	9	0	0	0	0	69	78	0	380,157	0	0
28. Iosco	0	0	0	0	0	23	23	0	0	0	0
29. Isabella	648	158	0	0	0	446	1,252	0	50,100,710	32,857,199	0
30. Jackson	110	3	0	0	0	158	271	0	5,151,143	2,978,458	0
31. Kalamazoo	18	0	0	0	0	97	115	0	28,723	0	0
32. Kalkaska	22	7	0	0	0	39	68	0	1,066,006	2,025,062	0
33. Kent	455	6	0	8	1	330	800	0	8,795,707	3,602,099	0
34. Lake	18	1	0	0	0	100	119	0	2,145,492	182,438	0
35. Lapeer	5	0	0	0	0	46	51	0	186	0	0
36. Leelanau	0	0	0	0	0	9	9	0	0	0	0
37. Lenawee	2	1	0	0	0	52	55	0	1,110	0	0
38. Livingston	0	18	0	0	0	66	84	0	109	23,279,630	0
39. Macomb	2	12	0	0	0	63	77	0	637	551,268	0
40. Manistee	0	1	0	0	0	23	24	0	0	0	0
41. Mason	79	6	0	0	0	157	242	0	3,486,882	260,805	0
42. Mecosta	98	193	125	0	1	345	762	0	90,090,572	30,076,718	0
43. Midland	897	2	0	2	0	260	1,161	0	64,479,822	12,394,610	0
44. Missaukee	167	50	83	0	0	162	462	0	10,312,350	7,995,236	0
45. Monroe	39	0	0	0	0	94	133	0	641,482	0	0
46. Montcalm	372	220	99	0	0	520	1,211	0	15,860,961	52,043,034	0
47. Montmorency	3	1	0	0	0	17	21	0	7,451	0	0
48. Muskegon	427	119	0	0	0	334	880	0	7,630,654	9,725,859	0
49. Newaygo	194	46	61	0	2	321	624	0	8,514,265	12,781,940	0
50. Oakland	5	2	0	0	0	54	61	0	21,998	12,951	0
51. Oceana	308	7	0	0	0	388	703	0	13,893,169	1,161,911	0
52. Ogemaw	493	14	0	0	0	155	662	0	14,249,903	3,206,329	0
53. Osceola	332	107	93	0	2	301	835	0	49,563,131	43,417,376	0
54. Oscoda	2	0	0	0	0	9	11	0	21,208	0	0
55. Otsego	1	8	0	0	0	28	37	0	2,990	219,809	0
56. Ottawa	448	18	0	0	2	430	899	0	7,457,898	1,305,912	0
57. Presque Isle	0	0	0	0	0	4	4	0	0	0	0
58. Roscommon	180	14	0	0	0	99	293	0	9,796,288	6,807,897	0
59. Saginaw	378	2	0	0	0	169	549	0	2,202,541	0	0
60. Sanilac	0	0	0	0	0	26	26	0	0	0	0
61. Shiawassee	1	0	0	0	0	48	49	0	236	0	0
62. St. Clair	134	47	1	0	0	264	445	0	1,642,793	5,738,761	0
63. St. Joseph	0	0	0	0	0	13	13	0	0	0	0
64. Tuscola	139	1	0	0	0	96	236	0	1,829,734	0	0
65. Van Buren	705	0	0	0	0	944	1,649	0	11,903,810	0	0
66. Washtenaw	8	17	0	0	0	79	104	0	573,321	5,588,042	0
67. Wayne	7	19	0	12	0	43	81	0	97,436	6,531,476	0
68. Wexford	1	1	0	0	0	41	43	0	4,814	0	0
Sub-Totals (So. Pen.)	10,488	1,482	936	22	32	10,919	23,879	0	460,585,828	384,772,692	0
69. Chippewa	0	0	0	0	0	4	4	0	0	0	0
70. Delta	0	0	0	0	0	1	1	0	0	0	0
71. Luce	0	0	0	0	0	1	1	0	0	0	0
72. Mackinac	0	0	0	0	0	2	2	0	0	0	0
73. Schoolcraft	0	0	0	0	0	2	2	0	0	0	0
Sub-Totals (No. Pen.)	0	0	0	0	0	10	10	0	0	0	0
State Totals	10,488	1,482	936	22	32	10,929	23,889	0	460,585,828	384,772,692	0

TABLE XVII
OIL AND GAS ACTIVITIES IN MICHIGAN

Year	WELL COMPLETIONS										Fields or Pools WELLS AT END OF YEAR					NET ABD. WELLS			
	Permits Issued		Oil		Gas		OBS		Dry		Total		Discovered		OBS & GS		Inj.		
	Oil	Gas	Oil	Gas	OBS	LPG	Holes	Total	Oil	Gas	Oil	Gas	Oil	Gas	LPG	SR	Oil	Gas	
1925	0	3	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	27*
1926	0	89	0	0	0	0	16	105	16	105	0	0	0	0	0	0	98	98	2
1927	16	218	3	0	0	0	46	267	46	267	1	1	1	1	0	0	37	37	12
1928	283	79	30	0	0	0	49	158	49	158	1	1	0	0	0	0	126	126	0
1929	576	324	22	0	0	0	137	483	137	483	0	0	0	0	0	0	129	129	6
1930	257	154	19	0	0	0	158	331	158	331	2	2	0	0	0	0	140	140	16
1931	111	59	17	0	0	0	52	128	52	128	0	0	0	0	0	0	204	204	26
1932	184	109	10	0	0	0	64	183	64	183	1	1	0	0	0	0	217	217	21
1933	429	223	10	0	0	0	85	318	85	318	3	3	0	0	0	0	302	302	19
1934	444	272	47	0	0	0	150	469	150	469	3	3	0	0	0	0	313	313	34
1935	700	319	101	0	0	0	221	641	221	641	1	1	0	0	0	0	211	211	15
1936	777	333	206	0	0	0	268	807	268	807	6	6	0	0	0	0	131	131	22
1937	973	622	66	0	0	0	267	955	267	955	17	8	0	0	0	0	171	171	39
1938	996	580	27	0	0	0	411	1,018	411	1,018	8	8	0	0	0	0	199	199	52
1939	1,465	845	56	0	0	0	578	1,479	578	1,479	11	11	0	0	0	0	168	168	45
1940	1,121	557	59	0	0	0	565	1,181	565	1,181	10	10	0	0	0	0	239	239	48
1941	1,044	441	97	0	0	0	413	951	413	951	7	7	0	0	0	0	306	306	21
1942	570	297	74	0	0	0	311	682	311	682	14	4	0	0	0	0	349	349	68
1943	627	233	47	0	0	0	355	635	355	635	12	8	0	0	0	0	175	175	54
1944	741	246	64	0	0	0	400	710	400	710	10	6	0	0	0	0	200	200	19
1945	755	271	57	6	0	0	467	801	467	801	11	11	0	0	0	0	270	270	54
1946	822	223	53	86	0	0	461	823	461	823	19	10	0	0	0	0	193	193	57
1947	886	318	43	148	0	0	387	896	387	896	4	5	0	0	0	0	148	148	8
1948	918	371	32	77	0	0	437	917	437	917	10	2	0	0	0	0	228	228	23
1949	999	439	22	73	0	0	473	1,007	473	1,007	21	21	0	0	0	0	134	134	5
1950	901	336	28	47	0	0	473	884	473	884	14	2	0	0	0	0	198	198	3
1951	744	227	20	43	0	0	466	757	466	757	13	5	0	0	0	0	130	130	75
1952	694	261	30	51	0	0	370	714	370	714	8	4	0	0	0	0	147	147	-72
1953	824	258	18	110	0	0	360	747	360	747	9	6	0	0	0	0	133	133	5
1954	573	214	15	2	0	0	338	571	338	571	13	3	0	0	0	0	130	130	75
1955	484	204	13	1	0	0	291	510	291	510	5	2	0	0	0	0	147	147	-72
1956	476	196	12	28	0	0	227	463	227	463	5	0	0	0	0	0	133	133	5
1957	461	176	40	35	0	0	207	461	207	461	10	3	0	0	0	0	136	136	8
1958	481	166	20	35	1	3	227	453	227	453	5	2	0	0	0	0	148	148	23
1959	727	256	48	49	23	4	272	652	272	652	6	6	0	0	0	0	130	130	75
1960	904	372	19	76	3	1	441	912	441	912	5	4	0	0	0	0	147	147	-72
1961	849	197	57	69	5	3	486	817	486	817	15	11	0	0	0	0	133	133	5
Totals	23,812	10,488	1,482	936	32	22	10,929	23,889	280	136	136	280	136	280	21	260	5,869	5,869	738

*Accumulative abandonments through 1931.

TABLE XVIII
OIL, GAS, AND BRINE PRODUCTION IN MICHIGAN

Year	OIL PRODUCTION		GAS PRODUCTION		BRINE PRODUCTION AND DISPOSAL (BBLs. PER DAY)	
	Annual (Bbls.)	Accumulative (Bbls.)	Annual (M.C.F.)	Accumulative (M.C.F.)	Pits	Roads Chem. Co. Subsurface Total
1925	4,000	4,000	1,962,599	1,962,599	8,342	21,849
1926	94,000	98,000	2,369,550	4,332,149	6,748	31,211
1927	435,928	533,928	594,509	4,926,658	4,901	48,579
1928	592,620	1,126,548	1,432,159	6,358,817	5,206	62,822
1929	4,641,239	5,767,787	1,697,188	8,056,005	3,540	78,484
1930	3,928,229	9,696,016	3,008,085	11,064,090	4,725	83,722
1931	3,785,633	13,481,649	5,553,855	16,617,945	4,963	89,207
1932	6,925,665	20,407,314	6,864,726	23,482,671	3,964	102,090
1933	7,941,995	28,349,309	9,310,844	32,793,515	2,352	107,973
1934	10,602,759	38,952,068	9,232,509	42,026,024	2,307	121,385
1935	15,776,237	54,728,305	10,137,003	52,163,027	1,883	132,843
1936	11,918,013	66,646,318	14,126,364	66,289,391	2,307	143,346
1937	16,628,344	83,274,662	15,092,464	81,381,855	1,495	158,422
1938	18,744,709	102,019,371	17,749,294	99,131,149	1,541	172,781
1939	23,462,095	125,481,466	19,581,420	118,712,569	1,212	188,179
1940	19,753,103	145,234,569	14,126,364	139,966,472	1,623	199,327
1941	16,358,717	161,593,286	15,092,464	154,058,933	1,500	207,288
1942	21,753,771	183,347,057	17,749,294	171,478,262	147	202,361
1943	20,767,724	204,114,781	19,581,420	191,059,685	175	190,817
1944	18,489,470	222,604,251	21,253,903	212,272,569	120	194,078
1945	17,267,493	239,871,744	23,298,548	235,568,117	609	202,361
1946	17,074,518	256,946,262	23,774,495	259,342,612	2	196,563
1947	16,215,613	273,161,875	23,954,925	283,297,537	0	195,630
1948	16,871,046	290,032,921	21,369,587	304,667,124	0	179,231
1949	16,517,333	306,550,254	14,660,247	319,227,371	0	172,605
1950	15,826,148	322,376,402	12,614,024	331,841,395	0	170,997
1951	13,926,518	336,302,920	10,524,495	342,365,890	0	157,855
1952	13,249,428	349,552,348	8,677,737	351,043,627	0	157,855
1953	12,284,510	361,836,858	7,089,985	358,133,612	0	157,855
1954	12,088,059	373,924,917	5,698,175	363,831,787	0	157,855
1955	11,265,832	385,190,749	6,787,697	370,619,484	0	157,855
1956	10,739,697	395,930,446	8,840,933	379,460,417	0	157,855
1957	10,168,602	406,099,048	6,639,813	386,100,230	0	157,855
1958	9,308,018	415,347,066	10,964,378	397,064,608	0	157,855
1959	10,438,608	425,785,674	15,626,227	412,690,835	0	157,855
1960	15,899,206	441,684,880	19,240,168	431,930,993	0	157,855
1961	18,900,948	460,585,828	25,044,786	456,975,779	0	157,855

TABLE XIX

ANNUAL OIL PRODUCTION BY FORMATIONS, BBLs.

Year	Marshall	Berea	Traverse	Dundee	Detroit River	Salina-Niagaran	Trenton	Yearly Totals
1925		4,000						4,000
1926		94,000						94,000
1927		434,000	482	1,446				435,928
1928		231,000	83,650	277,970				592,620
1929		113,559	789,645	3,738,035				4,641,239
1930		89,387	330,510	3,508,332				3,928,229
1931		61,876	152,787	3,570,970				3,785,633
1932		63,616	145,176	6,716,873				6,925,665
1933		55,066	143,630	7,743,299				7,941,995
1934		48,226	223,336	10,331,197				10,602,759
1935		63,305	174,992	15,537,778			162	15,776,237
1936		93,599	134,888	11,681,886			7,640	11,918,013
1937		62,877	509,299	16,047,245			8,923	16,628,344
1938	2,879	51,119	2,488,753	16,194,612			7,346	18,744,709
1939	4,532	39,413	10,506,884	12,877,772	14,000		19,494	23,462,095
1940	3,875	34,154	8,717,972	10,879,392	9,125		108,585	19,753,103
1941	5,504	43,764	4,455,607	11,695,296	73,763		84,783	16,358,717
1942	4,486	53,570	5,475,975	16,030,753	119,698		69,289	21,753,771
1943	4,118	50,310	4,858,236	15,623,591	180,282		51,187	20,767,724
1944	4,057	47,464	4,348,587	13,710,179	344,550		34,633	18,489,470
1945	3,876	42,485	2,943,994	13,651,857	598,240		27,041	17,267,493
1946	4,175	32,132	2,332,730	14,064,533	616,651		24,297	17,074,518
1947	3,263	32,794	3,157,115	12,443,546	556,028		22,867	16,215,713
1948	3,079	30,311	4,200,258	11,702,520	916,179		18,699	16,871,046
1949	2,890	28,965	4,280,674	10,575,987	1,615,211		13,606	16,517,333
1950	2,175	28,996	4,442,243	9,516,523	1,820,598		15,613	15,826,148
1951	1,609	27,254	3,689,227	8,242,103	1,952,899		13,426	13,926,518
1952	1,989	24,596	3,397,823	7,297,355	2,504,094	2,599	20,972	13,249,428
1953	1,420	22,026	2,997,465	6,599,408	2,632,204	24,800	7,187	12,284,510
1954	1,875	22,217	2,448,105	6,403,314	2,968,874	15,692	167,982	12,028,059
1955	1,662	26,193	2,048,256	5,959,338	3,101,121	11,258	118,004	11,265,832
1956	1,678	24,356	1,974,389	5,635,689	2,993,166	8,262	102,157	10,739,697
1957	1,830	19,926	1,805,959	5,342,961	2,811,865	24,082	161,979	10,168,602
1958	1,583	19,462	1,448,231	4,525,729	2,573,017	131,956	608,040	9,308,018
1959	1,430	20,702	1,511,950	4,155,217	2,238,621	392,527	2,118,161	10,438,608
1960	1,270	19,149	1,501,307	3,987,425	2,005,871	379,806	8,004,378	15,899,206
1961	1,268	16,945	1,380,081	3,539,682	1,748,644	916,157	11,298,171	18,900,948

These data include estimates for multiple pay wells and leases when an accurate breakdown was not available.

TABLE XX

ACCUMULATIVE OIL PRODUCTION BY FORMATIONS, BBLs.

Year	Marshall	Berea	Traverse	Dundee	Detroit River	Salina-Niagaran	Trenton	Cumulative Totals
1925		4,000						4,000
1926		98,000						98,000
1927		532,000	482	1,446				533,928
1928		763,000	84,132	279,416				1,126,548
1929		876,559	873,777	4,017,451				5,767,787
1930		965,946	1,204,287	7,525,783				9,696,016
1931		1,027,822	1,357,074	11,096,753				13,481,649
1932		1,091,438	1,502,250	17,813,626				20,407,314
1933		1,146,504	1,645,880	25,556,925				28,349,309
1934		1,194,730	1,869,216	35,888,122				38,952,068
1935		1,258,035	2,044,208	51,425,900			162	54,728,305
1936		1,351,634	2,179,096	63,107,786			7,802	66,646,318
1937		1,414,511	2,688,395	79,155,031			16,725	83,274,662
1938	2,879	1,465,630	5,177,148	95,349,643			24,071	102,019,371
1939	7,411	1,505,043	15,684,032	108,227,415	14,000		43,565	125,481,466
1940	11,286	1,539,197	24,402,004	119,106,807	23,125		152,150	145,234,569
1941	16,790	1,582,961	28,857,611	130,802,103	96,888		236,933	161,593,286
1942	21,276	1,636,531	34,333,586	146,832,856	216,586		306,222	183,347,057
1943	25,394	1,686,841	39,191,822	162,456,447	396,868		357,409	204,114,781
1944	29,451	1,734,305	43,540,409	176,166,626	741,418		392,042	222,604,251
1945	33,327	1,776,790	46,484,403	189,818,483	1,339,658		419,083	239,871,744
1946	37,502	1,808,922	48,817,133	203,883,016	1,956,309		443,380	256,946,262
1947	40,765	1,841,716	51,974,248	216,326,562	2,512,337		466,247	273,161,875
1948	43,844	1,872,027	56,174,506	228,029,082	3,428,516		484,946	290,032,921
1949	46,734	1,900,992	60,455,180	238,605,069	5,043,727		498,552	306,550,254
1950	48,909	1,929,988	64,897,423	248,121,592	6,864,325		514,165	322,376,402
1951	50,518	1,957,242	68,586,650	256,363,695	8,817,224		527,591	336,302,920
1952	52,507	1,981,838	71,984,473	263,661,050	11,321,318		548,563	349,552,348
1953	53,927	2,003,864	74,981,938	270,260,458	13,953,522	2,599	555,750	361,836,858
1954	55,802	2,026,081	77,430,043	276,663,772	16,922,396	27,399	573,732	373,864,917
1955	57,464	2,052,274	79,478,299	282,623,110	20,023,517	43,091	584,736	385,130,749
1956	59,142	2,076,630	81,452,688	288,258,799	23,016,683	54,349	62,611	395,870,446
1957	60,972	2,096,556	83,258,647	293,601,760	25,828,548	62,611	943,893	406,039,048
1958	62,555	2,116,018	84,706,878	298,127,489	28,401,565	86,693	1,105,872	415,347,066
1959	63,985	2,136,720	86,218,828	302,282,706	30,640,186	218,649	1,713,912	425,785,674
1960	65,255	2,155,869	87,720,135	306,270,131	32,646,057	611,176	3,832,073	441,684,880
1961	66,523	2,172,814	89,100,216	309,809,813	34,394,701	990,982	11,836,451	460,585,828

TABLE XXI
ANNUAL GAS PRODUCTION BY FORMATIONS, MCF
January 1, 1925 to January 1, 1962

Year	Drift	Stray- Marshall	Berea	Antrim	Traverse	Dundee- Reed City	Detroit River	Salina- Niagaran	Trenton- Black River	Yearly Totals
1925						1,887,732		74,867		1,962,599
1926						2,319,620		49,930		2,369,550
1927						536,629		11,648		594,509
1928						865,120				1,432,159
1929					3,744	1,021,671				1,697,188
1930					12,730	1,291,166				3,008,085
1931					12,000	2,843,737				5,553,855
1932					8,232	1,843,722				6,864,726
1933					12,222	1,439,296				9,310,844
1934					24,710	1,617,990				1,232,509
1935					1,730,848	1,117,420				10,137,003
1936					1,280,257	1,655,340				14,126,364
1937					492,919	1,362,264				15,092,464
1938					212,108	627,910				17,749,294
1939					-	487,605				19,581,420
1940					-	3,514,391				21,253,903
1941					-	4,258,278				23,298,548
1942					-	3,936,936	210,827			23,774,495
1943					-	3,064,695	310,584			23,954,925
1944					-	2,530,639	152,187			21,369,587
1945					-	1,920,088	120,165			14,660,247
1946					-	1,922,979	1,348,702			12,614,024
1947					822,357	977,435	1,617,414			10,524,495
1948					591,647	938,184	1,460,215			8,677,737
1949					499,510	812,080	1,298,275			7,089,985
1950					1,027,456	710,900	1,272,651			5,698,175
1951					304,497	623,664	1,432,635			6,787,697
1952					17,182	540,718	1,525,523			8,840,933
1953					64,852	444,272	2,326,744			6,639,813
1954					31,671	335,147	3,604,884			10,964,378
1955					13,376	343,265	9,720,047			15,626,227
1956					13,062	504,474	3,649,466			19,240,168
1957					73,297	348,084	4,054,480			25,044,786
1958					135,217					
1959					164,509					
1960					208,967					
1961										

TABLE XXII
ACCUMULATIVE GAS PRODUCTION BY FORMATIONS, MCF
January 1, 1925 to January 1, 1962

Year	Drift	Stray- Marshall	Berea	Antrim	Traverse	Dundee- Reed City	Detroit River	Salina- Niagaran	Trenton- Black River	State Totals
1925						1,887,732		74,867		1,962,599
1926						4,207,352		124,797		4,332,149
1927						4,743,981		136,445		4,926,658
1928						5,609,101		136,445		6,358,817
1929						6,630,772		136,445		8,056,005
1930						7,921,938		136,445		11,064,090
1931						10,765,675		136,445		16,617,945
1932						12,609,397		136,445		23,482,671
1933						14,048,693		136,445		32,793,515
1934						15,666,683		137,445		42,026,024
1935						16,784,103		142,776		52,163,027
1936						18,439,443		156,775		66,289,391
1937						19,801,707		168,775		81,381,855
1938						20,429,617		187,080		99,131,149
1939						20,917,222		205,332		118,712,569
1940						24,431,613		222,759		139,966,472
1941						28,689,891		237,145		163,265,020
1942						32,626,827		242,516		187,039,515
1943						35,691,522	210,827	242,516		210,994,440
1944						38,222,161	521,411	723,554		232,364,027
1945						40,142,249	673,598	3,625,681		247,024,274
1946						42,065,228	793,763	7,616,503		259,638,298
1947						43,042,663	2,142,465	11,362,412		270,162,793
1948						43,980,847	3,759,879	14,725,656		278,840,530
1949						44,792,927	5,220,094	17,391,844		285,930,515
1950						44,792,927	6,518,369	18,467,437		291,628,690
1951						45,503,827	7,791,020	18,932,585		298,416,387
1952						46,127,491	9,223,655	20,135,303		298,416,387
1953						46,668,209	10,749,178	22,848,937		307,257,320
1954						47,112,481	13,075,922	24,466,846		313,897,133
1955						47,447,628	16,680,806	29,330,062		324,861,511
1956						47,790,893	20,330,272	39,050,109		340,487,738
1957						48,295,367	24,310,121	48,927,929		359,727,906
1958						48,643,451	28,364,601	58,883,169		384,772,692
1959										
1960										
1961										

TABLE XXIII
PERCENTAGE ANNUAL OIL AND GAS PRODUCTION BY FORMATIONS
January 1, 1925 to January 1, 1962

Year	Stray-		Berea		Antrim		Traverse		Dundee-		Detroit River		Salina-		Trenton-	
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
1925			100.00													
1926			100.00													
1927			99.56													
1928			38.98													
1929			2.45													
1930			2.27													
1931			1.64													
1932			.92													
1933			.69													
1934			.46													
1935			.40													
1936			.79													
1937			.38													
1938			.27													
1939			.17													
1940			.17													
1941			.27													
1942			.24													
1943			.24													
1944			.26													
1945			.25													
1946			.19													
1947			.21													
1948			.18													
1949			.18													
1950			.20													
1951			.19													
1952			.18													
1953			.18													
1954			.23													
1955			.23													
1956			.20													
1957			.21													
1958			.20													
1959			.12													
1960			.09													
1961			.47													

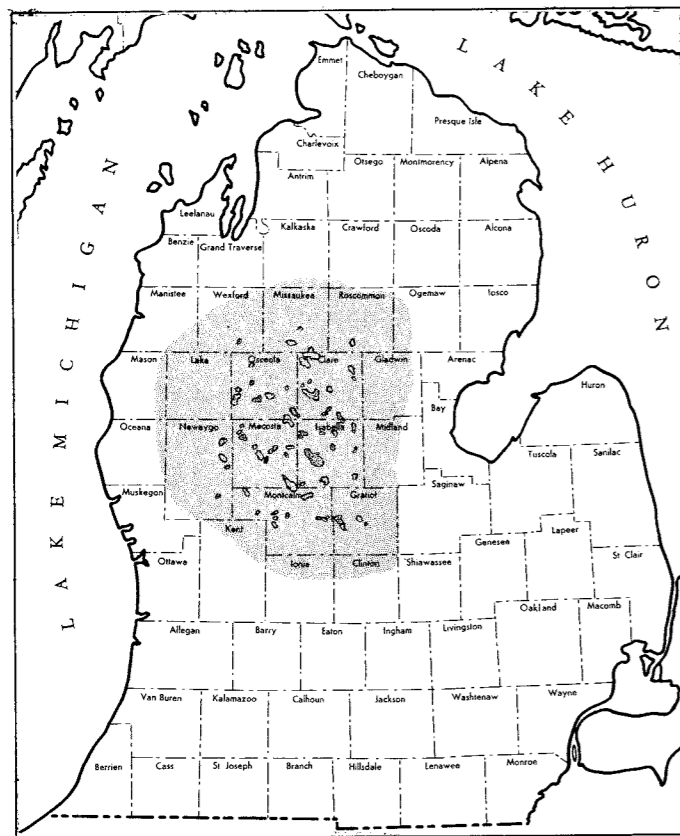
TABLE XXIV
PERCENTAGE ACCUMULATIVE OIL & GAS PRODUCTION BY FORMATIONS
January 1, 1925 to January 1, 1962

Year	Stray-		Berea		Antrim		Traverse		Dundee-		Detroit River		Salina-		Trenton-	
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
1925			100.00													
1926			100.00													
1927			99.64													
1928			67.73													
1929			15.20													
1930			9.96													
1931			7.62													
1932			5.35													
1933			4.04													
1934			3.07													
1935			2.30													
1936			2.03													
1937			1.70													
1938			1.44													
1939			1.20													
1940			1.06													
1941			.98													
1942			.89													
1943			.83													
1944			.78													
1945			.74													
1946			.71													
1947			.67													
1948			.65													
1949			.62													
1950			.60													
1951			.58													
1952			.57													
1953			.55													
1954			.54													
1955			.53													
1956			.52													
1957			.52													
1958			.51													
1959			.50													
1960			.49													
1961			.47													

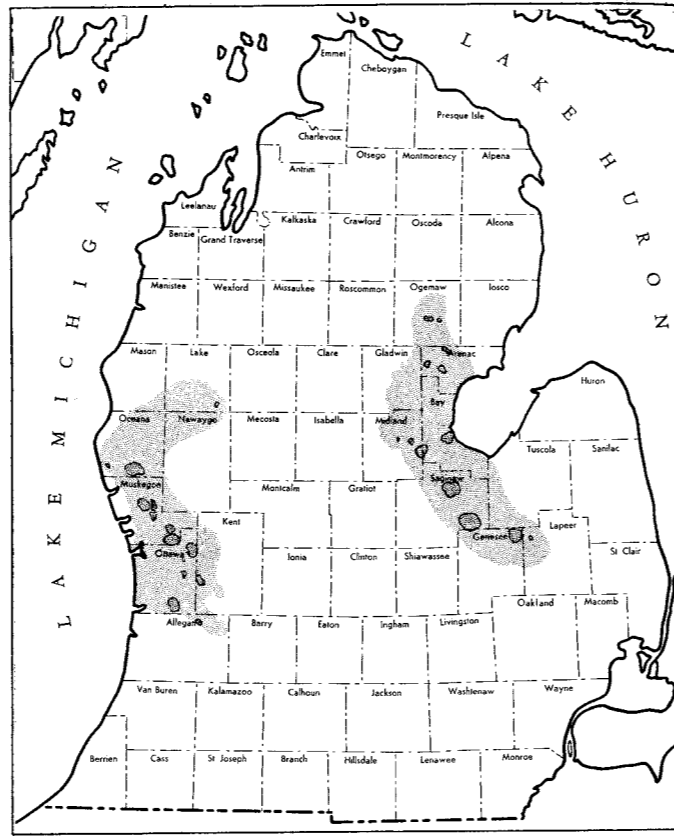
PRODUCING AREAS BY ROCK UNIT

OIL OR GAS POOL

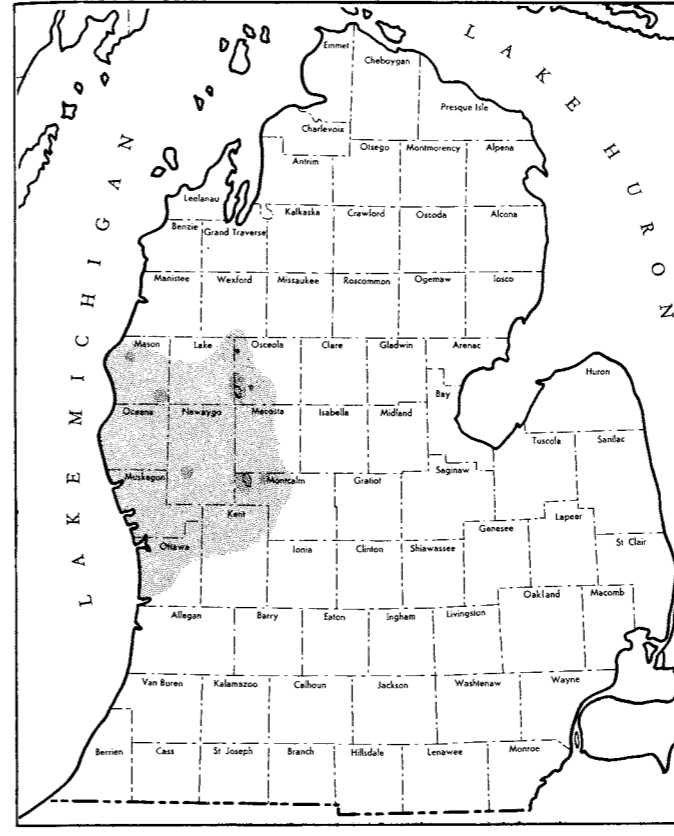
GENERAL PROVED AREA



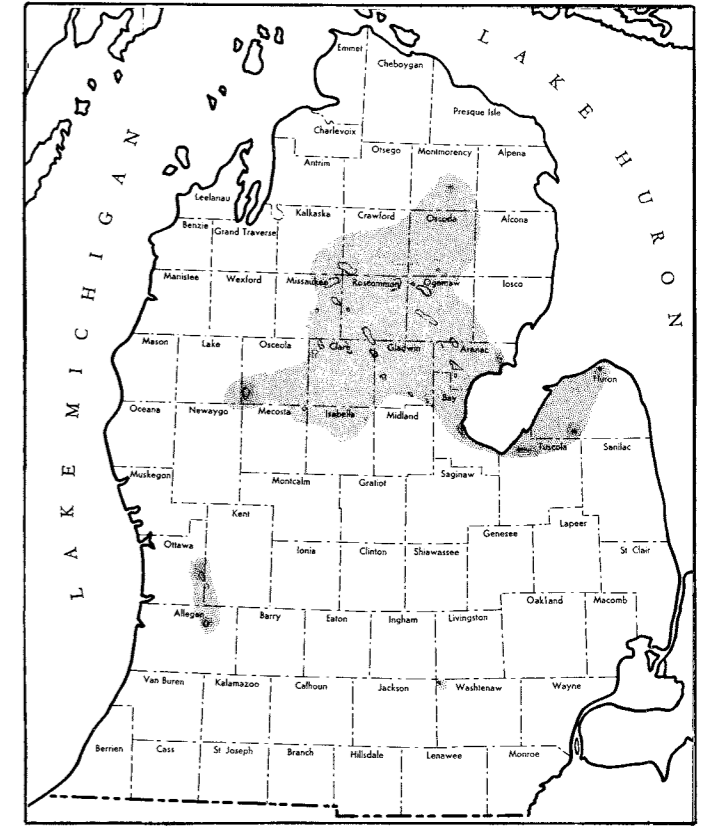
"MICHIGAN STRAY"



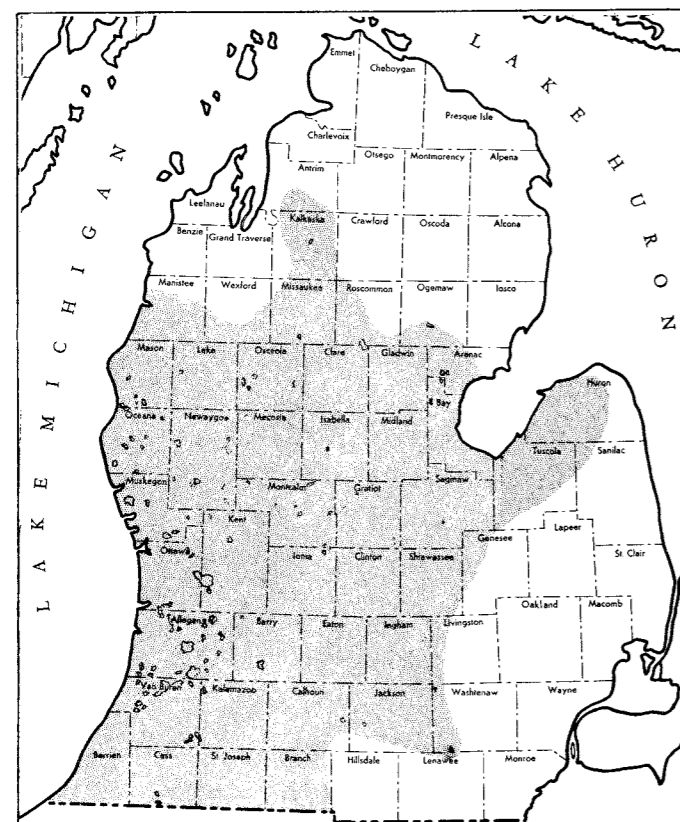
BEREA "FORMATION"



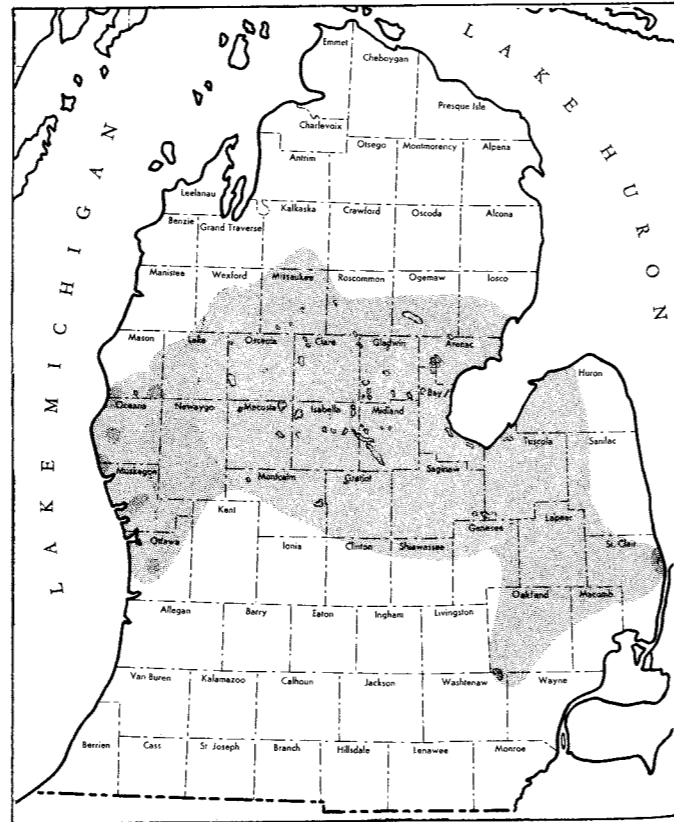
"REED CITY" ZONE



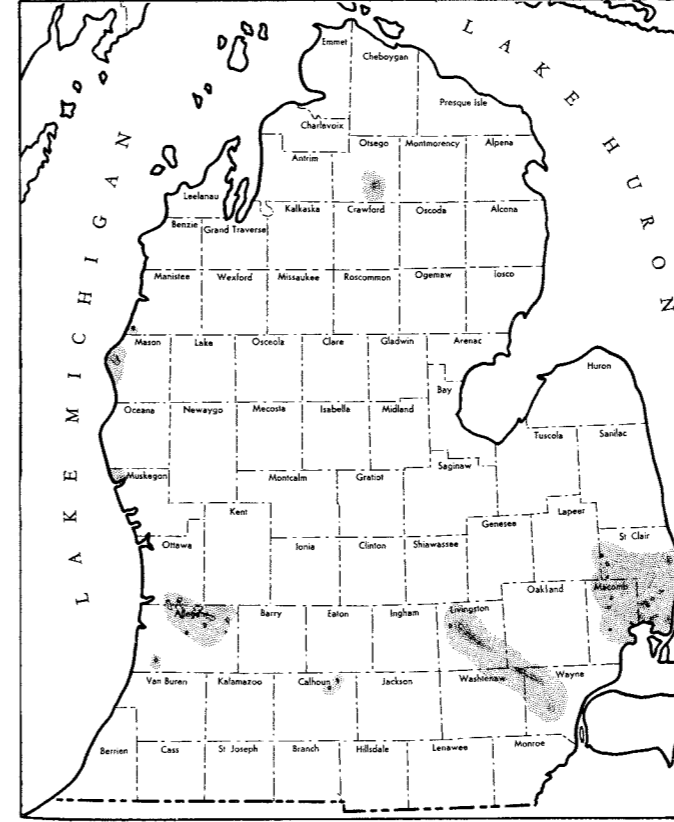
DETROIT RIVER GROUP



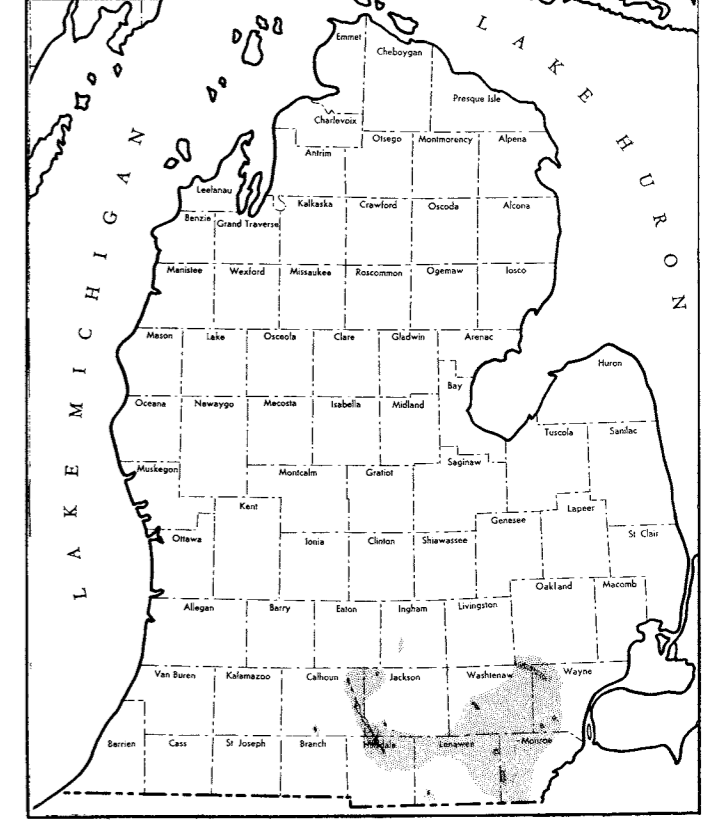
TRAVERSE GROUP



DUNDEE FORMATION



SALINA FORMATION & "NIAGARA"

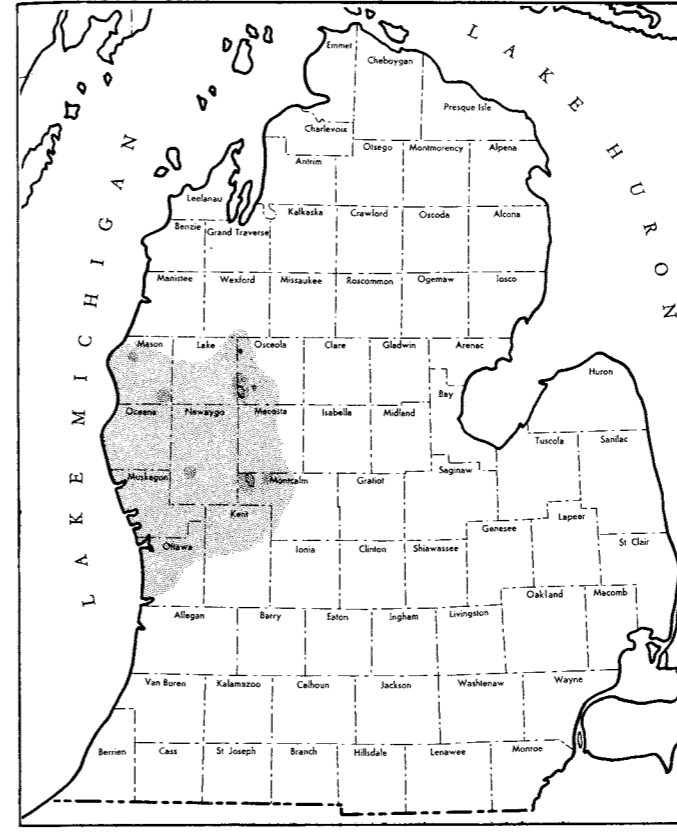


TRENTON & BLACK RIVER FMS.

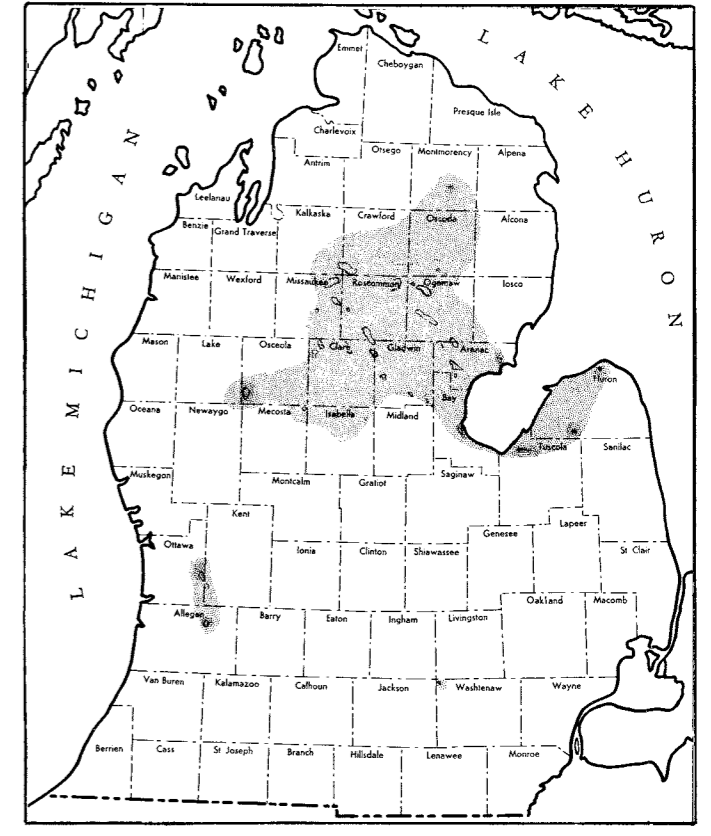
PRODUCING AREAS BY ROCK UNIT

OIL OR GAS POOL

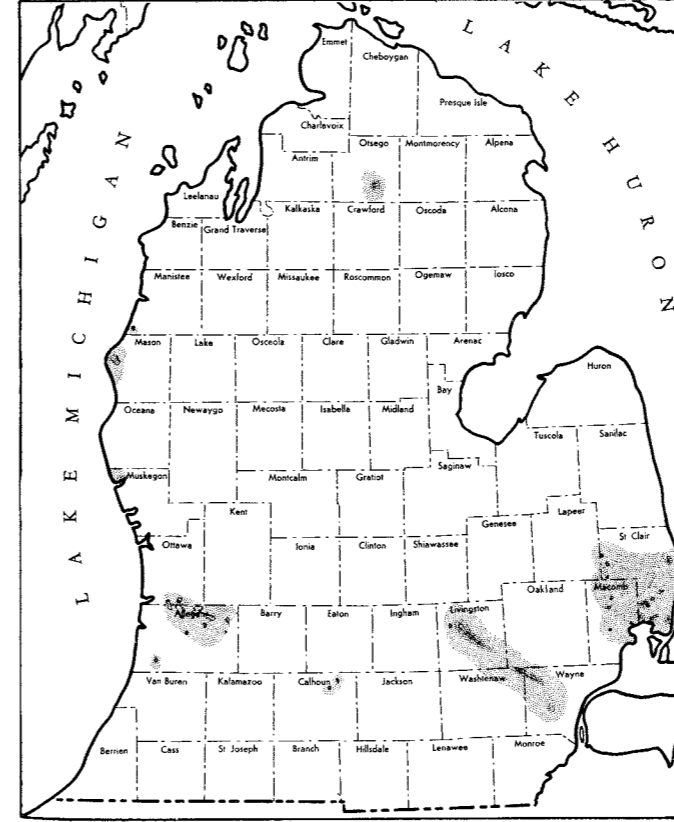
GENERAL PROVED AREA



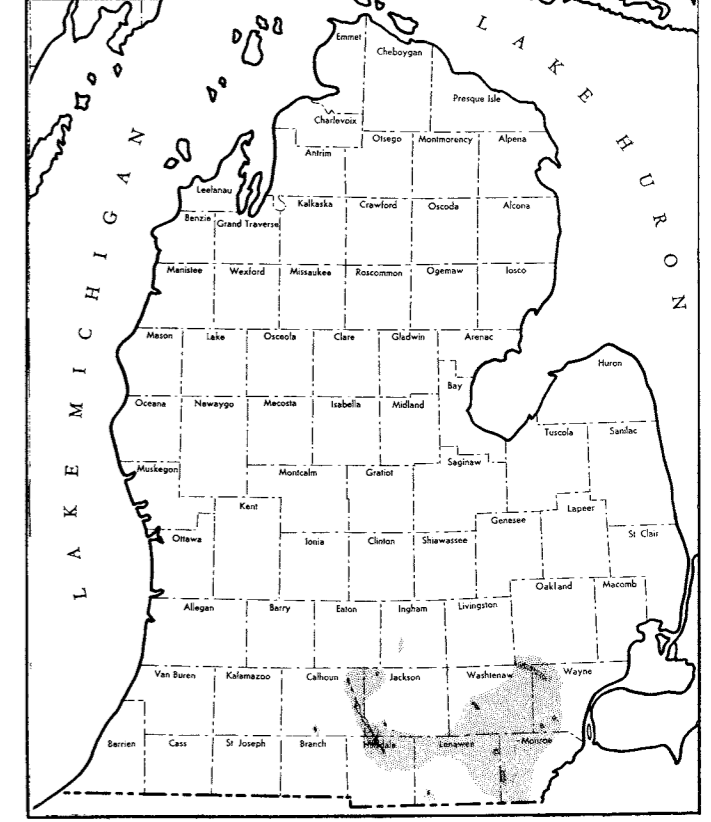
"REED CITY" ZONE



DETROIT RIVER GROUP



SALINA FORMATION & "NIAGARA"



TRENTON & BLACK RIVER FMS.

STATE OF MICHIGAN
ACTIVE CRUDE OIL REFINERIES

Name of Refinery	Location	Rated Capacity* Bbls. Daily
Bay Refining Corporation	Bay City (1201 2nd Nat'l. Bank Bldg., Saginaw)	22,500
Crystal Refining Company of Carson City, Inc.	Carson City	6,500
Lakeside Refining Company	Kalamazoo	3,500
Leonard Refineries, Inc. (Leonard Division - Plant #1)	Alma	10,000
Leonard Refineries, Inc. (Mid-West Division - Plant #2)	Alma	10,000
Leonard Refineries, Inc. (Roosevelt Division - Plant #3)	Mt. Pleasant	7,500
Naph-Sol Refining Company	Muskegon	10,000
Ohio Oil Co. (Aurora Division) (Detroit Refinery)	15911 Wyoming Ave., Detroit	47,500
Ohio Oil Company (Muskegon Refinery)	2920 E. Laketon Ave., Muskegon	15,500
Osceola Refining Company	Reed City	7,500
Petroleum Specialties, Inc.	Flat Rock	6,500
Socony-Mobil Oil Co., Inc.	P. O. Box 477, Trenton	37,500
West Branch Refineries, Inc.	West Branch	5,000
Wyandotte Chemical Corporation	Wyandotte	2,315
Total Refinery Capacity		191,815

*Nominal ratings only. Actual operating rates may be either more or less than these figures.

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	
DEVONIAN	BEREA-BEDFORD	SANDSTONE, SHALE	0-325	GAS, OIL
	ELLSWORTH-ANTRIM	SHALE, limestone	100-950	SHALE, GAS
	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
SILURIAN	BOIS BLANC	DOLOMITE, CHERTY DOLOMITE	0-1000	
	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
ORDOVICIAN	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
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		
ARCHEAN	HURONIAN (Iron formations)	SLATES, HEMATITE, SCHIST, QUARTZITE, GRANITE, marble, dolomite	2000+	IRON ORE, ROOFING SLATE, ROAD METAL, GRAPHITE, MARBLE
	LAURENTIAN	SCHIST, GNEISS, GRANITE		ROAD METAL, BUILDING STONE, VERDE ANTIQUE, TALC, GOLD
ARCHEAN	KEEWATIN	SCHIST, GREENSTONE, SLATE		ROAD METAL