MICH. DEPT. OF NATURAL RESOURCES
MINING & LAND USE DIV.
GEOLOGICAL SURVEY DIVISION

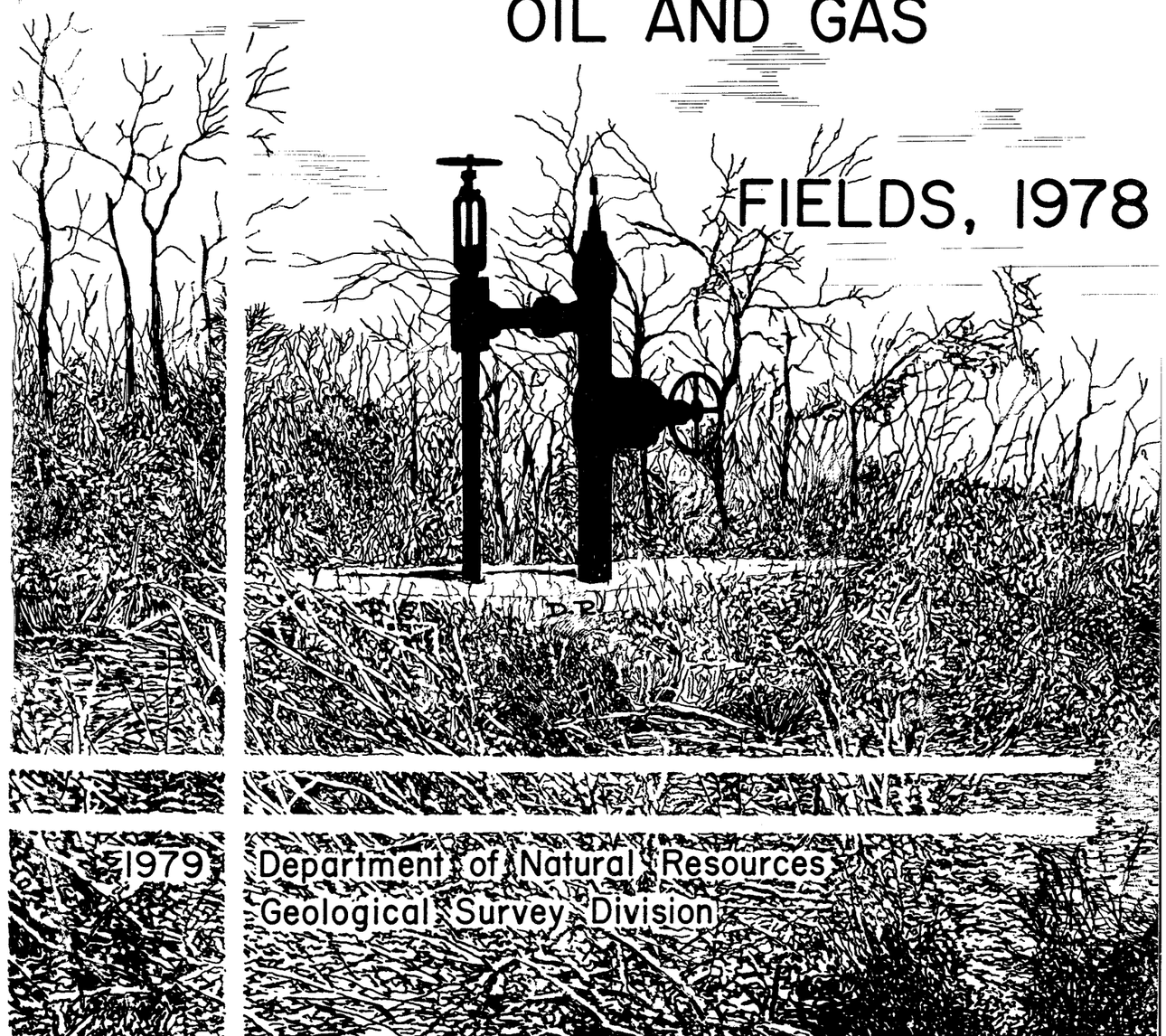
Annual Statistical Summary 30

drilling statistics

production

exports and imports

MICHIGAN'S OIL AND GAS FIELDS, 1978



1979

Department of Natural Resources
Geological Survey Division

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MICH. DEPT. OF NATURAL RESOURCES
MINING & ECONOMIC GEOLOGY UNIT
GEOLOGICAL SURVEY DIVISION

MICHIGAN'S OIL AND GAS FIELDS, 1978

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ACKNOWLEDGEMENTS

The Geological Survey Division's Oil and Gas Section consists of a Regulatory Control Unit, a Production-Proration Unit, and a Subsurface and Petroleum Geology Unit. A Cartographic Subunit is under the management of the Subsurface and Petroleum Geology Unit. Field operations are handled by personnel assigned to field offices within DNR Regions II and III. A Regional Geologist, under the supervision of the Regional Director, guides the overall activities of the several field offices within his region. Field offices are located at Plainwell, Cadillac, Gaylord, Mt. Pleasant, Imlay City, and Rose Lake. Field activities are mainly those associated with the responsibilities of the Regulatory Control and Production-Proration Units, but do include the gathering of certain year-end oil and gas field statistics used to a limited extent in this report.

The compilation and assembly of various oil and gas field data into a yearly report is a major responsibility of the Subsurface and Petroleum Geology Unit. Certain data collected by field office personnel are contributed to this report by Unit supervisors who are under the general supervision of R. M. Acker, Assistant State Geologist and Chief of the Oil and Gas Section. Unit supervisors who provided specific information are:

S. L. Alguire, Supervisor, Regulatory Control Unit.
Contribution: All data in columns under the headings "Number of Oil and Gas Wells" and "Brine Production" on Tables 2, 3, and 4.

James S. Lorenz, Supervisor, Production-Proration Unit.
Contribution: All Michigan oil and gas production data, oil and gas valuation figures, import and export figures, LPG and condensate figures, secondary recovery projects (Table 5), and refineries.

G. D. Ells, Supervisor, and D. M. Bricker and staff, Subsurface and Petroleum Geology Unit. All general drilling statistics and well completion data, discovery well and deep test data, cumulative records, and all other summary information not specifically provided by other Unit supervisors or by other agencies. Maintenance and compilation of statistics, assembly and manuscript preparation by staff members of the Subsurface and Petroleum Geology Unit: G. D. Ells, D. M. Bricker, R. C. Elowski, A. G. Ostrander, M. A. Morris, Margaret Schineman, and Diane Goerge.

The compilers also acknowledge the assistance of Gas Section personnel, Public Utilities Division, Department of Commerce, in providing figures on natural gas imports via interstate pipelines, and the Lands Division, Department of Natural Resources, in providing figures for state revenue derived from various oil and gas transactions.

Michigan oil and gas production figures maintained by the Production-Proration Unit are compiled by the Unit from records obtained from the Michigan Department of Treasury and from records filed by producers and purchasers. All hydrocarbon production figures cited herein are subject to correction as warranted.

Inquiries concerning information contained in this publication should be directed to the appropriate Unit supervisor as noted earlier.

Compilers: G. D. Ells
D. M. Bricker
R. C. Elowski
A. G. Ostrander
M. A. Morris

Lansing, Michigan
October, 1979

INTRODUCTION

To help foster the development of Michigan's hydrocarbon resources, statistical data have been maintained and published for many years. This issue of the oil and gas field statistical summary brings together information on various facets of Michigan's oil and gas industry activities. Certain indices which show the trend of these activities from year to year are shown in chart form along with figures from prior years. Other charts reflect cumulative data and other historical information useful in oil and gas field evaluation.

The information contained in this oil and gas summary has been treated as uniformly as possible from year to year so that the data reflect accurately the actual figures and other information that should be credited to this year. The data found herein are mainly derived from records maintained by the Oil and Gas Section, Geological Survey Division, Department of Natural Resources.

This publication is essentially divided into three parts. The first summarizes significant statistics on oil and gas field activities and includes numerous other related records kept by the Oil and Gas Section. Part 2 contains specific information on Michigan's oil and gas fields, gas storage fields, and other related subjects. Part 3 contains cumulative records important to the oil and gas industry.

Certain well completion data are furnished to the American Petroleum Institute (API) and the American Association of Petroleum Geologists (AAPG) on a regular basis. Reports citing preliminary oil and gas statistics and production figures are also prepared for the Interstate Oil Compact Commission (IOCC). API publishes the data in monthly and quarterly reports. Year-end printouts of the data are made available to authors of the AAPG yearly Development Papers and to others. Year-end figures published by API are in general agreement with figures for similar categories published in this summary. Differences which may occur are shown under the appropriate subject heading in this report. Oil and gas production data are supplied by request to the United States Bureau of Mines for publication in their minerals yearbook.

Statistical data on Michigan oil and gas activities, derived from outside sources, are also published by the Oil and Gas News, Mt. Pleasant, Michigan; Petroleum Information, Incorporated, Denver, Colorado; American Petroleum Institute, Washington, D.C.; American Association of Petroleum Geologists, Tulsa, Oklahoma; Interstate Oil Compact Commission, Oklahoma City, Oklahoma; World Oil, Houston, Texas; and Oil and Gas Journal, Tulsa, Oklahoma.

It should be noted that certain figures for the number of exploratory, development, and service wells drilled and completed, the number of new fields and pools discovered, oil and gas production figures, and other data published in this summary may differ from figures reported by regional or national trade publications or by industry reporting services. The differences in the various statistics are generally minor and are due to methods of gathering and reporting well data, determing cutoff dates for reporting yearly statistics, and the necessity for making projections and estimates for certain types of reports.

Other factors which may result in statistical differences are internal decisions of the Oil and Gas Section regarding final year-end status of completed wells and decisions resulting from public hearings on oil and gas matters. For example, a well originally classified as a development well, and reported as such to one of the above organizations, may later be reclassified as the discovery well for a new pool or field, or a gas well might later be declared an oil well completion on the basis of new evidence. Frequently the changes in well status cannot be readily passed on to these outside organizations so that their records can be updated prior to publication of their final statistics. The discrepancies in year-end figures are almost without exception related to Niagaran reef exploration and development which has formed the largest part of Michigan drilling activities for the past several years.

PART I

1978 STATISTICAL DATA

* * * OIL AND GAS PERMITS * * *

Oil and gas drilling permits issued under Act 61, P.A. of 1939, as amended, during 1978 began with permit number 32107 and ended with permit number 32796. The total number of permits issued in 1978 was 690 as compared with 692 in 1977. The initial classification of wells to be drilled under these permits was as follows:

INITIAL CLASSIFICATION	1976	1977	1978
Exploratory wells	331	338	311
Development wells	253	296	298
Gas storage facility wells	36	53*	74
Brine disposal wells . . .	25	5	7**
	645	692	690

*Includes 2 LPG storage wells.
**Includes 4 water injection wells involved in secondary recovery operations.

The distribution of oil and gas drilling permits according to districts (see oil and gas districts map) through a five year period, including 1978, is as follows:

DRILLING PERMITS BY DISTRICT

DISTRICTS	Permits Issued				
	1974	1975	1976	1977	1978
Basin	98	100	110	135	146
Northern	210	219	221	261	284
Southeastern	62	70	98	111	98
Southwestern	44	108	73	67	47
Western	89	156	143	118	115
Totals	503*	653*	645*	692*	690*

*Includes terminated permits. Permits issued under Act 61, P.A. of 1939, as amended, are terminated one year after date of issue if actual drilling operations have not begun.

Since 1975, permits to drill wells for oil field brine disposal have been issued under the regular permit numbering system rather than under a separate permit numbering system as was done in the past. Deepening permits were issued for 25 wells during 1978 as compared with 51 the previous year. Deepening permits issued in 1978 began with number 1917 and ended with number 1941.

Michigan's oil and gas permit system began in 1927 with the issuance of permit number 1. Since then, permit numbers have been issued in numerically consecutive order. In many cases, wells which have been previously drilled and abandoned have been reopened and reworked under a new permit number. Also, some well locations for which permit numbers were issued but later terminated have been repermitted and assigned new permit numbers. Such multiple permit numbers for the same well location may lead to some confusion. Therefore an attempt is being made to keep a published account of these possible sources of conflict. Terminated permits were listed for the first time in Annual Statistical Summary 16, 1972. Permit numbers issued for wells drilled under previous permits, or new permit numbers issued for terminated permits, were cited for the first time in Annual Statistical Summary 18, 1973. Permit numbers issued in 1978 for a previously drilled well or for a previously terminated permit are listed in Part 3. Permits terminated in 1978 are shown below.

Permits terminated in 1978

1738*	31480	31742	31947
1887*	31484	31759	31953
1888*	31526	31766	31981
1894*	31531	31770	32025
31298	31532	31810	32042
31439	31573	31842	32057
31441	31617	31865	32088
31452	31688	31883	32102
31462	31694	31909	
31464	31701	31941	
31477	31741	31942	

*Deepening permits

Directionally drilled holes. Enviromental and ecomonic considerations have necessitated the drilling of a large number of directional holes since 1972, particularly to help locate Niagaran reefs. Many of these holes involve using the upper part of a previously drilled hole which, after being initially completed as a dry hole, was plugged back to an appropriate depth and directionally drilled to a more favorable subsurface location. These directionally drilled holes fall in three main categories: 1) a single directional hole completed as either a producer or a dry hole; 2) cases where two or more directional holes have been drilled to separate bottom-hole targets from the same surface location by using the same upper part of the hole; and 3) cases where one or more directional holes have been deviated to new bottom-hole targets after the original vertically drilled test failed to encounter reefing. Only one producing well is allowed per well bore, regardless of the number of holes directionally drilled from the same well bore.

Each new directional hole, even if drilled from the same surface location and using the upper part of a previously drilled test, is treated as a separate test and is assigned its own unique permit number. Each additional hole drilled from the same surface location retains the same well name and number as the original hole, except that the suffix "A", "B", "C", etc., is added to the well number. In some instances, permits for directional holes were terminated and then repermitted under a new number. An attempt has been made to record and publish permit numbers for directionally drilled tests for the benefit of those people who may find the information useful in computer-well data systems. Permit numbers issued for directional holes for 1977 and directional holes with two or more permit numbers are listed in Part 3. Permits issued in 1978 for directional holes are as follows:

Permit numbers issued in 1978 for directional holes

32107	Presque Isle County	32460	Manistee County
32112	Gd. Traverse County	32462	Kalkaska County
32120	Manistee County	32474	Gd. Traverse County
32122	Manistee County	32478	Manistee County
32126	Presque Isle County	32486	Kalkaska County
32130	Gd. Traverse County	32487	Manistee County
32133	Kalkaska County	32489	Macomb County
32134	Presque Isle County	32494	Oakland County
32140	Gd. Traverse County	32502	Kalkaska County
32141	Kalkaska County	32504	Calhoun County
32154	Gd. Traverse County	32505	Manistee County
32155	Manistee County	32507	Kalkaska County
32156	Gd. Traverse County	32508	Otsego County
32162	Manistee County	32509	Otsego County
32169	Wexford County	32510	Otsego County
32171	Manistee County	32516	Gd. Traverse County
32179	Gd. Traverse County	32522	Gd. Traverse County
32183	Gd. Traverse County	32527	Wexford County
32194	Oakland County	32528	Otsego County
32195	Oakland County	32531	Otsego County
32207	Otsego County	32533	Manistee County
32208	Manistee County	32548	Eaton County
32210	Gd. Traverse County	32550	Gd. Traverse County
32212	Kalkaska County	32573	Cheboygan County
32225	Macomb County	32576	Manistee County
32226	Macomb County	32583	Kalkaska County
32245	Oakland County	32589	Cheboygan County
32250	Presque Isle County	32597	Cheboygan County
32253	Manistee County	32600	Manistee County
32259	Gd. Traverse County	32602	Crawford County
32263	Kalkaska County	32604	Otsego County
32265	Manistee County	32605	Otsego County
32267	Manistee County	32606	Cheboygan County
32269	Cheboygan County	32476	Kalkaska County
32271	Presque Isle County	32621	Manistee County
32276	Otsego County	32622	Manistee County
32298	Otsego County	32623	Manistee County
32301	Manistee County	32624	Kalkaska County
32303	Kalkaska County	32625	Gd. Traverse County
32304	Presque Isle County	32630	Manistee County
32315	Presque Isle County	32632	St. Joseph County
32327	Macomb County	32634	Presque Isle County
32331	Otsego County	32665	Presque Isle County
32333	Montmorency County	32669	Presque Isle County
32337	Gd. Traverse County	32675	Gd. Traverse County
32342	Kalkaska County	32677	Presque Isle County
32350	Gd. Traverse County	32678	Manistee County
32352	Manistee County	32692	Otsego County
32354	Manistee County	32699	Manistee County
32357	Macomb County	32700	Manistee County
32371	Kalkaska County	32708	Manistee County
32374	Otsego County	32712	Presque Isle County
32386	Manistee County	32759	Otsego County
32388	Otsego County	32769	Presque Isle County
32391	Oakland County	32771	Presque Isle County
32399	Crawford County	32773	Gd. Traverse County
32404	Manistee County	32778	Kalkaska County
32411	Otsego County	32782	Otsego County
32414	Manistee County	32783	Kalkaska County
32420	Kalkaska County	32786	Presque Isle County
32445	Otsego County	32788	Gd. Traverse County
32450	Manistee County	32789	Kalkaska County
32451	Manistee County	32793	Ingham County
32455	Eaton County	32795	Calhoun County
32459	Manistee County		

Service well permits. The fluctuation in the number of permits issued to drill gas storage wells and other service well types over a five year period is as follows:

SERVICE WELL PERMITS

Type of Service Well	1974	1975	1976	1977	1978
Gas storage	30	37	28	51	74
LPG, Water Injection	11	0	14	2	4
Brine Disposal	1	4	11	5	3
	42	41	53	58	81

Rework application, transfers of ownership, etc. In addition to issuance of permits for various types of wells covered under Act No. 61, P.A. of 1939, as amended, 146 applications were received and approved for rework operations on existing wells. Letters of termination were sent out for 41 previously issued permits. Transfers of ownership were processed for 258 wells. Corrections of location, well name, or other detail involving specific permits were made for 61 wells, and cancel and transfer of permit were made for 22 others. The surface location as well as the projected bottom-hole location is published for each permitted directionally drilled hole. After the well is drilled and the directional survey is filed, the correct bottom-hole location is determined from the survey record and then published as a correction for the initial projected bottom-hole location. Corrections of this type were published for 128 wells drilled during 1977 and 1978.

Oil and gas hearings. During 1978, Oil and Gas Section activities also included scheduling and preparation for hearings on oil and gas matters and the issuance of orders resulting from these hearings. These activities are summarized as follows:

Advisory Board Hearings held 8
Administrative Hearings held 20
Total Causes heard 34
Total Orders issued 30
Includes: 2 causes dismissed
1 change in well allowable under Special Order 1-78
1 change in well allowable under Special Order 1-73
8 spacing orders
7 exceptions to spacing orders
1 compulsory pooling order
3 unitization orders
2 secondary recovery by waterflood
1 lifting of No Flare order
5 amendments to spacing orders
3 abrogation of spacing orders

* * * WELL COMPLETIONS * * *

There were 528 new-hole exploratory and development wells which reached total depth and were considered either completed producers with production casing set, or dry holes during 1978. The 528 wells considered as completed during the past year do not include service wells, old wells drilled to deeper objectives, or reworked wells. Well completion figures for individual counties are shown in Table 1. The fluctuation in the number of new-hole completions and the resulting number of oil, gas, or dry holes over a five year period is as follows:

EXPLORATORY AND DEVELOPMENT WELL COMPLETIONS

Year	Exploratory Wells			Development Wells			Totals
	Oil	Gas	Dry	Oil	Gas	Dry	
1974	54	39	173	80	22	62	430
1975	53	17	213	112	21	117	533
1976	30	36	234	90	21	99	510
1977	35	36	230	101	34	111	547
1978	29	25	214	117	32	111	528

There were 74 new-hole service well completions in 1978. The figure does not include reworked wells or old wells converted to gas storage facility wells. The fluctuation in the number of service well completions over a five year period is as follows:

SERVICE WELL COMPLETIONS

Year	GS	INJ	LPG	BDW	Totals
1974	38	13	2	1	54
1975	37	0	0	1	38
1976	25	13	0	12	50
1977	43	2	1	4	50
1978	60	11	0	3	74

Drilling statistics for Michigan published by API and derived from data supplied by the Geological Survey (G.S.) are shown below, along with figures for the same categories published herein as final year-end figures. API figures have been extracted from the Quarterly Review of Drilling Statistics for the United States, Fourth Quarter, 1978, Annual Summary, 1978, American Petroleum Institute, Vol. XII, No. 4, March 1979, Tables I, II, III, and V, pp. 14-22.

API EXPLORATORY AND DEVELOPMENT WELL COMPLETIONS

Year	Exploratory Wells			Development Wells			Totals
	Oil	Gas	Dry	Oil	Gas	Dry	
1978	27	23	216	107	31	103	507
G.S.	29	25	214	117	32	111	528

TOTAL WELLS DRILLED IN MICHIGAN (API)

Year	Oil Wells	Gas Wells	Dry Holes	Service Wells	Total Wells All Types
1978	134	54	319	14	521
G.S.	146	57	325	74*	602

*API does not require information of wells drilled for gas storage. The Geological Survey considers gas storage wells as a class of service well. Sixty of the 74 service wells cited were gas storage facility wells.

NEW-FIELD WILDCATS DRILLED IN MICHIGAN (API)

Year	Oil	Gas	Total Producing Wells	Dry Holes	Total New-Field Wildcat Wells
1978	26	23	49	216	265
G.S.	29	25	54	214	268

Major and independent company well completions. Requests are frequently made for statistics on major oil company drilling activities in Michigan. The figures cited for the major companies do not include wells drilled by independents under farmout agreements with a major company or wells drilled by independents but partially supported by dry hole money or some other significant assistance from a major oil company. Independent oil companies, who have drilled most of Michigan's wells, are too numerous to cite individually. All figures cited for majors and independents were derived from inspection of operator names appearing on completion records. On the following chart, in cases where two or more companies were joint operators in a drilling venture, the well completion was attributed to the company whose name appears first (generally the major interest holder) on the official records. Although there appears to be no single definition of what constitutes a major company, the following companies are frequently cited as belonging in that category: Atlantic-Richfield, Cities Service, Continental Oil Company, Exxon, Getty Oil Company, Gulf Oil Company, Marathon Oil Company, Mobil Oil Corporation, Phillips Petroleum Company, Shell Oil Company, Standard Oil of California, Standard Oil of Indiana, Standard Oil of Ohio, Sun Oil Company, Texaco, Inc., and Union Oil of California. The preceding list is not official nor necessarily complete. A number of these companies or their affiliates drilled wells in Michigan this year.

WELL COMPLETIONS BY MAJORS AND INDEPENDENTS IN 1978

Major Company	Exploratory Oil	Gas	Dry	Development Oil	Gas	Dry	Service Wells*	Totals
Amoco	6	6	35	7	5	6	0	65
Getty	1	0	2	1	0	0	0	4
Marathon	0	0	0	9	0	0	5	14
Mobil	1	0	3	2	0	1	3	10
Shell	8	8	49	23	10	28	4	130
Sun	0	0	2	5	0	1	1	9
Union	0	0	0	6	0	0	0	6
Sub-totals	16	14	91	53	15	36	13	238
Independents	13	11	123	64	17	75	61	364
Totals	29	25	214	117	32	111	74	602

*Includes GS-OBS, LPG, WI, BDW wells.

Total: Exploratory Wells 268; Development Wells 260; Service Wells 74.

Exploratory Wells drilled by Majors 45%.
Exploratory Wells drilled by Independents 55%.

Exploratory Discoveries made by Majors 56%.
Exploratory Discoveries made by Independents 44%.

Development Wells drilled by Majors 40%.
Development Wells drilled by Independents 60%.

Producing Development Wells drilled by Majors 48%.
Producing Development Wells drilled by Independents 52%.

Discovery Success Ratio (Number discoveries divided by total exploratory wells)--Majors 1:4; Independents 1:6.

Well casing used in 1978 well completions. Periodically, inquiries are made concerning the amount of casing (pipe) used in Michigan wells during a given year. Almost all oil and gas tests drilled in this state utilize rotary drilling techniques and require the setting of surface pipe and an intermediate casing string. A conductor pipe is set on many holes, and all wells completed as producers require a string of production casing. Pipe size ranges and amounts have been determined from records of wells completed in 1978. For convenience, casing tallies have been related to a range of casing sizes as shown in the following chart.

	Conductor Pipe	Surface Pipe	Intermediate Pipe	Production Pipe
Casing Size Range Used	13"-20" Dia.	10"-13" Dia.	6"-10" Dia.	4-1/2"-6" Dia.
Normal Size Used	16"	11-3/4"	8-5/8"	5-1/2"
Average Weight	75#/ft.	53#/ft.	37#/ft.	19#/ft.
No. feet used (1)	27,939	255,357	1,229,494	1,255,417
Miles (2)	5.29	48.36	232.86	237.77
Tons (3)	1,047.71	6,766.96	22,745.64	11,926.46

(1) Total footage: 2,768,207
(2) Total miles: 524.28
(3) Total tonnage: 63,668.76 based on an average weight for all sizes of 46# per foot.

NEW WELL COMPLETIONS BY DISTRICTS, 1978

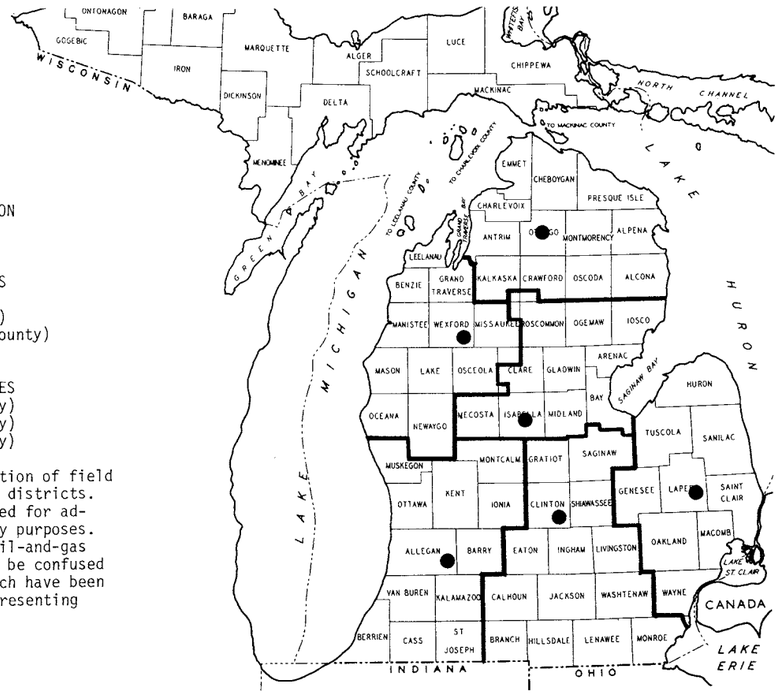
Classification of New Well Completions	Basin 1977	Basin 1978	Northern 1977	Northern 1978	Western 1977	Western 1978	Southwestern 1977	Southwestern 1978	Southeastern 1977	Southeastern 1978	Totals 1977	Totals 1978
Exploratory Wells												
Oil	3	4	18	15	10	7	4	3	0	0	35	29
Gas	3	2	18	13	11	6	2	3	2	1	36	25
D & A	25	22	115	118	31	27	23	18	36	29	230	214
Total	31	28	151	146	52	40	29	24	38	30	301	268
Development Wells												
Oil	29	45	28	34	16	20	14	11	14	7	101	117
Gas	1	1	16	15	4	8	0	7	13	1	34	32
D & A	7	14	47	40	34	31	13	9	10	17	111	111
Total	37	60	91	89	54	59	27	27	37	25	246	260
Service Wells												
WI	0	9	1	2	0	0	1	0	0	0	2	11
BDW	2	1	0	1	2	1	0	0	0	0	4	3
GS	34	27	0	0	2	5	0	0	7	28	43	60
LPG	0	0	0	0	1	0	0	0	0	0	1	0
Total	36	37	1	3	5	6	1	0	7	28	50	74
Total Completions	104	125	243	238	111	105	57	51	82	83	597	602

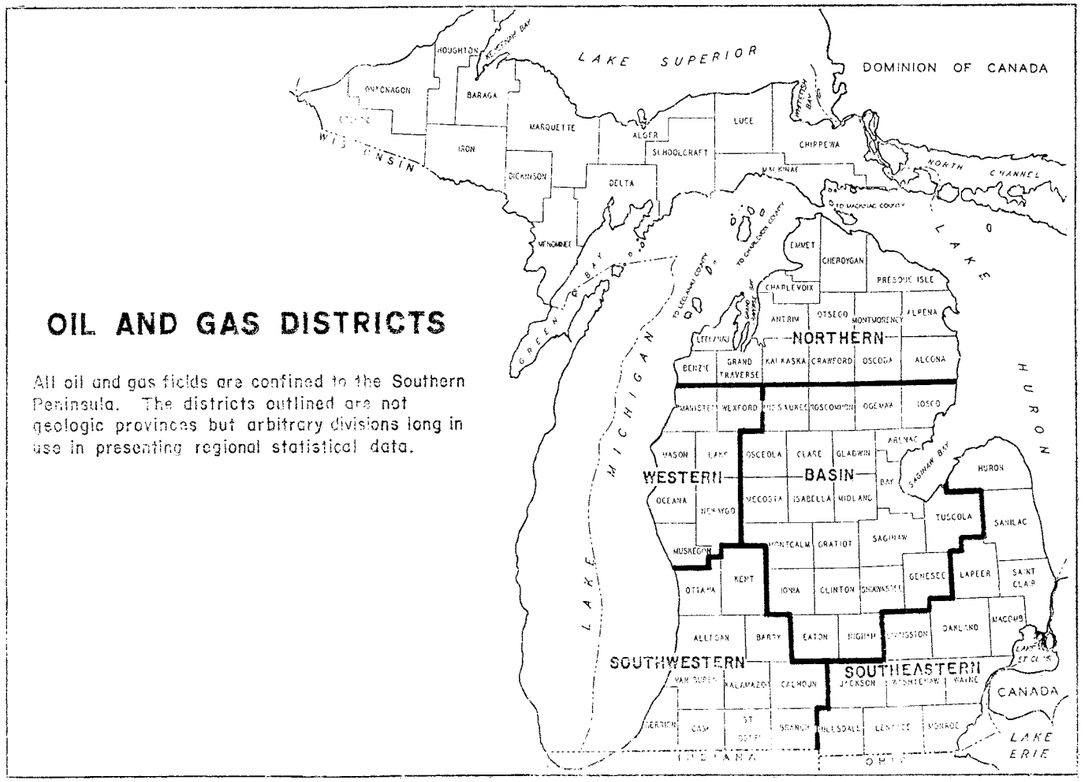
GEOLOGICAL SURVEY DIVISION

DNR REGION II FIELD OFFICES
Gaylord (Otsego County)
Cadillac (Wexford County)
Mt. Pleasant (Isabella County)

DNR REGION III FIELD OFFICES
Rose Lake (Clinton County)
Plainwell (Allegan County)
Imlay City (Lapeer County)

Dots show the general location of field offices within the several districts. These districts are arranged for administrative and regulatory purposes. Though frequently called oil-and-gas districts, they should not be confused with those shown below which have been in use for many years in presenting statistical data.





OIL AND GAS DISTRICTS

All oil and gas fields are confined to the Southern Peninsula. The districts outlined are not geologic provinces but arbitrary divisions long in use in presenting regional statistical data.

Drilled footage. The average depth, statewide, of exploratory wells drilled in 1978 was 4,558 feet compared with 4,900 feet in 1977. Development well depths averaged 4,524 feet compared with 4,343 feet in 1977. Service wells drilled in 1978 averaged 3,091 feet as compared with 1,830 feet in 1977. Drilled footage figures and average well depths for specific counties are shown in Table 1.

Total drilled footage figures from the Geological Survey Division records for 1978 and several prior years are as follows:

DRILLED FOOTAGE FIGURES-GEOLOGICAL SURVEY DIVISION

Well Class	1975	1976	1977	1978
Exploratory	1,397,144	1,448,933	1,474,814	1,220,144
Development	1,124,863	913,530	1,068,429	1,117,482
Service Wells (All types)	71,919	105,975	91,492	228,768
Total:	2,593,926	2,468,438	2,634,735	2,566,394

Drilled footage figures are furnished to the American Petroleum Institute and these are published as part of their quarterly and annual summary. Drilled footage figures extracted from the 1978 API Annual Summary are as follows:

1978 API DRILLED FOOTAGE FIGURES

Exploratory Wells			Development Wells		
Oil	Gas	Dry	Oil	Gas	Dry
128,774	114,735	983,621	474,158	138,454	488,159
Total Exploratory Footage: 1,227,130 feet*			Total Development Footage: 1,100,771 feet**		

*API Table II, page 16
**API Table III, page 17

The difference in total drilled footage figures as reported by API and by the Geological Survey Division are related to factors previously mentioned. API footage figures are correct on the basis of reporting year criteria.

* * * 1978 OIL AND GAS PRODUCTION * * *

Oil and gas production figures are derived from records submitted to the Production-Proration Unit, Oil and Gas Section, Geological Survey Division, Department of Natural Resources and from tax records from the Michigan Department of Treasury. Treasury Department records are primarily concerned with gross production figures needed to calculate revenues. These data are supported by reports required from producing companies and purchasers by the Geological Survey Division.

Delays in reporting and changes in methods of reporting used by producing companies and purchasers result in a continuous correction and refinement of production figures. Consequently all monthly, yearly, or other production figures are subject to corrections as warranted.

In an attempt to obtain national uniformity of data as recommended by the Interstate Oil Compact Commission, all annual and cumulative gas production figures for Michigan were converted to a standard base pressure for volumetric measurement of 14.73 pounds per square inch in 1978. This conversion and subsequent adjustment of gas production figures resulted in slight changes in cumulative production volumes in those fields which had been measured at varying pressure bases in prior years.

OIL AND GAS PRODUCTION BY DISTRICT IN 1978

District	Barrels Oil	MCF Gas
Basin	5,121,420	7,579,017
Northern	16,741,504	94,683,893
Southeastern	2,018,289	10,873,787
Southwestern	1,802,085	4,680,068
Western	8,980,189	32,718,492
Totals	34,663,487	150,535,257

OIL AND GAS PRODUCTION BY COUNTY IN 1978

County	Barrels Oil	MCF Gas
Allegan	118,246	65,072
Antrim	328,775	1,489,924
Arenac	162,164	0
Barry	6,938	0
Bay	154,838	0
Benzie	47,323	26,186
Calhoun	1,530,736	4,535,315
Cass	23,450	0
Cheboygan	2,899	0
Clare	329,498	46,172
Crawford	1,463,945	2,441,218
Eaton	357,710	3,182,682
Genesee	16,687	0
Gladwin	250,192	0
Grand Traverse	4,937,047	49,906,255
Gratiot	9,081	30
Hillsdale	941,519	3,252,659
Ingham	1,685,010	3,490,200
Isabella	107,159	0
Jackson	328,720	1,970,310
Kalkaska	3,865,011	24,814,971
Kent	50,576	0
Lake	69,168	0
Lapeer	106,683	3,239
Lenawee	260	0
Livingston	880	1,274,959
Macomb	6,685	2,679,567
Manistee	7,978,033	26,877,199
Mason	245,964	2,384,962
Mecosta	24,095	34,318
Midland	149,922	0
Missaukee	625,036	351,078
Monroe	2,816	0
Montcalm	65,423	0
Montmorency	1,209	0
Muskegon	6,424	0
Newaygo	8,272	0
Oakland	558	16,748
Oceana	23,273	0
Ogemaw	589,070	187,245
Osceola	169,452	27,110
Oscoda	803	0
Otsego	6,094,111	16,005,339
Ottawa	64,367	79,681
Presque Isle	381	0
Roscommon	350,909	260,182
Saginaw	13,705	0
Shiawassee	6,738	0
St. Clair	622,522	1,676,305
Tuscola	54,731	0
Van Buren	7,772	0
Washtenaw	0	0
Wayne	7,646	0
Wexford	649,055	3,456,331
Totals	34,663,487	150,535,257

OIL AND GAS PRODUCTION BY MONTH IN 1978

	Barrels Oil	MCF Gas
January	2,563,759	10,667,618
February	2,557,655	11,305,457
March	2,856,990	12,794,175
April	2,866,167	12,410,634
May	3,050,521	12,712,591
June	2,963,747	12,342,491
July	3,147,278	12,772,588
August	3,111,049	13,120,135
September	2,898,032	12,858,017
October	3,005,367	12,815,949
November	2,857,463	13,099,025
December	2,785,461	13,636,577
Totals	34,663,487	150,535,257

* * * NATURAL GAS LIQUIDS * * *

The amount of liquids produced from gas-condensate reservoirs associated with northern and western Michigan Silurian reefs increased during 1978. These liquids, produced from wells classified as gas wells, are included in the yearly oil production totals shown in tabulations in this publication. Wells officially determined to be gas wells are assigned to the Public Service Commission for well connection permits and determination and jurisdiction of gas production rates. There is no restriction on the amount of liquids produced along with the gas. Gas plants operated by Shell Oil Company and Amoco Production Company in Kalkaska County strip natural gas liquids from the gas. The liquids are then sold to another company through the Shell pipeline that terminates at Marysville, Michigan.

An attempt has been made to maintain records of condensate production from the northern reef reservoirs discovered since 1969. Production-Proration Unit records show the following figures for condensate liquids:

CONDENSATE PRODUCTION

Year	Barrels
1969	0
1970	18,946
1971	98,668
1972	125,768
1973	335,041
1974	1,187,498
1975	1,863,338
1976	1,896,870
1977	1,991,330
1978	2,295,263
Total	9,812,722

Gas plant operations are summarized in Table 6. It should be noted that the LPG recovery figures for the Amoco and Shell plants in Kalkaska County include stabilized condensate as well as LPGs.

A no-flare order, enacted as a conservation measure, prohibits the flaring of oil-well gas and requires Salina-Niagaran oil wells in specified counties to be shut-in until a market connection is achieved for the sale of the gas or an exception to the order is granted. Consequently, Special Order No. 3-71, amended, in effect since late 1971, tends to temporarily curtail production from Salina-Niagaran oil wells until gas gathering pipelines are laid and connections made.

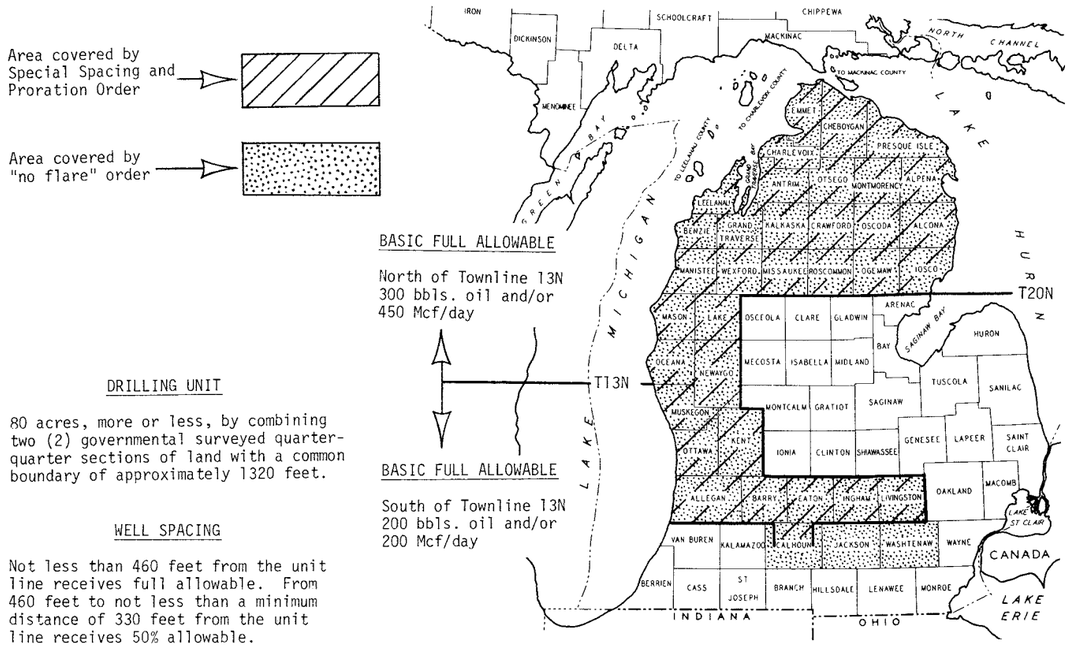
Another order, Special Order No. 1-73, deals with spacing and proration of Salina-Niagaran wells in specific counties. This order established basic 80-acre drilling units (either stand-up or lay-down units) for Salina-Niagaran oil and/or gas wells and statewide proration for Salina-Niagaran oil reservoirs in the specified counties or parts of counties covered by the order. The area covered by the no-flare order and the spacing-proration order are shown on the map below along with information on the drilling unit, well spacing, and basic oil-gas allowables. These prudent and justifiable conservation measures effectively prevent waste of millions of cubic feet of valuable and much needed gas that might have been flared in past years, and these measures should ultimately result in more efficient drainage of reef reservoirs and a greater recovery of the liquid hydrocarbons.

* * * OIL AND GAS VALUATION * * *

Records maintained by the Production-Proration Unit indicate the average price paid at the wellhead in 1978 for Michigan crude oil, including condensate, was $12.34 per barrel compared with $10.95 per barrel in 1977. The gross value of these products amounted to $427,881,248 as compared with $360,994,743 in 1977. The value of Michigan produced natural gas continued to rise in 1978. The average price of gas sold at the wellhead was $1.11 per Mcf as compared with $1.10 per Mcf in 1977. The gross value of this product amounted to $166,920,524 in 1978 as compared with $145,969,976 in 1977.

* * * OIL AND GAS IMPORTS AND EXPORTS * * *

Total imports to Michigan refineries of U.S. domestic and foreign and Canadian crude oil amounted to 30,062,431 barrels in 1978, a decline from the 31,126,627 barrels imported in 1977. Imports of U.S. domestic and foreign crude to Michigan refineries increased from 22,890,304 barrels in 1977 to 24,223,605 barrels in 1978.



Imports of Canadian crude via pipeline from western Canada oil fields continued to decline. Canadian imports amounted to 8,236,323 barrels in 1977 but declined to 5,838,826 barrels in 1978. The trend of U. S. domestic and foreign and Canadian imports to Michigan refineries from 1962 through 1978 is shown graphically. Imports by month during 1978 were reported by refineries as follows:

1978 CRUDE OIL IMPORTS (Bbls.)

	Domestic and Foreign	Canadian	Total
January	1,652,009	249,852	1,901,861
February	1,868,074	512,786	2,380,860
March	1,948,660	478,204	2,426,864
April	1,596,626	787,512	2,384,138
May	1,608,829	391,850	2,000,679
June	1,649,666	193,800	1,843,466
July	1,840,569	258,524	2,099,093
August	2,952,233	431,459	3,383,692
September	2,169,290	849,611	3,018,901
October	2,020,213	307,579	2,327,792
November	2,019,266	555,859	2,575,125
December	2,898,170	821,790	3,719,960
Total	24,223,605	5,838,826	30,062,431

Most Michigan produced crude oil goes to Michigan refineries but some is exported. The amount credited to out-of-state terminals increased from 7,241,754 barrels in 1977 to 7,821,653 barrels in 1978. Records provided to the Production-Proration Unit by companies reporting exports of Michigan crude are as follows:

1978 CRUDE OIL IMPORTS (Bbls.)

January	467,328
February	495,514
March	520,797
April	490,798
May	1,204,936
June	668,901
July	537,405
August	595,992
September	800,772
October	822,462
November	580,007
December	636,741
Total	7,821,653

Natural gas imports to Michigan markets and gas storage fields in 1978 via interstate pipelines, primarily from Texas, Louisiana, Oklahoma, and Kansas fields, amounted to 767,204,128 Mcf, a decrease from the 772,470,777 Mcf imported in 1977. Compilations by the Office of Gas Operations, Michigan Public Service Commission, show the following monthly imports during 1978:

1978 PIPELINE GAS IMPORTS (Mcf)

January	61,087,176
February	55,651,302
March	69,862,152
April	65,060,533
May	67,302,921
June	67,033,368
July	69,443,003
August	62,664,419
September	51,689,415
October	53,758,109
November	70,883,127
December	72,768,603
Total	767,204,128

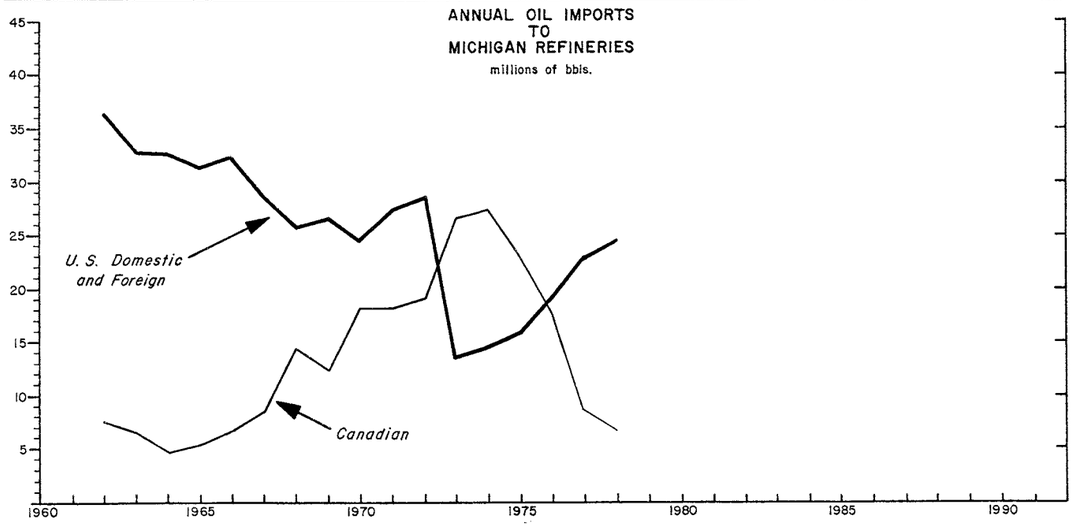
* * * NEW FIELD AND POOL DISCOVERIES * * *

Once again Silurian reefs were the main type of oil and gas trap found this year. All appear to have been located by seismic exploration methods. Most were found along the northern reef trend extending from Mason County to Presque Isle County. Others were found in the southern part of the basin in the Calhoun-Eaton-Ingham County area, and in the Macomb-St. Clair County area of the Southeastern District.

All the new discoveries are tentatively classified as Class E pools having possible oil and gas recoveries as defined by the Committee of Statistics of Drilling, American Association of Petroleum Geologists. These classes, shown below, are used to give some estimate or measure of reserves found by a discovery well.

Class A - Over 50 million barrels oil or 300 BCF gas
Class B - 25-50 million barrels oil or 150-300 BCF gas
Class C - 10-25 million barrels oil or 60-150 BCF gas
Class D - 1-10 million barrels oil or 6-60 BCF gas
Class E - 1 million barrels or less oil, or less than 6 BCF gas
Class F - Abandoned as non-profitable

Michigan wells are initially classified as near as possible according to guidelines established by AAPG and API (AAPG Bulletin, Vol, 58/8, August 1974, pp. 1501-1503). Classifications such as exploratory, development, and the various types of service wells, are made after inspection of appropriate oil and gas maps and noting



1978 DISCOVERY WELLS

County Location	Field Name	Operator and Lease	Permit Number	Depth to Pay	Total Depth	Initial Production n=(N)IP BOPD t=(T)IP MCFGPD	Producing Formation	Basis for Loc.	AAPG Pool Class
NEW FIELDS									
Calhoun 19-1S-4W	Clarence 19-1S-4W, Pool B	J. O. Mutch R. Alexander #1-19	32239	3196	3307	SIGW-Gauge Not Available	Salina A-1 Carb.	Seis.	E
Calhoun 26-1S-6W	Convis 26-1S-6W	Fortuna Oil Co. Bramble-French Unit #1A-26	31998	2926	3007	2 +50 Mcf^{t} +20 BWD	Salina-Niagaran	Acreage	E
Calhoun 16-1S-5W	Cal-Lee (Ext. Disc.)	Collins Bros. Oil Co. Velliquette-LaVoy et al #5-16	31740	3084	3306	SIGW-Gauge Not Available	Niagaran	Acreage	E
Calhoun 14-1S-5W	Lee 14-1S-5W	Alex J. Mymachod H.&G.Nagera & A.&M. Mymachod #1-14	31867	3132	3256	318 +178 Mcfgd^{t}	Niagaran	Acreage	E
Calhoun 34-1S-5W	Lee 34-1S-5W	Robert J. Mannes Mather et al #1	32380	2985	3165	200 Mcf^{t} +240 BDW	Salina A-1 Carb.	Acreage	E
Cass 31-7S-14W	Juno Lake	Vernon E. East Dale E. Charlston #1	32484	724	730	F15^{n}	Traverse	Acreage	E
Eaton 1-1N-3W	Hamlin 1-1N-3W	Amoco Production Co. Stowell Unit #1-1	32548*	3813	4190	213 +140 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 14-26N-11W	Blair 14-26N-11W	Getty Oil Co. Jones-State-Blair #1-14	32142	5767	5930	621 +1350 Mcf^{t} +20 BWD	Niagaran	Seis.	E
Grand Traverse 22-26N-11W	Blair 22-26N-11W, Pool A	North. Mich. Exp. Co. Frank S. Schumsky #3-22	32248	5634	5958	98 Cond./Day +3024 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 9-26N-10W	East Bay 18-26N-10W	Traverse Corp. Kinney et al #1-18	32037*	5603	5866	452 +700 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 25-27N-10W	East Bay 25-27N-10W	Shell Oil Co. State-East Bay #3-25	31895	5930	6062	301 +285 Mcf^{t} +19 BWD	Salina-Niagaran	Seis.	E
Grand Traverse 27-25N-11W	Mayfield 27-25N-11W	Shell Oil Co. Hill Estate-Homrich #2-27	32336	6547	6767	61 Cond./Day +2743 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 35-26N-10W	Paradise 35-26N-10W	Shell Oil Co. Sedlacek et al #3-35B	32154*	6616	6762	102 Cond./Day +2979 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 17-26N-9W	Union 17-26N-9W	Amoco Production Co. State-Union "N" #2-17	31692	6448	6540	96 Cond./Day +3600 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 20-26N-9W	Union 20-26N-9W	Amoco Production Co. Scharmen #1-20	32375	6400	6731	4300 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 21-26N-9W	Union 21-26N-9W	Amoco Production Co. State-Union "M" #1-21	31364	6758	6889	155 Cond./Day +3500 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 22-26N-9W	Union 22-26N-9W	Amoco Production Co. State-Union "O" #1-22	32401	6740	6881	78 Cond./Day +4000 Mcf^{t}	Niagaran	Seis.	E
Grand Traverse 31-26N-9W	Union 31-26N-9W	Amoco Production Co. Law Unit #1-31	32274	6608	7082	SIGW-Gauge Not Available	Niagaran	Seis.	E
Grand Traverse 20-27N-9W	Whitewater 20-27N-9W	Amoco Production Co. State-Whitewater "J" #1-20	32515	6095	6360	312 +268 Mcf^{t}	Niagaran	Seis.	E
Ingham 17-1N-2W	Onondaga 17-1N-2W, Pool B	Mobil Oil Corp. Trefry-Simot Unit #1	32051	3604	3907	73 +1400 Mcf^{t}	Niagaran	Seis.	E
Ingham 18-1N-2W	Onondaga 18-1N-2W	Kulka & Schmidt & Mich. Oil Co. VFW Nat'l. Home et al #2-18	32024	3686	3820	220 +158 Mcf^{t}	Niagaran	Seis.	E
Ingham 18-1N-2W	Onondaga 18-1N-2W, Pool A	Michigan Oil Co. VFW Nat'l. Home-Miller #1-18	32402	3597	3700	552 Mcf^{t}	Salina-Niagaran	Seis.	E
Isabella 13-13N-6W	Rolland	Chase Oil Corp. Eldred #1-13	32382	1314	1328	1500 Mcf^{n}	Michigan Stray	Acreage	E
Kalkaska 16-28N-5W	Blue Lake 16-28N-5W, Pool A	Traverse Corp. Moriartey et al #1-16	32723	7062	7213	467 +888 Mcf^{t}	Niagaran	Acreage	E
Kalkaska 20-28N-5W	Blue Lake 20-28N-5W	Amoco Production Co. State-Blue Lake "G" #1-20	32117	6956	7207	364 +275 Mcf^{t}	Niagaran	Seis.	E
Kalkaska 5-26N-8W	Boardman 6-26N-8W, Pool A	Shell Oil Co. State-Boardman #2-6	32303*	6710	6842	3 Cond./Day +1232 Mcf^{t} +37 BWD	Niagaran	Seis.	E
Kalkaska 36-28N-6W	Cold Springs 36-28N-6W	Amoco Production Co. Simpson "S" #2-36	32193	6988	7425	168 Cond./Day +3300 Mcf^{t}	Niagaran	Seis.	E
Kalkaska 11-27N-7W	Kalkaska 11-27N-7W	Shell Oil Co. State-Kalkaska #1-11	32488	6876	6950	300 +451 Mcf^{t}	Niagaran	Seis.	E
Kalkaska 24-27N-7W	Kalkaska 24-27N-7W, Pool A	Shell Oil Co. Hem Associates #2-24	31949*	7101	7242	133 Cond./Day +5566 Mcf^{t} +62 BWD	Niagaran	Seis.	E
Kalkaska 10-27N-8W	Kalkaska 10-27N-8W	North. Mich. Exp. Co. State-Kalkaska #1-10	31983	6485	6666	310 +617 Mcf^{t}	Niagaran	Seis.	E
Livingston 11-1N-6E	Green Oak 11-1N-6E	Arbuckle Corp. Amer. Aggregates Corp. #1-11	31999	3612	3998	3.1 MMcf^{t}	Niagaran	Seis.	E
Manistee 17-24N-13W	Cleon 17-24N-13W	Reef Petroleum Corp. Stephens-Merkel #1-17A	32505*	5408	5523	24 Cond./Day +588 Mcf^{t} +50 BWD	Niagaran	Seis.	E
Manistee 29-24N-13W	Cleon 29-24N-13W	Traverse Corporation Fed. Land Bank & Marshall Ent#1-29	31958	5664	5770	85 Cond./Day +933 Mcf^{t} +45 BWD	Niagaran	Seis.	E
Manistee 32-24N-13W	Cleon 32-24N-13W, Pool A	Shell Oil Co. State-Cleon et al #2-32	32068	5363	5773	298 +478 Mcf^{t}	Niagaran	Seis.	E
Manistee 2-22N-16W	Manistee 2-22N-16W, Pool A	Kirby Exploration Co. Anderson #4-2	32103	4162	4480	213 +270 Mcf^{t} +13BWD	Niagaran	Seis.	E
Manistee 31-22N-16W	Manistee 31-22N-16W	Shell Oil Co. Kaap #1-31	31819	4021	4330	3111 Mcf^{t}	Niagaran	Seis.	E

1978 DISCOVERY WELLS CONTINUED

Manistee 24-22N-17W	Manistee 24-22N-17W	Energy Acquisition Corp. State-Manistee et al #2-24	32354*	3862	3993	20 +2 BWD		Niagaran	Seis.	E
Manistee 20-23N-14W	Maple Grove 20-23N-14W, Pool A	Wolverine Gas & Oil Co., Inc. Martella & Pahkanen #1-20	32167	5068	5260	F312 +624 Mcf^{t}		Niagaran	Seis.	E
Manistee 20-24N-14W	Springdale 20-24N-14W	Shell Oil Co. State-Springdale #1-20	32045	4764	4915	336 +330 Mcf^{t}		Niagaran	Seis.	E
Manistee 35-24N-14W	Springdale 35-24N-14W	Shell Oil Co. State-Springdale #2-35A	32105*	5026	5417	253 +1434 Mcf^{t} +3 BW		Niagaran	Seis.	E
Missaukee 30-22N-6W	Falmouth-Dundee Pool	Dart Oil & Gas Corp. Edwards #4-30	32351	3851	5250	45 +126 Mcf^{t}		Dundee	Acreage	E
Montmorency 14-32N-1E	Montmorency 14-32N-1E	North. Mich. Exp. Co. Can. Ck. Ranch Assoc.-Herzog#1-14	32222	4633	4785	276^{t}		Niagaran	Seis.	E
Newaygo 23-14N-11W	East Goodwell-Dundee Pool	Hansen Brothers State-Goodwell #6	32446	3294	3314	30^{t}		Dundee	Acreage	E
Oceana 14-13N-17W	Rothbury	Clarence Crawford Rickert & Skinner #1	31736	1103	1120		300 Mcf^{t}	"Berea"	Acreage	E
Otsego 35-30N-3W	Bagley 35-30N-3W, Pool A	Amoco Production Co. Geraldine #2-35	31806	6270	6435	475 +310 Mcf^{t}		Niagaran	Seis.	E
Otsego 5-29N-2W	Chester 5-29N-2W	Amoco Production Co. State-Chester Unit "C" #1-5	32157	6340	6580	456 +390 Mcf^{t}		Niagaran	Seis.	E
Otsego 34-30N-2W	Chester 34-30N-2W	Amoco Production Co. State-Chester "E" #1-34	32335	6364	6523	387 +360 Mcf^{t}		Niagaran	Seis.	E
Otsego 11-29N-3W	Otsego Lake 2-29N-3W	Shell Oil Co. Styles #2-2	31989*	6448	6665	411 +519 Mcf^{t}		Niagaran	Seis.	E
Otsego 29-29N-3W	Otsego Lake 20-29N-3W	Shell Oil Co. Palombit #1-29A	32032*	6412	6778	476 +554 Mcf^{t}		Niagaran	Seis.	E
Presque Isle 19-33N-2E	Allis 19-33N-2E	Shell Oil Co. Ledges Farms-St.-Allis #2-19A	31966*	3765	4002	334 +291 Mcf^{t}		Niagaran	Seis.	E
Presque Isle 26-34N-4E	Bismarck 26-34N-4E (Ext.Disc)	Mich. Nat. Res. Co. & Petro.,Inc Sorgat-Trapp #1-26	32071	3395	3494		SIGW-Gauge Not Available	Niagaran	Seis.	E
Presque Isle 1-33N-3E	Case 1-33N-3E	Shell Oil Co. Myers-State-Case #1-1	32314	3608	3846		240 Cond./Day +4616 Mcf^{t}	Niagaran	Seis.	E
Wexford 1-24N-12W	Wexford 1-24N-12W, Pool A	Shell Oil Co. Runyon #2-1	32348	6167	6612		128 Cond./Day +2707 Mcf^{t}	Niagaran	Seis.	E
Wexford 4-24N-12W	Wexford 4-24N-12W	Shell Oil Co. Middaugh et al #2-4	32013	6095	6316		64 Cond./Day +3119 Mcf^{t} +52 BWD	Niagaran	Seis.	E

*Directionally drilled hole. Total depth listed is the true vertical depth and not the measured depth. Depths to pay are also true vertical depths.

Note: t = (T)IP refers to initial production after acid, sandfracture, or a combination of well stimulation methods.
n = (N)IP refers to natural initial potential or production.
Cond. = barrels condensate

The wells listed as 1978 Niagaran reef discoveries are subject to reclassification as to product. Future development may also indicate reservoir connection with a nearby reef reservoir previously classified as a discovery and thus reclassified to development well status.

the location of the test in reference to established fields, dry holes, etc. Gas storage facility wells, water injection wells and other types of service wells are generally designated as such by the operator. The Lahee classification system for designating exploratory or development wells is particularly adaptable to structural traps but does not adapt to all situations involving small reefs such as are found in Michigan. Because of the apparent small areal extent of most reefs as shown by seismic anomalies and the close proximity of one reef to another, especially in the northern and southern reef belts, it has become increasingly difficult to classify with certainty all new well locations as exploratory or development.

Discovery wells credited to 1978 may show a few wells that were reclassified during 1979. Reservoir performance may show that a well previously classified as a development well should actually be considered as being in a separate reservior or pool. Likewise, a so-called discovery well may actually turn out to be a development well to a nearby reef reservoir. Also, a discovery well may be completed as an oil well but at sometime later be reclassified as a gas well and conversely, a gas well may later be reclassified as an oil well. Changes in classification may be the result of action by the regulating agency after enough data has been accumulated on the well or wells, or may result from new data presented at public hearings and the decision of the Supervisor of Wells after thorough consideration of the new data.

An analysis of discovery wells according to geologic system and an analysis of drilling objective penetrated at total depth follows.

ANALYSIS OF 1978 DISCOVERY WELLS BY GEOLOGIC SYSTEM

System	Formation or Pay	Number of Discoveries 1976	1977	1978
Pennsylvanian		-	-	-
Mississippian	"Michigan Stray Ss."	1	-	1
	"Berea Sandstone"	-	-	1
Devonian	Antrim Shale	-	3	-
	"Traverse Lime"	2	1	1
	Dundee	1	-	2
	"Reed City"	-	-	-
	Detroit River "Sour Zone"	-	-	-
	Richfield	-	1	-
Silurian	Salina E Zone	-	-	-
	Salina A-1 or A-2	-	1	2
	Niagaran reef*	62	65	47
Ordovician	Trenton-Black River	-	-	-
	Prairie du Chien	-	-	-
Cambrian	(Gas shows reported in past years)			

*Most reefs also have associated Salina A-1 oil or gas pays.

DRILLING OBJECTIVES IN MICHIGAN

System	Formation or Pay	Percentage 1976	1977	1978
Pennsylvanian		-	-	-
Mississippian	"Michigan Stray Ss."	4.1	7.7	8.9
	"Berea Sandstone"	.5	-	.2
Devonian	Antrim Shale	-	.7	-
	"Traverse Lime"	5.2	4.2	2.4
	Dundee	9.2	6.7	5.8
	"Reed City"	.5	.2	.9
	Detroit River "Sour Zone" & Richfield	4.0	2.7	7.7
Silurian	Salina-Niagaran	72.5	70.5	69.6
Ordovician	Trenton-Black River	2.9	5.9	3.4
	St. Peter Ss. or Prairie du Chien	.9	1.1	1.1
Cambrian or Precambrian	Undifferentiated	.2	.3	-

* * * STATE OIL AND GAS REVENUE * * *

Total State revenue credited to 1978 and derived from royalty, rental, bonus from lease sales, and application-assignment fees amounted to $19,392,210.27 This figure is derived from these components.

Hydrocarbon royalties	
Oil & Condensate	$11,555,561.70
Gas, Casinghead gas, LPG and Shut-in royalty	6,689,194.32
Subtotal	$18,244,756.02
Rentals	$ 1,131,238.25
Bonus	14,483.00
Application-Assignment fees	1,733.00
Subtotal	$ 1,147,454.25
Total Revenue	$19,392,210.27

Oil and gas revenue figures according to year and source are found in Part 3.

* * * WELL RECORDS AND OIL AND GAS MAPS * * *

OIL AND GAS WELL RECORDS. Descriptive geological logs and driller's logs are available for over 32,000 tests, including exploratory, development, facility and other types of wells. Individual well records may be purchased at a nominal cost from the Geological Survey Division. Electric or radiation logs of any type are not available for distribution or sale.

OIL AND GAS FIELD MAPS. Blueprint copies of oil and gas field maps are available for every county in the Southern Peninsula. The maps show locations of oil and gas test but do not show geological data or structural contour lines. County map scales are 1" = 1 mile. Blueprint field maps are available for many oil and gas fields. These maps show well locations, well permit numbers, operators and lease names. They do not show geological data or structural contour lines. Field map scales are mainly 4" = 1 mile. All manuscript maps or tracings from which blueprint copies are made are posted on a regular basis. An oil and gas field maps list may be obtained from the Geological Survey Division upon request.

TABLE 1 DRILLING PERMITS, WELL COMPLETIONS, DRILLED FOOTAGE BY COUNTY, 1978

Classification of New Hole Completions
Does not include reworked wells or old wells drilled deeper

COUNTY	OIL/GAS PERMITS ISSUED	OIL AND GAS TESTS Completed Explor.	Devel.	RESULTS Oil Wells	Gas Wells	Dry Holes	SERVICE WELLS Completed G.S.	B.D.W.	TOTAL WELLS DRILLED	TOTAL DRILLED FOOTAGE Explor.	Devel.	Fac.	Average Well Depth
Alcona	1	1	0	0	0	1	0	0	1	2,030	0	0	2030
Allegan	4	2	4	3	0	3	0	0	6	6,454	11,721**	0	3029
Antrim	1	1	0	0	0	1	0	0	1	2,364	0	0	2364
Arenac	2	2	0	0	0	2	0	0	2	6,103	0	0	6103
Bay	2	0	0	0	0	0	0	0	0	0	0	0	0
Calhoun	20	13	16	5	10	14	0	0	29	41,483	60,882	0	3530
Cass	5	3	6	5	0	4	0	0	9	2,536	5,390	0	881
Cheboygan	24	11	3	3	0	11	0	0	14	44,993	8,700	0	3835
Clare	21	1	11	10	0	2	0	0	12	5,315	56,758	359*	5203
Crawford	10	1	11	7	3	2	0	0	12	7,168	61,371	0	5712
Eaton	13	6	4	2	0	8	0	0	10	22,368	16,166	0	3853
Genesee	1	0	0	0	0	0	0	0	0	0	0	0	0
Gladwin	3	0	2	2	0	0	0	0	2	0	9,003**	142*	4573
Grand Traverse	81	38	44	14	15	53	0	0	82	231,908	242,766	0	5789
Gratiot	3	0	0	0	0	0	3	0	3	0	0	3,270	1090
Hillsdale	7	3	12	7	0	8	0	0	15	12,401	44,852**	0	3817
Ingham	6	7	5	4	1	7	0	3(1)	15	27,466	19,686	11,415	3904
Isabella	6	5	3	0	2	6	0	0	8	17,172	6,764	0	2992
Jackson	2	1	0	0	0	1	0	0	1	5,686	0	0	5686
Kalamazoo	2	1	0	0	0	1	0	0	1	3,000	0	0	3000
Kalkaska	60	31	21	12	8	32	0	0	52	209,233	124,190	0	6412
Kent	3	0	0	0	0	0	0	0	0	0	0	0	0
Lake	2	0	0	0	0	0	2	0	2	0	0	7,898	3949
Lapeer	1	0	0	0	0	0	0	0	0	0	0	0	0
Lenawee	1	0	0	0	0	0	0	0	0	0	0	0	0
Livingston	5	5	0	0	1	4	0	0	5	18,059	0	0	3612
Macomb	10	3	6	0	0	9	0	0	9	10,213	20,867	0	3453
Manistee	87	30	50	24	9	47	0	1	81	127,993	229,448	2,294	4441
Mason	7	2	2	0	1	3	0	0	4	12,000	6,963	0	4741
Mecosta	8	1	0	0	0	1	7	0	8	3,916	0	9,895*	1726
Midland	4	2	2	1	0	3	0	0	4	7,727	6,946	0	3668
Missaukee	29	1	16	14	0	3	0	1	18	5,250	82,677	4,155	5116
Montcalm	14	1	0	0	0	1	13	0	14	3,136	0	16,896	1431
Montmorency	12	7	0	1	0	6	0	0	7	33,194	0	0	4742
Newaygo	6	1	1	1	0	1	3	0	5	3,314	1,131	3,673*	1624
Oakland	16	5	5	0	1	9	0	0	10	21,568	17,900	0	3947
Oceana	5	4	0	0	1	3	0	0	4	15,933	0	0	3983
Ogemaw	14	0	9	9	0	0	0	5(1)	14	0	24,828	13,904	2767
Osceola	4	0	0	0	0	0	4	0	4	0	0	12,150*	3038
Otsego	44	25	9	11	0	23	0	3(1)	37	134,712	42,744	16,055	5230
Ottawa	4	0	0	0	0	0	0	0	0	0	0	243*	0
Presque Isle	51	31	1	1	2	29	0	0	32	99,366	3,383	0	3211
Roscommon	5	0	2	2	0	0	0	1(1)	3	0	9,585	4,375	4653
Saginaw	3	1	0	0	0	1	0	0	1	2,952	0	0	2952
Sanilac	2	1	0	0	0	1	0	0	1	2,356	0	0	2356
St. Clair	49	7	2	0	0	9	28	0	37	19,760	7,107	122,044	4025
St. Joseph	2	2	0	0	0	2	0	0	2	2,233	0	0	1122
Tuscola	8	1	6	5	0	2	0	0	7	3,880	21,284	0	3595
Van Buren	7	3	1	1	0	3	0	0	4	5,560	1,123	0	1671
Washtenaw	5	5	0	0	0	5	0	0	5	16,918	0	0	3384
Wexford	8	3	6	2	3	4	0	0	9	19,168	36,503	0	6186
TOTAL	690	268	260	146	57	325	60	14	602	1,216,888	1,180,738	228,768	

*Includes some facility footage credited to old wells drilled deeper.
**Includes some development footage credited to old wells drilled deeper.
***Includes some exploratory footage credited to old wells drilled deeper.
(1) Water injection wells involved in secondary recovery operations.

Part 2 brings together general information on Michigan's oil and gas fields, gas storage reservoirs, LPG storage facilities, gas plant operations, refinery facilities and other items.

TABLES 2, 3 and 4 list Michigan's oil and gas fields and gas storage reservoirs. The symbol on the left margin of the table indicates the official classification of fields and pools at the end of the year. Classifications may be changed as warranted. Official field names are listed alphabetically in the first column and the producing pool, or pools, are shown under the heading Producing Formation or Pool. Most fields consist of one pool with oil or gas production coming from a single reservoir within a formation. Some fields have two or more separate pools, each producing from a different formation or stratigraphic interval and at a different depth. Most multi-pool fields are associated with a common structural feature. Salina-Niagaran reef oil or gas accumulations are mostly single-pool fields. Some, however, have several separate reef reservoirs designated as Pool A, Pool B and so on. Most have been so designated by administrative action following public hearings. Also, a few of the listed fields actually consist of two or more hydrocarbon accumulations which for administrative purposes have been consolidated under one field name.

Location of fields according to township, range and sections are found at the bottom of the field block. The listed sections are those which have, or have had, producing wells assigned to the field or pool. The geographic location of fields and pools can be found by township and range on the center-spread oil and gas field map. Due to space limitations, all field names are not shown on the map.

The Pay Zone part of the table generally refers to data for the discovery well for the field or pool. The indicated pay thickness relates to the amount of pay opened or perforated in the discovery well and does not necessarily indicate total net or gross pay for the reservoir.

The Deepest Formation or Pool Tested column indicates the stratigraphically oldest formation penetrated and the deepest total depth reached beneath the field area. Data in these columns are updated periodically.

The Number of Wells column indicates the number of successful field wells drilled in the field to the end of the specified year, the number completed as producing wells during the specified year, the number abandoned during the year and the number of active wells at the end of the specified year.

The Drilled Acres column indicates the total number of acres assigned to the field or pool according to individual well drilling units assigned to each producing well completed in the field or pool. Except as provided by special orders covering drilling units, rules promulgated under Act No. 61, P.A. of 1939, as amended, call for a minimum 40-acre unit consisting of a governmental quarter-quarter section of land. Special Order No. 1-73 calls for basic 80-acre drilling units for Salina-Niagaran or deeper tests in specified areas of the state. These 80-acre units are formed by two governmental quarter-quarter sections of land having a common boundary of approximately 1320 feet. In past years drilling units have been 10, 20 or 40 acres for oil wells. A field may have had a 10 or 20-acre drilling unit for one pool and a 40-acre unit for a deeper formation pool. During the development of a field or pool the drilling unit size may change. Subsequent wells are assigned acreage values in accordance with the new unit size. Gas well units, especially for Michigan Stray Sandstone reservoirs, have generally been 160-acre units. Other sizes currently in use for gas wells are 40, 80, 320 and 640-acre units, or a unit size based on seismic and reservoir data. Reef reservoirs, especially in the northern reef trend, have been assigned 80, 160, 640, or a unit based on seismic data. Changes in drilling units, off-pattern wells, etc., complicate the maintenance of accurate figures during the lifetime of a given field or pool.

Recovery Per Acre Drilled figures for oil pools are derived by dividing the cumulative production figure by the drilled acres figure.

Gas Fields, Gas-Condensate Fields. Some fields are listed as "shut-in" and show no production figures. In the case of Niagaran reef fields classified as gas-condensate reservoirs, virtually all those listed as shut-in at the end of the year were waiting pipeline construction or gas-handling facilities. Others, mainly small dry-gas reservoirs in shallower formations, are listed as shut-in because of slow field development, small reserves or lack of marketing facilities. Other fields, not considered to have commerical-size gas accumulations, produce small quantities of unmetered gas which is used for domestic purposes and in some cases, lease fuel.

GAS STORAGE RESERVOIRS. Most gas storage reservoirs were originally classified as gas fields or pools. Upon depletion or near depletion of native gas they were converted to storage reservoirs. The producing sections listed on gas storage reservoir tables do not necessarily relate to current gas storage area or boundaries. The sections or parts of sections listed are those which contained at least one producible oil or gas well assigned to the field or pool prior to conversion to gas storage operations. Further, the listed sections do not necessarily relate to potential or future gas storage area or boundary. The table listing undeveloped gas storage reservoirs has been discontinued.

LPG STORAGE. Surface and underground storage facilities for liquified petroleum gas.

OIL WELL GAS. This is casinghead gas produced incidental to the production of oil from pools or fields generally classified as oil accumulations.

NATURAL GAS LIQUIDS (CONDENSATE). Natural gas liquids are those portions of reservoir gas which are liquified at the surface in lease separators, field facilities, or gas processing plants. These liquids include but are not limited to: ethane, propane, butanes, pentanes, natural gasoline and condensate. On Tables 2 and 3 of this report, condensates from Michigan gas-condensate fields are shown under the oil production column.

WELL SAMPLE SETS. Well cuttings for over 9,000 wells are available for inspection at the Geological Survey Division, Michigan Department of Natural Resources, Lansing. Samples are contained in glass vials arranged in open trays. In addition, several thousand shallow geological test samples are also available for inspection. The Division does not maintain a core collection. Other sample and core repositories, not connected with the Division, are located at:

Subsurface Laboratory, Department of Geology, The University of Michigan, Ann Arbor, Michigan.

Department of Geology, Wayne State University, Detroit, Michigan.

Department of Geology, Western Michigan University, Kalamazoo, Michigan.

Department of Geology, Michigan State University, East Lansing, Michigan.

Department of Geology, Central Michigan University, Mt. Pleasant, Michigan.

TABLE 2 NORTHERN MICHIGAN SALINA-NIAGARAN OIL AND GAS FIELDS

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END (1978)	NUMBER OF WELLS COMP IN (1978)	NUMBER OF WELLS ABAND IN (1978)	NUMBER OF WELLS ACTIVE AT END (1978)	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
ALPENA COUNTY																				
GF	ALPENA 12-31N-8E	A-1 CARBONATE	1973	ALPENA	3,685	22 L		NIAGARA	3,875	1	ABANDONED 1978			160						
	ALPENA TWP., 31N-8E, SECTION 12																			
ANTRIM COUNTY																				
OF	MANCELONA 25-29N-5W	NIAGARAN REEF	1973	ANTRIM	6,449	8 G	33.6	NIAGARAN	6,764	1	0	0	1	80	28,322	211,007	370	30,495	2,638	40
	MANCELONA TWP., 29N-5W, SECTION 25																			
OF	MANCELONA 26-29N-5W	NIAGARAN REEF	1972	ANTRIM	6,499	61 D	40.7	NIAGARAN	6,850	1	0	0	1	80	29,387	171,066	330	35,116	2,138	100
	MANCELONA TWP., 29N-5W, SECTION 26																			
OF	MANCELONA 33-29N-5W	NIAGARAN REEF	1974	ANTRIM	6,538	10 D	44.6	NIAGARAN	6,810	2	0	0	2	80	41,682	61,792	161,407	266,787	772	25
	MANCELONA TWP., 29N-5W, SECTION 33																			
G-C	MANCELONA 34-29N-5W	NIAGARAN REEF	1974	ANTRIM	6,580	20 D	54	NIAGARAN	6,780	1	0	0	1	80	229,384	599,890	1,327,817	5,246,489	7,499	14
	MANCELONA TWP., 29N-5W, SECTION 34																			
BENZIE COUNTY																				
OF	COLFAX 36-25N-13W	NIAGARAN REEF	1976	BENZIE	5,842	10 D	39.5	NIAGARAN	6,015	2	0	0	2	80	47,323	75,753	26,186	55,590	947	27
	COLFAX TWP., 25N-13W, SECTION 36																			
CHEBOYGAN COUNTY																				
OF	FOREST 14-33N-1E	NIAGARAN REEF	1976	CHEBOYGAN	3,671	13 D	42.9	NIAGARAN	4,069	4	3	0	4	320	2,899	3,073			10	
	FOREST TWP., 33N-1E, SECTION 14																			
CRAWFORD COUNTY																				
OF	FREDERIC 1-28N-4W	NIAGARAN REEF	1975	CRAWFORD	6,604	30 D	49.8	NIAGARAN	6,880	2	0	0	2	160	0	588	0	172	4	
	FREDERIC TWP., 28N-4W, SECTION 1																			
OF	FREDERIC 2-28N-4W	NIAGARAN REEF	1973	CRAWFORD	6,390	92 D	47.0	NIAGARAN	7,019	2	0	0	2	160	83,868	427,273	164,127	520,605	2,670	
	FREDERIC TWP., 28N-4W, SECTION 2																			
OF	FREDERIC 4-28N-4W	NIAGARAN REEF	1974	CRAWFORD	6,923	20 D	45.0	NIAGARAN	7,265	2	0	0	2	160	104,011	284,360	213,712	407,957	1,777	
	FREDERIC TWP., 28N-4W, SECTION 4																			
OF	FREDERIC 7-28N-4W	NIAGARAN REEF	1973	CRAWFORD	7,000	10 D	45.6	NIAGARAN	7,161	1	0	0	1	80	41,143	104,360	98,801	258,030	1,304	3
	FREDERIC TWP., 28N-4W, SECTION 7																			
OF	FREDERIC 8-28N-4W	NIAGARAN REEF	1974	CRAWFORD	6,740	30 D	43.4	NIAGARAN	7,164	2	0	0	2	160	175,979	533,189	328,924	1,023,344	3,332	
	FREDERIC TWP., 28N-4W, SECTION 8																			
OF	FREDERIC 10-28N-4W	NIAGARAN REEF	1971	CRAWFORD	6,964	99 D	45.0	NIAGARAN	7,350	5	2	0	5	240	234,758	1,209,648	556,956	1,922,253	5,040	
	FREDERIC TWP., 28N-4W, SECTION 10																			
OF	FREDERIC 11-28N-4W	NIAGARAN REEF	1976	CRAWFORD	6,963	75 D	47.4	NIAGARAN	7,127	3	3	0	3	240	323,043	508,282	357,957	589,617	2,118	
	FREDERIC TWP., 28N-4W, SECTION 11																			
G-C	FREDERIC 13-28N-4W	NIAGARAN REEF	1972	CRAWFORD	6,789	427 D	68.4	NIAGARAN	7,470	1	0	0	1	160	2,448	2,658	24,676	24,698	17	
	FREDERIC TWP., 28N-4W, SECTION 13																			
OF	FREDERIC 16-28N-4W	NIAGARAN REEF	1976	CRAWFORD	7,254	19 D	46.1	NIAGARAN	7,483	1	0	0	1	80	12,648	17,440	44,007	90,382	218	
	FREDERIC TWP., 28N-4W, SECTION 16																			
G-C	FREDERIC 22-28N-4W	SALINA-NIAGARAN REEF	1973	CRAWFORD	6,950	289 D	65.5	NIAGARAN	7,615	1	0	0	1	160	6,657	7,853	41,267	56,033	49	
	FREDERIC TWP., 28N-4W, SECTION 22																			
G-C	FREDERIC 24-28N-4W	NIAGARAN REEF	1977	CRAWFORD	6,991	293 D		NIAGARAN	7,577	1	0	0	1	80	362	522			6	
	FREDERIC TWP., 28N-4W, SECTION 24																			
G-C	FREDERIC 27-28N-4W	SALINA-NIAGARAN REEF	1977	CRAWFORD	6,912	108 D		NIAGARAN	7,441	1	0	0	1	160	0	125	SHUT-IN		1	
	FREDERIC TWP., 28N-4W, SECTION 27																			
G-C	FREDERIC 29-28N-4W	NIAGARAN REEF	1972	CRAWFORD	7,420	71 D	50.0	NIAGARAN	7,578	4	3	0	3	320	150	1,278			4	
G-C	FREDERIC 29-28N-4W POOL A	NIAGARAN REEF	1973	CRAWFORD	6,907	260 D	65.0	NIAGARAN	7,535	1	0	0	1	320	35,367	43,542	447,747	539,198	136	
	FREDERIC TWP., 28N-4W, SECTIONS 20, 29																			
G-C	MAPLE FOREST 3-28N-3W	NIAGARAN REEF	1976	CRAWFORD	6,710	12 D		NIAGARAN	7,015	1	0	0	1	160	0	348	SHUT-IN		2	
	MAPLE FOREST TWP., 28N-3W, SECTION 3																			
GRAND TRAVERSE COUNTY																				
OF	BLAIR 14-26N-11W	NIAGARAN REEF	1978	GRAND TRAVERSE	5,767	39 D	47	NIAGARAN	5,930	2	2	0	2	160	1,277	1,277			8	
	BLAIR TWP., 26N-11W, SECTION 14																			
G-C	BLAIR 21-26N-11W	NIAGARAN REEF	1976	GRAND TRAVERSE	5,567	42 D	67.3	NIAGARAN	5,795	2	0	0	2	160	12,608	15,022	334,876	403,232	94	4
	BLAIR TWP., 26N-11W, SECTION 21																			
G-C	BLAIR 22-26N-11W	NIAGARAN REEF	1977	GRAND TRAVERSE	5,592	100 D	68.3	NIAGARAN	5,862	1	0	0	1	80	21,408	28,746	685,864	866,059	359	2
G-C	BLAIR 22-26N-11W POOL A	NIAGARAN REEF	1978	GRAND TRAVERSE	5,634	93 D	64.5	NIAGARAN	5,958	1	1	0	1	80	500	500	54,707	54,707	6	
	BLAIR TWP., 26N-11W, SECTION 22																			
OF	BLAIR 25-26N-11W	NIAGARAN REEF	1974	GRAND TRAVERSE	5,863	41 D	47.2	NIAGARAN	6,120	2	0	0	2	160	45,087	177,236	252,374	808,708	1,108	10
G-C	BLAIR 25-26N-11W POOL A	NIAGARAN REEF	1974	GRAND TRAVERSE	6,225	6 D	46.2	NIAGARAN	6,423	2	0	0	2	160	29,397	77,567	660,934	1,408,644	485	14
	BLAIR TWP., 26N-11W, SECTIONS 24, 25, 26																			
G-C	BLAIR 26-26N-11W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,804	76 D	53.0	NIAGARAN	6,035	1	0	0	1	80	2,684	5,694	221,054	329,914	71	6
G-C	BLAIR 26-26N-11W POOL A	NIAGARAN REEF	1977	GRAND TRAVERSE	5,930	10 D	55	NIAGARAN	6,110	1	0	0	1	80	9,904	10,032	434,806	434,806	125	
	BLAIR TWP., 26N-11W, SECTION 26																			
G-C	BLAIR 27-26N-11W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,563	125 D	61.5	NIAGARAN	5,820	1	0	0	1	80	10,587	18,348	221,323	349,160	229	50
	BLAIR TWP., 26N-11W, SECTION 27																			
OF	BLAIR 33-26N-11W	NIAGARAN REEF	1973	GRAND TRAVERSE	5,844	11 D	45.8	NIAGARAN	6,123	3	0	0	3	240	163,882	659,093	366,337	1,519,136	2,746	26
	BLAIR TWP., 26N-11W, SECTIONS 28, 33																			
G-C	BLAIR 34-26N-11W	NIAGARAN REEF	1970	GRAND TRAVERSE	5,826	124 D	60	CLINTON	6,316	2	0	0	2	320	31,055	69,155	633,436	2,448,919	216	
	BLAIR TWP., 26N-11W, SECTION 34																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END (1978)	NUMBER OF WELLS COMP IN (1978)	NUMBER OF WELLS ABAND IN (1978)	NUMBER OF WELLS ACTIVE AT END (1978)	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	BLAIR 35-26N-11W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,126	58 D	45.0	NIAGARAN	6,320	2	0	0	2	280	26,237	49,504	335,445	495,854	177	17
	BLAIR TWP., 26N-11W, SECTION 35																			
G-C	BLAIR 36-26N-11W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,205	14 D	52.0	NIAGARAN	6,405	3	0	0	3	480	186	786,240	276,875	11,556,952	596	
	BLAIR TWP., 26N-11W, SECTION 36 HAYFIELD TWP., 25N-11W, SECTION 1																			
OF	EAST BAY 11-26N-10W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,187	11 D	46.2	NIAGARAN	6,400	1	0	0	1	80	33,388	82,852	129,024	234,180	1,036	
	EAST BAY TWP., 26N-10W, SECTION 11																			
OF	EAST BAY 17-26N-10W	NIAGARAN REEF	1977	GRAND TRAVERSE	5,716	18 D	42.7	NIAGARAN	6,020	1	0	0	1	80	42,674	43,569	30,062	30,062	545	83
	EAST BAY TWP., 26N-10W, SECTION 17																			
OF	EAST BAY 18-26N-10W	NIAGARAN REEF	1978	GRAND TRAVERSE	5,603	8 D		NIAGARAN	5,866	2	2	0	2	160	93,588	93,588	73,288	73,288	585	20
	EAST BAY TWP., 26N-10W, SECTION 18																			
OF	EAST BAY 25-27N-10W	SALINA-NIAGARAN REEF	1978	GRAND TRAVERSE	5,930	84 D	33.7	NIAGARAN	6,062	1	1	0	1	80	12,251	12,251	7,606	7,606	153	
	EAST BAY TWP., 27N-10W, SECTION 25																			
G-C	GRANT 1-25N-12W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,807	32 D	62.6	NIAGARAN	6,060	1	ABANDONED 1977			80		36			1	
	GRANT TWP., 25N-12W, SECTION 1																			
OF	GRANT 3-25N-12W	NIAGARAN REEF	1974	GRAND TRAVERSE	5,353	33 D		NIAGARAN	5,744	1	0	0	1	80	47,954	211,748	0	34,548	2,647	115
OF	GRANT 3-25N-12W POOL A	NIAGARAN REEF	1977	GRAND TRAVERSE	5,381	12 D	37	NIAGARAN	5,724	1	0	0	1	160	6,261	18,094			113	21
	GRANT TWP., 25N-12W, SECTION 3																			
OF	GRANT 4-25N-12W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,469	18 D	37.7	NIAGARAN	5,724	1	0	0	1	80	5,897	18,688	198	1,089	234	158
	GRANT TWP., 25N-12W, SECTION 4																			
OF	GRANT 9-25N-12W	NIAGARAN REEF	1976	GRAND TRAVERSE	5,620	22 D	40.4	NIAGARAN	5,915	2	0	0	2	160	62,999	84,460	232,347	306,689	528	1
	GRANT TWP., 25N-12W, SECTION 9																			
OF	GRANT 10-25N-12W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,634	119 D	38.1	NIAGARAN	5,875	2	0	0	2	160	62,337	107,336	87,916	150,845	671	493
	GRANT TWP., 25N-12W, SECTION 10																			
G-C	GRANT 12-25N-12W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,767	50 D	67.1	NIAGARAN	6,030	3	0	0	3	240	8,543	107,291	783,562	2,810,085	447	18
	GRANT TWP., 25N-12W, SECTIONS 1, 12 DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, GRANT TOWNSHIP SECTION 11-25N-12W; AND THE SUBSURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, GRANT TOWNSHIP SECTION 12-25N-12W																			
G-C	GRANT 13-25N-12W	NIAGARAN REEF	1974	GRAND TRAVERSE	5,943	54 D	65.0	NIAGARAN	6,192	3	0	0	3	640	20,268	504,226	2,869,635	25,133,412	788	
	GRANT TWP., 25N-12W, SECTIONS 13, 14, 23																			
OF	GRANT 22-25N-12W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,741	156 D		NIAGARAN	6,188	2	1	0	2	240	115,910	254,855	53,682	108,960	1,062	
	GRANT TWP., 25N-12W, SECTION 22 DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, GRANT TOWNSHIP SECTION 27-25N-12W; AND THE SUBSURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, GRANT TOWNSHIP SECTION 22-25N-12W																			
G-C	GRANT 24-25N-12W	SALINA-NIAGARAN REEF	1973	GRAND TRAVERSE	5,815	103 D	71.0	NIAGARAN	6,413	1	0	0	1	80	13,152	64,916	304,383	1,923,328	811	
OF	GRANT 24-25N-12W POOL A	NIAGARAN REEF	1974	GRAND TRAVERSE	6,073	89 D	48.7	NIAGARAN	6,366	1	0	0	1	80	5,668	29,961	67,240	330,797	374	
	GRANT TWP., 25N-12W, SECTION 24																			
OF	GRANT 26-25N-12W	NIAGARAN REEF	1971	GRAND TRAVERSE	5,961	80 D	46.9	CLINTON	6,383	4	2	0	4	240	83,482	255,349	261,427	545,226	1,064	6
	GRANT TWP., 25N-12W, SECTIONS 26, 27																			
OF	GRANT 29-25N-12W	NIAGARAN REEF	1973	GRAND TRAVERSE	5,720	82 D	44.3	NIAGARAN	6,135	5	0	0	5	400	244,029	887,178	700,744	1,810,104	2,218	
	GRANT TWP., 25N-12W, SECTIONS 28, 29																			
OF	GRANT 31-25N-12W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,772	106 D		NIAGARAN	6,120	1	ABANDONED 1976			80		1,816			23	
	GRANT TWP., 25N-12W, SECTION 31 DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS IN WEXFORD COUNTY, WEXFORD TOWNSHIP SECTION 6-24N-12W; AND THE SUBSURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, GRANT TOWNSHIP SECTION 31-25N-12W																			
G-C	GRANT 32-25N-12W	NIAGARAN REEF	1976	GRAND TRAVERSE	5,868	194 D	61	NIAGARAN	6,145	1	0	0	1	80	4,029	4,029	288,077	288,077	50	3
	GRANT TWP., 25N-12W, SECTION 32																			
G-C	GRANT 34-25N-12W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,252	10 D	69	NIAGARAN	6,331	2	0	0	2	160	42,991	63,690	1,177,954	1,445,645	398	
OF	GRANT 34-25N-12W POOL A	NIAGARAN REEF	1976	GRAND TRAVERSE	5,967	218 D	40.8	NIAGARAN	6,267	1	0	0	1	80	78,264	134,376	121,088	159,940	1,680	
	GRANT TWP., 25N-12W, SECTION 34																			
G-C	GRANT 35-25N-12W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,052	92 D		NIAGARAN	6,337	1	0	0	1	80	7,457	10,807	202,789	372,328	135	
	GRANT TWP., 25N-12W, SECTION 35																			
G-C	GRANT 36-25N-12W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,129	131 D	64.8	NIAGARAN	6,580	1	0	0	1	80	0	89	SHUT-IN		1	
	GRANT TWP., 25N-12W, SECTION 36																			
OF	MAYFIELD 1-25N-11W	NIAGARAN REEF	1974	GRAND TRAVERSE	6,319	14 D	46.0	NIAGARAN	6,447	2	0	0	2	160	77,923	278,477	236,388	785,723	1,740	
OF	MAYFIELD 1-25N-11W POOL A*	NIAGARAN REEF	1974	GRAND TRAVERSE	6,474	16 D	45.2	NIAGARAN	6,634	1	0	0	1	160	112,880	210,744	151,393	363,712	1,317	
	MAYFIELD TWP., 25N-11W, SECTIONS 1, 2 *RECLASSIFIED AS A SEPARATE POOL IN 1975																			
G-C	MAYFIELD 3-25N-11W	NIAGARAN REEF	1973	GRAND TRAVERSE	5,940	230 D	68.0	NIAGARAN	6,424	1	0	0	1	160	675	35,332	46,158	2,224,786	221	
OF	MAYFIELD 3-25N-11W POOL A	NIAGARAN REEF	1975	GRAND TRAVERSE	6,019	18 D	49.0	NIAGARAN	6,325	1	0	0	1	80	22,781	172,517	19,827	141,974	2,156	
OF	MAYFIELD 3-25N-11W POOL B	NIAGARAN REEF	1975	GRAND TRAVERSE	6,116	22 D	44.4	NIAGARAN	6,259	1	0	0	1	80	50,746	260,381	83,433	360,983	3,255	50
	MAYFIELD TWP., 25N-11W, SECTION 3																			
OF	MAYFIELD 4-25N-11W	NIAGARAN REEF	1977	GRAND TRAVERSE	5,961	24 D	42.9	NIAGARAN	6,194	1	0	0	1	80	72,737	127,561	95,031	156,450	1,594	37
OF	MAYFIELD 4-25N-11W POOL A	NIAGARAN REEF	1977	GRAND TRAVERSE	5,847	24 D	42.9	NIAGARAN	6,196	1	0	0	1	80	45,175	85,054	23,930	54,475	1,063	72
	MAYFIELD TWP., 25N-11W, SECTION 4																			
OF	MAYFIELD 6-25N-11W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,664	143 D	44	NIAGARAN	5,932	1	0	0	1	80	106,641	237,081	106,419	209,238	2,963	
	MAYFIELD TWP., 25N-11W, SECTION 6																			
OF	MAYFIELD 9-25N-11W	NIAGARAN REEF	1977	GRAND TRAVERSE	6,088	75 D	46.2	NIAGARAN	6,287	2	0	0	2	240	66,885	95,678	84,704	112,596	399	15
	MAYFIELD TWP., 25N-11W, SECTION 9																			
OF	MAYFIELD 10-25N-11W	NIAGARAN REEF	1974	GRAND TRAVERSE	6,283	64 D	47.8	NIAGARAN	6,442	4	0	0	4	320	332,739	922,552	502,488	1,411,807	2,883	15
OF	MAYFIELD 10-25N-11W POOL A	NIAGARAN REEF	1976	GRAND TRAVERSE	6,183	31 D	44.8	NIAGARAN	6,381	2	1	0	2	80	36,603	80,066	27,670	62,574	1,001	20
	MAYFIELD TWP., 25N-11W, SECTION 10																			
G-C	MAYFIELD 11-25N-11W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,333	75 D	63.9	NIAGARAN	6,540	1	0	0	1	80	6,002	13,415	176,914	632,099	168	3
	MAYFIELD TWP., 25N-11W, SECTION 11																			
G-C	MAYFIELD 12-25N-11W	SALINA-NIAGARAN REEF	1974	GRAND TRAVERSE	6,171	325 D	60.4	NIAGARAN	6,677	1	0	0	1	160	7,955	51,585	987,673	3,481,401	322	
G-C	MAYFIELD 12-25N-11W POOL A	SALINA-NIAGARAN REEF	1975	GRAND TRAVERSE	6,449	43 D	61.5	NIAGARAN	6,685	1	0	0	1	80	3,018	17,337	288,426	1,586,347	217	
	MAYFIELD TWP., 25N-11W, SECTION 12 RECLASSIFIED AS A SEPARATE POOL IN 1977 BY ADMINISTRATIVE ACTION																			
G-C	MAYFIELD 13-25N-11W	NIAGARAN REEF	1977	GRAND TRAVERSE	6,461	127 D	67.2	NIAGARAN	6,714	2	1	0	2	160	41	128	911	911	1	
	MAYFIELD TWP., 25N-11W, SECTION 13																			

NORTHERN MICHIGAN SALINA-NIAGARAN OIL AND GAS FIELDS

- OIL FIELD
- GAS FIELD
- COMBINATION OIL AND GAS FIELD
- TOWNSHIP LINES
- COUNTY LINES
- SECTION LINES

0 1 2 3 4 5 6 7
MILES

CHEBOYGAN
PRESQUE ISLE
CHARLEVOIX
OTSEGO
ALPENA
ANTRIM
MONTMORENCY
CRAWFORD
GRAND TRAVERSE
BENZIE
KALKASKA
MISSAUKEE
WEXFORD
MANISTEE
MASON
OCEANA

THIS MAP SHOWS THE DISTRIBUTION OF SALINA-NIAGARAN OIL AND GAS FIELDS FOUND ALONG THE NORTHERN REEF TREND THROUGH 1977. THE EXCEPTIONAL INTEREST IN EXPLORING FOR NEW REEF POOLS ALONG THE TREND AND THE PRESENT CONTRIBUTION OF THESE POOLS TO THE STATE'S HYDROCARBON PRODUCTION WARRANTS SPECIAL ATTENTION. MORE SPECIFIC INFORMATION ON THESE POOLS IS FOUND IN TABLE 2 OF THIS REPORT.

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A PI	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	NUMBER OF WELLS 1978: COMP IN	NUMBER OF WELLS 1978: ABAND IN	NUMBER OF WELLS 1978: ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
G-C	MAYFIELD 15-25N-11W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,446	134 D		NIAGARAN	6,671	2	1	0	2	160	52,574	133,100	221,133	2,195,832	833	
	MAYFIELD TWP., 25N-11W, SECTION 15																			
OF	MAYFIELD 16-25N-11W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,341	69 D	47.5	NIAGARAN	6,582	3	0	0	3	240	209,569	976,984	315,666	1,199,732	4,071	4
OF	MAYFIELD 16-25N-11W POOL A	NIAGARA REEF	1974	GRAND TRAVERSE	6,228	29 D	43.5	NIAGARAN	6,525	2	0	0	2	160	145,102	673,957	86,431	402,799	4,212	
	MAYFIELD TWP., 25N-11W, SECTIONS 16, 17																			
OF	MAYFIELD 17-25N-11W	SALINA-NIAGARAN REEF	1974	GRAND TRAVERSE	6,855	178 D	42.7	NIAGARAN	6,564	3	1	0	3	240	234,904	965,132	130,361	649,254	4,021	7
	MAYFIELD TWP., 25N-11W, SECTION 17																			
OF	MAYFIELD 18-25N-11W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,874	17 D	45.0	NIAGARAN	5,969	3	0	0	3	240	228,823	463,806	202,700	417,259	1,932	31
OF	MAYFIELD 18-25N-11W POOL A	NIAGARAN REEF	1975	GRAND TRAVERSE	6,198	5 D	43.2	NIAGARAN	6,330	2	1	0	2	240	53,992	54,391	121,132	121,200	227	
	MAYFIELD TWP., 25N-11W, SECTION 18 — DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, GRANT TOWNSHIP SECTION 13-25N-12W; AND THE SUBSURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, MAYFIELD TOWNSHIP SECTION 18-25N-11W																			
G-C	MAYFIELD 19-25N-11W	SALINA-NIAGARAN REEF	1973	GRAND TRAVERSE	5,829	183 D	53.6	NIAGARAN	6,535	1	0	0	1	160	12,891	102,504	279,582	975,269	641	
OF	MAYFIELD 19-25N-11W POOL A	NIAGARAN REEF	1974	GRAND TRAVERSE	6,093	96 D	45.8	NIAGARAN	6,265	1	0	0	1	80	9,511	69,532	164,719	582,573	869	
G-C	MAYFIELD 19-25N-11W POOL B	SALINA-NIAGARAN REEF	1976	GRAND TRAVERSE	6,029	137 D	61.4	NIAGARAN	6,357	1	0	0	1	80	43	833	1,499	20,462	10	
	MAYFIELD TWP., 25N-11W, SECTION 19																			
OF	MAYFIELD 20-25N-11W	NIAGARAN REEF	1974	GRAND TRAVERSE	6,241	51 D	45.0	NIAGARAN	6,365	3	0	0	3	240	95,344	669,496	397,329	1,427,094	2,789	12
	MAYFIELD TWP., 25N-11W, SECTION 20																			
OF	MAYFIELD 21-25N-11W	SALINA-NIAGARAN REEF	1974	GRAND TRAVERSE	6,112	428 D	66.5	NIAGARAN	6,608	4	2	0	4	320	198,041	656,370	463,426	8,067,969	2,051	10
	MAYFIELD TWP., 25N-11W, SECTION 21																			
G-C	MAYFIELD 24-25N-11W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,508	153 D	65.7	NIAGARAN	6,783	2	0	0	2	360	162,376	281,736	3,668,696	6,599,194	783	
	MAYFIELD TWP., 25N-11W, SECTIONS 23, 24																			
G-C	MAYFIELD 26-25N-11W	NIAGARAN REEF	1974	GRAND TRAVERSE	6,323	169 D	65.0	NIAGARAN	6,756	1	0	0	1	160	4,702	4,805	194,316	194,316	30	
	MAYFIELD TWP., 25N-11W, SECTION 26																			
G-C	MAYFIELD 27-25N-11W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,547	62 D	64.4	NIAGARAN	6,767	1	1	0	1	80	144	144	SHUT-IN		2	
	MAYFIELD TWP., 25N-11W, SECTION 27																			
OF	MAYFIELD 28-25N-11W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,430	19 D	49.4	NIAGARAN	6,580	1	0	0	1	160	64,108	98,056	165,466	232,141	613	
	MAYFIELD TWP., 25N-11W, SECTION 28																			
G-C	MAYFIELD 29-25N-11W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,012	119 D	70.2	NIAGARAN	6,621	1	0	0	1	160	121	182	SHUT-IN		1	
OF	MAYFIELD 29-25N-11W POOL A	NIAGARAN REEF	1977	GRAND TRAVERSE	6,391	16 D		NIAGARAN	6,610	2	0	0	2	160	117,955	155,188	228,369	297,387	970	4
	MAYFIELD TWP., 25N-11W, SECTION 29																			
OF	MAYFIELD 30-25N-11W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,329	45 D	45.5	NIAGARAN	6,630	2	0	1	1	160	8,491	50,150	164,643	673,654	313	
	MAYFIELD TWP., 25N-11W, SECTION 30																			
GF	MAYFIELD 31-25N-11W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,051	101 D		NIAGARAN	6,696	1	0	0	1	80	997	997	37,133	37,133	12	
	MAYFIELD TWP., 25N-11W, SECTION 31																			
G-C	MAYFIELD 33-25N-11W	NIAGARAN REEF	1977	GRAND TRAVERSE	6,478	54 D	63.6	NIAGARAN	6,671	1	0	0	1	80	0	31	SHUT-IN		1	
	MAYFIELD TWP., 25N-11W, SECTION 33																			
G-C	PARADISE 3-25N-10W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,519	183 D	67	NIAGARAN	6,890	1	0	0	1	160	13,210	14,404	186,963	202,806	90	
	PARADISE TWP., 25N-10W, SECTION 3																			
G-C	PARADISE 18-25N-10W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,455	102 D	65.8	NIAGARAN	6,841	3	1	0	3	160	5,505	7,146	118,176	156,369	45	
	PARADISE TWP., 25N-10W, SECTION 18																			
OF	PARADISE 19-26N-10W	SALINA-NIAGARAN REEF	1975	GRAND TRAVERSE	5,750	102 D	43.8	NIAGARAN	6,034	2	0	0	2	160	116,498	150,618	104,890	239,138	941	40
	PARADISE TWP., 26N-10W, SECTION 19																			
OF	PARADISE 20-26N-10W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,027	25 D	57?	NIAGARAN	6,252	1	0	0	1	80	4,828	22,360	106,317	341,792	279	20
	PARADISE TWP., 26N-10W, SECTION 20																			
OF	PARADISE 21-26N-10W	NIAGARAN REEF	1975	GRAND TRAVERSE	5,848	6 D	40	NIAGARAN	6,198	3	0	0	3	240	290,509	696,317	224,421	636,595	2,901	40
	PARADISE TWP., 26N-10W, SECTION 21																			
G-C	PARADISE 23-26N-10W	NIAGARAN REEF	1974	GRAND TRAVERSE	6,310	27 D	70.5	NIAGARAN	6,588	2	0	0	2	160	24,147	179,681	1,141,252	4,819,657	1,123	2
	PARADISE TWP., 26N-10W, SECTIONS 23, 24																			
G-C	PARADISE 25-26N-10W	NIAGARAN REEF	1977	GRAND TRAVERSE	6,554	46 D	63.1	NIAGARAN	6,751	2	1	0	2	160	29,195	31,340	459,070	497,050	196	
	PARADISE TWP., 26N-10W, SECTION 25																			
G-C	PARADISE 26-26N-10W	NIAGARAN REEF	1976	GRAND TRAVERSE	6,422	55 D	61.4	NIAGARAN	6,585	1	0	0	1	160	14,205	25,142	729,987	1,167,132	157	
	PARADISE TWP., 26N-10W, SECTION 26																			
OF	PARADISE 27-26N-10W	SALINA-NIAGARAN REEF	1976	GRAND TRAVERSE	6,060	230 D	46.3	SALINA-NIAGARAN	6,448	3	0	0	3	240	23,063	34,664	126,870	143,182	144	
	PARADISE TWP., 26N-10W, SECTION 27																			
G-C	PARADISE 31-26N-10W	SALINA-NIAGARAN REEF	1974	GRAND TRAVERSE	6,257	97 D	68.4	NIAGARAN	6,534	1	0	0	1	80	20,373	120,936	928,638	2,206,751	1,512	
	PARADISE TWP., 26N-10W, SECTION 31																			
G-C	PARADISE 32-26N-10W	NIAGARAN REEF	1974	GRAND TRAVERSE	6,087	231 D	60.0	NIAGARAN	6,582	2	0	0	2	160	3,683	6,942	40,559	82,389	43	
	PARADISE TWP., 26N-10W, SECTION 32																			
G-C	PARADISE 33-26N-10W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,903	202 D	66.5	NIAGARAN	6,627	1	0	0	1	80	5,422	6,257	149,757	153,567	78	
OF	PARADISE 33-26N-10W POOL A	SALINA-NIAGARAN REEF	1976	GRAND TRAVERSE	6,000	158 D	50.3	SALINA-NIAGARAN	6,595	1	0	0	1	80	15,882	16,089	118,194	118,209	201	
	PARADISE TWP., 26N-10W, SECTION 33																			
G-C	PARADISE 34-26N-10W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,332	236 D	70	NIAGARAN	6,808	2	0	0	2	160	1,346	2,841	55,735	165,068	18	
	PARADISE TWP., 26N-10W, SECTION 34																			
G-C	PARADISE 35-26N-10W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,616	56 D	60.9	NIAGARAN	6,762	1	1	0	1	80	17,335	17,470	317,178	317,178	218	
	PARADISE TWP., 26N-10W, SECTION 35																			
G-C	UNION 1-26N-9W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,380	78 D		NIAGARAN	6,865	1	0	0	1	160	1,073	31,456	500,426	3,799,381	197	5
	UNION TWP., 26N-9W, SECTION 1																			
G-C	UNION 3-26N-9W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,514	14 D	62.3	NIAGARAN	6,878	4	0	0	4	560	44,696	203,645	4,036,813	10,065,827	364	
	UNION TWP., 26N-9W, SECTIONS 2, 3, 11																			
G-C	UNION 5-26N-9W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,070	19 D	68.2	NIAGARAN	6,440	1	0	0	1	80	10,221	146,961	492,741	4,115,956	1,837	30
	UNION TWP., 26N-9W, SECTION 5																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A PI	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	NUMBER OF WELLS 1978: COMP IN	NUMBER OF WELLS 1978: ABAND IN	NUMBER OF WELLS 1978: ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
G-C	UNION 6-26N-9W	SALINA-NIAGARAN REEF	1974	GRAND TRAVERSE	5,936	184 D	64.5	NIAGARAN	6,475	2	0	0	2	160	36,343	129,270	1,757,979	5,066,780	808	106
	UNION TWP., 26N-9W, SECTION 6																			
G-C	UNION 8-26N-9W (MUNCIE LAKES)	NIAGARAN REEF	1970	GRAND TRAVERSE	6,267	97 D	63.6	NIAGARAN	6,666	2	0	0	2	320	27,899	106,738	1,984,830	8,554,204	333	
	UNION TWP., 26N-9W, SECTION 8																			
G-C	UNION 11-26N-9W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,580	118 D	61.0	NIAGARAN	6,802	1	0	0	1	160	2,492	64,445	941,244	4,314,071	403	
	UNION TWP., 26N-9W, SECTION 11																			
G-C	UNION 12-26N-9W (SOUTH BOARDMAN)	NIAGARAN REEF	1969	GRAND TRAVERSE	6,779	50 D	57.9	NIAGARAN	6,922	2	0	0	2	320	805	4,741	64,581	147,284	15	
	UNION TWP., 26N-9W, SECTION 12																			
G-C	UNION 14-26N-9W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,660	24 D	59.0	NIAGARAN	6,860	1	0	0	1	160	6,261	44,426	938,174	2,256,387	278	
	UNION TWP., 26N-9W, SECTION 14																			
G-C	UNION 16-26N-9W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,207	183 D	58.0	NIAGARAN	6,716	1	0	0	1	80	15,548	33,905	1,187,478	2,015,974	424	
GF	UNION 16-26N-9W POOL A	NIAGARAN REEF	1976	GRAND TRAVERSE	6,392	94 D	66	NIAGARAN	6,645	2	0	0	2	160	8,592	35,620	1,036,925	2,069,981	273	1
	UNION TWP., 26N-9W, SECTION 16																			
G-C	UNION 17-26N-9W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,448	20 D	68.8	NIAGARAN	6,540	1	1	0	1	160	4,582	4,582	354,362	354,362	79	
	UNION TWP., 26N-9W, SECTION 17																			
G-C	UNION 18-26N-9W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,298	14 D	59.3	NIAGARAN	6,471	1	0	0	1	80	136	4,959	18,667	271,517	62	
	UNION TWP., 26N-9W, SECTION 18																			
GF	UNION 20-26N-9W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,400	80 D	76.2	NIAGARAN	6,731	2	2	0	2	160	258	258	SHUT-IN		2	
	UNION TWP., 26N-9W, SECTION 20																			
G-C	UNION 21-26N-9W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,758	22 D	67.3	NIAGARAN	6,889	1	1	0	1	280	9,320	9,320	234,379	234,379	33	
	UNION TWP., 26N-9W, SECTION 21																			
G-C	UNION 22-26N-9W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,740	10 D	76.3	NIAGARAN	6,881	1	1	0	1	80	103	103	SHUT-IN		1	
	UNION TWP., 26N-9W, SECTION 22																			
G-C	UNION 28-26N-9W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,910	105 D	51.0	NIAGARAN	7,062	1	0	0	1	80	25,239	25,239	678,905	678,905	315	
	UNION TWP., 26N-9W, SECTION 28																			
GF	UNION 31-26N-9W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,608	176 D	68.8	NIAGARAN	7,082	1	1	0	1	160	734	734	SHUT-IN		4	
	UNION TWP., 26N-9W, SECTION 31																			
OF	WHITEWATER 20-27N-9W	NIAGARAN REEF	1978	GRAND TRAVERSE	6,095	15 D	45.7	NIAGARAN	6,360	1	1	0	1	80	122	122	SHUT-IN		1	
	WHITEWATER TWP., 27N-9W, SECTION 20																			
G-C	WHITEWATER 22-27N-9W	NIAGARAN REEF	1973	GRAND TRAVERSE	6,172	62 D		NIAGARAN	6,516	3	2	0	3	200	67,074	216,152	4,361,435	7,307,145	1,081	5
	WHITEWATER TWP., 27N-9W, SECTION 22																			
OF	WHITEWATER 28-27N-9W	NIAGARAN REEF	1975	GRAND TRAVERSE	6,096	22 D	43.8	NIAGARAN	6,310	1	0	0	1	80	50,080	148,442	138,158	368,808	1,855	160
	WHITEWATER TWP., 27N-9W, SECTION 28																			
OF	WHITEWATER 32-27N-9W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,100	10 D	44.3	NIAGARAN	6,260	2	0	0	2	160	129,453	773,354	261,919	1,061,799	4,833	120
	WHITEWATER TWP., 27N-9W, SECTION 32																			
OF	WHITEWATER 34-27N-9W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,292	16 D	44.9	NIAGARAN	6,580	1	0	0	1	80	5,799	70,846	0	3,552	885	101
	WHITEWATER TWP., 27N-9W, SECTION 34																			
OF	WHITEWATER 35-27N-9W	NIAGARAN REEF	1972	GRAND TRAVERSE	6,270	60 D	39	NIAGARAN	6,770	1	0	0	1	80	11,722	138,173	0	7,020	1,727	123
	WHITEWATER TWP., 27N-9W, SECTION 35																			
G-C	WHITEWATER 36-27N-9W	NIAGARAN REEF	1971	GRAND TRAVERSE	6,560	40 D	66	NIAGARAN	6,750	1	0	0	1	40	8	64,141	169,118	5,813,661	1,603	
G-C	WHITEWATER 36-27N-9W POOL A	NIAGARAN REEF	1976	GRAND TRAVERSE	6,300	334 D	61.9	NIAGARAN	6,757	1	0	0	1	80	10,143	27,497	3,042,106	4,052,064	344	
	WHITEWATER TWP., 27N-9W, SECTION 36																			
	KALKASKA COUNTY																			
OF	BLUE LAKE 1-28N-5W	NIAGARAN REEF	1971	KALKASKA	6,481	43 D	43.0	NIAGARAN	6,980	2	0	0	2	160	82,760	877,145	42,629	294,360	5,482	145
	BLUE LAKE TWP., 28N-5W, SECTION 1																			
AG-C	BLUE LAKE 7-28N-5W	NIAGARAN REEF	1976	KALKASKA	6,615	16 D	51.6	NIAGARAN	6,704	1	ABANDONED 1978			80	60	3,830	0	27,739	48	
	BLUE LAKE TWP., 28N-5W, SECTION 7																			
OF	BLUE LAKE 12-28N-5W	NIAGARAN REEF	1971	KALKASKA	6,852	20 D	45.0	NIAGARAN	7,079	1	0	0	1	40	4,890	30,463	39,173	213,012	761	5
	BLUE LAKE TWP., 28N-5W, SECTIONS 12, 13																			
G-C	BLUE LAKE 13-28N-5W	SALINA-NIAGARAN REEF	1973	KALKASKA	6,600	206 D	43	NIAGARAN	7,325	1	0	0	1	80	7,568	59,265	401,006	1,957,971	741	
	BLUE LAKE TWP., 28N-5W, SECTION 13																			
OF	BLUE LAKE 16-28N-5W	NIAGARAN REEF	1977	KALKASKA	7,097	23 D	47.0	NIAGARAN	7,254	1	0	0	1	80	64,329	64,329	75,784	75,784	804	
OF	BLUE LAKE 16-28N-5W POOL A	NIAGARAN REEF	1978	KALKASKA	7,062	8 D	50.5	NIAGARAN	7,213	1	1	0	1	80	368	368	SHUT-IN		5	
	BLUE LAKE TWP., 28N-5W, SECTION 16																			
OF	BLUE LAKE 17-28N-5W	NIAGARAN REEF	1976	KALKASKA	7,015	62 D	46.7	NIAGARAN	7,255	3	0	0	3	200	320,275	407,660	333,849	422,801	2,038	5
G-C	BLUE LAKE 17-28N-5W POOL A	NIAGARAN REEF	1977	KALKASKA	6,850	30 D	64	NIAGARAN	7,070	1	0	0	1	80	15,015	15,206	363,232	363,232	190	
	BLUE LAKE TWP., 28N-5W, SECTION 17																			
OF	BLUE LAKE 18-28N-5W	NIAGARAN REEF	1975	KALKASKA	6,960	24 D	44.8	NIAGARAN	7,186	3	1	0	3	240	229,064	456,289	243,454	456,912	1,901	
G-C	BLUE LAKE 18-28N-5W POOL A	NIAGARAN REEF	1977	KALKASKA	6,885	20 D	60	NIAGARAN	7,089	3	1	0	3	240	175,224	175,224	2,968,146	2,968,146	730	
	BLUE LAKE TWP., 28N-5W, SECTION 18																			
OF	BLUE LAKE 19-28N-5W	NIAGARAN REEF	1974	KALKASKA	6,920	20 D	45.3	NIAGARAN	7,115	2	1	0	2	160	204,356	544,777	225,517	467,408	3,405	
OF	BLUE LAKE 19-28N-5W POOL A	NIAGARAN REEF	1976	KALKASKA	6,960	14 D	45.4	NIAGARAN	7,265	1	0	0	1	80	27,083	66,405	99,003	234,632	830	116
	BLUE LAKE TWP., 28N-5W, SECTION 19																			
OF	BLUE LAKE 20-28N-5W	NIAGARAN REEF	1978	KALKASKA	6,956	14 D	45.4	NIAGARAN	7,207	1	1	0	1	80	63,900	63,900	68,435	68,435	799	
	BLUE LAKE TWP., 28N-5W, SECTION 20																			
G-C	BLUE LAKE 23-28N-5W	SALINA-NIAGARAN REEF	1977	KALKASKA	6,785	397 D		NIAGARAN	7,440	1	0	0	1	80	21,658	21,775	223,260	223,260	272	
	BLUE LAKE TWP., 28N-5W, SECTION 23																			
G-C	BLUE LAKE 27-28N-5W	NIAGARAN REEF	1972	KALKASKA	7,131	37 D	64.4	NIAGARAN	7,350	1	0	0	1	160	3,457	74,737	601,552	4,227,985	467	
	BLUE LAKE TWP., 28N-5W, SECTION 27																			
G-C	BLUE LAKE 28-28N-5W	NIAGARAN REEF	1970	KALKASKA	7,105	30 D	60	CLINTON	7,450	1	0	0	1	160	768	59,653	149,405	3,523,410	373	
	BLUE LAKE TWP., 28N-5W, SECTION 28																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS: TO END	NUMBER OF WELLS: COMP IN 1978	NUMBER OF WELLS: ABAND IN 1978	NUMBER OF WELLS: ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
G-C	BLUE LAKE 29-28N-5W	NIAGARAN REEF	1974	KALKASKA	6,950	56 D	59.1	NIAGARAN	7,320	1	0	0	1	80	783	13,393	299,213	1,357,838	167	
	BLUE LAKE TWP., 28N-5W, SECTION 29																			
G-C	BLUE LAKE 32-28N-5W	NIAGARAN REEF	1977	KALKASKA	7,120	40 D		NIAGARAN	7,573	1	0	0	1	80			SHUT-IN			
	BLUE LAKE TWP., 28N-5W, SECTION 32																			
G-C	BLUE LAKE 33-28N-5W	LOWER NIAGARAN	1971	KALKASKA	7,350	25 D		CLINTON	7,610	2	1	0	2	160	806	10,188	86,026	924,620	64	
	BLUE LAKE TWP., 28N-5W, SECTION 33																			
G-C	BOARDMAN 3-26N-8W	NIAGARAN REEF	1973	KALKASKA	6,570	60 D	53.4	NIAGARAN	6,980	3	ABANDONED 1976			80		178			2	
	BOARDMAN TWP., 26N-8W, SECTION 3																			
OF	BOARDMAN 6-26N-8W	NIAGARAN REEF	1973	KALKASKA	6,477	180 D	46.1	NIAGARAN	6,975	1	0	0	1	80	7,947	58,697	0	14,067	734	
G-C	BOARDMAN 6-26N-8W POOL A	NIAGARAN REEF	1978	KALKASKA	6,710	7 D	63.5	NIAGARAN	6,842	1	1	0	1	80	633	633	23,029	23,029	8	
	BOARDMAN TWP., 26N-8W, SECTIONS 5, 6																			
G-C	SOUTH BOARDMAN UNIT	NIAGARAN REEF POOL A	1971	KALKASKA	6,616	110 D		CLINTON	6,990	1	0	0	1	160						
G-C		NIAGARAN REEF POOL B	1971		6,778	38 D	65.7			1	0	0	1	160	PRODUCTION FOR POOLS A, B, AND C ARE COMBINED					
G-C		NIAGARAN REEF POOL C	1972		6,450	290 D				1	0	0	1	160	6,016	131,797	520,016	4,228,012	274	
	BOARDMAN TWP., 26N-8W, SECTIONS 4, 5																			
G-C	COLD SPRINGS 1-28N-6W	SALINA-NIAGARAN REEF	1973	KALKASKA	6,578	194 D	61.0	NIAGARAN	6,950	3	0	0	3	240	9,107	301,205	904,313	9,959,638	1,255	14
	COLD SPRINGS TWP., 28N-6W, SECTION 1; BLUE LAKE TWP., 28N-5W, SECTION 6																			
G-C	COLD SPRINGS 12-28N-6W	SALINA-NIAGARAN REEF	1973	KALKASKA	6,564	296 D	66.8	NIAGARAN	6,970	3	0	0	3	400	9,031	427,274	926,770	18,295,536	1,068	
	COLD SPRINGS TWP., 28N-6W, SECTION 12; BLUE LAKE TWP., 28N-5W, SECTION 7																			
OF	COLD SPRINGS 14-28N-6W	NIAGARAN REEF	1976	KALKASKA	6,780	10.5 D		NIAGARAN	7,095	1	0	0	1	80	44,063	91,506	995	17,662	1,144	10
	COLD SPRINGS TWP., 28N-6W, SECTION 14																			
OF	COLD SPRINGS 18-28N-6W	SALINA-NIAGARAN REEF	1974	KALKASKA	6,364	38 D		NIAGARAN	6,675	2	0	0	2	240	22,048	73,658	26	60,419	307	158
	COLD SPRINGS TWP., 28N-6W, SECTIONS 7, 18																			
OF	COLD SPRINGS 19-28N-6W	NIAGARAN REEF	1971	KALKASKA	6,596	8 D	44.9	CLINTON	7,036	4	0	0	4	320	63,304	517,037	419,392	2,633,655	1,616	39
	COLD SPRINGS TWP., 28N-6W, SECTIONS 19, 30; RAPID RIVER TWP., 28N-7W, SECTIONS 24, 25																			
OF	COLD SPRINGS 20-28N-6W	NIAGARAN REEF	1971	KALKASKA	6,737	35 D	41.0	NIAGARAN	6,970	2	0	0	2	160	129,344	849,147	317,465	1,578,521	5,307	24
	COLD SPRINGS TWP., 28N-6W, SECTIONS 20, 29																			
OF	COLD SPRINGS 21-28N-6W	NIAGARAN REEF	1970	KALKASKA	6,764	45 D	45.6	CLINTON	7,315	2	ABANDONED 1978			160	0	89,326	0	93,965	558	
	COLD SPRINGS TWP., 28N-6W, SECTIONS 21, 28																			
OF	COLD SPRINGS 23-28N-6W	NIAGARAN REEF	1974	KALKASKA	6,970	20 D	44.4	NIAGARAN	7,218	2	0	0	2	160	42,578	159,721	41,229	107,082	998	20
	COLD SPRINGS TWP., 28N-6W, SECTIONS 22, 23																			
G-C	COLD SPRINGS 24-28N-6W	SALINA-NIAGARAN REEF	1974	KALKASKA	6,760	70 D	55.4	NIAGARAN	7,212	2	0	0	2	80	63,226	131,410	57,931	342,769	1,643	150
	COLD SPRINGS TWP., 28N-6W, SECTION 24																			
G-C	COLD SPRINGS 25-28N-6W*	NIAGARAN REEF	1971	KALKASKA	6,734	544 D	62.3	NIAGARAN	7,383	2	1	0	1	200	45	981	0	37,932	5	
OF	COLD SPRINGS 25-28N-6W POOL A	NIAGARAN REEF	1972	KALKASKA	6,950	10 D		NIAGARAN	7,365	1	0	0	1	80	9,461	158,306	5,083	216,613	1,979	30
	COLD SPRINGS TWP., 28N-6W, SECTION 25 *REACTIVATED IN 1978																			
OF	COLD SPRINGS 28-28N-6W	NIAGARAN REEF	1975	KALKASKA	6,790	10 D	43.6	NIAGARAN	7,150	3	2	0	3	240	16,723	60,175	0	51,045	251	20
OF	COLD SPRINGS 28-28N-6W POOL A	NIAGARAN REEF	1977	KALKASKA	6,882	26 D	41	NIAGARAN	7,156	1	0	0	1	80	10,762	10,762			134	
	COLD SPRINGS TWP., 28N-6W, SECTION 28																			
OF	COLD SPRINGS 29-28N-6W	NIAGARAN REEF	1976	KALKASKA	6,865	8 D	43.5	NIAGARAN	7,040	3	0	0	3	240	218,246	381,067	359,792	564,400	1,588	110
	COLD SPRINGS TWP., 28N-6W, SECTION 29																			
OF	COLD SPRINGS 30-28N-6W	NIAGARAN REEF	1974	KALKASKA	6,719	39 D	44.4	NIAGARAN	6,858	2	0	0	2	120	94,836	399,549	320,978	1,134,009	3,329	
	COLD SPRINGS TWP., 28N-6W, SECTION 30																			
OF	COLD SPRINGS 32-28N-6W	NIAGARAN REEF	1977	KALKASKA	6,870	10 D	45.4	NIAGARAN	7,025	2	1	0	2	160	107,314	107,902	161,953	161,953	674	60
	COLD SPRINGS TWP., 28N-6W, SECTION 32																			
G-C	COLD SPRINGS 36-28N-6W	NIAGARAN REEF	1978	KALKASKA	6,988	162 D	75.4	NIAGARAN	7,425	1	1	0	1	80	276	276	SHUT-IN		3	
	COLD SPRINGS TWP., 28N-6W, SECTION 36																			
G-C	EXCELSIOR 3-27N-6W	NIAGARAN REEF	1973	KALKASKA	7,211	10 D	64.0	NIAGARAN	7,402	2	0	0	2	320	26,151	51,788	914,054	1,718,697	162	
G-C	EXCELSIOR 3-27N-6W POOL A	NIAGARAN REEF	1973	KALKASKA	6,952	139 D	71.5	NIAGARAN	7,346	1	0	0	1	160	0	1	0	348	1	
	EXCELSIOR TWP., 27N-6W, SECTION 3 SW SW NW																			
G-C	EXCELSIOR 6-27N-6W	NIAGARAN REEF	1973	KALKASKA	6,740	105 D	66.0	NIAGARAN	7,135	2	0	0	2	240	5,198	246,167	970,826	11,295,798	1,026	1
	EXCELSIOR TWP., 27N-6W, SECTION 6; COLD SPRINGS TWP., 28N-6W, SECTION 31																			
G-C	EXCELSIOR 7-27N-6W	NIAGARAN REEF	1973	KALKASKA	6,987	27 D	63.8	NIAGARAN	7,232	1	G	0	1	80	332	8,964	119,044	483,286	112	
	EXCELSIOR TWP., 27N-6W, SECTION 18							DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS 18-27N-6W AND THE SUBSURFACE LOCATION IS 7-27N-6W													
G-C	EXCELSIOR 9-27N-6W	NIAGARAN REEF	1972	KALKASKA	7,034	47 D		NIAGARAN	7,526	3	0	0	3	480	8,432	31,762	296,394	1,173,159	66	
	EXCELSIOR TWP., 27N-6W, SECTIONS 8, 9																			
G-C	EXCELSIOR 17-27N-6W	NIAGARAN REEF	1973	KALKASKA	7,165	53 D	61.5	NIAGARAN	7,365	1	0	0	1	160	5,095	15,986	72,975	263,119	100	
	EXCELSIOR TWP., 27N-6W, SECTION 17																			
G-C	EXCELSIOR 19-27N-6W	NIAGARAN REEF	1975	KALKASKA	7,091	37 D	64.6	NIAGARAN	7,288	2	0	0	2	160	10,967	12,467	599,964	706,804	78	
	EXCELSIOR TWP., 27N-6W, SECTION 19																			
G-C	KALKASKA 1-27N-7W	NIAGARAN REEF	1974	KALKASKA	6,693	20 D	65.0	NIAGARAN	6,784	1	0	0	1	160	482	25,151	367,325	2,405,314	157	
	KALKASKA TWP., 27N-7W, SECTION 1																			
OF	KALKASKA 3-27N-7W	SALINA-NIAGARAN REEF	1973	KALKASKA	6,396	180 D	42.7	NIAGARAN	6,850	1	0	0	1	160	13,650	91,244	145,455	741,658	570	55
OF	KALKASKA 3-27N-7W POOL A	SALINA-NIAGARAN REEF	1973	KALKASKA	6,538	206 D	45.2	NIAGARAN	6,888	1	0	0	1	80	18,413	135,446	58,493	336,474	1,693	30
OF	KALKASKA 3-27N-7W POOL B	NIAGARAN REEF	1977	KALKASKA	6,647	6 D	45.6	NIAGARAN	6,827	1	0	0	1	80	7,356	13,494	111,531	164,373	169	15
	KALKASKA TWP., 27N-7W, SECTION 3																			
OF	KALKASKA 5-27N-7W	NIAGARAN REEF	1970	KALKASKA	6,314	68 D	41.5	CLINTON	6,921	5	0	0	5	400	74,891	908,020	269,673	1,104,348	2,270	666
	KALKASKA TWP., 27N-7W, SECTIONS 5, 6; RAPID RIVER TWP., 28N-7W, SECTION 32																			
OF	KALKASKA 7-27N-7W	NIAGARAN REEF	1972	KALKASKA	6,305	3 D		NIAGARAN	6,662	1	0	0	1	80	9,294	110,337	17,172	86,766	1,379	81
	KALKASKA TWP., 27N-7W, SECTION 7																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS: TO END	NUMBER OF WELLS: COMP IN 1978	NUMBER OF WELLS: ABAND IN 1978	NUMBER OF WELLS: ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
G-C	KALKASKA 9-27N-7W	NIAGARAN REEF	1972	KALKASKA	6,482	89 D	55.0	NIAGARAN	6,830	1	0	0	1	160	7,334	38,357	331,911	956,079	240	71
	KALKASKA TWP., 27N-7W, SECTION 9																			
G-C	KALKASKA 10-27N-7W	NIAGARAN REEF	1972	KALKASKA	6,470	188 D	64.0	NIAGARAN	6,859	1	0	0	1	320	22,119	126,942	390,004	3,931,382	397	
	KALKASKA TWP., 27N-7W, SECTION 10																			
OF	KALKASKA 11-27N-7W	NIAGARAN REEF	1978	KALKASKA	6,876	15 D	42.9	NIAGARAN	6,959	1	1	0	1	160	12,534	12,534	52,578	52,578	78	
	KALKASKA TWP., 27N-7W, SECTION 11																			
OF	KALKASKA 12-27N-7W	NIAGARAN REEF	1972	KALKASKA	6,883	19 D		NIAGARAN	7,009	1	0	0	1	80	2,188	22,724	0	11,004	284	
	KALKASKA TWP., 27N-7W, SECTION 12																			
G-C	KALKASKA 13-27N-7W	NIAGARAN REEF	1972	KALKASKA	6,889	60 D	63.0	NIAGARAN	7,225	1	0	0	1	240	8,269	88,643	899,699	4,004,133	369	
	KALKASKA TWP., 27N-7W, SECTION 13																			
OF	KALKASKA 16-27N-7W	NIAGARAN REEF	1973	KALKASKA	6,572	158 D	47.4	NIAGARAN	7,077	1	0	0	1	40	973	7,727	5,800	37,693	193	
OF	KALKASKA 16-27N-7W POOL A	NIAGARAN REEF	1973	KALKASKA	7,014	98 D	45.2	NIAGARAN	7,405	2	0	0	2	160	30,834	87,363	303,985	607,082	546	204
	KALKASKA TWP., 27N-7W, SECTIONS 15, 16																			
OF	KALKASKA 19-27N-7W	NIAGARAN REEF	1974	KALKASKA	6,626	10 D	44.0	NIAGARAN	7,003	2	0	0	2	320	10,685	32,170	0	6,573	100	398
	KALKASKA TWP., 27N-7W, SECTION 19																			
G-C	KALKASKA 23-27N-7W	NIAGARAN REEF	1977	KALKASKA	7,027	34 D	64.3	NIAGARAN	7,166	1	0	0	1	160	5,476	5,577	124,604	124,604	35	
	KALKASKA TWP., 27N-7W, SECTION 23																			
OF	KALKASKA 24-27N-7W	SALINA-NIAGARAN REEF	1974	KALKASKA	6,726	469 D	46.8	NIAGARAN	7,317	1	0	0	1	80	298	734	1,156	1,156	9	
G-C	KALKASKA 24-27N-7W POOL A	NIAGARAN REEF	1978	KALKASKA	7,101	18 D	61.8	NIAGARAN	7,242	1	1	0	1	80	582	582	55,408	55,408	7	
	KALKASKA TWP., 27N-7W, SECTION 24																			
G-C	KALKASKA 28-27N-7W	NIAGARAN REEF	1970	KALKASKA	7,129	28 D	COND. 65.3	CLINTON	7,408	1	0	0	1	160	227	20,327	12,298	907,892	127	
G-C	KALKASKA 28-27N-7W POOL A	NIAGARAN REEF	1972		6,977	192 D	68.0			1	0	0	1	160	4,862	55,352	245,201	1,199,123	346	
G-C	KALKASKA 28-27N-7W POOL B	NIAGARAN REEF	1975		7,088	40 D		NIAGARAN	7,205	1	0	0	1	80	301	24,763	9,687	308,312	309	
	KALKASKA TWP., 27N-7W, SECTION 28																			
G-C	KALKASKA 32-27N-7W	NIAGARAN REEF	1971	KALKASKA	6,828	309 D	60	NIAGARAN	7,369	1	0	0	1	160	10,887	56,747	222,812	1,758,859	355	
G-C	KALKASKA 32-27N-7W POOL A	NIAGARAN REEF	1975	KALKASKA	7,076	22 D		NIAGARAN	7,255	1	0	0	1	80	79	25,423	62,424	1,194,230	318	
	KALKASKA TWP., 27N-7W, SECTION 32																			
OF	KALKASKA 10-27N-8W	NIAGARAN REEF	1978	KALKASKA	6,485	33 D	42	NIAGARAN	6,666	1	1	0	1	80	57,838	57,838	82,896	82,896	723	
	KALKASKA TWP., 27N-8W, SECTION 10																			
OF	KALKASKA 11-27N-8W	NIAGARAN REEF	1973	KALKASKA	6,449	17 D	44.2	NIAGARAN	6,776	1	0	0	1	80	9,086	90,872	24,472	52,914	1,136	4
	KALKASKA TWP., 27N-8W, SECTION 11																			
OF	KALKASKA 13-27N-8W	NIAGARAN REEF	1972	KALKASKA	6,950	10 D	47.8	NIAGARAN	7,365	2	0	0	2	240	45,226	336,048	258,408	1,355,260	1,400	4
	KALKASKA TWP., 27N-8W, SECTION 13																			
G-C	KALKASKA 14-27N-8W	NIAGARAN REEF	1974	KALKASKA	6,551	43 D		NIAGARAN	6,790	1	0	0	1	160	2,297	57,393	388,462	2,362,735	359	
	KALKASKA TWP., 27N-8W, SECTION 14																			
OF	KALKASKA 20-27N-8W	NIAGARAN REEF	1975	KALKASKA	6,493	5 D		NIAGARAN	6,750	2	0	0	2	160	117,479	214,272	82,689	144,232	1,339	75
	KALKASKA TWP., 27N-8W, SECTION 20																			
OF	KALKASKA 21-27N-8W	NIAGARAN REEF	1971	KALKASKA	6,562	77 D	45.1	NIAGARAN	6,856	8	1	0	5	400	PRODUCTION COMBINED WITH A-1 CARBONATE PRODUCTION					
OF		A-1 CARBONATE	1972		6,591	31 D								80	424,970	3,652,604	297,752	5,668,137	7,610	
	KALKASKA TWP., 27N-8W, SECTIONS 21, 22, 28																			
OF	KALKASKA 24-27N-8W	SALINA-NIAGARAN REEF	1973	KALKASKA	6,380	220 D	46.1	NIAGARAN	6,852	1	0	0	1	40	111,240	477,964	101,049	859,793	11,949	
	KALKASKA TWP., 27N-8W, SECTION 24																			
G-C	KALKASKA 25-27N-8W	NIAGARAN REEF	1972	KALKASKA	6,491	114 D		NIAGARAN	7,000	2	0	0	2	320	14,277	170,173	172,595	5,075,098	532	
G-C	KALKASKA 25-27N-8W POOL A	NIAGARAN REEF	1974	KALKASKA	6,798	40 D	59	NIAGARAN	6,980	1	0	0	1	160	8,022	79,858	271,859	1,199,895	499	
	KALKASKA TWP., 27N-8W, SECTION 25																			
OF	KALKASKA 26-27N-8W	SALINA-NIAGARAN REEF	1973	KALKASKA	6,372	397 D	55.0	NIAGARAN	6,968	1	0	0	1	160	25,243	179,707	335,532	1,721,522	1,123	5
	KALKASKA TWP., 27N-8W, SECTION 26																			
OF	KALKASKA 28-27N-8W	NIAGARAN REEF	1971	KALKASKA	6,717	6 D		NIAGARAN	6,838	1	0	0	1	160	4,548	35,369			221	35
	KALKASKA TWP., 27N-8W, SECTION 28																			
G-C	KALKASKA 30-27N-8W	NIAGARAN REEF	1974	KALKASKA	6,496	22 D	64.7	NIAGARAN	6,692	1	0	0	1	480	31,805	196,284	1,321,994	5,849,656	409	
	KALKASKA TWP., 27N-8W, SECTION 30							DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS IN GRAND TRAVERSE COUNTY, WHITEWATER TOWNSHIP SECTION 36-27N-9W; AND THE SUBSURFACE LOCATION IS IN KALKASKA COUNTY, KALKASKA TOWNSHIP SECTION 30-27N-8W													
OF	KALKASKA 32-27N-8W	NIAGARAN REEF	1975	KALKASKA	6,585	7 D	45.0	NIAGARAN	6,890	2	0	0	1	160	14,511	103,013	26,767	133,698	644	
	KALKASKA TWP., 27N-8W, SECTION 30																			
G-C	KALKASKA 33-27N-8W	NIAGARAN REEF	1972	KALKASKA	6,620	15 D		NIAGARAN	6,754	1	0	0	1	160	129	25,952	37,152	1,331,639	162	
	KALKASKA TWP., 27N-8W, SECTION 33																			
G-C	RAPID RIVER 5-28N-7W	NIAGARAN REEF	1976	KALKASKA	5,915	10 D		NIAGARAN	6,197	3	1	0	3	480	1,316	1,316			3	
	RAPID RIVER TWP., 28N-7W, SECTION 5																			
OF	RAPID RIVER 24-28N-7W	NIAGARAN REEF	1970	KALKASKA	6,590	44 D	50	NIAGARAN	6,810	8	1	0	8	640	106,661	949,342	1,681,447	10,787,586	1,483	262
	RAPID RIVER TWP., 28N-7W, SECTIONS 24, 25, 26 DUE TO ADMINISTRATIVE ACTION IN 1977 COLD SPRINGS 19-28N-6W, POOL A WAS INCLUDED WITH RAPID RIVER 24-28N-7W																			
OF	RAPID RIVER 24-28N-7W POOL A	NIAGARAN REEF	1972	KALKASKA	6,407	20 D	42.3	NIAGARAN	6,805	1	0	0	1	80	8,058	57,880	2,601	45,952	723	50
	RAPID RIVER TWP., 28N-7W, SECTION 24																			
OF	RAPID RIVER 27-28N-7W	NIAGARAN REEF	1972	KALKASKA	6,487	29 D	47.2	NIAGARAN	6,850	4	0	0	4	160	31,906	207,897	303,847	1,654,453	1,299	72
OF	RAPID RIVER 27-28N-7W POOL A	NIAGARAN REEF	1972	KALKASKA	6,552	8 D	44	NIAGARAN	6,773	4	0	0	4	240	54,613	325,172	280,827	1,827,991	1,355	208
	RAPID RIVER TWP., 28N-7W, SECTIONS 26, 27, 34																			
OF	*RAPID RIVER 32-28N-7W	NIAGARAN REEF	1973	KALKASKA	6,413	20 D	43.5	NIAGARAN	6,550	6	0	1	5	440	283,311	1,534,167	462,276	2,313,428	3,487	215
	*NEW FIELD DISCOVERY CREATED BY REVISED SPACING ORDER FOR KALKASKA 5-27N-7W			RAPID RIVER TWP., 28N-7W, SECTIONS 29, 32																
OF	RAPID RIVER 33-28N-7W	NIAGARAN REEF	1971	KALKASKA	6,522	14 D	52.4	NIAGARAN	6,764	3	0	0	3	200	50,893	254,505	1,075,665	4,298,764	1,272	156
OF	RAPID RIVER 33-28N-7W POOL A	NIAGARAN REEF	1972	KALKASKA	6,510	9 D	43.5	CLINTON	6,695	2	0	0	2	160	2,872	55,761	113,622	896,668	348	43
	RAPID RIVER TWP., 28N-7W, SECTION 33; KALKASKA TWP., 27N-7W, SECTION 4																			
G-C	RAPID RIVER 35-28N-7W	NIAGARAN REEF	1973	KALKASKA	6,719	27 D	66.5	NIAGARAN	6,886	2	0	0	2	240	2,016	255,221	522,871	13,655,569	1,063	
	RAPID RIVER TWP., 28N-7W, SECTION 35																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP IN	NUMBER OF WELLS ABAND IN	NUMBER OF WELLS ACT. VE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
	MANISTEE COUNTY											1978								
OF	BEAR LAKE 1-23N-15W	NIAGARAN REEF	1977	MANISTEE	4,538	28 D	40.5	NIAGARAN	4,730	1	0	0	1	80	123,202	126,786	55,963	66,423	1,335	12
	BEAR LAKE TWP., 23N-15W, SECTION 1																			
G-C	BEAR LAKE 2-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,646	23 D	74.0	NIAGARAN	4,674	1	0	0	1	80	25,522	26,271	386,344	431,479	326	
	BEAR LAKE TWP., 23N-15W, SECTION 2																			
G-C	BEAR LAKE 10-23N-15W	SALINA-NIAGARAN REEF	1974	MANISTEE	4,457	120 D	64.2	NIAGARAN	4,758	2	0	0	2	160	55,353	61,290	1,668,385	1,895,736	383	
	BEAR LAKE TWP., 23N-15W, SECTION 10																			
OF	BEAR LAKE 11-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,688	36 D	43.3	NIAGARAN	4,922	4	0	0	4	320	341,300	1,127,338	340,624	1,014,459	3,523	10
OF	BEAR LAKE 11-23N-15W POOL A	NIAGARAN REEF	1975	MANISTEE	4,668	11 D	40.8	NIAGARAN	4,740	2	0	0	2	160	96,864	360,629	139,658	310,935	2,254	
	BEAR LAKE TWP., 23N-15W, SECTIONS 10, 11, 14																			
OF	BEAR LAKE 13-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,591	16 D		NIAGARAN	5,030	6	2	0	6	480	391,995	1,237,090	318,079	1,027,356	2,577	
	BEAR LAKE TWP., 23N-15W, SECTIONS 12, 13																			
G-C	BEAR LAKE 15-23N-15W	NIAGARAN REEF	1976	MANISTEE	4,410	137 D	67.5	NIAGARAN	4,740	1	0	0	1	80	38,102	38,102	897,575	897,996	476	
	BEAR LAKE TWP., 23N-15W, SECTION 15																			
OF	BEAR LAKE 17-23N-15W	NIAGARAN REEF	1977	MANISTEE	4,429	13 D	41.9	NIAGARAN	4,528	1	0	0	1	120	70,595	70,742	54,498	54,498	589	
	BEAR LAKE TWP., 23N-15W, SECTION 17																			
G-C	BEAR LAKE 18-23N-15W	NIAGARAN REEF	1977	MANISTEE	4,361	44 D	52.6	NIAGARAN	4,547	1	0	0	1	160	9,039	9,039	274,164	274,164	56	
	BEAR LAKE TWP., 23N-15W, SECTION 18																			
OF	BEAR LAKE 19-23N-15W	NIAGARAN REEF	1975	MANISTEE	4,262	11 D	36.7	NIAGARAN	4,556	2	0	0	2	240	33,702	60,226	41,497	67,307	251	124
	BEAR LAKE TWP., 23N-15W, SECTION 19																			
OF	BEAR LAKE 20-23N-15W	SALINA-NIAGARAN REEF	1975	MANISTEE	4,338	32 D	38.4	NIAGARAN	4,722	2	0	0	2	160	60,477	163,063	3,944	18,559	1,019	31
	BEAR LAKE TWP., 23N-15W, SECTION 20																			
OF	BEAR LAKE 22-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,541	10 D	44.5	NIAGARAN	4,885	9	1	0	9	720	500,281	1,222,396	1,021,443	2,402,148	1,698	185
	BEAR LAKE TWP., 23N-15W, SECTIONS 15, 21, 22																			
OF	BEAR LAKE 23-23N-15W	NIAGARAN REEF	1973	MANISTEE	4,786	7 D	49.6	NIAGARAN	5,035	4	0	0	4	320	76,277	320,891	650,832	1,904,649	1,003	
	BEAR LAKE TWP., 23N-15W, SECTION 23																			
G-C	BEAR LAKE 24-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,808	58 D	69.0	NIAGARAN	5,070	2	1	0	2	160	46,380	151,890	1,233,696	4,050,099	949	
	BEAR LAKE TWP., 23N-15W, SECTION 24; MAPLE GROVE TWP., 23N-14W, SECTION 19																			
G-C	BEAR LAKE 25-23N-15W	NIAGARAN REEF	1976	MANISTEE	4,714	118 D	63.3	NIAGARAN	5,061	1	0	0	1	80	0	38	SHUT-IN			1
	BEAR LAKE TWP., 23N-15W, SECTION 25																			
OF	BEAR LAKE 26-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,828	34 D	45.0	NIAGARAN	4,933	4	0	0	4	320	49,238	167,922	593,618	1,520,859	525	9
OF	BEAR LAKE 26-23N-15W POOL A	NIAGARAN REEF	1975	MANISTEE	4,861	10 D	43.5	NIAGARAN	5,036	3	0	0	3	240	273,121	847,468	329,703	1,012,239	3,531	33
	BEAR LAKE TWP., 23N-15W, SECTIONS 23, 25, 26																			
OF	BEAR LAKE 27-23N-15W	NIAGARAN REEF	1975	MANISTEE	4,673	64 D	44.2	NIAGARAN	4,870	2	0	0	2	160	74,024	238,649	327,491	831,188	1,491	
OF	BEAR LAKE 27-23N-15W POOL A	NIAGARAN REEF	1976	MANISTEE	4,592	9 D	44	NIAGARAN	4,801	1	0	0	1	80	108,663	277,375	117,393	265,950	3,467	31
	BEAR LAKE TWP., 23N-15W, SECTION 27																			
OF	BEAR LAKE 31-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,168	59 D	40.0	NIAGARAN	4,580	1	0	0	1	80	41,842	215,012	29,420	136,395	2,688	70
	BEAR LAKE TWP., 23N-15W, SECTION 31																			
OF	BEAR LAKE 32-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,592	62 D	45.3	NIAGARAN	4,860	3	0	0	3	240	274,244	786,837	261,639	695,702	3,278	
	BEAR LAKE TWP., 23N-15W, SECTION 32																			
OF	BEAR LAKE 33-23N-15W	NIAGARAN REEF	1974	MANISTEE	4,621	21 D	42.6	NIAGARAN	4,806	5	0	0	5	400	535,330	1,599,343	515,465	1,561,202	3,998	29
	BEAR LAKE TWP., 23N-15W, SECTIONS 28, 33																			
OF	BEAR LAKE 34-23N-15W	NIAGARAN REEF	1975	MANISTEE	4,783	18 D	44.6	NIAGARAN	4,957	3	0	0	3	240	250,921	710,055	420,430	970,905	2,958	15
	BEAR LAKE TWP., 23N-15W, SECTION 34																			
G-C	BEAR LAKE 35-23N-15W	NIAGARAN REEF	1977	MANISTEE	4,839	10 D		NIAGARAN	4,985	1	0	0	1	160			SHUT-IN			
	BEAR LAKE TWP., 23N-15W, SECTION 35																			
G-C	BROWN 4-22N-15W*	NIAGARAN REEF	1974	MANISTEE	4,397	331 O	69.5	NIAGARAN	4,907	2	0	0	2	320	105,139	164,579	3,334,616	5,933,422	514	
G-C	BROWN 4-22N-15W POOL A	NIAGARAN REEF	1975	MANISTEE	4,419	306 O	64.2	NIAGARAN	4,926	1	0	0	1	120	23,354	27,829	588,431	874,785	232	
	BROWN TWP., 22N-15W, SECTIONS 3, 4							*TWO 160-ACRE UNITS ESTABLISHED BY ORDER 12-5-76, EFFECTIVE JUNE 8, 1976													
OF	BROWN 5-22N-15W	NIAGARAN REEF	1976	MANISTEE	4,649	12 O	45.3	NIAGARAN	4,762	1	0	0	1	80	63,094	176,620	166,651	337,674	2,208	
	BROWN TWP., 22N-15W, SECTION 5																			
G-C	BROWN 6-22N-15W	SALINA-NIAGARAN REEF	1974	MANISTEE	4,207	415 O	57.3	NIAGARAN	4,809	1	0	0	1	120	14,485	26,554	1,023,555	1,595,311	221	
	BROWN TWP., 22N-15W, SECTION 6																			
G-C	BROWN 7-22N-15W	NIAGARAN REEF	1974	MANISTEE	4,378	292 O	65.0	NIAGARAN	4,780	1	0	0	1	160	241	17,242	165,436	1,942,572	108	
	BROWN TWP., 22N-15W, SECTION 7																			
G-C	BROWN 8-22N-15W	NIAGARAN REEF	1974	MANISTEE	4,692	27 O	66.0	NIAGARAN	4,888	1	0	0	1	80	5,272	14,019	490,458	1,150,737	175	
	BROWN TWP., 22N-15W, SECTION 8																			
GF	BROWN 19-22N-15W	SALINA-NIAGARAN REEF	1977	MANISTEE	4,456	8 O		NIAGARAN	4,575	1	0	0	1	80			SHUT-IN			
	BROWN TWP., 22N-15W, SECTION 19																			
OF	CLEON 11-24N-13W	NIAGARAN REEF	1973	MANISTEE	5,624	121 O	43.5	NIAGARAN	6,167	4	1	0	4	320	156,025	238,700	146,067	232,175	746	
	CLEON TWP., 24N-13W, SECTIONS 11, 12																			
OF	CLEON 12-24N-13W	NIAGARAN REEF	1974	MANISTEE	5,851	35 O	39.3	NIAGARAN	6,119	1	0	0	1	80	64,119	157,666	33,972	80,812	1,971	11
OF	CLEON 12-24N-13W POOL A	NIAGARAN REEF	1975	MANISTEE	5,702	238 O	41.1	NIAGARAN	6,043	1	0	0	1	80	108,236	288,922	45,282	131,545	3,611	
	CLEON TWP., 24N-13W, SECTION 12																			
OF	CLEON 14-24N-13W*	NIAGARAN REEF	1973	MANISTEE	5,655	69 O	44.3	NIAGARAN	5,928	2	0	0	2	160	92,052	189,347	181,121	271,836	1,183	
OF	CLEON 14-24N-13W POOL A	NIAGARAN REEF	1976	MANISTEE	5,728	59 O		NIAGARAN	5,897	3	1	0	3	320	187,048	207,960	148,564	150,123	650	
	CLEON TWP., 24N-13W, SECTION 14							*DISCOVERY WELL ACTUALLY COMPLETED AS DEVELOPMENT WELL IN 1973, RECLASSIFIED AS A DISCOVERY IN 1974													
G-C	CLEON 15-24N-13W	NIAGARAN REEF	1974	MANISTEE	5,464	20 O		NIAGARAN	5,770	1	0	0	1	80	4,811	32,804	579,679	1,988,185	410	
	CLEON TWP., 24N-13W, SECTION 15																			
G-C	CLEON 17-24N-13W	NIAGARAN REEF	1978	MANISTEE	5,408	54 O	59	NIAGARAN	5,523	1	1	0	1	80			SHUT-IN			
	CLEON TWP., 24N-13W, SECTION 17																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP IN	NUMBER OF WELLS ABAND IN	NUMBER OF WELLS ACT. VE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
												1978								
G-C	CLEON 19-24N-13W	NIAGARAN REEF	1976	MANISTEE	5,073	129 D	72.25	NIAGARAN	5,453	1	0	0	1	80	22,714	29,256	250,356	409,787	366	
OF	CLEON 19-24N-13W POOL A	NIAGARAN REEF	1977	MANISTEE	5,007	133 D	38.9	NIAGARAN	5,450	1	0	0	1	80	374	517	SHUT-IN		6	
	CLEON TWP., 24N-13W, SECTION 19																			
G-C	CLEON 20-24N-13W	NIAGARAN REEF	1974	MANISTEE	5,145	202 D		NIAGARAN	5,534	1	0	0	1	80	306	1,247	12,196	70,336	15	
	CLEON TWP., 24N-13W, SECTION 20																			
G-C	CLEON 22-24N-13W	NIAGARAN REEF	1975	MANISTEE	5,436	73.5 D	65.5	NIAGARAN	5,701	3	1	0	3	200	12,654	117,038	2,079,472	7,291,515	585	
	CLEON TWP., 24N-13W, SECTION 22																			
G-C	CLEON 24-24N-13W	NIAGARAN REEF	1977	MANISTEE	5,857	76 D		NIAGARAN	6,052	1	0	0	1	80	436	436	3,876	3,876	5	
	CLEON TWP., 24N-13W, SECTION 24																			
G-C	CLEON 26-24N-13W	NIAGARAN REEF	1976	MANISTEE	5,616	154 D	74.8	NIAGARAN	5,901	1	0	0	1	160	7,767	7,907	233,120	233,120	49	
	CLEON TWP., 24N-13W, SECTION 26																			
G-C	CLEON 27-24N-13W*	NIAGARAN REEF	1976	MANISTEE	5,659	36 D		NIAGARAN	5,937	3	2	0	2	160	56	56	SHUT-IN		1	
G-C	CLEON 27-24N-13W POOL A	NIAGARAN REEF	1977	MANISTEE	5,724	10 D		NIAGARAN	5,860	2	1	0	2	320	9,138	9,138	297,451	297,451	28	
	CLEON TWP., 24N-13W, SECTION 27							*ABANDONED IN 1976, REACTIVATED IN 1978												
G-C	CLEON 29-24N-13W	NIAGARAN REEF	1978	MANISTEE	5,664	10 D		NIAGARAN	5,770	1	1	0	1	80	794	794	SHUT-IN		10	
	CLEON TWP., 24N-13W, SECTION 29																			
OF	CLEON 31-24N-13W	NIAGARAN REEF	1977	MANISTEE	5,220	119 O		NIAGARAN	5,543	1	0	0	1	80	14,489	14,519	287,243	287,243	181	
	CLEON TWP., 24N-13W, SECTION 31																			
G-C	CLEON 32-24N-13W	NIAGARAN REEF	1977	MANISTEE	5,418	44 D	51.5	NIAGARAN	5,683	1	0	0	1	160	0	55	SHUT-IN		1	
OF	CLEON 32-24N-13W POOL A	NIAGARAN REEF	1978	MANISTEE	5,363	90 D	46.6	NIAGARAN	5,773	1	1	0	1	80	537	537	SHUT-IN		7	
	CLEON TWP., 24N-13W, SECTION 32																			
AGF	MANISTEE	SALINA	1959	MANISTEE	3,616	94 D		NIAGARAN	4,165	1	ABANDONED 1961			160						
	FILER TWP., 21N-17W, SECTION 24																			
OF	MANISTEE 1-22N-16W	NIAGARAN REEF	1973	MANISTEE	4,283	254 D	58.6	NIAGARAN	4,807	2	0	0	2	320	105,384	395,968	83,788	115,071	1,237	
OF	MANISTEE 1-22N-16W POOL A	NIAGARAN REEF	1975	MANISTEE	4,408	81 D	47.5	NIAGARAN	4,630	3	0	0	3	240	37,451	108,324	383,323	825,110	451	
	MANISTEE TWP., 22N-16W, SECTION 1; BROWN TWP., 22N-15W, SECTION 6																			
OF	MANISTEE 2-22N-16W	NIAGARAN REEF	1975	MANISTEE	4,245	15 D		NIAGARAN	4,558	1	0	0	1	80	37,128	167,168	19,533	63,829	2,090	60
OF	MANISTEE 2-22N-16W POOL A	NIAGARAN REEF	1978	MANISTEE	4,162	36 D	37.8	NIAGARAN	4,480	1	1	0	1	80	15,346	15,346			192	100
	MANISTEE TWP., 22N-16W, SECTION 2																			
OF	MANISTEE 3-22N-16W	NIAGARAN REEF	1976	MANISTEE	4,135	46 D		SALINA-NIAGARAN	4,365	2	0	1	1	160	1,028	4,794	0	959	30	
	MANISTEE TWP., 22N-16W, SECTION 3																			
OF	MANISTEE 12-22N-16W	NIAGARAN REEF	1974	MANISTEE	4,701	17 D	45.0	NIAGARAN	4,844	2	0	0	2	160	210,931	293,259	140,907	196,168	1,833	24
	MANISTEE TWP., 22N-16W, SECTION 12																			
G-C	MANISTEE 13-22N-16W	SALINA-NIAGARAN REEF	1976	MANISTEE	4,511	201 D		SALINA-NIAGARAN	4,832	1	0	0	1	160			SHUT-IN			
GF	MANISTEE 13-22N-16W POOL A	NIAGARAN REEF	1976	MANISTEE	4,604	62 D		NIAGARAN	4,837	1	0	0	1	80			SHUT-IN			
	MANISTEE TWP., 22N-16W, SECTION 13																			
OF	MANISTEE 14-22N-16W	NIAGARAN REEF	1977	MANISTEE	4,342	258 D	42.6	NIAGARAN	4,881	1	0	0	1	80	0	497	SHUT-IN		6	
	MANISTEE TWP., 22N-16W, SECTION 14																			
OF	MANISTEE 15-22N-16W	NIAGARAN REEF	1974	MANISTEE	4,467	15 D	42.8	NIAGARAN	4,725	3	0	0	3	240	61,830	257,335	293,534	943,583	1,072	201
	MANISTEE TWP., 22N-16W, SECTIONS 10, 15																			
OF	MANISTEE 16-22N-16W	NIAGARAN REEF	1975	MANISTEE	4,049	34 D	43.2	NIAGARAN	4,228	2	0	0	2	160	69,218	294,252	29,867	161,717	1,839	60
	MANISTEE TWP., 22N-16W, SECTION 16																			
OF	MANISTEE 17-22N-16W	NIAGARAN REEF	1976	MANISTEE	3,930	10 D		NIAGARAN	4,230	2	0	0	2	160	148,170	284,559	92,745	183,992	1,778	34
OF	MANISTEE 17-22N-16W POOL A	NIAGARAN REEF	1977	MANISTEE	4,116	69 D	47	NIAGARAN	4,285	1	0	0	1	80	51,526	59,466	23,454	25,770	743	
	MANISTEE TWP., 22N-16W, SECTION 17																			
OF	MANISTEE 18-22N-16W	NIAGARAN REEF	1977	MANISTEE	3,902	10 D		NIAGARAN	4,130	5	1	0	5	400	179,433	187,549	171,006	171,006	469	4
	MANISTEE TWP., 22N-16W, SECTION 18																			
OF	MANISTEE 20-22N-16W	NIAGARAN REEF	1975	MANISTEE	3,996	34 D	43.2	NIAGARAN	4,225	2	0	0	2	160	101,959	162,797	232,661	489,854	1,017	42
	MANISTEE TWP., 22N-16W, SECTION 20																			
G-C	MANISTEE 23-22N-16W	NIAGARAN REEF	1974	MANISTEE	4,220	277 O	68.0	NIAGARAN	4,680	3	1	0	3	400	95	260	SHUT-IN		1	
	MANISTEE TWP., 22N-16W, SECTIONS 22, 23																			
G-C	MANISTEE 24-22N-16W	NIAGARAN REEF	1974	MANISTEE	4,171	483 O	67.5	NIAGARAN	4,722	1	0	0	1	80	0	304	SHUT-IN		4	
OF	MANISTEE 24-22N-16W POOL A	NIAGARAN REEF	1977	MANISTEE	4,677	7 O	44.2	NIAGARAN	4,776	2	1	0	2	160	99	236	SHUT-IN		1	
	MANISTEE TWP., 22N-16W, SECTION 24																			
G-C	MANISTEE 27-22N-16W	NIAGARAN REEF	1974	MANISTEE	4,288	224 O	63.4	NIAGARAN	4,600	2	0	0	2	320	173	213	SHUT-IN		1	
	MANISTEE TWP., 22N-16W, SECTION 27																			
GF	MANISTEE 30-22N-16W	NIAGARAN REEF	1976	MANISTEE	3,958	225 O		NIAGARAN	4,348	2	0	0	2	160	21,357	24,890	831,706	1,116,504	155	
	MANISTEE TWP., 22N-16W, SECTION 30																			
GF	MANISTEE 31-22N-16W	NIAGARAN REEF	1978	MANISTEE	4,021	146 O		NIAGARAN	4,330	1	1	0	1	80	857	857	98,602	98,602	107	
	MANISTEE TWP., 22N-16W, SECTION 31																			
OF	MANISTEE 24-22N-17W	NIAGARAN REEF	1978	MANISTEE	3,862	45 O		NIAGARAN	3,993	1	1	0	1	80	1,780	1,780			22	
	MANISTEE TWP., 22N-17W, SECTION 24																			
OF	MANISTEE 25-22N-17W	NIAGARAN REEF	1977	MANISTEE	4,040	66 O	45.6	NIAGARAN	4,230	3	2	0	3	240	5,949	6,922	SHUT-IN		28	
	MANISTEE TWP., 22N-16W, SECTION 25																			
OF	MAPLE GROVE 1-23N-14W	NIAGARAN REEF	1974	MANISTEE	5,473	23 O	42.2	NIAGARAN	5,610	2	0	0	2	160	132,482	235,971	281,918	451,983	1,415	
	MAPLE GROVE TWP., 23N-14W, SECTION 1																			
G-C	MAPLE GROVE 2-23N-14W	NIAGARAN REEF	1973	MANISTEE	5,055	52 O	70.6	NIAGARAN	5,498	2	0	0	1	240	787	11,972	25,508	410,810	50	
	MAPLE GROVE TWP., 23N-14W, SECTION 2																			
OF	MAPLE GROVE 3-23N-14W	NIAGARAN REEF	1977	MANISTEE			42.7	NIAGARAN	5,230	1	0	0	1	160	70,466	134,616	72,253	129,071	841	
	MAPLE GROVE TWP., 23N-14W, SECTION 3 CHANGED TO DISCOVERY WELL IN 1978 BY ADMINISTRATIVE ACTION																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC.	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS (1978): TO END	COMP. IN	ABAND. IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	MAPLE GROVE 4-23N-14W	NIAGARAN REEF	1975	MANISTEE	4,895	26 S		NIAGARAN	5,153	1	0	0	1	80	81,337	265,991	162,476	437,541	3,325	
	MAPLE GROVE TWP., 23N-14W, SECTION 4																			
OF	MAPLE GROVE 6-23N-14W	NIAGARAN REEF	1973	MANISTEE	4,514	27 D	42.0	ST. PETER	6,360	5	0	0	5	400	361,680	1,246,204	119,981	493,315	3,115	243
	MAPLE GROVE TWP., 23N-14W, SECTION 6; SPRINGDALE TWP., 24N-14W, SECTION 31																			
OF	MAPLE GROVE 6-23N-14W POOL A	SALINA-NIAGARAN REEF	1974	MANISTEE	4,518	27 D	40.2	NIAGARAN	4,975	1	0	0	1	80	13,112	63,006	2,144	17,279	757	186
	MAPLE GROVE TWP., 23N-14W, SECTION 6																			
OF	MAPLE GROVE 7-23N-14W	NIAGARAN REEF	1974	MANISTEE	4,510	35 D	35.0	NIAGARAN	4,825	3	0	0	3	240	72,445	272,871	66,848	183,561	1,137	57
	MAPLE GROVE TWP., 23N-14W, SECTION 7																			
OF	MAPLE GROVE 8-23N-14W	NIAGARAN REEF	1974	MANISTEE	4,905	26 D	44.8	NIAGARAN	5,082	3	0	0	3	240	313,463	922,349	292,022	866,761	4,051	97
	MAPLE GROVE TWP., 23N-14W, SECTIONS 8, 9																			
G-C	MAPLE GROVE 9-23N-14W	SALINA-NIAGARAN REEF	1973	MANISTEE	4,590	366 D	72.8	NIAGARAN	5,295	1	0	0	1	80	6,830	26,259	166,184	700,474	328	
	MAPLE GROVE TWP., 23N-14W, SECTION 9																			
OF	MAPLE GROVE 10-23N-14W	NIAGARAN REEF	1973	MANISTEE	4,832	263 D	43.8	NIAGARAN	5,457	3	0	0	3	240	87,729	218,164	213,769	430,474	909	
	MAPLE GROVE TWP., 23N-14W, SECTION 10																			
OF	MAPLE GROVE 16-23N-14W	NIAGARAN REEF	1973	MANISTEE	4,950	211 D	48.2	NIAGARAN	5,409	2	0	0	2	120	47,709	198,273	743,715	811,886	1,652	
	MAPLE GROVE TWP., 23N-14W, SECTION 16																			
OF	MAPLE GROVE 17-23N-14W	NIAGARAN REEF	1974	MANISTEE	4,637	102 D	73.0	NIAGARAN	5,225	5	2	0	5	320	204,429	378,640	333,689	879,155	1,183	10
	MAPLE GROVE TWP., 23N-14W, SECTION 17																			
G-C	MAPLE GROVE 19-23N-14W	NIAGARAN REEF	1975	MANISTEE	4,597	259 D	67.8	NIAGARAN	5,110	1	0	0	1	160	5,678	18,591	175,758	744,274	116	
	MAPLE GROVE TWP., 23N-14W, SECTION 19																			
G-C	MAPLE GROVE 20-23N-14W	NIAGARAN REEF	1976	MANISTEE	4,904	188 D		NIAGARAN	5,235	1	0	0	1	160			SHUT-IN			
OF	MAPLE GROVE 20-23N-14W POOL A	NIAGARAN REEF	1978	MANISTEE	5,068	8 D	46.8	NIAGARAN	5,260	1	1	0	1	120	3,090	3,090	3,950	3,950	26	
	MAPLE GROVE TWP., 23N-14W, SECTION 20																			
GF	MAPLE GROVE 30-23N-14W	NIAGARAN REEF	1977	MANISTEE	4,598	281 D		NIAGARAN	5,190	1	0	0	1	80	4,391	4,391	273,470	273,470	55	
	MAPLE GROVE TWP., 23N-14W, SECTION 30																			
OF	MARILLA 6-23N-13W	NIAGARAN REEF	1977	MANISTEE	5,015	299 D		NIAGARAN	5,505	1	0	0	1	80	44,871	44,871	1,403,003	1,403,003	561	
	MARILLA TWP., 23N-13W, SECTION 6																			
OF	PLEASANTON 25-24N-15W	NIAGARAN REEF	1977	MANISTEE	4,490	7 D	39.3	NIAGARAN	4,775	1	0	0	1	80	40939	42,522	12,977	12,977	531	350
	PLEASANTON TWP., 24N-15W, SECTION 25																			
OF	PLEASANTON 36-24N-15W	NIAGARAN REEF	1974	MANISTEE	4,474	16 D	40.6	NIAGARAN	4,620	4	0	0	4	240	202,804	645,815	107,500	304,281	2,691	146
	PLEASANTON TWP., 24N-15W, SECTION 36																			
OF	SPRINGDALE 20-24N-14W	NIAGARAN REEF	1978	MANISTEE	4,764	6 D	40.9	NIAGARAN	4,915	1	1	0	1	80	74,002	74,002	41,495	41,495	925	
	SPRINGDALE TWP., 24N-14W, SECTION 20																			
OF	SPRINGDALE 21-24N-14W	NIAGARAN REEF	1975	MANISTEE	4,883	24 D	39.0	NIAGARAN	5,085	4	2	0	4	320	215,179	607,553	122,095	272,806	1,899	15
	SPRINGDALE TWP., 24N-14W, SECTION 21																			
OF	SPRINGDALE 25-24N-14W	NIAGARAN REEF	1972	MANISTEE	5,006	71 D	43.2	NIAGARAN	5,448	1	0	0	1	40	87,958	209,142	161,437	398,548	5,228	10
	SPRINGDALE TWP., 24N-14W, SECTION 25																			
OF	SPRINGDALE 26-24N-14W	NIAGARAN REEF	1974	MANISTEE	5,094	12 D	44.5	NIAGARAN	5,195	3	2	0	3	240	171,163	406,308	148,017	372,113	1,693	
	SPRINGDALE TWP., 24N-14W, SECTION 26																			
OF	SPRINGDALE 28-24N-14W	SALINA-NIAGARAN REEF	1973	MANISTEE	4,719	134 D	34.4	NIAGARAN	5,180	1	0	0	1	80	105,244	346,544	62,276	152,691	4,332	
	SPRINGDALE TWP., 24N-14W, SECTION 28																			
OF	SPRINGDALE 29-24N-14W	NIAGARAN REEF	1976	MANISTEE	4,633	14 D		NIAGARAN	4,959	1	0	0	1	80	9,702	23,251	3,116	4,280	291	96
	SPRINGDALE TWP., 24N-14W, SECTION 29																			
OF	SPRINGDALE 32-24N-14W	NIAGARAN REEF	1974	MANISTEE	4,634	16 D	41.9	NIAGARAN	5,050	3	1	0	3	240	22,421	50,335	31	5,521	210	544
	SPRINGDALE TWP., 24N-14W, SECTION 32; MAPLE GROVE TWP., 23N-14W, SECTION 5																			
OF	SPRINGDALE 34-24N-14W	SALINA-NIAGARAN REEF	1974	MANISTEE	4,764	168 D	68.0	NIAGARAN	5,315	1	0	0	1	80	6,897	24,147	123,110	455,330	302	
OF	SPRINGDALE 34-24N-14W POOL A	NIAGARAN REEF	1975	MANISTEE	4,995	18 D	40.6	NIAGARAN	5,180	2	0	0	2	160	156,797	408,560	91,381	208,479	2,553	105
	SPRINGDALE TWP., 24N-14W, SECTION 34							RECLASSIFIED AS A SEPARATE POOL IN 1976												
OF	SPRINGDALE 35-24N-14W	NIAGARAN REEF	1978	MANISTEE	5,026	119 D	47.2	NIAGARAN	5,417	1	1	0	1	80	14,671	14,671	66,541	66,541	183	
	SPRINGDALE TWP., 24N-14W, SECTION 35																			
	MASON COUNTY																			
OF	HAMLIN 13-19N-18W	NIAGARAN REEF	1972	MASON	4,284	12 D	46.2	NIAGARAN	4,500	3	0	0	3	200	86,484	457,584	112,497	594,190	2,288	50
G-C	HAMLIN 13-19N-18W POOL A	NIAGARAN REEF	1973	MASON	4,392	6 D		NIAGARAN	4,460	2	0	0	2	200	776	43,697	487,836	6,512,938	218	12
OF	HAMLIN 13-19N-18W POOL B	NIAGARAN REEF	1975	MASON	4,464	11 D	48.0	NIAGARAN	4,671	1	0	0	1	80	36,856	108,596	89,906	170,450	1,357	150
	HAMLIN TWP., 19N-18W, SECTIONS 13, 24																			
OF	HAMLIN 25-19N-18W	NIAGARAN REEF	1972	MASON	4,251	14 D	46.2	NIAGARAN	4,556	3	0	0	3	320	31,649	121,076	280,241	829,859	378	150
	HAMLIN TWP., 19N-18W, SECTION 25																			
AGF	HAMLIN	SALINA-NIAGARAN REEF	1952	MASON	3,950	? D		CAMBRIAN	6,622	1	ABANDONED 1962			160						
AOF		NIAGARAN REEF	1952		4,224	20 D	46.2			1	ABANDONED 1958			40		60,532			1,513	
	HAMLIN TWP., 19N-18W, SECTION 27																			
G-C	VICTORY 5-19N-17W	NIAGARAN REEF	1974	MASON	4,199	200 D	69.0	NIAGARAN	4,779	1	0	0	1	80	1,203	1,220	89,750	89,750	15	15
	VICTORY TWP., 19N-17W, SECTION 5																			
G-C	VICTORY 7-19N-17W	NIAGARAN REEF	1973	MASON	4,052	369 D	61.2	NIAGARAN	4,730	3	0	0	3	240	9,447	57,763	223,116	903,457	241	
	VICTORY TWP., 19N-17W, SECTION 7																			
OF	VICTORY 18-19N-17W	NIAGARAN REEF	1973	MASON	4,344	22 D	50.0	NIAGARAN	4,658	2	0	0	2	160	23,982	112,277	94,261	299,233	702	244
G-C	VICTORY 18-19N-17W POOL A	NIAGARAN REEF	1974	MASON	4,467	5 D	73.3	NIAGARAN	4,555	2	0	0	2	160	179	9,627	48,870	794,621	60	
	VICTORY TWP., 19N-17W, SECTION 18																			
OF	VICTORY 19-19N-17W	NIAGARAN REEF	1972	MASON	4,387	14 D		NIAGARAN	4,537	2	0	0	2	160	35,625	258,540	162,421	843,944	1,616	44
G-C	VICTORY 19-19N-17W POOL A	NIAGARAN REEF	1974	MASON	4,358	16 D	69.2	NIAGARAN	4,516	2	1	0	2	160	1,914	45,802	793,210	4,708,002	286	
	VICTORY TWP., 19N-17W, SECTIONS 18, 19																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC.	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS (1978): TO END	COMP. IN	ABAND. IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
	MONTMORENCY COUNTY																			
OF	MONTMORENCY 14-32N-1E	NIAGARAN REEF	1979	MONTMORENCY	4,633	23 D	43	NIAGARAN	4,785	1	1	0	1	80	1,209	1,209	SHUT-IN		15	
	MONTMORENCY TWP., 32N-1E, SECTION 14																			
G-C	MONTMORENCY 29-32N-1E	NIAGARAN REEF	1975	MONTMORENCY	4,794	24 D	72.3	NIAGARAN	4,939	1	0	0	1	80	0	47	SHUT-IN		1	
	MONTMORENCY TWP., 32N-1E, SECTION 29																			
	OTSEGO COUNTY																			
OF	BAGLEY 21-30N-3W	NIAGARAN REEF	1975	OTSEGO	5,962	28 D	38.6	NIAGARAN	6,219	1	0	0	1	80	3,634	18,271	173	3,414	228	7
	BAGLEY TWP., 30N-3W, SECTION 21																			
OF	BAGLEY 23-30N-3W	NIAGARAN REEF	1973	OTSEGO	5,868	13 D	43.3	NIAGARAN	6,194	2	0	0	2	120	27,765	184,829	45,157	183,638	1,540	190
	BAGLEY TWP., 30N-3W, SECTIONS 22, 23																			
OF	BAGLEY 25-30N-3W	NIAGARAN REEF	1972	OTSEGO	6,090	55 D	44.9	NIAGARAN	6,372	1	0	0	1	62	44,205	421,429	164,789	804,769	6,797	15
OF	BAGLEY 25-30N-3W POOL A	A-1 CARBONATE & NIAGARAN REEF	1972	OTSEGO	6,070	30 D	41.8	NIAGARAN	6,451	3	0	0	3	240	105,880	826,374	266,447	1,528,342	3,443	46
	BAGLEY TWP., 30N-3W, SECTION 25																			
OF	BAGLEY 31-30N-3W	NIAGARAN REEF	1977	OTSEGO	6,121	7 D	46.3	NIAGARAN	6,385	2	0	0	2	160	34,717	35,207	25,837	25,837	220	1
	BAGLEY TWP., 30N-3W, SECTION 31																			
OF	BAGLEY 35-30N-3W	NIAGARAN REEF	1974	OTSEGO	6,110	50 D	43.0	NIAGARAN	6,365	2	0	0	2	240	254,359	599,261	183,115	457,520	2,497	100
OF	BAGLEY 35-30N-3W POOL A	NIAGARAN REEF	1978	OTSEGO	6,270	30 D	45.1	NIAGARAN	6,435	1	1	0	1	80	84,135	84,135	65,169	65,169	1,052	
	BAGLEY TWP., 30N-3W, SECTION 35																			
G-C	CHARLTON 1-30N-1W	NIAGARAN REEF	1975	OTSEGO	5,885	6 D	68.1	NIAGARAN	6,165	2	0	0	2	200	56,246	214,580	3,129,999	6,139,307	1,073	
	CHARLTON TWP., 30N-1W, SECTION 1																			
OF	CHARLTON 9-30N-1W	NIAGARAN REEF	1972	OTSEGO	5,832	226 D	46.4	NIAGARAN	6,216	1	0	0	1	80	65,091	426,047	153,390	524,009	5,325	
	CHARLTON TWP., 30N-1W, SECTION 9																			
OF	CHARLTON 10-30N-1W	NIAGARAN REEF	1974	OTSEGO	6,093	96 D	45.8	NIAGARAN	6,265	1	0	0	1	80	108,682	368,581	69,551	270,479	4,607	
	CHARLTON TWP., 30N-1W, SECTION 10																			
OF	CHARLTON 12-30N-1W	NIAGARAN REEF	1973	OTSEGO	5,936	129 D	50.3	NIAGARAN	6,330	2	0	0	2	160	119,300	215,207	1,874,735	2,369,317	1,345	1
	CHARLTON TWP., 30N-1W, SECTIONS 12, 13																			
OF	CHARLTON 24-30N-1W	NIAGARAN REEF	1973	OTSEGO	6,234	26 D		NIAGARAN	6,390	1	0	0	1	80	20,132	123,920	129,247	702,375	1,549	
	CHARLTON TWP., 30N-1W, SECTION 24																			
G-C	CHARLTON 31-30N-1W	A-2 CARBONATE & NIAGARAN REEF	1972	OTSEGO	5,676 6,168	13 D 104 D	51.8	NIAGARAN	6,400	2	0	0	2	430	32,544	230,709	681,931	4,062,494	536	
	CHARLTON TWP., 30N-1W, SECTION 31																			
OF	CHARLTON 4-31N-1W	NIAGARAN REEF	1970	OTSEGO	4,766	116 D	55	CLINTON	5,270	2	0	0	2	480	180,362	2,014,043	435,104	2,178,735	2,517	3
OF	CHARLTON 4-31N-1W POOL A*	NIAGARAN REEF	1973	OTSEGO	4,780	15 D	44.3	NIAGARAN	4,860	1	0	0	1	320	PRODUCTION COMBINED WITH CHARLTON 4					2
	*DETERMINED A SEPARATE POOL IN 1974			CHARLTON TWP., 31N-1W, SECTIONS 4, 5				DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS 4-31N-1W AND THE SUBSURFACE LOCATION IS 5-31N-1W													
OF	CHARLTON 7-31N-1W	NIAGARAN REEF	1974	OTSEGO	4,897	16 D	46.1	NIAGARAN	5,184	3	0	0	3	240	194,540	409,333	507,906	978,889	1,705	1
	CHARLTON TWP., 31N-1W, SECTION 7																			
OF	CHARLTON 9-31N-1W	SALINA-NIAGARAN REEF	1972	OTSEGO	4,843	3 D	44.2	NIAGARAN	5,045	2	0	0	2	160	217,755	1,185,403	216,473	1,081,560	7,409	3
	CHARLTON TWP., 31N-1W, SECTION 9																			
OF	CHARLTON 27-31N-1W	NIAGARAN REEF	1972	OTSEGO	5,202	26 D	45.4	NIAGARAN	5,228	5	0	0	5	360	212,505	1,433,676	499,969	2,101,980	3,982	1
	CHARLTON TWP., 31N-1W, SECTIONS 27, 28																			
G-C	CHARLTON 28-31N-1W	SALINA-NIAGARAN REEF	1974	OTSEGO	4,923	45 D	64.8	NIAGARAN	5,421	2	0	0	2	80	104,497	454,157	227,736	2,010,533	5,677	
	CHARLTON TWP., 31N-1W, SECTION 28							INCLUDES 1 WELL WHICH MAY BE ASSIGNED TO CHARLTON 28-31N-1W, POOL A													
OF	CHARLTON 30-31N-1W	NIAGARAN REEF	1975	OTSEGO	5,435	11 D	43.4	NIAGARAN	5,650	2	0	0	2	160	158,479	639,632	140,811	387,758	3,998	
	CHARLTON TWP., 31N-1W, SECTION 30																			
OF	CHARLTON 31-31N-1W	NIAGARAN REEF	1973	OTSEGO	5,391	54 D	41.9	NIAGARAN	5,770	3	0	1	2	240	172,194	714,633	188,842	456,535	2,978	180
	CHARLTON TWP., 31N-1W, SECTIONS 30, 31																			
OF	CHARLTON 34-31N-1W	NIAGARAN REEF	1974	OTSEGO	5,492	10 D	44.5	NIAGARAN	5,830	2	0	0	2	160	135,451	452,804	96,559	300,210	2,830	3
	CHARLTON TWP., 31N-1W, SECTION 34																			
OF	CHESTER 5-29N-2W	NIAGARAN REEF	1978	OTSEGO	6,340	20 D	46.2	NIAGARAN	6,580	1	1	0	1	80	1,418	1,418			18	
	CHESTER TWP., 29N-2W, SECTION 5																			
OF	CHESTER 10-29N-2W	NIAGARAN REEF	1975	OTSEGO	6,145	47 D	68.5	NIAGARAN	6,644	3	2	0	3	320	45,696	220,040	214,484	2,712,348	688	
	CHESTER TWP., 29N-2W, SECTION 10																			
OF	CHESTER, SEC. 15	A-2 CARBONATE & LOWER NIAGARAN	1951	OTSEGO	6,610	5 D	41.0	NIAGARAN	6,870	2	0	0	1	80	644	40,396	59,412	518,080	505	18
	CHESTER TWP., 29N-2W, SECTIONS 15, 22																			
G-C	CHESTER, SEC. 15	NIAGARAN REEF	1970	OTSEGO	5,930	348 D	COND.	CLINTON	6,697	1	0	0	1	160	14,488	285,569	1,418,600	12,633,511	1,785	
	CHESTER TWP., 29N-2W, SECTION 15																			
G-C	CHESTER 21-29N-2W	NIAGARAN REEF	1973	OTSEGO	6,273	29 D		NIAGARAN	6,770	1	0	0	1	160	3,026	135,684	842,149	5,864,605	848	
	CHESTER TWP., 29N-2W, SECTION 21																			
OF	CHESTER 2-30N-2W	NIAGARAN REEF	1971	OTSEGO	5,653	247 D	43.2	NIAGARAN	6,051	4	0	0	4	320	122,839	527,626	76,398	185,581	1,649	31
	CHESTER TWP., 30N-2W, SECTIONS 2, 3, 10, 11																			
OF	CHESTER 5-30N-2W	NIAGARAN REEF	1972	OTSEGO	5,538	10 D		NIAGARAN	5,750	1	ABANDONED 1978			40		3,985			100	
OF	CHESTER 5-30N-2W POOL A	A-1 CARBONATE	1975	OTSEGO	5,634	10 D	44.8	NIAGARAN	5,938	1	0	0	1	80	12,916	41,983	0	7,725	525	220
	CHESTER TWP., 30N-2W, SECTION 5																			
OF	CHESTER 6-30N-2W	A-1 CARBONATE	1973	OTSEGO	5,659	21 D	43.0	NIAGARAN	6,022	3	0	0	3	240	162,081	714,360	262,929	664,065	2,976	121
	CHESTER TWP., 30N-2W, SECTIONS 5, 6																			
OF	CHESTER 10-30N-2W	NIAGARAN REEF	1972	OTSEGO	5,986	28 D		NIAGARAN	6,200	1	0	0	1	80	16,842	459,445	37,123	327,105	5,743	10
OF	CHESTER 10-30N-2W POOL A	NIAGARAN REEF	1973	OTSEGO	5,898	66 D	42.6	NIAGARAN	6,240	2	0	0	2	160	151,314	716,758	145,643	442,309	4,480	115
	CHESTER TWP., 30N-2W, SECTION 10																			
OF	CHESTER 16-30N-2W	NIAGARAN REEF	1971	OTSEGO	5,760	300 D		NIAGARAN	6,350	5	0	0	5	360	180,598	1,647,919	225,837	1,267,446	4,577	24
	CHESTER TWP., 30N-2W, SECTIONS 16, 21																			
OF	CHESTER 18-30N-2W	NIAGARAN REEF	1971	OTSEGO	5,930	20 D	45	NIAGARAN	6,330	12	0	0	12	840	780,877	5,662,854	1,004,405	4,128,307	6,741	238
	CHESTER TWP., 30N-2W, SECTIONS 8, 17, 18, 19																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS (1978): TO END	COMP IN	ABAND IN	ACT. OF END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GF	CHESTER 13-30N-2W	NIAGARAN REEF	1971	OTSEGO	6,054	35 D	44.4	NIAGARAN	6,512	2	0	0	2	125	156,746	545,385	65,156	567,730	7,878	1
	CHESTER TWP., 30N-2W, SECTION 13; BAGLEY TWP., 30N-3W, SECTION 24																			
GF	CHESTER 21-30N-2W	NIAGARAN REEF	1970	OTSEGO	5,772	283 D	43.0	CLINTON	6,483	4	1	0	4	280	253,086	1,802,582	322,695	1,532,488	6,438	25
	CHESTER TWP., 30N-2W, SECTION 21 — CENTRAL FACILITY--PRODUCTION FIGURES INCLUDE CHESTER 16 & 18																			
OF	CHESTER 33-30N-2W	NIAGARAN REEF	1973	OTSEGO	6,232	35 D	37.7	NIAGARAN	6,350	1	0	0	1	80	70,270	375,547	82,375	277,301	4,694	
	CHESTER TWP., 30N-2W, SECTION 30																			
OF	CHESTER 34-30N-2W	NIAGARAN REEF	1976	OTSEGO	6,364	26 D	46.8	NIAGARAN	6,523	1	1	0	1	80	32,405	32,405	31,934	31,934	405	
	CHESTER TWP., 30N-2W, SECTION 34																			
OF	DOVER 12-31N-2W	SALINA-NIAGARAN REEF	1974	OTSEGO	4,932	5 D	43.4	NIAGARAN	5,044	1	0	0	1	80	77,731	174,779	162,355	300,273	2,185	1
	DOVER TWP., 31N-2W, SECTION 12																			
OF	DOVER 21-31N-2W	SALINA-NIAGARAN REEF	1975	OTSEGO	5,210	10 D	41.2	NIAGARAN	5,527	1	0	0	1	80	5,453	33,745	0	2,062	422	120
	DOVER TWP., 31N-2W, SECTION 21 — DIRECTIONAL HOLE IN WHICH THE SURFACE LOCATION IS IN OTSEGO COUNTY, DOVER TOWNSHIP SECTION 22-31N-2W; AND THE SUBSURFACE LOCATION IS IN OTSEGO COUNTY DOVER TOWNSHIP SECTION 21-31N-2W																			
OF	DOVER 22-31N-2W	SALINA-NIAGARAN REEF	1975	OTSEGO	5,223	10 D	41.1	NIAGARAN	5,531	1	0	0	1	80	4,869	39,666	0	2,469	496	25
OF	DOVER 22-31N-2W POOL A	NIAGARAN REEF	1977	OTSEGO	5,119	9 D		NIAGARAN	5,334	2	1	0	2	160	4,572	4,572			29	
	DOVER TWP., 31N-2W, SECTION 22																			
OF	DOVER 27-31N-2W	A-1 CARBONATE	1975	OTSEGO	5,179	49 D		NIAGARAN	5,564	1	0	0	1	80	2,507	15,920			199	22
	DOVER TWP., 31N-2W, SECTION 27																			
OF	DOVER 33-31N-2W	NIAGARAN REEF	1974	OTSEGO	5,413	9 D	43.6	NIAGARAN	5,628	3	0	0	3	240	129,710	682,151	180,650	549,447	2,842	442
	DOVER TWP., 31N-2W, SECTIONS 28, 33																			
OF	DOVER 35-31N-2W	NIAGARAN REEF	1973	OTSEGO	5,475	41 D	42.3	NIAGARAN	5,810	3	0	0	3	240	81,158	392,975	99,980	334,388	1,637	11
	DOVER TWP., 31N-2W, SECTION 35																			
OF	DOVER 36-31N-2W	NIAGARAN REEF	1973	OTSEGO	5,485	135 D	42.7	NIAGARAN	5,835	3	0	0	3	240	103,710	719,472	134,048	596,976	2,998	7
	DOVER TWP., 31N-2W, SECTIONS 35, 36																			
OF	HAYES 11-29N-4W	NIAGARAN REEF	1969	OTSEGO	6,180	57 D	47.0	NIAGARAN	6,515	5	0	0	4	800	63,926	845,411	29,316	327,274	1,057	285
	HAYES TWP., 29N-4W, SECTIONS 2, 11, 12, 14																			
OF	HAYES 15-29N-4W	NIAGARAN REEF	1973	OTSEGO	6,350	39 D	42.6	NIAGARAN	6,615	2	0	0	2	160	246,121	1,345,093	134,054	742,398	8,407	2
	HAYES TWP., 29N-4W, SECTION 15																			
OF	HAYES 21-29N-4W	NIAGARAN REEF	1972	OTSEGO	6,581	6 D	44.9	NIAGARAN	6,972	3	0	0	3	240	316,396	1,565,395	266,800	1,094,177	6,522	1
	HAYES TWP., 29N-4W, SECTION 21																			
OF	HAYES 29-29N-4W	SALINA-NIAGARAN REEF	1973	OTSEGO	6,474	53 D	42.7	NIAGARAN	6,982	2	0	0	2	160	202,320	706,602	198,489	520,212	4,416	50
	HAYES TWP., 29N-4W, SECTION 29																			
OF	HAYES 32-29N-4W	NIAGARAN REEF	1972	OTSEGO	6,462	5 D	42.7	NIAGARAN	6,873	3	0	0	3	320	131,399	745,971	59,873	385,582	2,331	300
	HAYES TWP., 29N-4W, SECTIONS 29, 31, 32																			
OF	HAYES 34-29N-4W	NIAGARAN REEF	1974	OTSEGO	6,836	25 D	42.4	NIAGARAN	7,050	2	0	0	2	160	113,194	519,250	68,162	294,142	3,245	1
	HAYES TWP., 29N-4W, SECTIONS 27, 34																			
OF	HAYES 36-29N-4W	NIAGARAN REEF	1976	OTSEGO	6,464	65 D	47.5	NIAGARAN	6,875	1	0	0	1	80	108,536	177,243	168,491	249,297	2,215	
	HAYES TWP., 29N-4W, SECTION 36																			
OF	OTSEGO LAKE 2-29N-3W	NIAGARAN REEF	1978	OTSEGO	6,448	126 D	47.3	NIAGARAN	6,665	1	1	0	1	80	64,871	64,871	60,512	60,512	811	
	OTSEGO LAKE TWP., 29N-3W, SECTION 2																			
OF	OTSEGO LAKE 3-29N-3W	SALINA-NIAGARAN REEF	1971	OTSEGO	6,272	122 D	44.2	NIAGARAN	6,860	2	0	0	2	120	43,728	666,516	244,771	1,286,309	5,554	
	OTSEGO LAKE TWP., 29N-3W, SECTIONS 3, 10																			
OF	OTSEGO LAKE 11-29N-3W	NIAGARAN REEF	1977	OTSEGO	6,628	10 D	44.1	NIAGARAN	6,725	1	0	0	1	80	103,520	160,525	131,329	197,612	2,007	
	OTSEGO LAKE TWP., 29N-3W, SECTION 11																			
OF	OTSEGO LAKE 20-29N-3W	NIAGARAN REEF	1978	OTSEGO	6,412	65 D	47.5	NIAGARAN	6,778	1	1	0	1	80	214	214	SHUT-IN		3	
	OTSEGO LAKE TWP., 29N-3W, SECTION 20																			
OF	OTSEGO LAKE 24-29N-3W	NIAGARAN REEF	1977	OTSEGO	6,561	36 D	49.8	NIAGARAN	6,803	1	0	0	1	160	0	107	SHUT-IN		1	
	OTSEGO LAKE TWP., 29N-3W, SECTION 24																			
OF	OTSEGO LAKE 26-29N-3W	NIAGARAN REEF	1975	OTSEGO	6,810	12 D	52.7	NIAGARAN	6,968	1	0	0	1	80	0	3,716	SHUT-IN		46	
	OTSEGO LAKE TWP., 29N-3W, SECTION 26																			
OF	OTSEGO LAKE 31-29N-3W	NIAGARAN REEF	1977	OTSEGO	6,392	148 D	42.2	NIAGARAN	6,848	1	0	0	1	114	0	350	SHUT-IN		3	
	OTSEGO LAKE TWP., 29N-3W, SECTION 31																			
OF	OTSEGO LAKE 35-29N-3W	SALINA-NIAGARAN REEF	1977	OTSEGO	6,412	368 D	64.2	NIAGARAN	7,115	2	1	0	2	160	407	571	SHUT-IN		4	
	OTSEGO LAKE TWP., 29N-3W, SECTION 35																			
	PRESQUE ISLE COUNTY																			
OF	ALLIS 19-33N-2E	NIAGARAN REEF	1978	PRESQUE ISLE	3,765	9 D	44.2	NIAGARAN	4,002	1	1	0	1	80			SHUT-IN			
	ALLIS TWP., 33N-2E, SECTION 19																			
GF	BELKNAP 10-34N-5E	NIAGARAN REEF	1977	PRESQUE ISLE	2,960	20 D		NIAGARAN	3,087	1	0	0	1	80			SHUT-IN			
	BELKNAP TWP., 34N-5E, SECTION 10																			
OF	BELKNAP 21-34N-5E	NIAGARAN REEF	1977	PRESQUE ISLE	2,978	24 D	39.8	NIAGARAN	3,340	1	0	0	1	160	0	3,544	SHUT-IN		22	
	BELKNAP TWP., 34N-5E, SECTION 21																			
OF	BELKNAP 34-34N-5E	NIAGARAN REEF	1977	PRESQUE ISLE	3,153	10 D	51.9	NIAGARAN	3,410	1	0	0	1	80	0	418	SHUT-IN		5	
	BELKNAP TWP., 34N-5E, SECTION 34																			
OF	BISMARCK 12-34N-4E	NIAGARAN REEF	1977	PRESQUE ISLE	3,017	23 D	38.9	NIAGARAN	3,237	1	0	0	1	80	0	121	SHUT-IN		1	
	BISMARCK TWP., 34N-4E, SECTION 12																			
G-C	BISMARCK 26-34N-4E	NIAGARAN REEF	1976	PRESQUE ISLE	3,302	65 D		NIAGARAN	3,589	2	1	0	2	160			SHUT-IN			
	BISMARCK TWP., 34N-4E, SECTION 26																			
G-C	CASE 1-33N-3E	NIAGARAN REEF	1978	PRESQUE ISLE	3,608	23 D	50.9	NIAGARAN	3,846	1	1	0	1	80	35	35	SHUT-IN		1	
	CASE TWP., 33N-3E, SECTION 1																			
OF	NORTH ALLIS 29-35N-2E	NIAGARAN REEF	1969	PRESQUE ISLE	2,727	10 D		PRECAMBRIAN	5,940	1	0	0	1	40	346	5,373	SHUT-IN		134	
	NORTH ALLIS TWP., 35N-2E, SECTION 29																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS (1978): TO END	COMP IN	ABAND IN	ACT. OF END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GF	PULASKI 12-34N-5E	SALINA-NIAGARAN REEF	1976	PRESQUE ISLE	2,369	76 D		NIAGARAN	2,840	2	0	0	2	160			SHUT-IN			
	PULASKI TWP., 34N-6E, SECTION 12																			
	WEXFORD COUNTY																			
G-C	WEXFORD 1-24N-12W	NIAGARAN REEF	1977	WEXFORD	6,231	91 D	63.4	NIAGARAN	6,640	1	0	0	1	80	0	65	SHUT-IN		1	
G-C	WEXFORD 1-24N-12W POOL A	NIAGARAN REEF	1978	WEXFORD	6,162	100 D	63	NIAGARAN	6,612	1	1	0	1	80	45	45	SHUT-IN		1	
	WEXFORD TWP., 24N-12W, SECTION 1																			
G-C	WEXFORD 2-24N-12W	NIAGARAN REEF	1977	WEXFORD	6,156	49 D		NIAGARAN	6,267	1	0	0	1	80	44,315	44,315	562,110	562,110	554	
	WEXFORD TWP., 24N-12W, SECTION 2																			
G-C	WEXFORD 3-24N-12W	NIAGARAN REEF	1977	WEXFORD	6,077	76 D	65.2	NIAGARAN	6,324	1	0	0	1	80	38,156	44,532	1,128,380	1,202,670	557	
	WEXFORD TWP., 24N-12W, SECTION 3																			
G-C	WEXFORD 4-24N-12W	NIAGARAN REEF	1978	WEXFORD	6,095	45 D	64.8	NIAGARAN	6,316	1	1	0	1	160	6,479	6,479	89,697	89,697	40	
	WEXFORD TWP., 24N-12W, SECTION 4																			
OF	WEXFORD 5-24N-12W	NIAGARAN REEF	1974	WEXFORD	5,820	127 D		NIAGARAN	6,119	4	2	0	4	320	142,354	255,665	112,838	179,276	799	
OF	WEXFORD 5-24N-12W POOL A	NIAGARAN REEF	1976	WEXFORD	5,785	229 D	48.3	NIAGARAN	6,192	1	0	0	1	80	27,248	62,264	123,616	256,207	778	
	WEXFORD TWP., 24N-12W, SECTION 5																			
OF	WEXFORD 6-24N-12W	NIAGARAN REEF	1975	WEXFORD	5,775	153 D	41.1	NIAGARAN	6,061	2	0	0	2	160	157,697	373,751	58,114	163,685	2,336	
	WEXFORD TWP., 24N-12W, SECTION 6																			
G-C	WEXFORD 9-24N-12W	NIAGARAN REEF	1973	WEXFORD	6,232	4 D	69.8	NIAGARAN	6,265	1	ABANDONED 1978			80						
G-C	WEXFORD 9-24N-12W POOL A	NIAGARAN REEF	1973	WEXFORD	6,041	101 D	69.8	NIAGARAN	6,414	1	0	0	1	80	29,947	62,923	126,513	332,309	786	
OF	WEXFORD 9-24N-12W POOL B	NIAGARAN REEF	1974	WEXFORD	6,081	71 D	42.4	NIAGARAN	6,324	3	0	0	3	240	102,379	303,450	92,632	260,888	1,264	17
	WEXFORD TWP., 24N-12W, SECTION 9																			
G-C	WEXFORD 10-24N-12W	NIAGARAN REEF	1972	WEXFORD	6,124	107 D	68.9	NIAGARAN	6,352	1	0	0	1	160	1,060	78,255	464,780	2,940,845	489	
	WEXFORD TWP., 24N-12W, SECTION 10																			
G-C	WEXFORD 18-24N-12W	NIAGARAN REEF	1973	WEXFORD	5,842	96 D		NIAGARAN	6,130	3	1	0	3	360	3,012	59,461	451,141	3,734,336	165	
OF	WEXFORD 18-24N-12W POOL A	NIAGARAN REEF	1975	WEXFORD-MANISTEE	5,885	54 D	42.1	NIAGARAN	6,165	3	0	0	3	240	96,363	435,355	246,510	628,704	1,814	1
	WEXFORD TWP., 24N-12W, SECTION 18; CLEON TWP., MANISTEE CO., SECTION 13																			
				TOTALS										72,446	25,070,932*	95,969,124	127,054,997	482,082,853		12,095

*INCLUDES 30 BBLS. OF MISCELLANEOUS OIL

LISTING OF A SECTION OR PART OF A SECTION DOES NOT NECESSARILY MEAN THE ENTIRE SECTION TO BE PRODUCTIVE OF OIL OR GAS IN ANY OR ALL POTENTIALLY PRODUCTIVE FORMATIONS. ONLY THOSE SECTIONS OR PARTS OF SECTIONS WHICH HAVE HAD AT LEAST ONE WELL COMPLETED AS AN OIL OR GAS WELL ARE LISTED.

CHANGES IN GAS VOLUMETRIC MEASUREMENT

IN AN ATTEMPT TO OBTAIN NATIONAL UNIFORMITY OF DATA, ALL ANNUAL AND CUMULATIVE GAS PRODUCTION FIGURES FOR MICHIGAN WERE CONVERTED TO A STANDARD BASE PRESSURE FOR VOLUMETRIC MEASUREMENT OF 14.73 POUNDS PER SQUARE INCH IN 1978. THIS CONVERSION AND SUBSEQUENT ADJUSTMENT OF GAS PRODUCTION FIGURES RESULTED IN SLIGHT CHANGES IN CUMULATIVE PRODUCTION VOLUMES IN THOSE FIELDS WHICH HAD BEEN MEASURED AT VARYING PRESSURE BASES IN PRIOR YEARS.

CHANGES IN FIELD NAMES

HISTORICALLY, WITH FEW EXCEPTIONS, MICHIGAN OIL AND GAS FIELDS HAVE BEEN NAMED AFTER NEARBY GEOGRAPHIC ENTITIES SUCH AS TOWNS, VILLAGES, LAKES AND TOWNSHIP NAMES. DUE TO NUMEROUS NIAGARAN REEF DISCOVERIES AND A LACK OF SUITABLE IDENTIFYING GEOGRAPHIC NAMES FOR SO MANY DISCRETE FIELDS IN CLOSE PROXIMITY TO EACH OTHER, THE NAMING SYSTEM FOR MOST NIAGARAN-RELATED FIELDS HAS BEEN MODIFIED. BEGINNING IN 1971, MOST NEW NIAGARAN REEF FIELDS HAVE BEEN NAMED ACCORDING TO TOWNSHIP NAME, FOLLOWED BY THE SECTION NUMBER FOR THE DISCOVERY WELL, AND THEN BY THE NUMERICAL TOWN AND RANGE. SUBSEQUENTLY-DISCOVERED, DISTINCT UNDERGROUND RESERVOIRS LOCATED IN THE SAME TOWNSHIP AND SECTION AS A PREVIOUSLY NAMED FIELD ARE DESIGNATED POOL A, B, C, ETC., AS NECESSARY. IN THESE CASES WHEN ONLY ONE UNDERGROUND RESERVOIR IS ASSOCIATED WITH EACH FIELD, THE WORDS "FIELD" AND "POOL" ARE SYNONYMOUS. WHERE MORE THAN ONE RESERVOIR IS ASSOCIATED WITH A PARTICULAR FIELD, EACH RESERVOIR IS INDICATED BY A SEPARATE FORMATION OR ZONE LISTING UNDER THE TABLE HEADING "PRODUCING FORMATION OR POOL."

TABLE 3 MICHIGAN OIL AND GAS FIELDS

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY & API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	COMP IN	ABAND IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	ADAIR	SALINA-NIAGARAN	1961	ST. CLAIR	2,719	10 D	41.4	NIAGARAN	2,755	13	0	1	9	563	4,294	337,066		466,227	602	120
				CHINA TWP., 4N-16E, SECTION 7 CASCO TWP., 4N-15E, SECTIONS 12, 13						5 OF ORIGINAL 18 WELLS TRANSFERRED TO PUTTYGUT										
OF	ADAMS	TRAVERSE	1937	ARENAC-BAY	2,032	15 L	37.0	BOIS BLANC	5,079	24	0	0	7	240	3,003					93
OF		DUNDEE	1937		2,958	15 L	34.7			31	0	0	17	310	7,151					40
OF		DETROIT RIVER SZ	1956		3,543	5 L	39.6	}						CUMULATIVE PRODUCTION FROM ALL POOLS COMBINED						
OF		RICHFIELD	1941		4,278	5 L	35.5	}		31	0	1	6	1,080	4,147	1,579,066			969	2
				ADAMS TWP., 19N-3E, SECTIONS 21, 23 THROUGH 27, 34, 35, 36 DEEP RIVER TWP., 19N-4E, SECTION 31 GIBSON TWP., 18N-3E, SECTIONS 1, 2						THE 6 WELLS INCLUDE 3 RICHFIELD, 1 SOUR ZONE, AND 2 DUAL COMPLETIONS, RICHFIELD & SOUR ZONE										
AGF	ADAMS, NORTH	BEREA	1942	ARENAC	1,605	1 S		DUNDEE	3,101	1	ABANDONED	1948		40				1,306		
OF		DUNDEE	1940		2,905	15 D	32.0	DETROIT RIVER	4,489	49	0	0	18	470	17,210	9,426,087			20,056	2,983
				ADAMS TWP., 19N-3E, SECTIONS 11, 14, 15, 22, 23, 27 BEREA PRODUCTION - SECTION 4																
AGF	ADAMS, SEC. 8	TRAVERSE	1962	HILLSDALE	1,420	4 L		PRAIRIE DU CHIEN	4,169	1	ABANDONED	1965		20				19,297		
				ADAMS TWP., 6S-2W, SECTION 8																
OF	ADAMSVILLE	TRAVERSE	1976	CASS	675	5 L	28	TRAVERSE	680	4	3	0	4	160	7,700	10,160			64	220
				ONTWA TWP., 8S-15W, SECTION 13																
GF	ADDISON 14-5N-11E	NIAGARAN REEF	1976	OAKLAND	4,261	21 D		NIAGARAN	4,470	2	0	0	2	80						
				ADDISON TWP., 5N-11E, SECTION 14																
OF	AKRON	DUNDEE	1936	TUSCOLA	2,678	17 L	37.3	NIAGARAN	7,941	50	0	0	29	1,100	17,840	}				117
OF		DETROIT RIVER SZ	1938		3,422	11 D	35.9	}		34	5	2	20	900	17,839	} 2,105,657			1,053	20
OF		RICHFIELD	1954		3,774	6 D	39.2	}						THE 20 WELLS INCLUDE 2 RICHFIELD, 15 SOUR ZONE AND 3 DUAL COMPLETIONS - SZ & DD						
OF		A-2 CARBONATE	1973		6,868	107 D	46.9			1	0	0	1	160	1,720	5,422	0	103,517	11	
GF		A-1 CARBONATE	1973		7,452	60 D				2	0	0	2	320			PRODUCTION COMBINED WITH A-2 CARBONATE			
				AKRON TWP., 14N-8E, SECTIONS 19, 20, 21, 28, 29, 30 WISNER TWP., 14N-7E, SECTIONS 22, 23, 24, 25, 26 SALINA PRODUCTION - SECTIONS 32, 33, 14N-8E																
AOF	ALAMO	TRAVERSE	1949	KALAMAZOO	1,310	2 L		TRAVERSE	1,420	16	ABANDONED	1962		160		27,545			172	
				ALAMO TWP., 1S-12W, SECTIONS 19, 29, 30																
AGF	ALBION	TRAVERSE	1941	CALHOUN	1,610	7 L		PRAIRIE DU CHIEN	4,623	4	ABANDONED	1948		120				6,238		
				ALBION TWP., 3S-4W, SECTIONS 14, 15																
	ALBION-PULASKI-SCIPIO TREND: FIELD AND PRODUCTION DATA LISTED BY TOWNSHIP AND COUNTY																			
GF	CAL-LEE	NIAGARAN REEF	1962	CALHOUN	3,036	8 D		PRAIRIE DU CHIEN	4,975	11	2	0	8	520	0	434	244,067	2,800,437	1	
				LEE TWP., 1S-5W, SECTIONS 9, 15, 16, 22 1 WELL TRANSFERRED TO LEE 16, 1S-5W GAS STORAGE FIELD																
AOF	LEE TWP.	NIAGARAN REEF	1961	CALHOUN	3,060	20 D	24.2	PRAIRIE DU CHIEN	4,926	1	ABANDONED	1972		80	CUMULATIVE PRODUCTION COMBINED WITH TRENTON-BLACK RIVER					
OF		TRENTON-BLK. RIVER	1960		4,600	24+ D				33	2	0	24	490	30,628	2,611,188	42,173	42,173	5,329	220
				LEE TWP., 1S-5W, SECTIONS 17, 22, 23, 25, 26, 36																
OF	SHERIDAN TWP.	TRENTON-BLK. RIVER	1960	CALHOUN	4,179	10+ D	40.0	PRAIRIE DU CHIEN	4,791	45	0	0	33	810	53,333	4,842,857	81,776	3,485,062	5,979	911
				SHERIDAN TWP., 2S-4W, SECTIONS 17, 18, 19, 20, 21, 28, 33																
OF	ALBION TWP.	TRENTON-BLK. RIVER	1958	CALHOUN	3,952	? D	44.0	PRAIRIE DU CHIEN	4,623	143	0	1	131	2,780	274,420	24,035,410	1,220,925	46,477,146	8,646	2,705
				ALBION TWP., 3S-4W, SECTIONS 3, 4, 10, 11, 14, 15, 22, 23, 26, 27, 35, 36																
OF	PULASKI-HOMER TWPS.	TRENTON-BLK. RIVER	1959	JACKSON-CAHOUN	3,766	66+ D	39.6	PRAIRIE DU CHIEN	4,395	140	0	0	133	2,680	386,900	27,036,997	2,804,672	53,118,001	10,088	5,406
				PULASKI TWP., 4S-3W, SECTIONS 6, 7, 8, 17, 18, 19, 20, 21, 28, 29, 32, 33, 34 HOMER TWP., 4S-4W, SECTIONS 1, 12																
OF	SCIPIO-FAYETTE-MOSCOW TWPS.	TRENTON-BLK. RIVER	1957	HILLSDALE	3,576	50+ D	41.4	PRAIRIE DU CHIEN	4,202	208	0	1	186	3,560	654,072	49,550,197	2,568,689	64,777,648	13,919	3,554
				SCIPIO TWP., 5S-3W, SECTIONS 3, 4, 10 THROUGH 15, 23, 24, 25, 26 FAYETTE TWP., 5S-3W, SECTIONS 35, 36 MOSCOW TWP., 5S-2W, SECTIONS 19, 31, 32																
OF	ADAMS TWP.	TRENTON-BLK. RIVER	1959	HILLSDALE	3,984	6+ D	42.0	PRAIRIE DU CHIEN	4,162	112	7	10	78	1,866	287,447	8,232,794	683,970	13,138,803	4,426	242
				ADAMS TWP., 6S-2W, SECTIONS 3, 4, 5, 6, 7, 8, 10, 11, 14, 15, 16, 17, 23																
	TREND TOTAL (NOTE: ONLY TRENTON-BLACK RIVER FIGURES INCLUDED IN TREND TOTALS)									682	18	6	598	12,120	1,686,800	116,309,443	7,402,205	181,038,833	9,596	33,038
				SEE CENTER SPREAD MAP FOR TOWNSHIPS ASSOCIATED WITH ALBION-SCIPIO TREND																
AGF	ALGONAC	ANTRIM	1947	ST. CLAIR	302	6 SH		CABOT HEAD	2,504	2	ABANDONED	1951		80				7,987		
				CLAY TWP., 3N-16E, SECTIONS 20, 29																
OF	ALLEGAN	TRAVERSE	1937	ALLEGAN	1,563	2 L	38.0	CINCINNATIAN	2,987	19	0	0	1	190	374	19,088	FIELD REACTIVATED-1971		100	7
				ALLEGAN TWP., 2N-13W, SECTIONS 2, 5, 9, 10, 13, 22, 23, 26, 27, 34, 35, 36																
GF	ALPINE	NIAGARAN REEF	1963	ST. CLAIR	3,151	25 D		CLINTON	3,470	3	0	0	2	120			143,547	1,882,347		
				WALES TWP., 6N-15E, SECTION 32																
OF	ARBELA	DUNDEE	1946	TUSCOLA	2,557	7 L	35.3	DETROIT RIVER	3,375	39	4	0	6	450	6,065	351,323			781	10
				ARBELA TWP., 10N-7E, SECTIONS 28, 33, 34																
AOF	ASHLAND, SEC. 8	TRAVERSE	1959	NEWAYGO	2,238	1 L		TRAVERSE	2,239	1	ABANDONED	1962		10		267			27	
				ASHLAND TWP., 11N-13W, SECTION 8																
GF	ASHTON	MICHIGAN STRAY	1946	OSCEOLA	1,215	2 S		DETROIT RIVER	3,779	3	0	0	1	400				209,794		
OF		TRAVERSE	1945		2,950	4 L	42.0			4	0	0	3	80	874	CUMULATIVE PRODUCTION INCLUDED WITH DUNDEE				300
OF		DUNDEE	1945		3,645	5 L	40.0			4	0	0	4	200	3,498	492,209			1,758	6
				LINCOLN TWP., 18N-10W, SECTIONS 5, 6																
AGF	ASHTON, EAST	MICHIGAN STRAY	1962	OSCEOLA	1,297	5 S		REED CITY	3,750	1	ABANDONED	1970		160				0		
				LINCOLN TWP., 18N-10W, SECTION 3																
OF	ATLANTA	DETROIT RIVER	1945	MONTMORENCY	2,183	5 D	36.2	DETROIT RIVER	2,550	3	0	0	1	30		7,688			256	
				AVERY TWP., 30N-3E, SECTIONS 10, 15																
OF	AU GRES	DETROIT RIVER SZ	1956	ARENAC	3,822	14 L	31.4	RICHFIELD	4,315	DETROIT RIVER SZ COMBINED WITH RICHFIELD										
OF		RICHFIELD	1953		4,152	11 L	36.5			4	0	0	3	160	1,741	62,801			393	
				AU GRES TWP., 19N-6E, SECTIONS 2, 3, 10, 11 THE 3 WELLS INCLUDE 2 RICHFIELD AND 1 RICHFIELD AND SOUR ZONE																
GF	AURELIUS 26-2N-2W	NIAGARAN REEF	1974	INGHAM	3,954	100 D		NIAGARAN	4,445	2	0	0	2	160	868	5,565	127,731	1,930,537	35	
				AURELIUS TWP., 2N-2W, SECTION 26																
OF	AURELIUS 35-2N-2W	NIAGARAN REEF	1971	INGHAM	3,942	60 D	37.3	NIAGARAN	4,445	5	0	0	5	320	186,617	1,594,986	98,510	847,168	4,984	1,794
				AURELIUS TWP., 2N-2W, SECTIONS 26, 35, 36																

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY & API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	COMP IN	ABAND IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GS	AUSTIN	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
GF	AVON 1-3N-11E	NIAGARAN	1977	OAKLAND	3,195	101 D		NIAGARAN	3,460	3	2	0	3	40						
				AVON TWP., 3N-11E, SECTION 1																
AOF	BANGOR	TRAVERSE	1939	VAN BUREN	1,002	2 L	29.5	TRENTON	2,552	65	ABANDONED 1959			610		933,965			1,531	
				BANGOR TWP., 2S-16W, SECTIONS 4, 5, 9, 10, 14, 15, 16, 21, 28, 29																
OF	BARD	DUNDEE	1949	GLADWIN	3,933	6 L	42.8	DUNDEE	4,017	17	0	0	2	170	2,026	588,440			3,461	140
				BEAVERTON TWP., 17N-2W, SECTIONS 5, 6 GROUT TWP., 18N-2W, SECTIONS 31, 32																
AOF	BARTON	TRAVERSE	1947	NEWAYGO	3,097	1 L	30.0	DETROIT RIVER	3,745	3	ABANDONED 1963			50		20,227			405	
				BARTON TWP., 16N-11W, SECTION 16																
AOF	BEAVER, SEC. 31	BEREA	1954	BAY	2,413	16 SL		SYLVANIA	4,754	1	ABANDONED 1961			10		1,053			105	
				BEAVER TWP., 15N-3E, SECTION 31																
OF	BEAVER CREEK UNIT	RICHFIELD	1947	CRAWFORD-KALKASKA	4,160	20 D	44.7	ST. PETER	10,142	107	2	5	54	4,280	524,972	12,452,360	194,100	19,535,535	2,909	1,783
				BEAVER CREEK TWP., 25N-4W, SECTIONS 7, 8, 16 THROUGH 21, 27, 28, 29 GARFIELD TWP., 25N-5W, SECTIONS 12, 13																
OF	BEAVERTON	DUNDEE	1934	GLADWIN	3,929	12 L	41.3	RICHFIELD	5,225	26	0	0	2	330	1,789	893,622			2,708	35
				BEAVERTON TWP., 17N-2W, SECTIONS 2, 3, 11, 13																
OF	BEAVERTON, SOUTH	TRAVERSE	1956	GLADWIN	3,231	6 L	41.0	DETROIT RIVER	4,977	TRAVERSE COMBINED WITH DUNDEE										
OF		DUNDEE	1936		3,845	12 L	34.5			33	0	0	19	700	12,559	1,778,722			2,541	33
				BEAVERTON TWP., 17N-2W, SECTIONS 26, 27, 35, 36 TOBACCO TWP., 17N-1W, SECTION 31 THE 19 WELLS INCLUDE 18 DUNDEE & 1 DUNDEE & TRAVERSE																
OF	BEAVERTON, WEST	DUNDEE	1943	GLADWIN	3,876	2 L	41.2	DETROIT RIVER	5,094	7	0	0	4	260	4,656	224,198			862	30
				BEAVERTON TWP., 17N-2W, SECTION 19																
GS	BELLE RIVER MILLS	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	BELLY ACRES	DUNDEE	1944	MONTCALM	3,470	13 D	48.2	DUNDEE	3,615	7	0	0	3	220	2,504	351,911			1,600	325
				HOME TWP., 12N-6W, SECTIONS 11, 14																
AOF	BENONA, SEC. 13	TRAVERSE	1949	OCEANA	1,640	3 L		DETROIT RIVER	2,276	2	ABANDONED 1956			20		4,951			248	
				BENONA TWP., 14N-18W, SECTION 13																
OF	BENTLEY	TRAVERSE	1952	GLADWIN	2,855	6 L	34.1	SYLVANIA	5,114	TRAVERSE COMBINED WITH DUNDEE & RICHFIELD										
OF		DUNDEE	1937		3,510	13 L	42.1			87	0	0	36	}						196
OF		RICHFIELD	1952		4,440	14 L	40.0			1	0	0	1	1,920	29,145	3,081,722			1,605	6
				BENTLEY TWP., 17N-2E, SECTIONS 16 THROUGH 21, 27, 28, 29, 34, 35 THE 37 WELLS INCLUDE 36 DUNDEE AND 1 MULTIPLE COMPLETION TRAVERSE, DUNDEE, & RICHFIELD																
OF	BERLIN	NIAGARAN	1960	ST. CLAIR	3,800	25 D	42.8	CINCINNATIAN	4,310	4	0	1	2	140	648	375,844			2,685	35
				BERLIN TWP., 6N-13E, SECTIONS 32, 33																
AGF	BEVENS LAKE	MICHIGAN STRAY	1952	MECOSTA	1,244	6 S		REED CITY	3,731	3	ABANDONED 1969							525,713		
OF		TRAVERSE	1951		2,997	1 L	44.2			4	0	0	1	40	878	98,712			2,468	100
GF		DUNDEE	1951		3,536	11 L				3	0	0	1	320				20,330	1,075,273	
				GREEN TWP., 16N-10W, SECTION 13																
OF	BIG HAND	NIAGARAN	1961	ST. CLAIR	2,898	5+ D	39.5	CLINTON	3,097	10	0	0	10	200	19,964	940,297	103,107	1,054,189	4,701	33
				COLUMBUS TWP., 5N-15E, SECTION 24																
AGF	BIG PRAIRIE	MICHIGAN STRAY	1944	NEWAYGO	1,030	5 S		REED CITY	3,322	1	ABANDONED 1961			160				155,922		
				BIG PRAIRIE TWP., 13N-11W, SECTION 16																
AGF	BIG PRAIRIE, SEC. 33	DUNDEE	1947	NEWAYGO	2,896	2 L		DUNDEE	2,900	1	ABANDONED 1952			40				61,986		
				BIG PRAIRIE TWP., 13N-11W, SECTION 33																
AGF	BIG RAPIDS	MICHIGAN STRAY	1943	NECOSTA	1,145	7 S		REED CITY	3,595	9	ABANDONED 1969			1,440				2,393,033		
AGF		DUNDEE	1965		3,420	6 L				1	ABANDONED 1964			160				44,498		
				BIG RAPIDS TWP., 15N-10W, SECTIONS 3, 9, 10, 11, 13																
OF	BILLINGS	DUNDEE	1949	GLADWIN	3,549	6 L	39.7	RICHFIELD	4,995	20	0	0	19	400	5,060	CUMULATIVE PRODUCTION COMBINED WITH DETROIT RIVER				2
OF		DETROIT RIVER	1950		4,070	7 D	43.5			10	0	0	9	200	4,488	857,678			1,429	3
				BILLINGS TWP., 17N-1E, SECTIONS 2, 3, 10, 11 THE 9 WELLS INCLUDE 8 SOUR ZONE & 1 SOUR ZONE & DUNDEE																
OF	BILLINGS, SOUTH	DUNDEE	1957	GLADWIN	3,540	5 ?	39.5	DETROIT RIVER	4,152	8	0	0	8	70	6,134	212,473			3,035	3
				BILLINGS TWP., 17N-1E, SECTIONS 12, 13 BENTLEY TWP., 17N-2E, SECTION 18																
OF	BIRCH-BELA	DUNDEE	1951	SAGINAW-TUSCOLA	2,504	7 L	36.0	DETROIT RIVER	3,263	31	0	0	31	350	10,032	391,823			1,119	
				BIRCH RUN TWP., 10N-6E, SECTIONS 25, 36 ARBELA TWP., 10N-7E, SECTIONS 30, 31, 32																
AOF	BIRCH RUN	BEREA	1934	SAGINAW	1,530	5 S	43.3	DUNDEE	2,646	26	ABANDONED 1951			250		215,876			864	
OF		DUNDEE	1954		2,536	10 L	36.2	DUNDEE	2,716	34	0	0	32	480	7,738	597,346			1,244	
				BIRCH RUN TWP., 10N-6E, SECTIONS 19, 20, 21 (BEREA) BIRCH RUN TWP., 10N-6E, SECTIONS 19, 20, 29 TAYMOUTH TWP., 10N-5E, SECTION 13 (DUNDEE)																
AOF	BISHOP	TRAVERSE	1950	NEWAYGO	2,226	3 L		TRAVERSE	2,238	7	ABANDONED 1952			110		33,327			303	
				GARFIELD TWP., 12N-13W, SECTIONS 19, 20, 30																
GF	BLISSFIELD	TRENTON-BLK. RIVER	1963	LENAWEE	2,686	9 D		GLENWOOD	3,251	1	0	0	1	40		567		53,963	14	
				BLISSFIELD TWP., 7S-5E, SECTION 5 GAS RESERVOIR PRODUCING SMALL QUANTITIES OF OIL (SHUT-IN)																
OF	BLOOMER	TRAVERSE	1944	MONTCALM-IONIA	2,640	3.3 L	42.3	DETROIT RIVER	3,271	29	0	0	3	530	2,558	1,967,054			3,711	500
				BLOOMER TWP., 9N-5W, SECTIONS 31, 32 BUSHNELL TWP., 9N-6W, SECTION 36 NORTH PLAINS TWP., 8N-5W, SECTIONS 5, 6																
AOF	BLOOMER, SEC. 18	TRAVERSE	1936	MONTCALM	2,717	6 L		DUNDEE	3,138	1	ABANDONED 1936			10		814			81	
				BLOOMER TWP., 9N-5W, SECTION 18																
OF	BLOOMINGDALE	TRAVERSE	1938	VAN BUREN	1,244	4 L	42.0	ST. PETER SS.	3,422	431	0	1	13	4,040	2,656	10,031,164			2,483	395
				BLOOMINGDALE TWP., 1S-14W, SECTIONS 1, 2, 3, 6 THROUGH 18, 24 COLUMBIA TWP., 1S-15W, SECTIONS 1, 2, 10 THROUGH 16, 23, 24 PINE GROVE TWP., 1S-13W, SECTION 18																
OF	BOYD	SALINA-NIAGARAN	1958	ST. CLAIR	2,457	292 D	37.7	PRECAMBRIAN	4,634	49	0	1	36	1,840	24,084	2,072,628	375,679	18,575,316	1,126	139
				CASCO TWP., 4N-15E, SECTIONS 29, 31, 32, W½ 28, W½ 33 IRA TWP., 3N-15E, SECTIONS 5, 6																
AOF	BREEDSVILLE	TRAVERSE	1945	VAN BUREN	1,061	2 L	33.0	DETROIT RIVER	1,445	32	ABANDONED 1961			300		285,584			952	
				GENEVA TWP., 1S-16W, SECTIONS 23, 24, 25, 26																
OF	BRINTON	DUNDEE	1967	ISABELLA	4,082	3 D		DUNDEE	4,085	1	0	0	1	40	88	19,396	SHUT-IN		485	40
				COLDWATER TWP., 16N-6W, SECTION 5																

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS: TO END	NUMBER OF WELLS: COMP IN 1978	NUMBER OF WELLS: ABAND IN 1978	NUMBER OF WELLS: ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GF	BROOMFIELD-DEERFIELD	MICHIGAN STRAY	1930	ISABELLA	1,355	5 S		SYLVANIA	4,994	51	0	4	11	8,240				13,330,450		
				BROOMFIELD TWP., 14N-6W, SECTIONS 1, 2, 3, 4, 5, 9, 10, 11, 13, 14, 15, 23, 24, 25 DEERFIELD TWP., 14N-5W, SECTIONS 7, 17, 18, 19, 20, 29, 30 SHERMAN TWP., 15N-6W, SECTIONS 29, 30, 31, 32, 33, 36																
GF	BRUCE	NIAGARAN	1974	MACOMB	3,696			NIAGARA	4,025	2	0	0	2	320	4,530	4,530	1,990,737	2,388,520	14	
				BRUCE TWP., 5N-12E, SECTIONS 30, 31																
GF	BUCKEYE, NORTH	DUNDEE	1936	GLADWIN	3,615	14 L	39.0	SYLVANIA	5,351	288	1	0	51	3,030	98,640	19,933,847		9,781	6,579	8,403
				BUCKEYE TWP., 18N-1W, SECTIONS 1, 2, 3, 4, 9 THROUGH 15 HAY TWP., 18N-1E, SECTIONS 15, 16 & 21, 22																
AOF	BUCKEYE, SOUTH	TRAVERSE	1956	GLADWIN	2,891	3 D	42.0	DETROIT RIVER	4,802	7	ABANDONED		1960	- PRODUCTION COMBINED WITH BUCKEYE, SOUTH DUNDEE						
OF		DUNDEE	1936		3,570	11 L	39.0			198	1	0	27	2,270	36,897	5,165,336			2,275	85
OF		DETROIT RIVER SZ	1964		4,481	14 D	46.0			1	0	0	1	40	3,818	108,708			2,718	
				BUCKEYE TWP., 18N-1W, SECTIONS 22 THROUGH 27, 35, 36 HAY TWP., 18N-1E, SECTION 33 BILLINGS TWP., 17N-1E, SECTIONS 4, 9, 10 TOBACCO TWP., 17N-1W, SECTION 1																
OF	BURDELL	DUNDEE	1955	OSCEOLA	3,678	4 L		REED CITY	3,804	6	0	0	1	120	958	156,898			1,307	50
AOF		REED CITY	1960		3,802	2 D				1	ABANDONED		1969	40						
				BURDELL TWP., 20N-10W, SECTION 19																
AOF	BUSHNELL	DUNDEE	1935	MONTCALM	3,105	2 L	33.9	DUNDEE	3,125	1	ABANDONED		1939	10		4,035			404	
				BUSHNELL TWP., 9N-6W, SECTION 1																
AOF	BUTMAN	TRAVERSE	1950	GLADWIN	2,789	2 L		SYLVANIA	5,027	1	ABANDONED		1953	- PRODUCTION COMBINED WITH BUTMAN RICHFIELD						
AOF		DUNDEE	1949		3,596	6 L	41.4			1	ABANDONED		1963	- PRODUCTION COMBINED WITH BUTMAN RICHFIELD						
OF		RICHFIELD	1949	GLADWIN	4,921	10 D	41.6			5	0	0	5	240	3,156	339,093			1,413	21
				BUTMAN TWP., 20N-1W, SECTION 12 (TRAVERSE) BUTMAN TWP., 20N-1W, SECTIONS 11, 12, 13, 14 (DUNDEE & RICHFIELD)																
GF	CAL-LEE	REFER TO ALBION-PULASKI-SCIPIO TREND PRIMARILY NIAGARAN OIL AND GAS PRODUCTION - LEE TOWNSHIP																		
AGF	CANNON CREEK	TRAVERSE	1950	MISSAUKEE-KALKASKA	2,695	11 L		RICHFIELD	4,810	21	ABANDONED		1956	3,360				868,396		
				NORWICH TWP., 24N-6W, SECTIONS 5, 7, 18 PIONEER TWP., 24N-7W, SECTIONS 1, 2, 12, 13 GARFIELD TWP., 25N-6W, SECTION 31 GARFIELD TWP., 25N-7W, SECTIONS 25, 36																
GF	CAPAC	NIAGARAN	1961	ST. CLAIR	4,505	6 D		MT. SIMON SS.	6,337	54	0	0	48	9,120		5,983	7,050	21,365,445	1	
				HUSSEY TWP., 7N-13E, SECTIONS 4, 5, 8, 9, 16 THROUGH 21, 28, 29, 30, 32, 33 LYNN TWP., 8N-13E, SECTIONS 21, 27, 28, 29, 32, 33, 34 CONVERTING TO GAS STORAGE																
OF	CAREY LAKE	REED CITY	1966	NEWAYGO	3,411	2 D		REED CITY	3,413	7	0	0	7	400	3,946	43,857			110	104
				GOODWELL TWP., 14N-11W, SECTION 26																
AOF	CASCO	TRAVERSE	1940	ALLEGAN-VAN BUREN	1,095	1.5 L	38.6	TRAVERSE	1,115	9	ABANDONED		1959	50		17,382			348	
				CASCO TWP., 1N-16W, SECTIONS 34, 35 GENEVA TWP., 1S-16W, SECTION 4																
OF	CAT CREEK	DUNDEE	1968	OSCEOLA	3,696	4 L		DUNDEE	3,890	8	0	0	7	300	10,781	464,585			1,549	1,100
				HERSEY TWP., 17N-9W, SECTIONS 4, 9																
OF	CATO	REED CITY	1944	MONTCALM-MECOSTA	3,542	3 D	44.7	DETROIT RIVER	3,731	22	0	0	11	670	11,790	1,149,079			1,715	900
				CATO TWP., 12N-8W, SECTIONS 3, 4, 6, 8, 9 DEERFIELD TWP., 13N-9W, SECTION 36																
GF	CEDAR	MICHIGAN STRAY	1945	OSCEOLA	1,490	7 S		SYLVANIA	5,165	5	0	0	4	800				1,430,876		
OF		DUNDEE	1943		3,810	2 L	46.0			10	0	0	5	420	3,494	CUMULATIVE PRODUCTION COMBINED WITH RICHFIELD				802
OF		RICHFIELD	1945		5,060	6 L	44.7			4	0	0	4	140	2,977	1,185,092			2,116	
				CEDAR TWP., 18N-9W, SECTIONS 27, 28, 32, 33 (MICHIGAN STRAY) CEDAR TWP., 18N-9W, SECTIONS 10, 27, 28, 33, 34 (DUNDEE & RICHFIELD)																
AGF	CEDAR CREEK	"BEREA"	1940	MUSKEGON	1,125	7 D		DUNDEE	2,252	7	ABANDONED		1960	1,120				637,019		
				CEDAR CREEK TWP., 11N-15W, SECTIONS 7, 17, 18, 19, 20, 32																
AOF	CEDAR CREEK, SEC. 23	TRAVERSE	1949	MUSKEGON	1,951	2 L		DUNDEE	2,453	2	ABANDONED		1968	50		2,652			53	
				CEDAR CREEK TWP., 11N-15W, SECTION 23																
OF	CHASE	"BEREA"	1943	LAKE	2,460	4 SL		DETROIT RIVER	3,734	2	0	0	1	20	98	9,492			475	
				CHASE TWP., 17N-11W, SECTIONS 19, 29																
AOF	CHERRY GROVE	TRAVERSE	1952	WEXFORD	3,145	4 D		DUNDEE	3,998	1	ABANDONED		1953	10		4,814			481	
				CHERRY GROVE TWP., 21N-10W, SECTION 27																
AGF	CHERRY GROVE SEC. 13	MICHIGAN STRAY	1957	WEXFORD	1,326	35 S		DUNDEE	4,080	5	ABANDONED		1973	640				943,213		
				CHERRY GROVE TWP., 21N-10W, SECTION 13 CLAM LAKE TWP., 21N-9W, SECTIONS 7, 18																
AOF	CHESHIRE	TRAVERSE	1947	ALLEGAN	1,289	2 L	35	TRAVERSE	1,348	3	ABANDONED		1958	30		9,290			310	
				CHESHIRE TWP., 1N-14W, SECTIONS 26, 27																
GF	CHESTER	ANTRIM	1965	OTSEGO	1,360	? SH		NIAGARAN	6,870	16	0	0	16	640			81,602	1,067,976		119
				CHESTER TWP., 29N-2W, SECTIONS 10, 11, 14, 15, 16																
OF	CHESTERFIELD	NIAGARAN	1962	MACOMB	2,508	7 D	40.3	CLINTON	2,707	7	0	1	1	280	755	58,241		124,021	208	
				CHESTERFIELD TWP., 3N-14E, SECTIONS 28, 29																
AGF	CHINA BELLE	NIAGARAN REEF	1963	ST. CLAIR	2,365	15 D		NIAGARAN	2,451	3	ABANDONED		1971	120		2,227		459,002	19	
				CHINA TWP., 4N-16E, SECTIONS 34, 35 GAS RESERVOIR PRODUCING SMALL QUANTITIES OF OIL																
AOF	CHINA, SEC. 12	NIAGARAN REEF	1962	ST. CLAIR	2,509	11 D	39.1	CLINTON	2,631	2	ABANDONED		1970	80		11,895		27,570	149	
				CHINA TWP., 4N-16E, SECTION 12																
AOF	CHINA, SEC. 31	SALINA	1959	ST. CLAIR	2,378	13 D		CLINTON	2,641	1	ABANDONED		1964	PRODUCTION COMBINED WITH COTTRELLVILLE IN 1962						
				CHINA TWP., 4N-16E, SECTION 31																
GF	CHINA, SOUTH	SALINA-NIAGARAN REEF	1961	ST. CLAIR	2,324	14 D		CLINTON	2,743	11	0	0	5	440	DOMESTIC USE			533,912		
				CHINA TWP., 4N-16E, SECTIONS 28, 33, 34 COTTRELLVILLE TWP., 3N-16E, SECTIONS 3, 4																
AOF	CHIPPEWA, SEC. 10	TRAVERSE	1961	ISABELLA	3,193	1 L		TRAVERSE	3,220	1	ABANDONED		1964	10		1,250	PRODUCTION CARRIED IN MT. PLEASANT FIELD TOTALS		125	
				CHIPPEWA TWP., 14N-3W, SECTION 10																
GF	CLARE CITY	MICHIGAN STRAY	1937	CLARE-ISABELLA	1,290	5 S		DUNDEE	3,865	8	0	0	1	720				2,340,890		
				GRANT TWP., 17N-4W, SECTIONS 25, 26, 35, 36 SHERIDAN TWP., 17N-3W, SECTION 31 WISE TWP., 16N-3W, SECTION 6																
OF	CLARE CITY	MICHIGAN STRAY	1938	CLARE-ISABELLA	1,303	2 S	30.2	DUNDEE	3,853	7	0	0	4	120	819	83,246			694	
				GRANT TWP., 17N-4W, SECTIONS 24, 35, 36 WISE TWP., 16N-3W, SECTION 6																
GS	CLARENCE 19-1S-4W	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
GF	CLARENCE 19-1S-4W POOL A	SALINA-NIAGARAN REEF	1977	CALHOUN	3,090	20 D		NIAGARA	3,355	4	3	0	4	200	210	210	400,788	400,788	1	
GF	CLARENCE 19-1S-4W POOL B	SALINA-A-1 CARBONATE	1978	CALHOUN	3,196	10 D		NIAGARA	3,307	2	2	0	2	120			401	401		
				CLARENCE TWP., 1S-4W, SECTION 19																

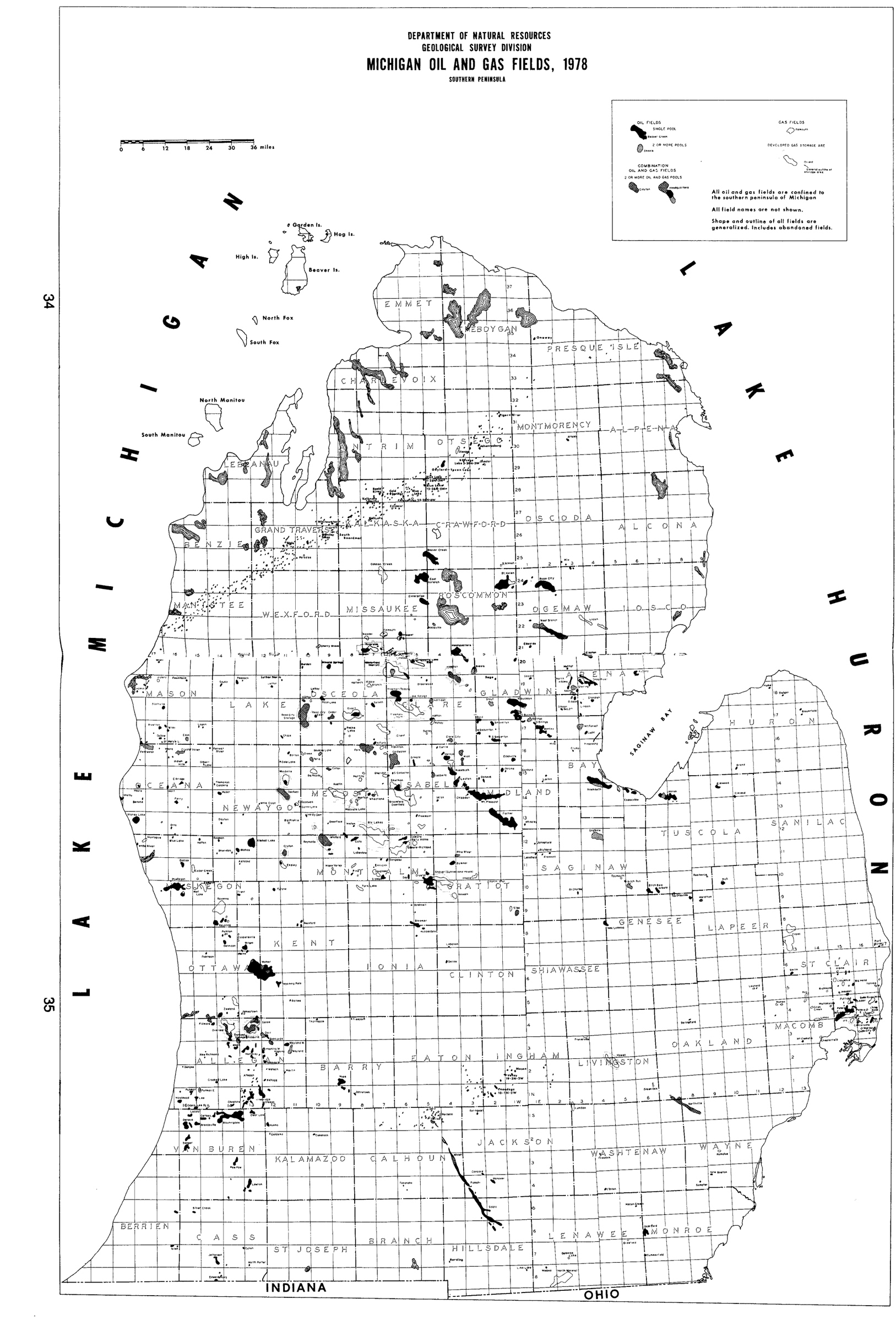
POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS: TO END	NUMBER OF WELLS: COMP IN 1978	NUMBER OF WELLS: ABAND IN 1978	NUMBER OF WELLS: ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GF	CLAYTON	BEREA	1936	ARENAC	1,180	10 S		SYLVANIA	4,163	31	0	0	17	1,560				5,213,269		
OF	CLAYTON	DUNDEE	1935	ARENAC-OGEMAW	2,465	12 DL	34.2	SYLVANIA	4,163	80	0	0	47	1,290	28,798	CUMULATIVE PRODUCTION COMBINED WITH RICHFIELD				1,466
OF		DETROIT RIVER	1953		3,507	9 D	45.9													
OF		RICHFIELD	1947		3,790	9 D	36.2			5	0	0	5	200	4,688	6,661,207			4,471	1
				CLAYTON TWP., 20N-4E, SECTIONS 3, 4, 5, 8, 9, 10, 11, 14, 15 RICHLAND TWP., 21N-4E, SECTION 31 MILLS TWP., 21N-3E, SECTION 36 THE 5 WELLS INCLUDE 3 RICHFIELD, 1 SZ & 1 DUAL COMPLETION RICHFIELD & SZ															
AOF	CLEAR LAKE	TRAVERSE	1950	VAN BUREN	1,380	1 L		TRAVERSE	1,399	14	ABANDONED		1953	140		17,490			125	
				PINE GROVE TWP., 1S-13W, SECTIONS 3, 4, 9, 10																
AOF	CLINTON	TRAVERSE	1953	WASHTENAW	986	2 D		TRENTON	3,606	2	ABANDONED		1962	20		2,093			105	
				BRIDGEWATER TWP., 4S-4E, SECTION 28																
OF	COFFEE LAKE	TRAVERSE	1946	VAN BUREN	1,128	1 L		TRAVERSE	1,130	14	1	0	4	110	3,587	47,970			436	48
				COLUMBIA TWP., 1S-15W, SECTIONS 17, 18 ABANDONED IN 1954, REACTIVATED IN 1975																
GS	COLDWATER	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	COLDWATER	TRAVERSE	1944	ISABELLA	3,110	21 D		DETROIT RIVER					4		26,594	CUMULATIVE OIL PRODUCTION COMBINED WITH DUNDEE				
OF		DUNDEE	1944	ISABELLA	3,692	25 L	48.0	DETROIT RIVER	5,090	81	0	4	19	3,200	2,313	22,098,493		6,277,030	6,906	15,346
				COLDWATER TWP., 16N-6W, SECTIONS 19, 20, 21, 28 THROUGH 34 SHERMAN TWP., 15N-6W, SECTIONS 5, 6																
AOF	COLDWATER, SOUTH	DUNDEE	1951	ISABELLA	3,739	4 D		DUNDEE	3,743	1	ABANDONED		1959	20		10,941			547	
				SHERMAN TWP., 15N-6W, SECTION 8																
OF	COLE LAKE	TRAVERSE	1968	NEWAYGO	2,928	8 L		TRAVERSE	2,938	2	ABANDONED		1977	40	0	30,729			768	
				BARTON TWP., 16N-11W, SECTIONS 29, 30																
GF	COLFAX	MICHIGAN STRAY	1945	MECOSTA	1,240	8 S		DETROIT RIVER	4,043	4	0	0	1	640				495,561		DOMESTIC USE
AOF		DUNDEE	1964		3,503	25 L	43.0			2	ABANDONED		1967	40		2,188			55	
GF		DUNDEE-REED CITY	1957		3,474	9 D				1	0	0	1	160				5,223		DOMESTIC USE
				COLFAX TWP., 15N-9W, SECTIONS 4, 5																
GF	COLLIN	SALINA-NIAGARAN REEF	1968	ST. CLAIR	2,196	4 D		NIAGARAN	2,364	2	0	0	2	80	0	2,139	0	1,686,717	27	
				COTTRELLVILLE TWP., 3N-16E, SECTION 20																
GS	COLUMBUS	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	COLUMBUS, SEC. 2	NIAGARAN REEF	1971	ST. CLAIR	2,798	8 D	29	NIAGARAN	3,210	1	0	0	1	80	249	6,765		26,492	85	
				COLUMBUS TWP., 5N-15E, SECTION 2 WALES TWP., 6N-15E, SECTION 35																
OF	COLUMBUS, SEC. 3	NIAGARAN REEF	1968	ST. CLAIR	3,105	15 D		NIAGARAN	3,340	23	0	0	20	460	390,308	4,521,317	GAS REINJECTED TO RESERVOIR		9,829	129
				COLUMBUS TWP., 5N-15E, SECTIONS 3, 10 WALES TWP., 6N-15E, SECTION 34																
AGF	COLUMBUS, SEC. 20	NIAGARAN REEF	1972	ST. CLAIR	3,128	5 D		NIAGARAN	3,155	1	ABANDONED		1975	160				425		
				COLUMBUS TWP., 5N-15E, SECTION 20																
GF	COLUMBUS, SEC. 23	NIAGARAN REEF	1965	ST. CLAIR	2,900	46+ D		CLINTON	3,122	6	0	0	5	240	2,619	25,341	2,021	1,033,611	106	
				COLUMBUS TWP., 5N-15E, SECTIONS 23, 25 GAS RESERVOIR PRODUCING SMALL QUANTITIES OF OIL																
GF	COLUMBUS, SEC. 32	NIAGARAN REEF	1970	ST. CLAIR	2,983	16 D		NIAGARAN	3,050	2	ABANDONED		1978	80				25,230		
				COLUMBUS TWP., 5N-15E, SECTION 32																
OF	COLUMBUS, NORTH	NIAGARAN REEF	1968	ST. CLAIR	3,266	8 D		NIAGARAN	3,374	11	0	0	11	260	66,326	1,135,574	91,567	268,305	4,368	41
				COLUMBUS TWP., 5N-15E, SECTIONS 5, 6																
GS	COLUMBUS, WEST	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	COMSTOCK, SEC. 5	TRAVERSE	1949	KALAMAZOO	1,430	3 L		TRAVERSE	1,480	2	ABANDONED		1952	20		974			49	
				COMSTOCK TWP., 2S-10W, SECTION 5																
AOF	CONCORD	TRAVERSE	1953	JACKSON	1,627	1 L		SALINA	2,417	5	ABANDONED		1958	50		6,437			129	
				CONCORD TWP., 3S-3W, SECTIONS 35, 36																
OF	CONVIS 8-1S-6W	SALINA-NIAGARAN REEF	1975	CALHOUN	2,978	10 D		CLINTON	3,555	3	0	0	3	240	129,533	326,022	37,303	83,619	1,358	7
				CONVIS TWP., 1S-6W, SECTION 8																
OF	CONVIS 18-1S-6W	SALINA-NIAGARAN REEF	1975	CALHOUN	2,909	62 D	33.5	CLINTON	3,427	7	1	0	7	520	252,970	756,262	83,374	160,983	160	851
				CONVIS TWP., 1S-6W, SECTIONS 7, 18																
OF	CONVIS 25-1S-6W	SALINA-NIAGARAN REEF	1975	CALHOUN	2,876	20 D		CLINTON	3,430	1	0	0	1	80	20	8,332			104	
				CONVIS TWP., 1S-6W, SECTION 25																
OF	CONVIS 26-1S-6W	SALINA-NIAGARAN REEF	1978	CALHOUN	2,926	2 D		NIAGARA	3,007	1	1	0	1	80						
				CONVIS TWP., 1S-6W, SECTION 26																	
OF	CONVIS 30-1S-6W	SALINA-NIAGARAN REEF	1975	CALHOUN	2,819	35 D	27.5	CLINTON	3,346	6	1	0	6	480	93,259	285,359	22,495	51,196	594	2,181
				CONVIS TWP., 1S-6W, SECTION 30																
AGF	COON CREEK	NIAGARAN	1963	MACOMB	3,034	20 D		NIAGARA	3,093	2	ABANDONED		1968	80				136,798		
				LENOX TWP., 4N-14E, SECTION 18																
AGF	COOPERSVILLE	"BEREA"	1939	OTTAWA	1,240	5 D		TRAVERSE	1,900	3	ABANDONED		1959	240				111,016		
				WRIGHT TWP., 8N-13W, SECTIONS 7, 19																
OF	COTTRELLVILLE	SALINA-NIAGARAN REEF	1961	ST. CLAIR	2,262	6 D	38.7	CLINTON	2,511	12	0	0	7	280	3,911	160,265			572	2
				CHINA TWP., 4N-16E, SECTION 31 COTTRELLVILLE TWP., 3N-16E, SECTIONS 6, 7, 8 IRA TWP., 3N-15E, SE¼ SECTION 1, NE¼ SECTION 12																
GF	COTTRELLVILLE	NIAGARAN REEF	1959	ST. CLAIR	2,293	37 D		CLINTON	2,511	2	0	0	2	240				77,176	3,025,390	
				COTTRELLVILLE TWP., 3N-16E, SECTIONS 6, 7, 8																
GS	CRANBERRY LAKE	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	CRANBERRY LAKE	TRAVERSE	1952	CLARE	3,120	7 L	39.0	RICHFIELD	5,223	7	ABANDONED		1965	PRODUCTION COMBINED WITH CRANBERRY LAKE DUNDEE & RICHFIELD						
OF		DUNDEE	1943		3,835	2 L	42.8			8	0	0	2	70	1,881	CUMULATIVE PRODUCTION COMBINED WITH RICHFIELD				450
AOF		DETROIT RIVER SZ	1953		4,801	16 D	48.8			1	ABANDONED		1962	PRODUCTION COMBINED WITH CRANBERRY LAKE DUNDEE & RICHFIELD						
OF		RICHFIELD	1951		5,048	15 D	51.0			18	1	0	7	680	76,007	1,847,020			2,463	275
				WINTERFIELD TWP., 20N-6W, SECTIONS 1, 2, 11, 12																
OF	CRANBERRY LAKE, EAST	TRAVERSE	1963	CLARE	3,057	6 L	39.2	DETROIT RIVER	5,139	REACTIVATED 1972					17,843					
OF		DUNDEE	1963		3,760	6 L	43.5						200	2,086	CUMULATIVE PRODUCTION COMBINED WITH RICHFIELD					
OF		RICHFIELD	1964		5,087	12 D	44.0			7	0	0	7	120	3,244	725,902			2,268	711
				SUMMERFIELD TWP., 20N-5W, SECTIONS 7, 8, 17 THE 7 WELLS INCLUDE 3 DUNDEE, 2 RICHFIELD, 1 DUNDEE & TRAVERSE AND 1 DUNDEE AND RICHFIELD DUAL COMPLETION															

DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION

MICHIGAN OIL AND GAS FIELDS, 1978

SOUTHERN PENINSULA



POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP IN	NUMBER OF WELLS ABAND IN	NUMBER OF WELLS ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
											1978									
AOF	CROOKED LAKE	TRAVERSE	1949	ALLEGAN	1,273	1 L		TRAVERSE	1,312	2	ABANDONED 1956			40		115,452			2,886	
	CLYDE TWP., 2N-15W, SECTION 25																			
GS	CROTON	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	CROTON	TRAVERSE	1951	NEWAYGO	2,543	2 L		SALINA	3,993	10	ABANDONED 1958			200		91,678			468	
	CROTON TWP., 12N-11W, SECTIONS 20, 29																			
AOF	CRUMP	DUNDEE	1950	BAY	3,294	7 L		DUNDEE	3,354	1	ABANDONED 1951			10		1,043			104	
	GARFIELD TWP., 16N-3E, SECTION 23																			
OF	CRYSTAL	TRAVERSE	1954	MONTCALM	2,769	4 L	41.8	DETROIT RIVER	3,391	2	0	0	1	20	PRODUCTION COMBINED WITH DUNDEE					
OF		DUNDEE	1935		3,187	4 D	43.5			193	0	0	7	2,000	8,423	7,862,993			3,893	950
	CRYSTAL TWP., 10N-5W, SECTIONS 1, 2, 3, 4, 10, 11, 12, 13 FERRIS TWP., 11N-5W, SECTIONS 26, 34, 35, 36																			
OF	CRYSTAL VALLEY	TRAVERSE	1945	OCEANA	1,809	3 L	37.0	ST. PETER SS.	6,062	5	0	0	1	50	PRODUCTION COMBINED WITH DUNDEE					
AOF		DUNDEE	1957		2,575	12 D	42.5			19	ABANDONED 1974			420		203,747			434	
	CRYSTAL TWP., 16N-16W, SECTIONS 9, 10, 11, 14, 15, 16																			
AGF	CRYSTAL VALLEY	DUNDEE	1946	OCEANA	2,400	7 L		TRENTON-BLK. RIVER	5,985	4	ABANDONED 1966			160				=165,321		
AGF		SALINA	1961		4,102	10 D				1	ABANDONED 1966			40				=PRODUCTION COMBINED		
	CRYSTAL TWP., 16N-16W, SECTIONS 11, 14, 15, 16																			
OF	CRYSTAL VALLEY, SEC. 19	TRAVERSE	1971	OCEANA	1,689	1.5 L		DUNDEE	2,233	2	0	0	2	40	526	CUMULATIVE PRODUCTION COMBINED WITH DUNDEE				30
OF		DUNDEE	1971		2,222	11 L				2	0	0	2	180	789	28,107	CHANGED TO OIL FIELD IN 1977		128	120
	CRYSTAL TWP., 16N-16W, SECTION 19																			
OF	CRYSTAL VALLEY, SOUTH	TRAVERSE	1969	OCEANA	1,739	1 L		TRAVERSE	1,740	1	ABANDONED 1977			40	303	9,613			240	
	CRYSTAL TWP., 16N-16W, SECTION 20																			
OF	CURRIE	DUNDEE	1936	ISABELLA	3,918	2 D	45.9	DUNDEE	4,042	2	0	0	2	40	678	208,844			5,221	0
	VERNON TWP., 16N-4W, SECTIONS 5, 8																			
AOF	DALLAS	TRAVERSE	1942	CLINTON	2,482	2 L		DETROIT RIVER	2,934	3	ABANDONED 1948			40		3,085			77	
	DALLAS TWP., 7N-4W, SECTION 21																			
OF	DALTON	TRAVERSE	1940	MUSKEGON	1,851	5 L	40.0	DUNDEE	2,515	16	0	0	2	300	173	109,365			365	0
	DALTON TWP., 11N-16W, SECTIONS 10, 11, 15																			
AGF	DAY	MICHIGAN STRAY	1934	MONTCALM	1,352	4 S		MARSHALL	1,395	2	ABANDONED 1944			80				8,664		
	DAY TWP., 11N-6W, SECTION 1 HOME TWP., 12N-6W, SECTION 36																			
AOF	DAY	TRAVERSE	1946	MONTCALM	2,900	2 L	43.0	DUNDEE	3,387	1	ABANDONED 1967			10		3,095			310	
AOF		DUNDEE	1946		3,337	2 L				2	ABANDONED 1954			20		16,239			812	
	DAY TWP., 11N-6W, SECTION 25 (TRAVERSE) DAY TWP., 11N-6W, SECTION 36 (DUNDEE)																			
OF	DAY, SEC. 13	DUNDEE	1971	MONTCALM	3,414	15 L		DUNDEE	3,475	1	0	0	1	20	1,208	23,552			1,178	180
	DAY TWP., 11N-6W, SECTION 13																			
GF	DEEP RIVER	BEREA	1936	ARENAC	1,490	10 S		SYLVANIA	4,311	12	0	0	3	1,520				1,642,008	DOMESTIC USE	
	DEEP RIVER TWP., 19N-4E, SECTIONS 7, 8, 16, 17, 18, 20																			
OF	DEEP RIVER	DUNDEE	1944	ARENAC	2,795	145 D	35.8	RICHFIELD	4,258	106	0	0	32	1,060	49,234	26,892,419			25,370	8,831
OF		RICHFIELD	1953	(CONSOLIDATED WITH STERLING DETROIT RIVER - RICHFIELD IN 1954) THE 32 WELLS INCLUDE 31 DUNDEE AND 1 TRAVERSE																
	DEEP RIVER TWP., 19N-4E, SECTIONS 6, 7, 8, 9, 14, 15, 16, 23, 24																			
OF	DEERFIELD	TRENTON	1920	MONROE	2,115	10 L	42.7	CAMBRIAN	3,250	47	0	0	20	450	2,816	741,929			1,649	4
	DUNDEE TWP., 6S-6E, SECTIONS 19, 29, 30 SUMMERFIELD TWP., 6S-6E, SECTION 31																			
GF	DEMINGS LAKE	TRAVERSE	1968	LENAWEE	734	2 L		TRAVERSE	741	1	0	0	1	40				0		
	DOVER TWP., 7S-2E, SECTION 27																			
AOF	DENNISON	TRAVERSE	1963	OTTAWA	1,874	4 L	38.0	SALINA	3,202	15	ABANDONED 1971			300		312,956			1,043	
	POLKTON TWP., 8N-14W, SECTIONS 27, 27, 28																			
AGF	DIAMOND CRYSTAL SALT	NIAGARAN REEF	1927	ST. CLAIR	2,483	17 D		NIAGARAN	2,500	1	ABANDONED 1931			40				139,174		
	ST. CLAIR TWP., 5N-17E, SECTION 31																			
OF	DIAMOND SPRINGS	TRAVERSE	1938	ALLEGAN	1,461	3 L	41.0	SALINA	2,651	56	0	1	6	420	656	1,014,874			2,416	120
OF		SALINA-E ZONE	1958		2,389	21 D	25.5			3	0	0	3	30	5,880	86,063			2,869	150
	OVERISEL TWP., 4N-14W, SECTION 36 SALEM TWP., 4N-13W, SECTION 31 HEATH TWP., 3N-14W, SECTION 1 MONTEREY TWP., 3N-13W, SECTION 6																			
OF	DORR	TRAVERSE	1938	ALLEGAN	1,617	4 L	41.0	NIAGARAN	3,319	41	0	0	4	410	78	423,513			1,033	25
OF		DETROIT RIVER	1955		2,082	6 D	38.0			14	0	0	4	280	78	75,476			270	30
OF		SALINA	1956		2,922	7 D	17.0			18	0	1	10	540	3,375	329,704	25,232	1,460,302	611	48
	DORR TWP., 4N-12W, SECTIONS 19, 29 THROUGH 33 SALEM TWP., 4N-13W, SECTION 25																			
GF	DORR	DETROIT RIVER	1957	ALLEGAN	1,918	1 D		NIAGARAN	3,319	1	0	0	1	160				4,804	NO MARKET	
	DORR TWP., 4N-12W, SECTION 33																			
AGF	DORR, SEC. 17	"BEREA"	1951	ALLEGAN	953	8 D		TRAVERSE	1,642	1	ABANDONED 1967			40				0		
	DORR TWP., 4N-12W, SECTION 17																			
GF	DORR, SEC. 21	"BEREA"	1940	ALLEGAN	957	1 D		TRAVERSE	1,687	1	0	0	1	40				0	DOMESTIC USE	
	DORR TWP., 4N-12W, SECTION 21																			
OF	DOUGLASS	DUNDEE	1945	MONTCALM	3,400	2 L	47.1	DUNDEE	3,458	6	0	0	2	120	353	256,109			2,134	58
	DOUGLASS TWP., 11N-7W, SECTION 1																			
AGF	DOUGLASS	MICHIGAN STRAY	1943	MONTCALM	3,190	5 S		DUNDEE	3,423	4	ABANDONED 1951			640				188,502		
	DOUGLASS TWP., 11N-7W, SECTIONS 27, 28																			
AOF	DOUGLASS, SEC. 3	TRAVERSE	1954	MONTCALM	3,025	8 L		DUNDEE	3,666	1	ABANDONED 1956			20		3,155			158	
	DOUGLASS TWP., 11N-7W, SECTION 3																			
GF	DOVER, SEC. 13	ANTRIM	1977	OTSEGO	1,134	104 SH		NIAGARAN	5,451	1	0	0	1	80						
	DOVER TWP., 31N-2W, SECTION 13																			
OF	DUNNINGVILLE	TRAVERSE	1950	ALLEGAN	1,435	3 L	38.0	TRAVERSE	1,438	5	0	0	1	50	0	121,630			2,433	
	HEATH TWP., 3N-14W, SECTIONS 22, 27, 33																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP IN	NUMBER OF WELLS ABAND IN	NUMBER OF WELLS ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
											1978									
AOF	DWIGHT	DETROIT RIVER	1945	HURON	2,862	4 L	36.2	SYLVANIA	3,290	1	ABANDONED 1972			40		41,165			1,029	
	DWIGHT TWP., 18N-13E, SECTION 21																			
GF	EAST CHINA	NIAGARAN REEF	1969	ST. CLAIR	2,344	19 D		NIAGARAN	2,363	2	0	0	2	80	1,781	10,146	2,117	16,981	127	
	EAST CHINA TWP., 4N-16E, SECTION 25																			
AOF	EAST NORWICH	TRAVERSE	1944	NISSAUKEE-ROSCOMMON	2,410	1 L		BASS ISLANDS	5,520	1	ABANDONED 1944			PRODUCTION COMBINED WITH EAST NORWICH RICHFIELD						
AOF		DUNDEE	1942		3,082	4 L	44.2			1	ABANDONED 1947			PRODUCTION COMBINED WITH EAST NORWICH RICHFIELD						
OF		RICHFIELD	1942		4,390	14 D	40.9			119	0	0	75	4,640	399,398	11,248,594	294,715	10,423,560	2,383	896
	NORWICH TWP., 24N-5W, SECTION 16 (TRAVERSE), SECTION 14 (DUNDEE) LYON TWP., 24N-4W, SECTIONS 6, 7, 18 (RICHFIELD)																THE 75 WELLS INCLUDE 61 RICHFIELD & 13 SOUR ZONE & 1 RICHFIELD & SOUR ZONE					
	NORWICH TWP., 24N-5W, SECTIONS 1, 2, 3, 9 THROUGH 16, 21, 22 (RICHFIELD)																			
GF	EATON RAPIDS 7-2N-3W	NIAGARAN REEF	1977	EATON	4,012	48 D		NIAGARAN	4,362	1	0	0	1	80						
	EATON RAPIDS TWP., 2N-3W, SECTION 7																			
GF	EATON RAPIDS 17-2N-3W	SALINA-NIAGARAN REEF	1973	EATON	3,985	79 D	42.0	CLINTON	4,316	4	0	0	4	400	2,205	7,135	713,861	1,865,197	18	
	EATON RAPIDS TWP., 2N-3W, SECTION 17																			
OF	EATON RAPIDS 20-2N-3W	SALINA-NIAGARAN REEF	1974	EATON	3,940			NIAGARAN	4,323	5	1	0	5	400	48,755	162,846	197,203	433,465	407	103
	EATON RAPIDS TWP., 2N-3W, SECTION 20																			
OF	EATON RAPIDS 25-2N-3W	NIAGARAN REEF	1976	EATON	4,010	6 D		NIAGARAN	4,270	1	0	0	1	160	3,957	6,685	261,374	386,269	42	8
	EATON RAPIDS TWP., 2N-3W, SECTION 25																			
OF	EATON RAPIDS 28-2N-3W	SALINA-NIAGARAN REEF	1974	EATON	3,858			NIAGARAN	4,056	1	0	0	1	80	6,050	25,935	10,674	18,032	324	
	EATON RAPIDS TWP., 2N-3W, SECTION 28																			
OF	EATON RAPIDS 32-2N-3W	NIAGARAN	1975	EATON	3,799	10 D	36.7	NIAGARAN	3,917	2	1	0	2	240	40,284	131,061	404,715	520,402	546	
	EATON RAPIDS TWP., 2N-3W, SECTION 32																			
G-C	EATON RAPIDS 33-2N-3W	NIAGARAN REEF	1976	EATON	3,715	111 D	62.8	NIAGARAN	3,935	1	0	0	1	80	0	35			1	
	EATON RAPIDS TWP., 2N-3W, SECTION 33																			
OF	EATON RAPIDS 35-2N-3W	A-1 CARBONATE & NIAGARAN REEF	1972	EATON	3,750	30 D		NIAGARAN	4,210	2	1	0	2	120	33,562	120,059	52,191	128,038	1,000	8
	EATON RAPIDS TWP., 2N-3W, SECTION 35																			
G-C	EATON RAPIDS 36-2N-3W	NIAGARAN REEF	1971	EATON-INGHAM	3,740	55 D	47	NIAGARAN	4,305	7	0	0	7	1,120	79	17,616	568,404	12,218,656	16	
	EATON RAPIDS TWP., 2N-3W, SECTION 36 AURELIUS TWP., 2N-2W, SECTION 31 ONONDAGA TWP., 1N-2W, SECTIONS 6, 7																			
OF	EDEN	TRAVERSE	1948	MASON	1,679	3 L	34.5	CAMBRIAN	7,249	10	0	0	5	90	PRODUCTION COMBINED WITH REED CITY					
GF		TRAVERSE	1958		1,960	7 L				1	0	0	1	160				SHUT-IN		
OF		DUNDEE	1948		2,240	2 L	45.3			38	0	0	27	380	PRODUCTION COMBINED WITH REED CITY					1,253
OF		REED CITY	1948		2,345	8 D	42.8			5	0	0	2	40	13,921	3,055,744	2,854	330,321	5,992	2
	EDEN TWP., 17N-16W, SECTION 26 (TRAVERSE GAS) SECTIONS 25, 26, 35, 36 (TRAVERSE, DUNDEE, REED CITY OIL COMBINED IN ABOVE FIGURES)																			
OF	EDENVILLE	DUNDEE	1938	MIDLAND	3,790	8 L	41.0	DUNDEE	3,962	36	0	0	1	370	784	1,371,180			3,706	7
	EDENVILLE TWP., 16N-1W, SECTIONS 5, 26, 27																			
GF	EDENVILLE, SEC. 5	SAGINAW FM.	1956	MIDLAND	382	12 S		DUNDEE	4,028	3	0	0	1	160				0	TO PLUG	
	EDENVILLE TWP., 16N-1W, SECTION 5																			
OF	EDMORE	TRAVERSE	1933	MONTCALM	3,102	4 L	43.2	DUNDEE	3,613	35	0	0	7	500	7,910	1,435,292		1,089,013	2,871	750
	HOME TWP., 12N-6W, SECTIONS 2, 3, 9, 10, 11																			
GF	EDMORE-RICHLAND	MICHIGAN STRAY	1936	MONTCALM	1,300	8 S		DUNDEE	3,700	47	0	0	7	6,800				9,135,821		
	HOME TWP., 12N-6W, SECTIONS 11, 12, 13, 14, 15, 19, 21 THROUGH 30, 33 RICHLAND TWP., 12N-5W, SECTIONS 7, 8, 17, 18																			
OF	EDWARDS	DUNDEE	1951	OGEMAW	3,362	10 L		SYLVANIA-BOIS BLANC	5,260	4	0	0	3	90	849	41,680			463	500
	EDWARDS TWP., 21N-1E, SECTION 15																			
AGF	EGELSTON	"BEREA"	1951	MUSKEGON	1,120	5 D		DUNDEE	2,282	7	ABANDONED 1966			1,120				296,919		
	EGELSTON TWP., 10N-15W, SECTIONS 3, 4, 9, 10, 15																			
AGF	ELBA	MICHIGAN STRAY	1928	GRATIOT	670	10 S		DUNDEE	3,044	10	ABANDONED 1957			520				250,979		
AOF		TRAVERSE	1927		2,440	2 L	47.0			8	ABANDONED 1962			90		42,925			477	
	ELBA TWP., 9N-1W, SECTIONS 9, 14, 15, 16 (MICHIGAN STRAY) SECTIONS 14, 15, 22, 23 (TRAVERSE)																			
OF	ELBRIDGE	TRAVERSE	1961	OCEANA	2,112	2 L	39.4	REED CITY	2,725	19	0	0	3	380	0	415,067	SHUT-IN		1,092	
	ELBRIDGE TWP., 15N-16W, SECTIONS 22, 26, 27, 28																			
AOF	ELKLAND	DUNDEE	1946	TUSCOLA	2,653	14 L		SYLVANIA	3,735	2	ABANDONED 1947			20		1,546			77	
	ELKLAND TWP., 14N-11E, SECTION 31 NOVESTA TWP., 13N-11E, SECTION 6																			
OF	ELMWOOD	DUNDEE	1945	TUSCOLA	2,740	8 L	31.3	BOIS BLANC	3,945	10	0	0	7	90	2,206	102,626			1,140	25
	ELMWOOD TWP., 14N-10E, SECTIONS 17, 20, 21																			
GF	ENSLEY	MARSHALL	1958	NEWAYGO	826	5 S		DETROIT RIVER	3,018	8	0	0	8	1,280	SHUT-IN			924,759		
AOF		TRAVERSE	1954		2,439	2 L				6	ABANDONED 1959			120		70,415			587	
	ENSLEY TWP., 11N-11W, SECTIONS 6, 7, 8, 17, 18 GRANT TWP., 11N-12W, SECTION 12 (MARSHALL) ENSLEY TWP., 11N-11W, SECTIONS 6, 7, 8 (TRAVERSE)																			
OF	ENTERPRISE	RICHFIELD	1943	NISSAUKEE-ROSCOMMON	4,405	15 D	41.8	RICHFIELD	4,625	36	0	0	21	1,440	124,699	3,346,482	88,064	1,556,829	2,324	176
	ENTERPRISE TWP., 23N-5W, SECTIONS 10 THROUGH 14 LAKE TWP., 23N-4W, SECTION 18																			
GF	ENTERPRISE, SEC. 32	MICHIGAN STRAY	1953	MISSAUKEE	1,986	5 S		DETROIT RIVER	4,200	2	0	0	2	320				0	DOMESTIC USE	
	ENTERPRISE TWP., 23N-5W, SECTION 32 BUTTERFIELD TWP., 22N-5W, SECTION 4																			
AOF	ENTRICAN	TRAVERSE	1966	MONTCALM	2,870	4 L		DUNDEE	3,426	1	ABANDONED 1968			40	PRODUCTION COMBINED WITH DUNDEE					
AOF		DUNDEE	1967		3,312	2 D				2	ABANDONED 1973			40		8,014			200	
	DOUGLASS TWP., 11N-7W, SECTION 21																			
OF	ESSEXVILLE	DUNDEE	1944	BAY	2,835	17 L	35.3	SYLVANIA	4,130	50	0	0	41	1,730	29,770	3,626,240		3,249	2,096	43
	HAMPTON TWP., 14N-6E, SECTIONS 7, 8, 9, 15, 16, 17, 18 HAMPTON TWP., 14N-5E, SECTION 12																			
AOF	EVART	DUNDEE	1942	OSCEOLA	3,755	6 L	46.3	SYLVANIA	5,292	29	ABANDONED 1970			1,100		3,812,127			3,466	
	OSCEOLA TWP., 18N-8W, SECTIONS 21, 22, 23, 25, 26, 27, 28																			
AGF	EVART	MICHIGAN STRAY	1941	OSCEOLA	1,410	7 S		DETROIT RIVER	4,457	33	ABANDONED 1974			5,120				4,993,636		
	OSCEOLA TWP., 18N-8W, SECTIONS 19, 21, 22, 23, 26 THROUGH 35																			
AOF	EXCELSIOR	TRAVERSE	1950	KALKASKA	2,003	2 L	33.4	TRAVERSE	2,136	1	ABANDONED 1970			10		10,455			1,046	
	EXCELSIOR TWP., 27N-6W, SECTION 11																			

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	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC.	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY & API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP IN 1978	NUMBER OF WELLS ABAND IN 1978	NUMBER OF WELLS ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
AOF	EXCELSIOR 10-22N-6W	DETROIT RIVER	1972	KALKASKA	3,607	20 D		NIAGARAN	7,399	1	ABANDONED	1974		80		2,053				26
	EXCELSIOR TWP., 22N-6W, SECTION 10																			
GF	FALMOUTH	MICHIGAN STRAY	1962	MISSAUKEE	1,279	3 S		REED CITY	4,033	8	0	0	1	1,280				1,124,871	DOMESTIC USE	
	AETNA TWP., 22N-6W, SECTIONS 30 31 REEDER TWP., 22N-7W, SECTIONS 25, 36																			
GF	FALMOUTH	TRAVERSE	1977	MISSAUKEE	3,166	21 L		TRAVERSE	3,187	1	0	0	1	160						
OF		DUNDEE	1978	MISSAUKEE	3,851	2 D	45	AMHERSTBURG	5,250	1	1	0	1	40						
OF		RICHFIELD	1977	MISSAUKEE	5,111	32 D		RICHFIELD	5,261	12	11	0	12	720	56,495	56,887			79	
	AETNA TWP., 22N-6W, SECTIONS 30, 31																			
AOF	FERRY	TRAVERSE	1960	OCEANA	1,943	2 L	41.0	REED CITY	2,581	14	ABANDONED	1970	286			164,263			587	
	FERRY TWP., 14N-16W, SECTIONS 16, 20, 21																			
GF	FERRY, SEC. 25 "BEREA"		1961	OCEANA	1,310	5 D		REED CITY	2,650	1	0	0	1	40				DOMESTIC USE		
	FERRY TWP., 14N-16W, SECTION 25																			
OF	FILLMORE	TRAVERSE	1940	ALLEGAN-OTTAWA	1,516	2.7 L	41.1	NIAGARAN	3,045	63	0	0	4	770	2,221	984,571			1,279	61
GF		SALINA A-2 CARB.	1959		2,632	16 D		}		11	0	0	6	1,500			119,521	4,970,741		
GF		SALINA A-1 CARB.	1959		2,792	16 D		}						1,600	PRODUCTION COMBINED WITH SALINA A-2 ABOVE					
	FILLMORE TWP., 4N-15W, SECTIONS 2, 3, 11, 12 HOLLAND TWP., 5N-15W, SECTIONS 27, 34, 35 (TRAVERSE OIL) FILLMORE TWP., SECTIONS 2, 3 HOLLAND TWP., SECTIONS 34, 35 (SALINA GAS)																			
AOF	FOREST RIVER	TRAVERSE	1965	OCEANA	1,954	1 L		DUNDEE	2,598	1	ABANDONED	1965	40			781			20	
	COLFAX TWP., 16N-15W, SECTION 12																			
AOF	FORK	DUNDEE	1942	MECOSTA	3,845	8 L	49.0	BOIS BLANC	5,294	64	ABANDONED	1969	2,700			7,777,026			2,880	
AOF		RICHFIELD	1945		5,001	11 D	54.8			1	ABANDONED	1966	PRODUCTION COMBINED WITH FORK DUNDEE					849,775		
	FORK TWP., 16N-7W, SECTIONS 4, 5, 6, 7, 8, 16, 18 CHIPPEWA TWP., 16N-8W, SECTIONS 1, 12																			
AGF	FORK, EAST	MICHIGAN STRAY	1942	MECOSTA	1,480	5 S		DUNDEE	3,865	4	ABANDONED	1946	640					104,762		
	FORK TWP., 16N-7W, SECTIONS 2, 11																			
GF	FORK, NORTH	MICHIGAN STRAY	1956	OSCEOLA	1,433	19 S		DUNDEE	3,982	1	0	0	1	160			2,511	97,492		
OF		DUNDEE	1951		3,788	3 D	45.8			6	0	0	1	120		153,661	SHUT-DOWN		1,281	
	ORIENT TWP., 17N-7W, SECTION 33 (MICHIGAN STRAY) SECTIONS 28, 33 (DUNDEE)																			
GF	FORK, WEST	MICHIGAN STRAY	1943	MECOSTA	1,490	5 S		SYLVANIA	5,198	17	0	0	2	2,880				2,453,670	DOMESTIC USE	
	FORK TWP., 16N-7W, SECTIONS 5, 6, 7, 8, 16 CHIPPEWA TWP., 16N-8W, SECTIONS 1, 2, EVART TWP., 17N-8W, SECTIONS 35, 36																			
AGF	FORWARD	MICHIGAN STRAY	1961	MISSAUKEE	1,393	7 S		DETROIT RIVER	5,225	6	ABANDONED	1969	960					476,757		
	RIVERSIDE TWP., 21N-7W, SECTIONS 25, 36 CLAM UNION TWP., 21N-6W, SECTION 31																			
GF	FOSTORIA	BEREA	1970	TUSCOLA	1,514	16 S		RICHFIELD	3,267	1	0	0	1	160					SHUT-IN	
	WATERTOWN TWP., 10N-9E, SECTION 14																			
OF	FOUNTAIN	REED CITY	1970	MASON	2,442	6 D		REED CITY	2,448	1	0	0	1	40		170	SHUT-IN		4	
	SHERMAN TWP., 19N-16W, SECTION 12																			
GS	FOUR CORNERS	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
GF	FOWLERVILLE	SALINA-NIAGARAN	1961	LIVINGSTON	3,880	45 D		PRAIRIE DU CHIEN	5,695	18	0	1	17	2,560	880	6,465	1,274,959	5,356,458	3	
	HANDY TWP., 3N-3E, SECTIONS 1, 2, 12 CONWAY TWP., 4N-3E, SECTION 35 HOWELL TWP., 3N-4E, SECTION 7																			
AGF	FREEDOM	TRAVERSE	1971	WASHTENAW	1,038	24 L		} CAMBRO-ORDOVICIAN	4,691	3	ABANDONED	1973	120				SHUT-IN			
AGF		DUNDEE	1971		1,198	28 L		}			ABANDONED	1973	120				SHUT-IN			
AOF		TRENTON	1954		3,963	20 D	43.5			1	ABANDONED	1956	40			7,217			180	
	FREEDOM TWP., 3S-4E, SECTIONS 6, 8																			
GS	FREEMAN-LINCOLN	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	FREEMAN-REDDING	DUNDEE	1938	CLARE	3,885	19 L	44.4	SYLVANIA	5,462	170	0	0	17	2,800	26,190	16,805,532		1,945,432	6,002	2,035
	REDDING TWP., 19N-6W, SECTIONS 27, 28, 29, 32, 33, 34 FREEMAN TWP., 18N-6W, SECTIONS 3, 4																			
AOF	FREEMAN, SEC. 15	DUNDEE	1963	CLARE	3,894	8 L	41.0	DUNDEE	3,902	1	ABANDONED	1965	40			736			18	
	FREEMAN TWP., 18N-6W, SECTION 15																			
AOF	FREEPORT	TRAVERSE	1949	BARRY	2,031	3 L		DETROIT RIVER	2,430	1	ABANDONED	1951	10			19,229			1,923	
	CARLTON TWP., 4N-8W, SECTION 6																			
AGF	FREMONT	MICHIGAN STRAY	1941	ISABELLA	1,235	5 S		DUNDEE	3,700	5	ABANDONED	1956	800					388,957		
AOF		DUNDEE	1938		3,696	4 D				2	ABANDONED	1956	30			3,045			102	
	FREMONT TWP., 13N-5W, SECTIONS 20, 21, 22, 27, 28 (MICHIGAN STRAY) SECTIONS 5, 8 (DUNDEE)																			
GF	FREMONT, SEC. 32	MICHIGAN STRAY	1958	ISABELLA	1,264	6 S		DUNDEE	3,619	1	0	0	1	160				27,677		
AOF		TRAVERSE	1957		3,058	2 L				1	ABANDONED	1958	10			892			89	
	FREMONT TWP., 13N-5W, SECTION 32																			
AOF	FREMONT	BEREA	1937	SAGINAW	2,122	3 S		DUNDEE	3,150	1	ABANDONED	1941	10			2,000	(DUNDEE AND BEREA PRODUCTION COMBINED)		100	
		DUNDEE	1946		3,125	1 L				1	ABANDONED	1947	10							
	FREMONT TWP., 11N-2E, DUNDEE SECTION 3, BEREA SECTION 5																			
AOF	GARFIELD	DETROIT RIVER	1946	CLARE	5,038	10 S		SYLVANIA	5,307	1	ABANDONED	1948	40			13,769		546,527	344	
	GARFIELD TWP., 17N-6W, SECTION 18																			
AOF	GENEVA	DUNDEE	1935	MIDLAND	3,671	2 L		DETROIT RIVER	3,898	8	ABANDONED	1969	70			63,143			902	
	GENEVA TWP., 15N-2W, SECTIONS 19, 20, 29 ABANDONED IN 1960, REACTIVATED IN 1967																			
AOF	GENEVA	TRAVERSE	1940	VAN BUREN	1,042	2 L	31.5	TRENTON	2,950	77	ABANDONED	1973	760			495,063			651	
	GENEVA TWP., 15-16W, SECTIONS 20, 21, 22, 27, 28, 29, 32, 33																			
OF	GENEVA, SEC. 4	DUNDEE	1975	MIDLAND	3,718	32 L		DUNDEE	3,795	1	0	0	1	40	866	5,471			137	1
	GENEVA TWP., 15N-2W, SECTION 4																			
OF	GENEVA, SEC. 15	TRAVERSE	1975	MIDLAND	3,186	2 L		DETROIT RIVER	3,990	1	0	0	1	40	160	1,095			27	1
	GENEVA TWP., 15N-2W, SECTION 15																			
AOF	GIBSON	TRAVERSE	1935	BAY	2,036	4 L		DETROIT RIVER	4,343	12	ABANDONED	1957	130			51,892			399	
AOF		DUNDEE	1950		2,942	4 L				1	ABANDONED	1952	PRODUCTION COMBINED WITH GIBSON TRAVERSE							
	GIBSON TWP., 18N-3E, SECTIONS 1, 2, 11, 12 DUNDEE PRODUCTION -- SECTION 2																			
OF	GIBSON, SEC. 20	DUNDEE	1951	BAY	3,097	11 L		DUNDEE	3,195	3	0	0	2	30	686	36,080			1,203	
	GIBSON TWP., 18N-3E, SECTIONS 20, 29																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY & API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP IN 1978	NUMBER OF WELLS ABAND IN 1978	NUMBER OF WELLS ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GF	GILBERT LAKE	TRAVERSE	1956	OCEANA	2,032	8 L	42.5	REED CITY	2,711	5	0	0	1	50	0	60,031			1,201	
	COLFAX TWP., 16N-15W, SECTIONS 34, 35																			
AGF	GILMORE	MICHIGAN STRAY	1945	ISABELLA	1,560	3 S		DUNDEE	4,091	6	ABANDONED	1952	320					207,378		
	GILMORE TWP., 16N-5W, SECTIONS 25, 26, 36 VERNON TWP., 16N-4W, SECTION 31																			
OF	GILMORE	DUNDEE	1955	ISABELLA	3,803	3 L	48.6	DUNDEE	3,812	12	0	0	2	120	1,970	402,993			3,358	720
	GILMORE TWP., 16N-5W, SECTIONS 30, 31, 32 NOTTAWA TWP., 15N-5W, SECTION 5																			
OF	GOODWELL	TRAVERSE	1943	NEWAYGO	2,760	12 L	43.0	BASS ISLANDS	4,342	31	0	0	2	1,240	900	1,131,885			913	12
	GOODWELL TWP., 14N-11W, SECTIONS 5, 6, 7, 8, 9, 16, 17																			
GS	GOODWELL	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AGF	GOODWELL, EAST	MICHIGAN STRAY	1945	NEWAYGO	1,190	4 S		DETROIT RIVER	3,498	3	0	0	1	200				7,654		
OF	GOODWELL, EAST	DUNDEE	1978	NEWAYGO	3,294	20 D?		DUNDEE	3,314	1	1	0	1	320						4
	GOODWELL TWP., 14N-11W, SECTIONS 23, 24; MICHIGAN STRAY ABANDONED 1950, REACTIVATED 1977																			
AGF	GRANT	GLACIAL DRIFT	1929	MASON	632	1 S		DUNDEE	2,385	3	ABANDONED	1955	120					8,180		
	GRANT TWP., 20N-17W, SECTION 15																			
OF	GRANT, SEC. 29	DETROIT RIVER	1953	HURON	3,358	8 D	38.8	BOIS BLANC	3,918	3	0	0	3	120	0	20,159			168	
	GRANT TWP., 15N-11E, SECTION 29																			
AGF	GREEN	MICHIGAN STRAY	1946	MECOSTA	1,250	3 S		REED CITY	3,710	2	ABANDONED	1951	320					74,835		
	GREEN TWP., 16N-10W, SECTION 18																			
AOF	GREEN OAK	TRENTON-BLK. RIVER	1967	LIVINGSTON	4,682	10 D		BLACK RIVER	5,560	1	ABANDONED	1970	40			2,836			71	
	GREEN OAK TWP., 1N-6E, SECTION 14																			
GF	GREEN OAK 11-1N-6E	NIAGARAN	1978	LIVINGSTON	3,612	33 D		NIAGARAN	3,728	1	1	0	1	80						
	GREEN OAK TWP., 1N-6E, SECTION 11																			
OF	GREENWOOD, SEC. 3	TRAVERSE	1968	CLARE	3,438	14 L		DUNDEE	4,048	2	0	0	2	40	4,831	75,337			1,883	370
	GREENWOOD TWP., 19N-5W, SECTIONS 2, 3																			
AOF	GREENWOOD, SEC. 11	DUNDEE	1952	CLARE	4,054	10 L		RICHFIELD	5,432	1	ABANDONED	1953	10			1,324			132	
	GREENWOOD TWP., 19N-5W, SECTION 11																			
AOF	GROUT	DUNDEE	1940	GLADWIN	3,825	4 L		DETROIT RIVER	5,240	5	ABANDONED	1957		PRODUCTION COMBINED WITH GROUT RICHFIELD						
AOF		DETROIT RIVER SZ	1958		4,801	12 D				1	ABANDONED	1963		PRODUCTION COMBINED WITH GROUT RICHFIELD						
OF		RICHFIELD	1956		5,039	10 D	41.7			17	0	0	9	680	38,268	1,795,597			2,641	366
	GROUT TWP., 18N-2W, SECTIONS 10, 11, 14, 15																			
AGF	HAMILTON	MICHIGAN STRAY	1940	CLARE	1,270	3 S		RICHFIELD	5,395	4	ABANDONED	1954	440					281,118		
AOF		DUNDEE	1940		4,041	10 L	41.8			3	ABANDONED	1959	30	PRODUCTION COMBINED WITH HAMILTON RICHFIELD						
OF		RICHFIELD	1952		5,145	12 D	42.2			45	0	0	26	1,870	121,904	6,451,854	46,172	4,159,792	3,396	1,596
	HAMILTON TWP., 19N-3W, SECTIONS 5, 6, 7, 8, 15 HAYES TWP., 19N-4W, SECTIONS 1, 2 FROST TWP., 20N-4W, SECTIONS 35, 36 MICHIGAN STRAY IN HAMILTON TWP., SECTIONS 15, 23, 26																			
GS	HAMILTON, NORTH	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	HAMLIN 1-1N-3W	NIAGARAN	1978	EATON	3,813	10 D	32	NIAGARAN	4,190	1	1	0	1	80	152	152			2	
	HAMLIN TWP., 1N-3W, SECTION 1																			
OF	HAMLIN 5-1N-3W	NIAGARAN REEF	1975	EATON	3,650	60 D		NIAGARAN	3,900	2	0	0	2	160	138,603	317,991	95,133	177,059	1,987	0
G-C	HAMLIN 5-1N-3W POOL A	NIAGARAN REEF	1975	EATON	3,801	12 D		NIAGARAN	3,867	1	0	0	1	160	2,499	4,403	305,930	531,272	28	
	HAMLIN TWP., 1N-3W, SECTION 5																			
OF	HAMLIN 8-1N-3W	NIAGARAN REEF	1972	EATON	3,640	65 D		CLINTON	4,058	2	0	0	2	160	26,330	338,754	115,761	517,418	2,117	
OF	HAMLIN 8-1N-3W POOL A	NIAGARAN REEF	1975	EATON	3,697	11 D		CLINTON	4,056	1	0	0	1	80	5,676	13,762	39,245	71,486	172	
	HAMLIN TWP., 1N-3W, SECTION 8 DECLARED SEPARATE POOLS AS A RESULT OF PUBLIC HEARINGS																			
OF	HAMLIN 10-1N-3W	NIAGARAN REEF	1974	EATON	3,657	5 D		NIAGARAN	3,805	3	0	0	3	320	34,060	159,234	93,510	306,267	498	48
	HAMLIN TWP., 1N-3W, SECTIONS 2, 10																			
OF	HAMLIN 12-1N-3W	NIAGARAN REEF	1977	EATON	3,720	20 D		NIAGARAN	4,180	2	1	0	2	240	8,383	11,458	4,433	4,433	48	
	HAMLIN TWP., 1N-3W, SECTION 12																			
OF	HAMLIN 13-1N-3W	NIAGARAN REEF	1977	EATON	3,924	11 D		NIAGARAN	4,008	1	1	0	1	160	6,362	7,046	66,686	67,317	44	3
	HAMLIN TWP., 1N-3W, SECTION 13																			
GF	HAMLIN 22-1N-3W	NIAGARAN REEF	1977	EATON	3,520	22 D		NIAGARAN	4,020	1	1	0	1	80			54,290	54,290		
	HAMLIN TWP., 1N-3W, SECTION 22																			
GF	HAMLIN 23-1N-3W	NIAGARAN REEF	1974	EATON	3,640	38 D		NIAGARAN	3,808	2	0	0	2	160	753	3,060	159,272	1,109,231	19	
	HAMLIN TWP., 1N-3W, SECTION 23																			
OF	HANOVER	TRENTON-BLK. RIVER	1959	JACKSON	4,012	120+ D	43.0	PRAIRIE DU CHIEN	4,604	10	0	1	1	180	0	1,319,470		597,737	7,330	
	HANOVER TWP., 4S-2W, SECTIONS 8, 9																			
OF	HARDY DAM	REED CITY	1966	MECOSTA	3,351	5 D	44.8	DETROIT RIVER	3,482	22	0	0	15	880	11,855	1,156,385			1,314	1,720
	AETNA TWP., 13N-10W, SECTIONS 5, 6, 7, 8																			
AGF	HARRISON	MICHIGAN STRAY	1945	CLARE	1,675	3 S		SYLVANIA	5,633	7	ABANDONED	1962	760					610,434		
OF		DUNDEE	1945		4,190	13 L	39.7			2	0	0	2	80	1,767	167,538			2,094	33
	LINCOLN TWP., 18N-5W, SECTIONS 1, 12, 13 HATTON TWP., 18N-4W, SECTIONS 6, 7 (MICHIGAN STRAY) DUNDEE IN HATTON TWP., SECTION 7																			
AOF	HART	TRAVERSE	1933	OCEANA	1,911	54 D	34.0	ST. PETER SS.	5,531	17	ABANDONED	1936	150			116,275			775	
	HART TWP., 15N-17W, SECTION 36 ELBRIDGE TWP., 15N-16W, SECTION 31																			
GF	HARTWICK	MICHIGAN STRAY	1968	OSCEOLA	1,681	25 S		MICHIGAN STRAY	1,706	1	ABANDONED	1977	160				10,683	17,886		
	HARTWICK TWP., 19N-8W, SECTION 11																			
AOF	HATTON	DUNDEE	1941	CLARE	3,945	2 L		DUNDEE	4,000	4	ABANDONED	1948	160			139,272			870	
	HATTON TWP., 18N-4W, SECTION 31 LINCOLN TWP., 18N-5W, SECTION 36																			
AOF	HAWKHEAD	TRAVERSE	1946	ALLEGAN	1,103	1 L	36.0	DETROIT RIVER	1,385	16	ABANDONED	1960	160			68,292			427	
	CASCO TWP., 1N-16W, SECTIONS 20, 29																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS: TO END 1978	NUMBER OF WELLS: COMP IN 1978	NUMBER OF WELLS: ABAND IN 1978	NUMBER OF WELLS: ACT VE AT END 1978	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	HEADQUARTERS	MICHIGAN STRAY	1945	CLARE-ROSCOMMON	1,340	6 S		BOIS BLANC	3,329	12	ABANDONED	1975	1,760							
OF		TRAVERSE	1941		3,336	5 L	42.3			47	0	0	2	1,400	PRODUCTION COMBINED WITH RICHFIELD SHUT-IN					175
OF		DUNDEE	1958		3,899	12 L	35.9			1	0	0	1	10	PRODUCTION COMBINES WITH RICHFIELD SHUT-IN					
OF		DETROIT RIVER SD	1942		4,946	13 D	43.7								PRODUCTION COMBINED WITH RICHFIELD					
OF		RICHFIELD	1952		3,147	23 G	42.6			60	0	0	39	2,320	52,590	10,768,880		4,248,560	2,887	127
		ROSCOMMON TWP., 21N-3W, SECTIONS 17, 19, 20, 21, 28, 29, 30, 32, 33, 34 THE 39 WELLS INCLUDE 15 RICHFIELD, 18 SOUR ZONE & 6 RICHFIELD & SOUR ZONE																		
		FRANKLIN TWP., 20N-3W, SECTIONS 3, 4, 10, 11, 15																		
OF	HEATH	TRAVERSE	1943	ALLEGAN	1,498	2 L	38.0	SALINA	2,716	25	0	0	3	270	1,290	213,690			791	3
		HEATH TWP., 3N-14W, SECTIONS 11, 12, 13, 14																		
AGF	HEATH, SEC. 21	SALINA	1960	ALLEGAN	2,492	19 D		SALINA	2,789	1	ABANDONED	1965	160					64,699		
		HEATH TWP., 3N-14W, SECTION 21																		
AOF	HEATH, SEC. 35	TRAVERSE	1965	ALLEGAN	1,468	2 L		TRAVERSE	1,470	1	ABANDONED	1946	10			559			56	
		HEATH TWP., 3N-14W, SECTION 35																		
OF	HENDERSON, SEC. 23	RICHFIELD	1975	WEXFORD	4,894	8 D		ANNERSTBURG	4,970	1	0	0	1	40	0	141			4	0
		HENDERSON TWP., 21N-11W, SECTION 23																		
GF	HERSEY	MICHIGAN STRAY	1971	OSCEOLA	1,510	3 S		MICHIGAN STRAY	1,638	8	0	4	4	1,280			13,916	214,235		
		HERSEY TWP., 17N-9W, SECTIONS 26, 35, 36																		
GS	HESSEN	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	HILLIARDS	TRAVERSE	1944	ALLEGAN	1,576	1.2 L		NIAGARA	3,157	17	ABANDONED	1961	300			124,401			415	
GF		SALINA A-1 CARB.	1958		2,938	30 D				6	0	3	3	960	238	15,579		2,284,807	16	
		HOPKINS TWP., 3N-12W, SECTIONS 4, 5, (TRAVERSE) DORR TWP., 4N-12W, SECTION 34 HOPKINS TWP., 3N-12W, SECTIONS 3, 4, 10 (SALINA)																		
AOF	HOLTON	TRAVERSE	1948	MUSKEGON	1,993	1 L	37.3	DUNDEE	2,554	3	ABANDONED	1963	60			95,911			1,599	
		HOLTON TWP., 12N-15W, SECTIONS 4, 9																		
OF	HOME, SEC. 26	TRAVERSE	1964	MONTCALM	3,096	10 L	45.3	REED CITY	3,618	2	0	0	1	20	716	CUMULATIVE PRODUCTION COMBINED WITH DUNDEE				
OF		DUNDEE	1970		3,513	7 L				4	0	0	4	200	3,758	90,599			412	350
		HOME TWP., 12N-6W, SECTIONS 26, 27 (TRAVERSE) SECTION 27 (DUNDEE) THE 5 WELLS INCLUDE 1 TRAVERSE, 2 DUNDEE AND 2 TRAVERSE AND DUNDEE COMMINGLED																		
OF	HOPE	TRAVERSE	1939	BARRY	1,869	3 L	37.6	PRAIRIE DU CHIEN	4,944	66	0	0	37	650	6,083	682,354			1,050	5
		HOPE TWP., 2N-9W, SECTIONS 26, 27, 28, 33, 34, 35 BARRY TWP., 1N-9W, SECTIONS 1, 2, 3, 12																		
AOF	HOPKINS	TRAVERSE	1939	ALLEGAN	1,633	4 L	41.5	DETROIT RIVER	1,965	10	ABANDONED	1956	110			145,513			1,323	
		HOPKINS TWP., 3N-12W, SECTIONS 22, 23																		
OF	HOPKINS, SOUTH	TRAVERSE	1948	ALLEGAN	1,538	3 L	38.0	TRAVERSE	1,611	35	0	0	1	330	0	270,813			821	0
		HOPKINS TWP., 3N-12W, SECTIONS 19, 30, 31, 32																		
AOF	HOPKINS, WEST	TRAVERSE	1961	ALLEGAN	1,371	2 L	41.5	CLINTON	3,140	31	ABANDONED	1951	370			388,777			1,051	
AOF		SALINA	1956		2,755	7 D	17.9			2	ABANDONED	1968	20			1,849			92	
		HOPKINS TWP., 3N-12W, SECTIONS 7, 18																		
GS	HOWELL	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	HUBBARDSTON	DUNDEE	1947	ICNIA	3,028	5 L		DUNDEE	3,072	5	ABANDONED	1959	50			48,479			970	
		NORTH PLAINS TWP., 8N-5W, SECTION 4																		
OF	HUBER	TRAVERSE	1955	NEWAYGO	2,109	2 L	41.3	DETROIT RIVER	3,400	13	0	0	3	260	166	557,540			2,144	175
		DENVER TWP., 14N-14W, SECTIONS 4, 5, 8																		
OF	INGHAM 12-2N-1E	SALINA-NIAGARAN REEF	1973	INGHAM	4,186	60 D		NIAGARA	4,450	4	0	0	4	320	57,328	483,432	41,160	220,546	1,511	206
		INGHAM TWP., 2N-1E, SECTION 12																		
OF	INGHAM 13-2N-1E	NIAGARA REEF	1972	INGHAM	4,190	30 D	41	TRENTON	6,224	5	0	0	5	400	112,001	667,416	131,915	519,576	1,669	177
		INGHAM TWP., 2N-1E, SECTION 13																		
OF	INGHAM 25-2N-1E	SALINA-NIAGARAN REEF	1973	INGHAM	4,048	66 D		CLINTON	4,600	3	0	0	3	320	85,981	442,075	67,610	207,531	1,381	259
		INGHAM TWP., 2N-1E, SECTION 25																		
GS	IRA	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AGF	ISABELLA	MICHIGAN STRAY	1949	ISABELLA	1,454	7 S		DETROIT RIVER	3,993	6	ABANDONED	1956	240					342,506		
OF		DUNDEE	1948		3,783	9 D	46.9			20	0	0	1	370	530	828,343		137,806	2,239	
		ISABELLA TWP., 15N-4W, SECTIONS 7, 18 (MICHIGAN STRAY) ISABELLA TWP., SECTIONS 7, 18 NOTTAWA TWP., 15N-5W, SECTIONS 12, 13 (DUNDEE)																		
AGF	ITHACA	MICHIGAN STRAY	1943	GRATIOT	900	16 S		DUNDEE	3,419	5	ABANDONED	1965	800					1,551,415		
		ARCADIA TWP., 11N-3W, SECTIONS 25, 35, 36																		
OF	JEFFERSON	TRAVERSE	1961	CASS	710	3 L	32.0	PRAIRIE DU CHIEN	2,603	36	4	0	16	720	315	CUMULATIVE WITH SYLVANIA				542
OF	(JEFFERSON)	SYLVANIA	1975	CASS	974			SYLVANIA	974	1	0	0	1	40	15,435	137,638			181	
		JEFFERSON TWP., 7S-15W, SECTIONS 22, 23, 26, 27, 35 TRAVERSE ABANDONED IN 1971, REACTIVATED IN 1975																		
OF	JEROME	DUNDEE	1947	MIDLAND	3,743	10 L	39.0	DETROIT RIVER	4,001	12	0	1	2	260	2,020	251,187			966	
		JEROME TWP., 15N-1W, SECTIONS 6, 7, 8																		
OF	JOHNSTOWN	TRAVERSE	1951	BARRY	1,870	2 L	37.0	TRAVERSE	1,899	5	0	0	2	50	855	38,558			771	
		JOHNSTOWN TWP., 1N-8W, SECTIONS 7, 8, 17																		
OF	JUNO LAKE	TRAVERSE	1978	CASS	724	6 D	36	TRAVERSE	730	1	1	0	1	40						
		CALVIN TWP., 7S-14W, SECTION 31																		
OF	KAWKAWLIN	BEREA	1941	BAY	1,505	4 S	38.0	ST. PETER SS.	10,477	4	0	0	4	40	1,143	CUMULATIVE WITH DETROIT RIVER				3
OF		DUNDEE	1938		2,830	45 L	35.0			320	0	0	286	6,400	98,304	CUMULATIVE WITH DETROIT RIVER		4,565		220
OF		DETROIT RIVER	1939		3,515	5 D	42.0			9	0	0	8	280	14,860	15,298,130			2,277	
AGF		SALINA	1941		7,760	16 D				1	ABANDONED	1946	40					NO RECORDS		
		MONITOR TWP., 14N-4E, SECTION 2 (SALINA) KAWKAWLIN TWP., 15N-4E, SECTIONS 26, 27, 28, 29, 33, 34, 35, 36 MONITOR TWP., 14N-4E, SECTIONS 1, 2, 3, 11, 12 BANGOR TWP., 14N-5E, SECTIONS 4, 5, 6, 7, 8, 9																		
		BANGOR TWP., 15N-5E, SECTION 31																		
OF	KIMBALL LAKE	TRAVERSE	1947	NEWAYGO	2,332	6 L	43.0	ST. PETER SS.	6,689	106	0	0	3	2,120	641	6,231,890		2,111,585	2,912	342
OF		REED CITY	1955		2,852	37 ?	39.2			2	0	0	1	20	CUMULATIVE WITH TRAVERSE GAS TO OPERATE TRAVERSE WELLS					
		GARFIELD TWP., 12N-13W, SECTIONS 2, 10, 11, 12, 13, 14, 15, 24																		
AOF	LACOTA	TRAVERSE	1946	VAN BUREN	1,110	2 L		TRAVERSE	1,208	11	ABANDONED	1955	120			51,904			433	
		GENEVA TWP., 1S-16W, SECTIONS 9, 10																		

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS: TO END 1978	NUMBER OF WELLS: COMP IN 1978	NUMBER OF WELLS: ABAND IN 1978	NUMBER OF WELLS: ACT VE AT END 1978	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	LAKEFIELD	DUNDEE	1937	SAGINAW	3,185	12 L	39.0	DUNDEE	3,197	1	0	0	1	10	586	32,680			2,268	
		LAKEFIELD TWP., 11N-1E, SECTION 1																		
GF	LAKE GEORGE	DUNDEE	1954	CLARE	3,968	2 L	43.8	DUNDEE	3,997	10	0	0	2	100	2,416	379,183			3,792	408
		LINCOLN TWP., 18N-5W, SECTION 6																		
OF	LAKETON	TRAVERSE	1965	MUSKEGON	1,698	4 L	41.4	REED CITY	2,199	9	1	0	7	200	3,508	CUMULATIVE PRODUCTION COMBINED WITH DUNDEE				128
OF		DUNDEE	1972		2,073	21 L				1	0	0	1	40	990	202,052			1,259	
		LAKETON TWP., 10N-17W, SECTIONS 10, 15																		
OF	LAKEVIEW	TRAVERSE	1961	MONTCALM	2,941	4 L	42.5	REED CITY	3,495	2	0	0	1	20	315	11,120			556	
		CATO TWP., 12N-8W, SECTION 22																		
AGF	LARKIN	BEREA	1935	MIDLAND	2,473	4 S	39.0	DUNDEE	3,829	2	ABANDONED	1945	20			7,070			354	
		LARKIN TWP., 15N-2E, SECTIONS 21, 32																		
OF	LAWTON	TRAVERSE	1939	VAN BUREN	1,140	1 L	37.5	TRENTON	2,775	65	0	0	3	650	1,529	214,539			330	1
		PORTER TWP., 4S-13W, SECTIONS 5, 8, 17, 18, 19, 20 DECATUR TWP., 4S-14W, SECTION 24																		
AGF	LEATON	MICHIGAN STRAY	1935	ISABELLA	1,240	2 S		DUNDEE	3,710	5	ABANDONED	1940	400					189,321		
OF		DUNDEE	1929		3,657	7.5 L	43.0	DETROIT RIVER	4,390	41	0	0	3	500	6,858	1,799,802			3,600	360
		DENVER TWP., 15N-3W, SECTIONS 17, 19 (MICHIGAN STRAY) DENVER TWP., SECTIONS 19, 20, 31 ISABELLA TWP., 15N-4W, SECTION 24, 25 (DUNDEE)																		
AOF	LEBANON	TRAVERSE	1948	CLINTON	2,548	1 L		TRAVERSE	2,570	1	ABANDONED	1950	10			1,036			104	
		LEBANON TWP., 8N-4W, SECTION 34																		
AOF	LEE	TRAVERSE	1941	ALLEGAN	1,170	1 L		TRAVERSE	1,207	6	ABANDONED	1952	60			3,030			51	
		LEE TWP., IN-15W, SECTIONS 18, 19 CASCO TWP., IN-16W, SECTION 13																		
GF	LEE 2-1S-5W	NIAGARAN REEF	1973	CALHOUN	3,377	12 D		CLINTON	3,710	4	0	0	4	400	16,669	50,202	279,454	1,616,831	126	
		LEE TWP., 1S-5W, SECTION 2																		
GF	LEE 3-1S-5W	SALINA-NIAGARAN REEF	1972	CALHOUN-EATON	3,219	85 D		NIAGARAN	3,686	4	0	0	4	160	650	10,321	98,455	1,490,911	65	
GF	LEE 3-1S-5W POOL A	SALINA-NIAGARAN REEF	1975	CALHOUN	3,160	196 D		NIAGARAN	3,532	3	0	0	3	160	0	193	37,411	861,017	1	
GF	LEE 3-1S-5W POOL B	SALINA-NIAGARAN REEF	1976	CALHOUN	3,312	16 D		NIAGARAN	3,511	1	0	0	1	40	0	81	64,270	244,792	2	
		LEE TWP., 1S-5W, SECTION 3 WALTON TWP., 1N-5W, SECTIONS 34, 35 POOL A DECLARED A SEPARATE POOL AS A RESULT OF PUBLIC HEARINGS																		
GS	LEE 4-1S-5W	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
GF	LEE 8-1S-5W	SALINA-NIAGARAN REEF	1974	CALHOUN	3,118			NIAGARAN	3,841	2	0	0	2	320	0	980	362,745	1,828,055	3	
		LEE TWP., 1S-5W, SECTION 8																		
GF	LEE 10-1S-5W	NIAGARAN REEF	1973	CALHOUN	3,172	30 D		NIAGARAN	3,329	1	0	0	1	160	239	1,725	2,558	131,439	11	
OF	LEE 10-1S-5W POOL A	NIAGARAN REEF	1974	CALHOUN	3,327	6 D		NIAGARAN	3,399	1	0	0	1	160	33,270	201,831	20,630	131,446	1,261	
		LEE TWP., 1S-5W, SECTION 10																		
GF	LEE 11-1S-5W	NIAGARAN REEF	1976	CALHOUN	3,234	16 D		NIAGARAN	3,358	2	1	0	2	120			224,775	224,775		
OF	LEE 11-1S-5W POOL A	NIAGARAN REEF	1977	CALHOUN	3,260	12 D		NIAGARAN	3,395	1	0	0	1	40	13,011	13,350	7,612	7,612	325	
		LEE TWP., 1S-5W, SECTION 11																		
GF	LEE 12-1S-5W	NIAGARAN REEF	1972	CALHOUN	3,180	34 D		NIAGARAN	3,370	1	0	0	1	160	0	723	46,207	1,478,348	5	
		LEE TWP., 1S-5W, SECTION 12																		
OF	LEE 13-1S-5W	NIAGARAN REEF	1973	CALHOUN	3,184	10 D	26.3	FRANCONIA	6,000	5	0	0	5	200	30,585	238,372	17,325	211,674	1,192	89
GF	LEE 13-1S-5W POOL A	NIAGARAN REEF	1973	CALHOUN	3,165	20 D		CLINTON	3,623	3	0	0	3	160	0	219	168,881	1,146,061	1	
		LEE TWP., 1S-5W, SECTION 13																		
OF	LEE 14-1S-5W	NIAGARAN REEF	1974	CALHOUN	3,198	6 D		CLINTON	3,631	2	0	0	2	80	35,963	200,178	14,994	101,339	2,502	109
OF	LEE 14-1S-5W POOL A	NIAGARAN REEF	1978	CALHOUN	3,132	10 D	28.7	NIAGARAN	3,256	1	1	0	1	40	6,611	6,611			165	
		LEE TWP., 1S-5W, SECTION 14																		
GF	LEE 15-1S-5W	NIAGARAN REEF	1974	CALHOUN	3,108	22 D		CLINTON	3,605	1	0	0	1	40		118	25,915	532,191	3	
OF	LEE 15-1S-5W POOL A	NIAGARAN REEF	1977	CALHOUN	3,164	17 D		NIAGARAN	3,300	1	0	0	1	40	28,326	41,618	11,615	32,475	1,040	6
OF	LEE 15-1S-5W POOL B	NIAGARAN REEF	1977	CALHOUN	3,210	10 D		NIAGARAN	3,225	2	0	0	2	40	0	1,325			33	
		LEE TWP., 1S-5W, SECTION 15																		
AGF	LEE 17-1S-5W	A-1 CARBONATE & NIAGARAN REEF	1972	CALHOUN	3,074	10 D		PRAIRIE DU CHIEN	4,896	1	ABANDONED	1973	160			512	GAS PRODUCTION INCLUDED WITH CAL-LEE		3	
		LEE TWP., 1S-5W, SECTION 17																		
GF	LEE 18-1S-5W	NIAGARAN REEF	1976	CALHOUN	3,104	28 D		NIAGARAN	3,576	1	0	0	1	160			883	35,943		
		LEE TWP., 1S-5W, SECTION 18																		
AOF	LEE 30-1S-5W	NIAGARAN REEF	1975	CALHOUN	2,950	8 D		NIAGARAN	3,040	3	ABANDONED	1977	80			1,413			18	
GF	LEE 30-1S-5W POOL A	NIAGARAN	1977	CALHOUN	2,939	5 D		NIAGARAN	3,100	1	0	0	1	80						
OF	LEE 30-1S-5W POOL B	SALINA & A-1 CARBONATE	1977	CALHOUN	2,988	6 D	37.6	NIAGARAN	3,104	2	0	0	2	160	17,471	19,247			120	22
		LEE TWP., 1S-5W, SECTION 30																		
GF	LEE 32-1S-5W	*SALINA E ZONE & A-1 C,& NIAGARAN	1975	CALHOUN	2,557	48 D		CLINTON	3,415	2	0	0	2	80	20	1,877	33,085	33,085	23	
		LEE TWP., 1S-5W, SECTION 32 *REFER TO 1975 DISCOVERY WELL LIST FOR PAY ZONE DETAILS																		
OF	LEE, SEC. 33	TRAVERSE	1971	ALLEGAN	1,155	5 L		TRAVERSE	1,160	2	0	1	1	20	357	5,162			258	18
		LEE TWP., IN-15W, SECTION 33																		
GF	LEE 34-1S-5W	SALINA-A-1 CARBONATE	1978	CALHOUN	2,985	5 D		NIAGARAN	3,165	1	1	0	1	80						
		LEE TWP., 1S-5W, SECTION 34																		
AOF	LEE, SOUTH	TRAVERSE	1949	ALLEGAN	1,171	1 L		TRENTON	2,960	12	ABANDONED	1953	120			91,117			759	
		LEE TWP., IN-15W, SECTION 31 CASCO TWP., IN-16W, SECTION 36																		
GS	LENOX	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
GF	LENOX 24-4N-14E	NIAGARAN REEF	1977	MACOMB	2,780	8 D		NIAGARAN	2,900	1	0	0	1	40			23,018	23,018		
		LENOX TWP., 4N-14E, SECTION 24																		
GF	LEONARD	NIAGARAN REEF	1963	OAKLAND	4,245	21 D		CLINTON	4,450	14	0	0	14	640	558	88,706	16,748	3,521,305	139	
		ADDISON TWP., 5N-11E, SECTIONS 14, 15, 22																		
OF	LEROY	REED CITY	1965	OSCEOLA	3,796	4 D		REED CITY	3,800	2	0	0	2	80	1,359	43,226			540	
		LEROY TWP., 19N-10W, SECTION 27																		

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC.	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A PI	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	COMP IN	ABAND IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	LESLIE 4-1N-1W	SALINA-NIAGARAN REEF	1973	INGHAM	3,775	46 D		CLINTON	4,330	1	0	0	1	80	2,355	18,596			232	8
	LESLIE TWP., 1N-1W, SECTION 4																			
AOF	LIME LAKE	PRAIRIE DU CHIEN	1960	HILLSDALE	3,461	5 D	44.6	PRAIRIE DU CHIEN	3,533	1	ABANDONED 1965			20		7,842			392	
	WRIGHT TWP., 6S-1W, SECTION 11																			
OF	LINCOLN, SEC. 18	TRAVERSE	1957	ARENAC	2,717	1 L		DUNDEE	3,062	2	0	0	2	20	0	3,757			188	
	LINCOLN TWP., 18N-4E, SECTION 18																			
OF	LINCOLN, SEC. 27	DUNDEE	1974	ISABELLA	3,577	10 D		DUNDEE	3,711	2	0	0	2	80	1,266	13,561			170	20
	LINCOLN TWP., 13N-4W, SECTIONS 27, 28																			
AOF	LINCOLN, SEC. 31	DUNDEE	1963	ARENAC	2,942	10 D	34.9	DUNDEE	2,986	1	ABANDONED 1968			10	COMBINED WITH SECTION 18 PRODUCTION					
	LINCOLN TWP., 18N-4E, SECTION 31																			
AGF	LOGAN	RICHFIELD	1941	MASON	3,260	5 S		RICHFIELD	3,330	2	ABANDONED 1975			80				13,555		
	LOGAN TWP., 17N-15W, SECTIONS 9, 16																			
GF	LOGAN	WEIR	1949	OGEMAW	1,230	11 S		RICHFIELD	4,537	PRODUCTION COMBINED WITH BEREA										
GF		BEREA	1944		1,420	6 S				16	0	0	14	2,240			30,132	1,293,952		
	LOGAN TWP., 22N-4E, SECTIONS 16, 17, 18, 20, 23, 25, 26 CHURCHILL TWP., 22N-3E, SECTIONS 1, 11, 12																			
OF	LUCHT	TRAVERSE	1949	BAY	2,230	3 L	37.2	DUNDEE	3,240	5	0	0	1	50	269	197,018			3,940	
	PINCONNING TWP., 17N-4E, SECTION 29																			
AOF	LUTHER	TRAVERSE	1965	LAKE	2,565	2 L	42.0	REED CITY	3,362	1	ABANDONED 1973			20		28,117			1,406	
	NEWKIRK TWP., 19N-12W, SECTION 14																			
OF	LUTHER, NORTH	REED CITY	1970	LAKE	3,518	17 D		REED CITY	3,556	4	0	0	4	160	0	13,064			82	
	ELLSWORTH TWP., 19N-11W, SECTIONS 7, 8																			
GF	LYNDON	TRAVERSE	1958	WASHTENAW-LIVINGSTON	1,311	6 D		TRENTON	5,008	6	0	0	6	960				383,112	DOMESTIC USE	
GF		DETROIT RIVER	1959		1,733	11 D				PRODUCTION COMBINED WITH TRAVERSE										
	LYNDON TWP., 1S-3E, SECTIONS 6, 7 UNADILLA TWP., 1N-3E, SECTION 31																			
OF	MACON CREEK	TRENTON-BLK. RIVER	1961	LENAWEE	2,548	36+ D		TRENTON-BLK. RIVER	3,303	1	0	0	1	40		1,062	SHUT-IN		27	
	MACON TWP., 5S-5E, SECTION 23																			
GF	MAPLE VALLEY, SEC. 16	MICHIGAN STRAY	1958	MONTCALM	1,120	5 S		REED CITY	3,365	1	0	0	1	160					DOMESTIC USE	
	MAPLE VALLEY TWP., 11N-9W, SECTION 16																			
GF	MARATHON	BEREA	1955	LAPEER	1,449	18 S		RICHFIELD	3,172	4	0	0	4	40				35,469	DESIGNATED AS GAS RESERVOIR IN 1970	
OF		DETROIT RIVER SZ	1969		3,013	47 D				5				720	PRODUCTION COMBINED WITH RICHFIELD					
OF		RICHFIELD	1971		3,102	8 D				12	0	0	12	320	403	93,923			90	
	MARATHON TWP., 9N-3E, SECTIONS 16, 17, 18, 21 (DETROIT RIVER SZ) SECTION 16 (BEREA) SECTION 18 (RICHFIELD)																			
GF	MARINE CITY	SALINA-NIAGARAN	1955	ST. CLAIR	2,176	21 D	38.0	CLINTON	2,428	18	0	0	13	660	10,736	465,252	219,998	5,951,823	705	79
	COTTRELLVILLE TWP., 3N-16E, SECTIONS 2, 3, 10, 11, 15																			
OF	MARINE CITY SOUTH	SALINA-NIAGARAN	1962	ST. CLAIR	2,100	4 D	38.7	NIAGARAN	2,261	17	0	0	13	600	4,285	155,856			260	11
GF		SALINA A-1 CARB.	1962		2,100	4 D											78,452	4,111,330		
	COTTRELLVILLE TWP., 3N-16E, SECTIONS 14, 22, 23, 26, 27 GAS WELLS COMBINED WITH OIL WELL TOTALS																			
GS	MARION (WINTERFIELD)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	MARNE	"BEREA"	1940	OTTAWA	1,170	3 L		TRAVERSE	1,904	2	ABANDONED 1946			20		6,253			313	
	TALLMADGE TWP., 7N-13W, SECTION 5 WRIGHT TWP., 8N-13W, SECTION 32																			
GF	MARSAC CREEK	SALINA-NIAGARAN REEF	1965	ST. CLAIR	2,450	190 D		CLINTON	2,903	5	0	0	5	200		1,681	9,548	4,024,359	8	
	CASCO TWP., 4N-15E, SECTIONS 29, 30																			
AOF	MARTIN	TRAVERSE	1948	ALLEGAN	1,617	1 L	36.0	ST. PETER SS.	4,290	2	ABANDONED 1960			20		2,188			109	
	MARTIN TWP., 2N-11W, SECTION 18																			
GF	MARTINY	MICHIGAN STRAY	1934	MECOSTA	1,370	2 S		DETROIT RIVER	3,807	5	0	0	4	680			13,943	1,317,011		
	MARTINY TWP., 15N-8W, SECTIONS 12, 22, 23																			
GF	MAYFIELD 33-25N-1W ANTRIM GAS POOL A	ANTRIM	1977	GD. TRAVERSE	1,804	50 SH		NIAGARAN	6,746	1	1	0	1	80						
	MAYFIELD TWP., 25N-11W, SECTION 33																			
OF	MCBAIN	DUNDEE	1959	MISSAUKEE	3,969	15 L	45.0	DUNDEE	3,973	24	0	0	22	920	42,601	3,251,205			3,534	6,610
	RIVERSIDE TWP., 21N-7W, SECTIONS 19, 20, 30 RICHLAND TWP., 21N-8W, SECTION 24																			
GF	MCKAY	MICHIGAN STRAY	1929	CLARE	1,400	3 S		DETROIT RIVER	4,055	9	0	0	2	360				726,879	SHUT-IN	
	GRANT TWP., 17N-4W, SECTION 6 SURREY TWP., 17N-5W, SECTION 1 HATTON TWP., 18N-4W, SECTION 31																			
AOF	MEARS	TRAVERSE	1951	OCEANA	1,745	2.5 DL	36.1	REED CITY	2,347	11	ABANDONED 1959			110		105,807			622	
AOF		DUNDEE	1949		2,210	3 L	32.2			3	ABANDONED 1959			60	PRODUCTION COMBINED WITH MEARS TRAVERSE					
	GOLDEN TWP., 15N-18W, SECTIONS 34, 35																			
GF	MECOSTA	MICHIGAN STRAY	1966	MECOSTA	1,345	10 S		DUNDEE	3,709	2	0	0	2	320			45	117,927		
	MORTON TWP., 14N-8W, SECTION 10																			
AGF	MECOSTA LAKE	MICHIGAN STRAY	1953	MECOSTA	1,314	12 S		DUNDEE	3,690	2	ABANDONED 1956			320				85,752		
	MORTON TWP., 14N-8W, SECTIONS 17, 20																			
OF	MEDINA	TRENTON-BLK. RIVER	1961	LENAWEE	2,921	18 D	40	PRAIRIE DU CHIEN	3,487	1	0	0	1	40	260	4,584			115	
	MEDINA TWP., 8S-1E, SECTION 3																			
GF	MIDDLE BRANCH	MICHIGAN STRAY	1964	OSCEOLA	1,630	10 S		DETROIT RIVER	4,283	4	ABANDONED 1977			640				261,891		
	MIDDLE BRANCH TWP., 19N-7W, SECTIONS 17, 18																			
OF	MILLS, SEC. 1	DUNDEE	1957	MIDLAND	3,450	2 D		DUNDEE	3,463	1	0	0	1	10	0	8,363			76	10
	MILLS TWP., 16N-2E, SECTION 1																			
AGF	MINERAL SPRINGS	MICHIGAN STRAY	1957	OSCEOLA	1,397	3 S		DETROIT RIVER	3,963	4	ABANDONED 1960			480				233,337		
OF		DUNDEE	1951		3,854	7 D	44.5			12	0	0	1	240	814	309,394			1,289	100
	SHERMAN TWP., 20N-9W, SECTIONS 16, 20, 21 6,376 BARRELS OF TOTAL OIL PRODUCED IN TRAVERSE																			
OF	MIO	RICHFIELD	1946	OGEMAW-OSCODA	4,219	6 D	32.9	CLINTON	8,544	4	0	0	2	160	803	62,188			389	
	MENTOR TWP., 25N-3E, SECTIONS 30, 32 ROSE TWP., 24N-3E, SECTIONS 3, 4																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC.	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY A PI	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	COMP IN	ABAND IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	MOFFATT, SEC. 34	TRAVERSE	1964	ARENAC	2,700	4 D		DUNDEE	3,027	1	0	0	1	16		403			40	
AOF		DUNDEE	1953		2,984	4 L				1	ABANDONED	1956		10		8,392			839	
	MOFFATT TWP., 20N-3E, SECTION 34																			
AGF	MONTAGUE	SALINA-NIAGARAN REEF	1955	MUSKEGON	3,734	80 D		TRENTON	4,517	3	ABANDONED	1970		480				42,312		
	MONTAGUE TWP., 12N-17W, SECTION 7 WHITE RIVER TWP., 12N-18W, SECTION 12																			
OF	MONTEREY	TRAVERSE	1938	ALLEGAN	1,618	3 L	37.6	CINCINNATIAN	3,266	99	0	0	6	1,030	2,081	1,023,480			994	16
	MONTEREY TWP., 3N-13W, SECTIONS 2, 4, 8, 9, 10, 11, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 27, 32, 36																			
GF	MORTON	MICHIGAN STRAY	1946	MECOSTA	1,279	2 S		DUNDEE	3,691	3	0	0	1	360				120,745		
	MORTON TWP., 14N-8W, SECTIONS 15, 22 ABANDONED 1973 REACTIVATED IN 1976																			
GF	MT. CLEMENS	SALINA	1961	MACOMB	2,590	18 D		CAMBRIAN?	4,695	1	0	0	1	40						DOMESTIC USE
	MACOMB TWP., 3N-13E, SECTION 34 ORIGINALLY OIL WELL CONVERTED TO A DOMESTIC GAS WELL 1967																			
OF	MT. FOREST	TRAVERSE	1952	BAY	2,124 2,224	2 L 3 L	36.2	RICHFIELD	4,305	4	0	0	2	80	PRODUCTION COMBINED WITH DUNDEE					36
OF		DUNDEE	1947		3,025	9 D	34.1			37	0	0	26	960	8,269	929,177			893	4
	PINCONNING TWP., 17N-4E, SECTIONS 18, 19 MT. FOREST TWP., 17N-3E, SECTIONS 13, 24																			
AOF	MT. FOREST, SEC. 1	DUNDEE	1946	BAY	2,960	2 L		DUNDEE	3,057	1	ABANDONED	1946		10		1,906			191	
	MT. FOREST TWP., 17N-3E, SECTION 1																			
AOF	MT. HALEY	DUNDEE	1934	MIDLAND	3,477	3 D	39.6	DUNDEE	3,500	1	ABANDONED	1947		10		36,069			3,607	
	MT. HALEY TWP., 13N-1E, SECTION 28																			
OF	MT. PLEASANT	DUNDEE	1928	ISABELLA-MIDLAND	3,545	15 L	41.8	SYLVANIA	4,821	485	0	1	137	5,710	75,568	28,155,267		7,965,509	4,931	756
	THE 137 WELLS INCLUDE 131 DUNDEE, 1 TRAVERSE AND 5 DUNDEE & TRAVERSE																			
	GREENDALE TWP., 14N-2W, SECTIONS 6 THROUGH 19 LEE TWP., 14N-1W, SECTIONS 7, 8, 18 CHIPPEWA TWP., 14N-3W, SECTIONS 1, 2, 3, 4, 11, 12, 13 DENVER TWP., 15N-3W, SECTIONS 28, 33, 34																			
GF	MUSKEGON	TRAVERSE-DUNDEE-DETROIT RIVER	1927	MUSKEGON	1,640 2,025	6 L		ST. PETER SS.	4,754	?	0	1	1	1,520				7,237,438	DOMESTIC USE & LEASE FUEL	
	MUSKEGON TWP., 10N-16W, SECTIONS 4, 5, 6, 7, 8, 9, 15, 22 LAKETON TWP., 10N-17W, SECTION 12																			
OF	MUSKEGON	TRAVERSE & DUNDEE	1928	MUSKEGON	1,700	3.5 L	37.4	ST. PETER SS.	4,754	?	0	0	11	3,170	1,380	7,023,026			2,215	215
	MUSKEGON TWP., 10N-16W, SECTIONS 3 THROUGH 10, 15, 16, 17, 21, 22 LAKETON TWP., 10N-17W, SECTIONS 1, 11, 12, 13, 14																			
GS	MUTTONVILLE	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	NELLSVILLE	DUNDEE	1957	ROSCOMMON	3,710	6 D	40.3	DETROIT RIVER	5,165	1	ABANDONED	1967		10		16,528			1,653	
AOF		RICHFIELD	1956		4,932	17 D	42.2			1	1	0	1	80	1,081	11,993			150	
	ROSCOMMON TWP., 22N-4W, SECTIONS 8, 17 ABANDONED 1967, REACTIVATED 1978																			
AGF	NEWARK	MICHIGAN STRAY	1948	GRATIOT	979	5 S		DUNDEE	3,255	6	ABANDONED	1968		960				450,592		
	NEW HAVEN TWP., 10N-4W, SECTIONS 23, 24, 25, 26																			
AOF	NEW BOSTON	TRENTON	1943	WAYNE	2,635	4 L		TRENTON	2,983	2	ABANDONED	1949		20		2,349			117	
	HURON TWP., 4S-9E, SECTION 16																			
OF	NEW LOTHROP	BEREA	1967	SHIAWASSEE-GENESEE	1,623	4 S	46	SYLVANIA	3,494	19	0	0	14	680	12,513	156,535			230	3
	FLUSHING TWP., 8N-5E, SECTIONS 7, 8, 18 HAZELTON TWP., 8N-4E, SECTIONS 1, 12																			
AOF	NEW RICHMOND	TRAVERSE	1965	ALLEGAN	1,364	1 L		TRAVERSE	1,365	1	ABANDONED	1966		10		104			10	
	HANLIUS TWP., 3N-15W, SECTION 16																			
AOF	NILES	TRAVERSE	1940	BERRIEN	602	7 L	21.5	TRENTON	2,089	7	ABANDONED	1958		70		29,672			424	
	NILES TWP., 7S-17W, SECTIONS 1, 2, 3																			
GF	NORTH MORENCI	TRAVERSE	1962	LENAWEE	638	2 D		PRAIRIE DU CHIEN	3,284	69	0	21	22	2,840				105,140	FIELD SHUT-IN NO MARKET	
	SENECA TWP., 8S-2E, SECTIONS 10, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 25, 27, 28, 29, 30 MEDINA TWP., 8S-1E, SECTIONS 24, 25, 35																			
AOF	NORTH PORTER	TRAVERSE	1930	CASS	660	2 L	37.0	TRENTON	2,382	2	ABANDONED	1955		20		1,424			71	
	PORTER TWP., 7S-13W, SECTION 32																			
GF	NORTH STAR	MICHIGAN STRAY	1940	GRATIOT	870	7 S		DUNDEE	3,100	1	0	0	1	40			30	593,509		
	NORTH STAR TWP., 10N-2W, SECTION 4																			
AGF	NORTHVILLE	DUNDEE	1948	WASHTENAW-WAYNE OAKLAND	788	2 L		CAMBRO-ORDOVICIAN	5,850	4	ABANDONED	1961		640						
GF		SALINA-NIAGARAN	1937		2,905	2 D							6	1,200	FACILITY WELLS IN GAS STORAGE RESERVOIRS					
OF		NIAGARAN	1960		3,515	25 D	42.5								PRODUCTION INCLUDED WITH TRENTON			3,870,408		
OF		TRENTON-BLK. RIVER	1954		4,395	70 D	39.8						3	2,835	7,646	1,099,825		14,332,358	388	
	NIAGARAN OIL COMBINED WITH TRENTON-BLACK RIVER																			
	SALEM TWP., 1S-7E, SECTIONS 1, 2 LYON TWP., 1N-7E, SECTION 36 (DUNDEE) LYON TWP., 1N-7E, SECTIONS 34, 35, 36 SALEM TWP., 1S-7E, SECTIONS 1, 2, 12 NORTHVILLE TWP., 1S-8E, SECTIONS 7, 16, 17																			
	PLYMOUTH TWP., 1S-8E, SECTIONS 21, 22, 23, 25, 26 (SALINA-NIAGARAN AND TRENTON-BLACK RIVER)																			
GS	NORTHVILLE	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS CONVERTED TO GAS STORAGE AND SECONDARY RECOVERY JULY 2, 1968																		
AOF	OLIVET	TRENTON-BLK. RIVER	1969	EATON	4,450	5 D		PRAIRIE DU CHIEN	5,020	1	ABANDONED	1971		20		340			17	
	BELLEVUE TWP., 1N-6W, SECTION 24																			
OF	ONONDAGA 10-1N-2W	NIAGARAN REEF	1971	INGHAM	3,784	40 D	38.4	PRAIRIE DU CHIEN	5,744	16	1	0	15	1,040	876,225	5,943,150	1,388,429	6,143,161	5,709	4,680
	ONONDAGA TWP., 1N-2W, SECTIONS 2, 3, 10, 11, 14																			
OF	ONONDAGA 17-1N-2W	SALINA-NIAGARAN REEF	1973	INGHAM	3,620	50 D		NIAGARAN	3,850	1	0	0	1	80	13,261	236,038	17,641	160,274	2,950	19
OF	ONONDAGA 17-1N-2W POOL A	SALINA-NIAGARAN REEF	1975	INGHAM	3,610	92 D	37	NIAGARAN	3,830	1	0	0	1	80	10,939	34,889	33,402	87,916	436	1
OF	ONONDAGA 17-1N-2W POOL B	NIAGARAN REEF	1978	INGHAM	3,604	146 D	38	NIAGARAN	3,907	1	1	0	1	80	77	77	7	7	1	
	ONONDAGA TWP., 1N-2W, SECTION 17																			
OF	ONONDAGA 18-1N-2W	NIAGARAN REEF	1978	INGHAM	3,686	46 D		NIAGARAN	3,820	2	2	0	2	160	11,130	11,130	740	740	70	
GF	ONONDAGA 18-1N-2W POOL A	SALINA-NIAGARAN REEF	1978		3,597	15 D		NIAGARAN	3,700	1	1	0	1	80						
	ONONDAGA TWP., 1N-2W, SECTION 18																			
OF	ONONDAGA 20-1N-2W	NIAGARAN REEF	1976	INGHAM	3,569	5 D		NIAGARAN	3,710	1	0	0	1	160	2,467	10,301			64	27
	ONONDAGA TWP., 1N-2W, SECTION 20																			
OF	ONONDAGA 21-1N-2W UNIT A	NIAGARAN REEF	1971	INGHAM	3,629	31 D	33.2	MANITOULIN	4,125	12	0	0	12	920	97,860	1,513,018	588,705	4,185,585	1,645	118
OF	ONONDAGA 21-1N-2W UNIT B	NIAGARAN REEF	1972	INGHAM	3,688	24 D	34	NIAGARAN	4,170	8	2	0	8	520	109,342	1,541,293	164,315	1,462,361	2,964	232
	UNIT A, ONONDAGA TWP., 1N-2W, SECTIONS 16, 17, 21 UNIT B, ONONDAGA TWP., 1N-2W, SECTIONS 15, 22																			
GS	ORIENT	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP'N.	NUMBER OF WELLS ABAND'N.	NUMBER OF WELLS ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
										1978										
AOF	OTISVILLE	BEREA	1943	GENESEE-TUSCOLA	1,446	5 S		DUNDEE	2,694	1	ABANDONED	1956		10	PRODUCTION COMBINED WITH DUNDEE					
AGF		TRAVERSE	1961		1,895	2 L				1	ABANDONED	1946		10	PRODUCTION COMBINED WITH DUNDEE					
OF		DUNDEE	1944		2,450	3 L	37.0			5	C	0	2	50	1,388	125,004			1,843	0
	FOREST TWP., 5N-8E, SECTIONS 5, 6 MILLINGTON TWP., 10N-8E, SECTIONS 31, 32 TRAVERSE PRODUCTION IN FOREST TWP., SECTION 5																			
AOF	OTSEGO	TRAVERSE	1938	ALLEGAN	1,522	1 L		TRAVERSE	1,600	7	ABANDONED	1972		110		2,290			21	
	" "			OTSEGO TWP., 1N-12W, SECTIONS 19, 30 TROWBRIDGE TWP., 1N-13W, SECTION 36																
GF	OTSEGO	ANTRIM	1940	OTSEGO	1,385	4 SH		DUNDEE	3,944	9	C	0	3	840			68,832	784,904		
	BAGLEY TWP., 30N-3W, SECTIONS 21, 22, 27, 28, 34																			
AOF	OTSEGO, SEC. 9	TRAVERSE	1950	ALLEGAN	1,456	1 L		TRAVERSE	1,457	4	ABANDONED	1951		40		681			17	
	OTSEGO TWP., 1N-12W, SECTIONS 5, 8, 9 REACTIVATED BRIEFLY IN 1958																			
GF	OTSEGO LAKE, SEC. 22	ANTRIM	1977	OTSEGO	1,500	774 SH		ANTRIM	1,600	3	C	0	3	120						
	OTSEGO LAKE TWP., 29N-3W, SECTIONS 15, 16, 22																			
OF	OTTER LAKE	BEREA	1945	GENESEE	1,502	4 S	35.5	DETROIT RIVER	3,142	10	0	0	6	110	CUMULATIVE THROUGH 1976 COMBINED WITH OTISVILLE DUNDEE					10
OF		DETROIT RIVER SZ	1970		2,968	10 D				10	0	0	10	400	8,924	207,382			518	
	FOREST TWP., 9N-8E, SECTION 12 (BEREA) SECTIONS 11, 12 (DETROIT RIVER SZ)																			
AOF	OTTO, SEC. 30	"BEREA"	1958	OCEANA	1,428	9 S		TRAVERSE	1,860	2	ABANDONED	1960		10		COMBINED WITH OTTO SECTION 32				
AOF		TRAVERSE	1955		1,857	3 L				1	ABANDONED	1960		20		COMBINED WITH OTTO SECTION 32				
	OTTO TWP., 13N-16W, SECTIONS 19, 30																			
AOF	OTTO, SEC. 32	"BEREA"	1950	OCEANA	1,445	1 L		TRAVERSE	1,895	2	ABANDONED	1976		10		4,308			431	
	OTTO TWP., 13N-16W, SECTION 32																			
OF	OVERISEL	TRAVERSE	1938	ALLEGAN	1,478	3 L	42.1	TRENTON	4,060	164	0	0	22	1,770	9,576	3,000,929			1,695	138
	OVERISEL TWP., 4N-14W, SECTIONS 5, 8, 9, 15, 16, 21, 22, 27, 28, 34 HEATH TWP., 3N-14W, SECTIONS 3, 4, 9, 10																			
GS	OVERISEL	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	OVERISEL, SEC. 11	TRAVERSE	1940	ALLEGAN	1,553	4 L		TRAVERSE	1,578	1	ABANDONED	1944		10		6,370			637	0
	OVERISEL TWP., 4N-14W, SECTION 11																			
OF	OXBOW	TRAVERSE	1958	MASON	1,652	1 L	35.4	REED CITY	2,354	4	0	0	2	40	290	91,352			2,284	0
	RIVERTON TWP., 17N-17W, SECTIONS 26, 27																			
GF	PARADISE	TRAVERSE	1965	GD. TRAVERSE	1,889	8 L		DUNDEE	1,897	3	0	0	3	400					SHUT-IN FOR MARKET	
	PARADISE TWP., 25N-10W, SECTIONS 9, 16																			
GF	PARIS	MICHIGAN STRAY	1951	MECOSTA	1,217	5 S		REED CITY	3,545	2	0	0	1	560				383,075	DOMESTIC USE	
OF		TRAVERSE	1949		2,890	10 D	43.6			22	0	0	11	440	7,075	1,297,347			2,949	
AGF		DUNDEE	1949		3,404	5 L				2	ABANDONED	1959		20				267,208		
	GREEN TWP., 16N-10W, SECTIONS 16, 21, 22, 27, 28																			
GS	PARTELLO	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	PAW PAW	TRAVERSE	1963	VAN BUREN	1,096	2 L	41.4	TRENTON	2,912	8	ABANDONED	1973		160		20,209			126	
	PAW PAW TWP., 3S-14W, SECTIONS 2, 10, 11, 15																			
AOF	PAW PAW, SEC. 33	TRAVERSE	1964	VAN BUREN	1,028	1 L	38.0	TRAVERSE	1,032	1	ABANDONED	1972		10	0	0				
	PAW PAW TWP., 3S-14W, SECTION 33																			
OF	PEACOCK	TRAVERSE	1966	LAKE	2,292	2 L	34.0	REED CITY	3,047	27	0	0	16	1,060	68,807	1,259,905			1,189	2,060
AOF		REED CITY	1966		3,001	4 D				1	ABANDONED	1974		40	0	4,442			111	
	PEACOCK TWP., 19N-13W, SECTIONS 7, 8, 9, 16, 17, 18																			
AOF	PECKS LAKE	DUNDEE	1967	OSCEOLA	3,866	2 L		REED CITY	3,854	1	ABANDONED	1969		40		2,885			72	
	EVART TWP., 17N-8W, SECTION 18																			
OF	PENNFIELD 21-1S-7W	SALINA-NIAGARAN REEF	1975	CALHOUN	2,743	48 D	27.2	NIAGARA	2,850	1	0	0	1	80	8,893	43,675			546	275
	PENNFIELD TWP., 1S-7W, SECTION 21																			
OF	PENNFIELD 29-1S-7W	SALINA-NIAGARAN REEF	1973	CALHOUN	2,676	70 D		NIAGARA	3,001	2	0	0	2	160	33,269	209,552			1,310	10
OF	PENNFIELD 29-1S-7W POOL A	SALINA-NIAGARAN REEF	1976	CALHOUN	2,681	113 D	18	NIAGARA	2,815	1	0	0	1	80	13,795	34,848			426	146
	PENNFIELD TWP., 1S-7W, SECTIONS 28, 29																			
OF	PENNFIELD 35-1S-7W	SALINA-NIAGARAN REEF	1974	CALHOUN	2,840	26 D	23.6	CLINTON	3,320	13	1	0	11	880	399,416	1,504,669	150,836	314,162	1,710	1,916
	PENNFIELD TWP., 1S-7W, SECTIONS 26, 27, 35, 36																			
OF	PENTWATER	TRAVERSE	1948	OCEANA-MASON	1,585	8 L	40.4	PRAIRIE DU CHIEN	5,383	143	0	1	48	1,400	5,595	CUMULATIVE PRODUCTION COMBINED WITH DUNDEE				401
OF		DUNDEE	1948		2,088	10 D	43.1							2,000	9,946	6,760,953		1,005,224	1,989	
GF		A-2 CARBONATE	1973		3,470	40 L				2	0	0	2				SHUT-IN			
	THE 48 WELLS INCLUDE 28 TRAVERSE, 8 DUNDEE 12 DUNDEE AND TRAVERSE WEARE TWP., 16N-17W, SECTIONS 4, 5, 6, 7, 8 PENTWATER TWP., 16N-18W, SECTIONS 1, 2, 12 SUMMIT TWP., 17N-17W, SECTION 31 SUMMIT TWP., 17N-18W, SECTIONS 26, 35, 36																			
OF	PENTWATER LAKE	TRAVERSE	1969	OCEANA	1,612	2 L		NIAGARA	4,078	3	0	0	3	120	3,565	101,748			848	35
	PENTWATER TWP., 16N-18W, SECTION 26																			
OF	PETERS	SALINA-NIAGARAN REEF	1955	ST. CLAIR	2,386	47 D	39.0	CLINTON	2,842	89	0	0	65	1,780	91,300	5,374,065	562,517	19,634,237	2,511	265
	CASCO TWP., 4N-15E, SECTIONS S½ 15, SE¼ 16, 22, 23, 26, 27, E½ 28, NE¼ 33, N½ 34																			
OF	PETERS, EAST	SALINA-NIAGARAN REEF	1961	ST. CLAIR	2,590	17 D	41.6	CLINTON	2,777	9	0	0	8	360	PRODUCTION COMBINED WITH PETERS					29
	CASCO TWP., 4N-15E, SECTIONS 24, 25 CHINA TWP., 4N-16E, SECTION 19																			
AOF	PINCONNING	TRAVERSE	1958	BAY	2,151	1 L		DETROIT RIVER	3,790	1	ABANDONED	1960		10	PRODUCTION COMBINED WITH PINCONNING DUNDEE					
OF		DUNDEE	1944		2,898	7 D	36.2			12	0	0	2	100	1,537	885,564			8,051	250
	PINCONNING TWP., 17N-4E, SECTIONS 25, 35, 36 FRASER TWP., 16N-4E, SECTION 2																			
AOF	PINE	TRAVERSE	1938	MONTCALM	2,836	1 L	45.0	DUNDEE	3,308	2	ABANDONED	1963		20		105,506			5,275	
	PINE TWP., 11N-8W, SECTION 29																			
AOF	PINE RIVER	TRAVERSE	1956	GRATIOT	2,890	5 L		DUNDEE	3,285	1	ABANDONED	1958		10		760			76	
AOF		DUNDEE	1942		3,280	2 L				2	ABANDONED	1956		90		13,285			148	
	PINE RIVER TWP., 12N-3W, SECTION 31 SEVILLE TWP., 12N-4W, SECTION 36																			
GF	PINE, SECS. 9 & 17	MICHIGAN STRAY	1951	MONTCALM	1,251	1 S		DUNDEE	3,469	2	0	0	2	80				38,017	DOMESTIC USE	
	PINE TWP., 11N-8W, SECTIONS 9, 17																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS TO END	NUMBER OF WELLS COMP'N.	NUMBER OF WELLS ABAND'N.	NUMBER OF WELLS ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
										1978										
GF	PIONEER	TRAVERSE	1931	MISSAUKEE	3,025	5 L		DUNDEE	3,583	1	0	0	1	40				SHUT-IN		
	PIONEER TWP., 24N-7W, SECTION 24																			
AOF	PIPESTONE	TRAVERSE	1962	BERRIEN	822	2 L	22.4	NIAGARAN	1,353	2	ABANDONED	1966		20		85			4	
	PIPESTONE TWP., 5S-17W, SECTION 24																			
OF	POLKTON	TRAVERSE	1942	OTTAWA	1,678	2 L	37.8	DUNDEE	2,351	13	0	0	3	170	2,085	79,627			468	2
	POLKTON TWP., 8N-14W, SECTIONS 8, 9, 10, 11, 14, 15, 16																			
OF	PORTER	DUNDEE	1933	MIDLAND	3,413	12 L	40.6	BLACK RIVER	5,515	530	1	1	126	6,700	85,423	45,928,990		4,965,878	7,452	6,704
	PORTER TWP., 13N-1W, SECTIONS 7, 8, 9, 10, 14 THROUGH 23, 26, 27, 28 JASPER TWP., 13N-2W, SECTIONS 1, 2, 3, 11, 12 GREENDALE TWP., 14N-2W, SECTIONS 34, 35 THE 126 WELLS INCLUDE 123 DUNDEE, AND 3 DUNDEE & TRAVERSE																			
AOF	PORT HURON	DUNDEE	1886	ST. CLAIR	575	20 L		CAMBRIAN	4,948	21	ABANDONED	1921		EST.15		NO RECORD				
	FT. GRATIOT TWP., 7N-17E, SECTION 32																			
GF	PORT HURON 31-7N-17E	NIAGARAN	1975	ST. CLAIR	3,242	55 D		NIAGARA	3,297	1	0	0	1	40				2,256	7,227		
	PORT HURON TWP., 7N-17E, SECTION 31																			
GF	PORT HURON 33-7N-17E	NIAGARAN REEF	1971	ST. CLAIR	3,160	10 D		NIAGARA	3,185	1	0	0	1	160				1,270	14,980		
	PORT HURON TWP., 7N-17E, SECTION 33																			
GF	PROSPER	MICHIGAN STRAY	1948	MISSAUKEE	1,260	6 S		RICHFIELD	5,254	3	0	0	2	480					155,940	LEASE FUEL
	AETNA TWP., 22N-6W, SECTIONS 34, 35 CLAM UNION TWP., 21N-6W, SECTION 2																			
OF	PROSPER	DUNDEE	1942	MISSAUKEE	3,837	4 L	43.2	RICHFIELD	5,254	13	0	0	6	520	12,654	1,818,515			3,497	2,200
AOF		RICHFIELD	1954		5,128	21 D				1	ABANDONED	1957		40		7,088			177	
	AETNA TWP., 22N-6W, SECTIONS 26, 35																			
OF	PROSPER, SOUTH	DUNDEE	1967	MISSAUKEE	3,738	8 D		DUNDEE	3,808	7	0	0	6	280	18,265	919,622			3,284	1,262
	AETNA TWP., 22N-6W, SECTION 36 CLAM UNION TWP., 21N-6W, SECTIONS 1, 2																			
AOF	PULLMAN	TRAVERSE	1949	ALLEGAN	1,185	1 L		BASS ISLANDS	1,942	9	ABANDONED	1951		90		26,840			298	
	CASCO TWP., 1N-16W, SECTIONS 11, 12																			
OF	PULLMAN, EAST	TRAVERSE	1949	ALLEGAN	1,131	2 L	39.0	TRENTON	3,020	25	0	0	11	250	963	336,946			1,588	45
AGF		SALINA A-2 CARB	1961		1,649	7 D				3	ABANDONED	1968		480				27,770		
	LEE TWP., 1N-15W, SECTIONS 5, 6, 7, 8 (TRAVERSE) SECTIONS 5, 6, 8 (SALINA A-2 CARB.)																			
GS	PUTTYGUT	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS															OIL PRODUCTION COMBINED WITH ADAIR			
AOF	RABBIT RIVER	TRAVERSE	1950	ALLEGAN	1,655	3 L		TRAVERSE	1,678	8	ABANDONED	1959		80		12,745			159	
	SALEM TWP., 4N-13W, SECTIONS 28, 29, 32, 33																			
AOF	RAPID RIVER 17-28N-7W	TRAVERSE	1972	KALKASKA	1,521	10 L		NIAGARA	6,351	1	ABANDONED	1973		40		429			11	
	RAPID RIVER TWP., 28N-7W, SECTION 17																			
GF	RAVENNA	"BEREA"	1936	MUSKEGON	1,205	10 D		DUNDEE	2,306	31	0	0	5	4,480				1,461,245	DOMESTIC USE	
	RAVENNA TWP., 9N-14W, SECTIONS 4, 5, 6, 7, 8, 9, 17 SULLIVAN TWP., 9N-15W, SECTION 12 MOORLAND TWP., 10N-14W, SECTIONS 32, 33																			
OF	RAVENNA	TRAVERSE	1952	MUSKEGON	1,842	15 L		DETROIT RIVER	2,601	37	0	0	1	730	86	459,757			630	
	RAVENNA TWP., 9N-14W, SECTIONS 21, 27, 28, 29, 30, 31 SULLIVAN TWP., 9N-13W, SECTIONS 25, 36																			
GF	RAVENNA, SEC. 27	"BEREA"	1953	MUSKEGON	1,182	6 D		DUNDEE	2,500	3	0	0	2	480				32,888	DOMESTIC USE	
	RAVENNA TWP., 9N-14W, SECTIONS 22, 27, 28																			
GS	RAY	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	READING	TRENTON	1971	HILLSDALE	3,100	10 D	42	BLACK RIVER	3,478	2	ABANDONED	1973		80		5,431			68	
	READING TWP., 7S-4W, SECTION 29																			
GF	REDDING	MICHIGAN STRAY	1940	CLARE	1,475	3 S		SYLVANIA	5,462	?	0	1	2	160				33,346	LEASE FUEL	
	REDDING TWP., 19N-6W, SECTIONS 27, 32 FREEMAN TWP., 18N-6W, SECTION 2																			
OF	REED CITY	TRAVERSE	1941	LAKE-OSCEOLA	2,925	5 L	43.7	ST. PETER SS.	8,917	?	0	0	4	1,600	6,451	3,699,756		386,527	2,312	705
OF		DUNDEE	1940		3,490	3 L	46.3											16,169,578		
OF		REED CITY	1941		3,585	7 D	42.8	(LOREED UNIT-SEE	TABLE 6)	0	0	168		5,320	82,570	42,207,556			7,934	
OF		DETROIT RIVER SZ	1955		4,184	73 DL	48.2			45	1	0	21	1,800	39,994	2,541,994		3,457,308	1,419	93
OF		RICHFIELD	1954		4,633	12 SL	45.8										(TWO WELLS COMMINGLED WITH SOUR ZONE)			
	LINCOLN TWP., 18N-10W, SECTIONS 17, 18, 19, 20, 29, 30, 31, 32 RICHMOND TWP., 17N-10W, SECTIONS 4 THROUGH 9 PINORA TWP., 18N-11W, SECTIONS 24, 25, 36																			
GS	REED CITY (STRAY)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
GS	REED CITY (LOREED)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	REED CITY, EAST	TRAVERSE	1947	OSCEOLA	3,106	1 L	41.2	DETROIT RIVER	3,840	8	0	0	3	80	0	393,304		18,468	4,916	
	LINCOLN TWP., 18N-10W, SECTION 26																			
AGF	REEDER	MICHIGAN STRAY	1964	MISSAUKEE	1,385	4 S		DUNDEE	4,002	2	ABANDONED	1966		320						
	REEDER TWP., 11N-7W, SECTION 32																			
AOF	REEMAN	TRAVERSE	1958	NEWAYGO	2,099	1 L		TRAVERSE	2,100	3	ABANDONED	1967		30		44,886			1,496	
	SHERIDAN TWP., 12N-14W, SECTION 8																			
OF	REYNOLDS	TRAVERSE	1955	MONTCALM-MECOSTA	2,787	4 D	39.8	BASS ISLANDS	4,300	16	0	0	5	110	13,697	CUMULATIVE PRODUCTION COMBINED WITH REED CITY				625
OF		REED CITY	1954		3,343	2 D	44.3			53	0	0	8	2,100	9,919	4,697,433		406,336	2,126	955
	REYNOLDS TWP., 12N-10W, SECTIONS 1, 2, 12, 13 WINFIELD TWP., 12N-9W, SECTIONS 6, 7, 8, 17, 18 AETNA TWP., 13N-10W, SECTION 36																			
GF	RICH	BEREA	1970	LAPEER	1,380	29 S		SYLVANIA	3,267	6	0	0	6	960						
OF		DETROIT RIVER SZ	1962		3,028	5 D	33.9			26	0	0	26	1,000	106,280	1,032,996	3,239	392,669	1,033	26
	RICH TWP., 10N-10E, SECTIONS 21, 22, 27 (BEREA) SECTIONS 21, 26, 27, 28, 34, 35 (DETROIT RIVER SZ)																			
AOF	RICHLAND	TRAVERSE	1936	SAGINAW	2,739	10 L	46.0	DUNDEE	3,264	1	ABANDONED	1936		10		1,871			187	
	RICHLAND TWP., 12N-2E, SECTION 31																			
AGF	RICHLAND, SEC. 27	MICHIGAN STRAY	1963	MONTCALM	1,247	1 S		DUNDEE	3,530	1	ABANDONED	1964		160						
	RICHLAND TWP., 12N-5W, SECTION 27																			
AGF	RICHMOND	NIAGARAN REEF	1968	MACOMB	3,195	12 D		NIAGARAN	3,254	1	ABANDONED	1976		40				179,249		
	RICHMOND TWP., 5N-14E, SECTION 26																			
AOF	RIDGEWAY, SEC. 1	TRENTON	1954	LENAWEE	2,415	4 D		TRENTON	2,491	1	ABANDONED	1962		10		47			5	
	RIDGEWAY TWP., 6S-5E, SECTION 1																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY ° API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978 TO END	NUMBER OF WELLS 1978 COMP IN	NUMBER OF WELLS 1978 ABAND IN	NUMBER OF WELLS 1978 ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
OF	RIVERSIDE	TRAVERSE	1961	MISSAUKEE	3,220	2 L	42.6	DUNDEE	3,353	1	0	0	1	15	264	22,598			2,269	15
OF		DUNDEE	1942		3,364	3 L	44.5			5	2	0	5	186	7,124	152,714			848	22
	RIVERSIDE TWP., 21N-7W, SECTIONS 14, 23, 24																			
GS	RIVERSIDE (STRAY)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	RIVERTON	TRAVERSE	1957	MASON	1,650	6 L	38.5	DUNDEE	2,317	19	ABANDONED 1971			190		242,206			1,275	
	RIVERTON TWP., 17N-17W, SECTIONS 10, 11, 15																			
OF	RIVERTON, SEC. 21	TRAVERSE	1964	MASON	1,683	4 L	38.2	DUNDEE	2,290	3	0	0	2	30	164	17,399			580	0
	RIVERTON TWP., 17N-17W, SECTION 21																			
AOF	ROBINSON, SEC. 3	DUNDEE	1956	OTTAWA	2,107	7 L		DUNDEE	2,210	2	ABANDONED 1972			20		10,630			531	
	ROBINSON TWP., 7N-15W, SECTION 3																			
OF	ROCKFORD	TRAVERSE	1965	KENT	2,204	3 L	44.0	DETROIT RIVER	2,856	23	0	0	3	210	3,713	569,379			2,711	410
	ALGOMA TWP., 9N-11W, SECTIONS 25, 35, 36 COURTLAND TWP., 9N-10W, SECTION 19																			
GF	ROLLAND	MICHIGAN STRAY	1978	ISABELLA	1,314	14 S		MICHIGAN STRAY	1,328	2	2	0	2	80						
	ROLLAND TWP., 13N-6W, SECTION 13																			
GF	NOTE: NAME CHANGED TO WASHINGTON, SEC. 11 (FORMERLY ROMEO)																			
GF	NOTE: NAME CHANGED TO WASHINGTON, SEC. 10 (FORMERLY ROMEO, SEC. 10)																			
AGF	ROMULUS	SALINA A-1 CARB.	1955	WAYNE	1,980	20 D		NIAGARAN	2,259	2	ABANDONED 1972			320					45,946	
	ROMULUS TWP., 3S-9E, SECTIONS 15, 16																			407
OF	ROSEBUSH	DUNDEE	1933	ISABELLA	3,690	6 L	42.0	RICHFIELD	4,838	46	0	0	35	1,020					2,143	
OF		RICHFIELD	1969		4,790	4 D		(TWO WELLS COMMINGLED WITH DUNDEE)						80	23,447	2,357,347				
	ISABELLA TWP., 15N-4W, SECTIONS 1, 2, 11, 12, 13 DENVER TWP., 15N-3W, SECTIONS 7, 18 VERNON TWP., 16N-4W, SECTION 36																			
OF	ROSE CITY	RICHFIELD	1942	OGEMAW	4,125	9 D	41.2	CAMBRIAN	12,996	132	0	0	69	5,160	261,408	7,440,794	152,788	9,223,052	1,442	188
	FOSTER TWP., 24N-1E, SECTIONS 14, 20, 21, 23, 24, 25 FOSTER TWP., 24N-2E, SECTIONS 19, 20, 21, 27, 28, 29, 30, 31, 32, 33, 34, 35 ROSE TWP., 24N-2E, SECTIONS 27, 34, 35 KLACKING TWP., 23N-2E, SECTIONS 2, 3, 11																		2,648	530
OF	ROSE LAKE	TRAVERSE	1963	OSCEOLA	3,140	5 L	45.5	DETROIT RIVER	3,990	18	0	0	6	720	12,833	1,906,413				
	ROSE LAKE TWP., 19N-5W, SECTION 31 LEROY TWP., 19N-10W, SECTION 36 CEDAR TWP., 18N-9W, SECTION 6, LINCOLN TWP., 18N-10W, SECTION 1																			
GF	ROTHBURY	"BEREA"	1978	OCEANA	1,103	3 S		"BEREA"	1,120	1	1	0	1	40						
	GRANT TWP., 13N-17W, SECTION 14																		586	
OF	SAGE	DUNDEE	1971	GLADWIN	3,867	2 L		DETROIT RIVER	4,235	4	1	0	3	120	1,164	70,311			1,137	6
	SAGE TWP., 19N-2W, SECTION 12																			
OF	SAGINAW	BEREA	1925	SAGINAW	1,825	16 S	46.1	SYLVANIA	3,920	1	0	0	5	1,500	4,410	1,705,238				
	SAGINAW TWP., 12N-4E, SECTIONS 10, 11, 12, 13, 14, 15, 24																		2,744	145
OF	SALEM	TRAVERSE	1937	ALLEGAN-OTTAWA	1,583	8 L	38.3	TRENTON	4,347	337	G	2	85	3,390	32,757	9,302,936				
AGF		DETROIT RIVER	1958		1,969	6 D				3	ABANDONED 1966			320					50,574	
OF		SALINA	1937		2,725	2 D		REFER TO GAS STORAGE RESERVOIRS-PRODUCES SMALL AMOUNT OF OIL-INCLUDED AS MISCELLANEOUS PRODUCTION IN ABANDONED TOTALS													
	SALEM TWP., 4N-13W, SECTIONS 16, 21 (DETROIT RIVER) SALEM TWP., 4N-13W, SECTIONS 1, 2, 3, 10 THROUGH 17, 20, 21, 22, 23, 24, 34 JAMESTOWN TWP., 5N-13W, SECTIONS 35, 36 (TRAVERSE)																			
GS	SALEM	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																	805	4
OF	SANFORD	TRAVERSE	1959	MIDLAND	3,125	2 L		DETROIT RIVER	4,811	13	0	1	10	260	2,531	209,224				
OF		DUNDEE	1951		3,755	3 L	42.6													
	JEROME TWP., 15N-1W, SECTIONS 12, 13																		726	
OF	SAUBLE	TRAVERSE	1942	LAKE	2,111	2 L	35.6	TRAVERSE	2,156	5	0	0	1	200	263	145,241				
	SAUBLE TWP., 19N-14W, SECTION 16																			
OF	SCOTTVILLE	TRAVERSE	1961	MASON	1,646	3 L	34.6	CINCINNATIAN	5,129	17	0	1	3	340		CUMULATIVE PRODUCTION COMBINED WITH REED CITY				
OF		REED CITY	1962		2,319	3 L	37.2			11	0	0	2	220	2,415	525,415			938	55
	AMBER TWP., 18N-17W, SECTIONS 13, 14, 23																			
AGF	SEARS	MICHIGAN STRAY	1964	OSCEOLA	1,492	12 S		DUNDEE	3,988	1	ABANDONED 1965			160					0	
	SYLVAN TWP., 18N-7W, SECTION 32																			
AOF	SECORD	DUNDEE	1937	GLADWIN	3,437	5 L	38.0	DUNDEE	3,500	2	ABANDONED 1941			20		12,024			601	
	SECORD TWP., 19N-1E, SECTIONS 11, 12																			
GS	SHAVER (SUMNER-NEW HAVEN)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AOF	SHELBY	TRAVERSE	1951	OCEANA	1,743	3 L	43.0	DUNDEE	2,234	20	ABANDONED 1971			350		228,092			652	
	BENONA TWP., 14N-18W, SECTION 18 BENONA TWP., 14N-19W, SECTION 13																			
GF	SHERIDAN	MICHIGAN STRAY	1935	MECOSTA	1,375	2 S		DUNDEE	3,904	5	0	0	1	480					276,801	DOMESTIC USE
	SHERIDAN TWP., 15N-7W, SECTIONS 13, 14																			
AOF	SHERIDAN, SEC. 25	TRAVERSE	1951	NEWAYGO	2,204	1 L		TRAVERSE	2,205	1	ABANDONED 1955			10		628			63	
	SHERIDAN TWP., 12N-14W, SECTION 25																			
OF	SHERMAN	DUNDEE	1936	ISABELLA	3,650	4 D	42.0	SYLVANIA	4,994	88	0	0	5	1,020	4,182	4,760,328		637,734	4,667	228
	SHERMAN TWP., 15N-6W, SECTIONS 29, 32, 33, 34 BROOMFIELD TWP., 14N-6W, SECTIONS 3, 4, 5																			
AOF	SHERMAN, SEC. 18	TRAVERSE	1939	ISABELLA	3,217	4 L		DUNDEE	3,835	3	ABANDONED 1947			20		1,364			68	
	SHERMAN TWP., 15N-6W, SECTION 18																			
GS	SIX LAKES	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	SKEELS	TRAVERSE	1955	CLARE-GLADWIN	3,102	6 L	38.4	SYLVANIA	6,016	4	0	0	2	40	371	45,688			1,142	1
OF		DUNDEE	1950		3,840	7 D	39.6			5	0	0	4	50	3,522	991,123			19,822	
OF		DETROIT RIVER S2	1942		4,844	4 D	47.4			31	0	0	24	40	14,643	1,305,195			32,630	
OF		RICHFIELD	1953		5,080	17 D	44.8							1,240	THE 24 WELLS INCLUDE 16 RICHFIELD 4 SOUR ZONE AND 4 RICHFIELD 6 SOUR ZONE					
	SHERMAN TWP., 20N-2W, SECTIONS 30, 31 FRANKLIN TWP., 20N-3W, SECTIONS 25, 36																			
AGF	SOUTH BRANCH	RICHFIELD	1968	CRAWFORD	4,203	12 D		DETROIT RIVER	4,436	1	ABANDONED 1971			40					0	
	SOUTH BRANCH TWP., 25N-1W, SECTION 32																			
AOF	SPRINGPORT	TRENTON-BLK. RIVER	1960	JACKSON	4,696	12+ D	46.5	PRAIRIE DU CHIEN	5,250	2	ABANDONED 1970			80		3,430			43	
	SPRINGPORT TWP., 1S-3W, SECTIONS 11, 14																			
AOF	ST. CHARLES	TRAVERSE	1957	SAGINAW	2,305	3 L	51.6	TRAVERSE	2,308	1	ABANDONED 1967			10		13,250			1,325	
	ST. CHARLES TWP., 10N-3E, SECTION 26																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY ° API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978 TO END	NUMBER OF WELLS 1978 COMP IN	NUMBER OF WELLS 1978 ABAND IN	NUMBER OF WELLS 1978 ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
AGF	ST. CLAIR, SEC. 18	SALINA-NIAGARAN	1953	ST. CLAIR	2,567	2 D		CINCINNATIAN	3,240	1	ABANDONED 1961			160				16,423		
	ST. CLAIR TWP., 5N-17E, SECTION 18																			
OF	ST. HELEN	RICHFIELD	1941	ROSCOMMON	4,180	11 D	43.3	SALINA	5,440	106	3	0	59	4,080	274,794	6,130,520	228,481	11,629,036	1,503	421
	AU SABLE TWP., 24N-1W, SECTIONS 10, 14, 15, 16, 17, 19 THROUGH 30, 32																			
OF	ST. MARY'S LAKE	TRAVERSE	1968	MASON	1,641	3 L		TRAVERSE	1,644	2	0	0	2	40	1,059	28,252			706	
	RIVERTON TWP., 17N-17W, SECTION 35																			
AOF	STANDISH	RICHFIELD	1948	ARENAC	4,108	3 D	35.4	RICHFIELD	4,210	9	ABANDONED 1967			360		147,062			409	
	LINCOLN TWP., 18N-4E, SECTIONS 10, 11, 15																			
OF	STANTON	TRAVERSE	1951	MONTCALM	2,916	7 DL	43.0	DUNDEE	3,492	17	0	0	6	340	6,392	992,958			2,920	56
	DOUGLASS TWP., 11N-7W, SECTIONS 26, 27, 34, 35																			
OF	STARRVILLE	NIAGARAN REEF	1967	ST. CLAIR	2,336	5 D		NIAGARAN	2,396	3	0	0	3	120	2,017	129,186			1,077	10
	COTTRELLVILLE TWP., 3N-16E, SECTION 9																			
OF	STERLING	TRAVERSE	1948	ARENAC	1,970	5 L	36.2	RICHFIELD	4,285	22	0	0	16	220	5,232	289,639			1,317	3
OF		DUNDEE	1947		2,872	17 L	33.6			20	0	0	17	200	7,609	450,165			2,251	3
OF		DETROIT RIVER SZ	1952		3,918	5 D	41.1			41	0	0	35	1,600	34,718	1,879,736			1,175	
OF		RICHFIELD	1950		4,153	8 D	37.6											THE 35 WELLS INCLUDE 11 RICHFIELD, 15 SOUR ZONE AND 9 RICHFIELD & SOUR ZONE			
	DEEP RIVER TWP., 19N-4E, SECTIONS 9, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23																			
OF	STOCKBRIDGE 6-1N-2E	A-1 CARBONATE	1972	INGHAM	3,960	12 D	33.6	CLINTON	4,471	3	0	0	2	200	3,429	63,000	411	16,776	315	450
	STOCKBRIDGE TWP., 1N-2E, SECTION 6																			
OF	STOCKBRIDGE 7-1N-2E	A-1 CARBONATE	1974	INGHAM	3,906	10 D		NIAGARAN	4,445	1	0	0	1	80	776	14,791	SHUT-IN		185	250
	STOCKBRIDGE TWP., 1N-2E, SECTION 7																			
AOF	STONY LAKE	"BEREA"	1949	OCEANA	930	1 SL	48.0	NIAGARAN	3,837	2	ABANDONED 1965				PRODUCTION COMBINED WITH STONY LAKE TRAVERSE					
OF		TRAVERSE	1946		1,630	19 L	44.9			79	0	1	12	1,540	2,549	7,571,154			4,916	554
	CLAYBANKS TWP., 13N-18W, SECTIONS 9, 10, 11, 14, 15, 16																			
AOF	SUMMERFIELD	TRENTON-BLK. RIVER	1958	MONROE-LENAWEE	1,940	10 DL		TRENTON-BLK. RIVER	2,382	2	ABANDONED 1964			20		2,142			107	
	SUMMERFIELD TWP., 7S-6E, SECTION 30 DEERFIELD TWP., 7S-5E, SECTION 24																			
OF	SUMNER	TRAVERSE	1953	GRATIOT	2,853	1 L	44.5	DUNDEE	3,366	35	0	0	16	350	9,081	1,116,636			3,190	750
	SUMNER TWP., 11N-4W, SECTIONS 11, 12																			
GF	SURREY	MICHIGAN STRAY	1945	CLARE	1,460	3 S		DUNDEE	4,000	?	0	0	2	320				12,920	DOMESTIC USE	
	SURREY TWP., 17N-5W, SECTIONS 23, 24																			
GS	SWAN CREEK	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
AGF	SYLVAN	MICHIGAN STRAY	1941	OSCEOLA	1,525	10 S		DETROIT RIVER	4,100	1	ABANDONED 1953			40				82,328		
OF		DUNDEE	1940		3,925	13.7 D	40.0			11	0	0	2	440	2,849	1,200,826			2,729	500
	SYLVAN TWP., 18N-7W, SECTION 7 (MICHIGAN STRAY) SECTIONS 8, 9, 16 (DUNDEE)																			
GF	TAYMOUTH	TRAVERSE	1957	SAGINAW	2,085	6 L		TRAVERSE	2,135	1	0	0	1	160			318	SHUT-DOWN	2	
	TAYMOUTH TWP., 10N-5E, SECTION 11																			
AOF	TEKONSHA	TRENTON	1959	CALHOUN	3,553	? DL	34.5	PRAIRIE DU CHIEN	4,147	4	ABANDONED 1976			90		19,309	SHUT-IN		215	
	TEKONSHA TWP., 4S-6W, SECTION 17							ABANDONED IN 1969, REACTIVATED IN 1974												
AOF	THOMPSON CORNERS	TRAVERSE	1968	NEWAYGO	2,138	2 L		TRAVERSE	2,140	1	ABANDONED 1973			40		9,374			234	
	BEAVER TWP., 15N-14W, SECTION 30																			
AOF	THORNAPPLE, SEC. 4	TRAVERSE	1952	BARRY	1,951	2 L		TRAVERSE	1,973	2	ABANDONED 1961			20		2,716			136	
	THORNAPPLE TWP., 4N-10W, SECTIONS 3, 4																			
AOF	TRENT	TRAVERSE	1949	MUSKEGON	2,039	1 L		TRAVERSE	2,118	2	ABANDONED 1969			40		30,771			769	
	CASNOVIA TWP., 10N-13W, SECTION 19																			
OF	TROWBRIDGE	TRAVERSE	1937	ALLEGAN	1,358	2 L	41.2	CINCINNATIAN	2,952	162	0	0	5	1,840	427	525,943			286	4
	TROWBRIDGE TWP., 1N-13W, SECTIONS 1, 3 THROUGH 10, 12, 13, 15, THROUGH 23, 27, 28, 29, 30, 31, 32 OTSEGO TWP., 1N-12W, SECTIONS 7, 18																			
GF	TURK LAKE	MICHIGAN STRAY	1947	MONTCALM	1,081	4 S		DETROIT RIVER	3,413	4	0	0	1	640				221,936	DOMESTIC USE	
	MONTCALM TWP., 10N-8W, SECTIONS 9, 10, 14																			
AOF	TYRONE	TRAVERSE	1952	KENT	2,379	2 L		DETROIT RIVER	2,900	7	ABANDONED 1956			140		31,558			225	
	TYRONE TWP., 10N-12W, SECTIONS 10, 11, 14																			
AOF	UNION	TRAVERSE	1950	ISABELLA	3,191	2 L		DETROIT RIVER	4,096	1	ABANDONED 1963			20		58,263		55,053	2,913	
	UNION TWP., 14N-4W, SECTION 20																			
GF	UNION, SEC. 6	MICHIGAN STRAY	1965	ISABELLA	1,382	3 S		DUNDEE	3,777	2	0	0	2	320			SHUT-IN			
	UNION TWP., 14N-4W, SECTION 6																			
OF	VERNON	DUNDEE	1930	ISABELLA	3,755	3 DL	38.6	BOIS BLANC	5,118	78	0	0	1	890	1,376	5,052,046			5,676	140
	VERNON TWP., 16N-4W, SECTIONS 15, 16, 21, 22, 23, 26, 27																			
AGF	VERNON	MICHIGAN STRAY	1939	ISABELLA	1,300	2 S		DETROIT RIVER	3,907	25	ABANDONED 1956			920				1,493,534		
	VERNON TWP., 16N-4W, SECTIONS 25, 26, 35, 36 ISABELLA TWP., 15N-4W, SECTION 1																			
GF	VEVAY 8-2N-1W	NIAGARAN REEF	1975	INGHAM	4,140	44 D	43.8	NIGARAN	4,312	1	ABANDONED 1976			80						
	VEVAY TWP., 2N-1W, SECTION 8																			
OF	VEVAY 16-2N-1W (MASON)	NIAGARAN REEF	1970	INGHAM	4,165	39 D	49.4	CLINTON	4,555	2	0	0	2	120	12,141	188,973	110,443	736,265	1,575	
	VEVAY TWP., 2N-1W, SECTION 16																			
OF	VEVAY 17-2N-1W	NIAGARAN REEF	1972	INGHAM	4,162	12 D		NIAGARAN	4,300	3	0	0	3	240	32,267	196,355	89,528	505,140	818	
	VEVAY TWP., 2N-1W, SECTION 17																			
AOF	VEVAY 19-2N-1W	TRAVERSE	1971	INGHAM	2,141	65 L	37	CINCINNATIAN	4,600	2	ABANDONED 1972			80		12,930			162	
GF	NIAGARAN POOL A	NIAGARAN REEF	1971		3,942	24 D	46.8			2	0	0	2	320	6,850	202,010	37,321	2,763,028	631	
OF	NIAGARAN POOL B	NIAGARAN REEF					42			4	0	0	4	640	32,088	287,776	480,365	3,879,262	450	
OF	NIAGARAN POOL C	NIAGARAN REEF								1	0	0	1	160	8,589	49,652	110,126	405,972	310	
	FIELD DECLARED TO HAVE 3 SEPARATE RESERVOIRS OR POOLS (ORDER NO. 2-1-73)			POOL (A) INCLUDES THE F. MILLER & A. IMLAY WELLS LOCATED IN THE SE¼ OF SECTION 24, T.2N., R.2W., & THE SW¼ OF SECTION 19, T.2N., R.1W.				POOL (B) INCLUDES THE CARTER, LYON, DART, & KRANZ WELLS LOCATED IN THE N½ OF SECTION 19 & THE S½ OF SECTION 18, T.2N., R.1W.						POOL (C) INCLUDES THE LOVETTE WELL LOCATED IN THE SW¼ OF THE NE¼ OF SECTION 18, T.2N., R.1W.				
	VEVAY TWP., 2N-1W, SECTIONS 18, 19 AURELIUS TWP., 2N-2W, SECTION 24																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978 TO END	NUMBER OF WELLS 1978 COMP IN	NUMBER OF WELLS 1978 ABAND IN	NUMBER OF WELLS 1978 ACT VE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
AOF	VELEY 27-2N-1W	NIAGARAN REEF	1972	INGHAM	3,939	2 D		PRAIRIE DU CHIEN	3,985	1	ABANDONED 1976			80		17,513		126,542	213	
	VELEY TWP., 2N-1W, SECTION 27																			
AOF	VICTORY, SEC. 10	TRAVERSE	1957	MASON	1,603	5 L	36.0	TRAVERSE	1,616	1	ABANDONED 1958			10		58?				58
	VICTORY TWP., 19N-17W, SECTION 10														NONCOMMERCIAL GAS PRODUCTION IN BASE OF GLACIAL DRIFT					
GF	VOSEL CENTER	DUNDEE	1966	MISSAUKEE	3,892	3 L		DUNDEE	3,895	2	0	0	1	80	813	47,437			593	140
	CLAM UNION TWP., 21N-6W, SECTION 32																			
GF	WALES 16-6N-15E	SALINA-NIAGARAN REEF	1976	ST. CLAIR	3,264	195.5 D		SALINA-NIAGARAN	3,695	2	0	0	2	80						
	WALES TWP., 6N-15E, SECTION 16																			
GF	WALKER	SEREA	1940	KENT-OTTAWA	1,123	21 SL		ST. PETER SS.	5,222	}				220	456	49,007			223	
OF		TRAVERSE	1938		1,872	8 L	36.0			782	0	2	335	8,560	98,761	17,251,162		3,658,751	2,015	227
	THE 339 WELLS INCLUDE 336 TRAVERSE AND 3 "BEREA"																			
OF		DETROIT RIVER	1957		2,132	12 D				1	0	0	1	10	PRODUCTION COMBINED WITH TRAVERSE					1
GF		"BEREA", TRAVERSE & DETROIT RIVER								14	0	0	5	THE 5 WELLS INCLUDE 3 BEREA, 1 DETROIT RIVER, & 1 TRAVERSE	0	1,348,473			DOMESTIC USE & LEASE FUEL	
	WALKER TWP., 7N-12W, SECTIONS 19, 20, 27, 28, 29, 30, 31, 32, 33, 34 WALKER TWP., 6N-12W, SECTIONS 3, 4, 5, 6 WYOMING TWP., 6N-12W, SECTION 2, 3, 4, 7, 8 TALLMADGE TWP., 7N-13W, SECTIONS 14, 15, 22, THROUGH 28, 33, 34, 35, 36 TALLMADGE TWP., 6N-13W, SECTIONS 1, 12 GEORGETOWN TWP., 6N-13W, SECTIONS 1, 2 GEORGETOWN TWP., 7N-13W, SECTION 35																			
GF	WASHINGTON, SEC. 10	SALINA-NIAGARAN REEF	1974	MACOMB	3,304	179 D		NIAGARAN	3,635	11	6	0	11	480			462,799	492,600		
GF	WASHINGTON, SEC. 10 POOL A	NIAGARAN REEF	1976	MACOMB	3,352	234 D		SALINA-NIAGARAN	3,722	5	1	0	5	240			123,287	126,330		
	WASHINGTON TWP., 4N-12E, SECTION 10																			
GF	WASHINGTON, SEC. 11	NIAGARAN REEF	1965	MACOMB	3,290	180 D		CLINTON	3,686	1	0	0	1	40			24,750	5,421,779		
	WASHINGTON TWP., 4N-12E, SECTION 11																			
OF	WASHINGTON, SEC. 28	SALINA A-1 CARBONATE	1975	MACOMB	3,357	18 D		NIAGARAN	3,546	9	0	0	9	320	1,400	11,139	54,761	117,752	35	
	WASHINGTON TWP., 4N-1E, SECTIONS 22, 28																			
OF	WAYLAND	TRAVERSE	1944	ALLEGAN	1,799	6 L	36.0	TRENTON-BLK. RIVER	4,400	54	0	0	2	530	295	267,224			504	1
OF		SALINA	1960		3,132	12 D	28.0			34	2	0	33	1,360	57,885	1,533,138			1,127	12
	WAYLAND TWP., 3N-11W, SECTIONS E½ 8, 9, 16, 17, 18, 20, 21																			
OF	WAYLAND, NORTH	TRAVERSE	1957	ALLEGAN	1,696	7 L		TRAVERSE	1,712	15	0	0	5	150	886	114,186			761	47
	WAYLAND TWP., 3N-11W, SECTIONS 6, 7, NW¼ 8																			
AOF	WEARE	TRAVERSE	1961	OCEANA	1,681	2 L		TRAVERSE	1,737	3	ABANDONED 1964			30		6,919			231	
	WEARE TWP., 16N-17W, SECTIONS 12, 13																			
AOF	WEARE, SEC. 14	TRAVERSE	1952	OCEANA	1,674	1 L	41.4	DUNDEE	2,217	1	ABANDONED 1954			10		1,096			110	
	WEARE TWP., 16N-17W, SECTION 14																			
OF	WEST BRANCH	TRAVERSE	1933	OGEMAW	1,796	2 L		CAMBRO-ORDOVICIAN	11,012	}					PRODUCTION COMBINED WITH WEST BRANCH DUNDEE			SOME TRAVERSE OIL PRODUCED IN CONNECTION WITH WATER FLOOD PROJECT			
OF		DUNDEE	1933		2,050	20 L	36.8			313	14	0	186	2,970	277,605	10,049,484			3,384	2,812
OF		DETROIT RIVER SZ	1951		3,585	9 D	38.9			}				THE 186 WELLS INCLUDE 184 DUNDEE AND 1 TRAVERSE AND 1 TRAVERSE & DUNDEE						
OF		RICHFIELD	1952		4,127		33.0			63	0	0	60	2,520	47,841	3,280,413	4,325	68,022	1,302	2
	THE 60 WELLS INCLUDE 29 RICHFIELD, 25 SOUR ZONE, AND 6 RICHFIELD & SOUR ZONE																			
	WEST BRANCH TWP., 22N-2E, SECTIONS 18, 19, 20, 21, 26, 27, 28, 29, 34, 35, 36 OGEMAW TWP., 22N-1E, SECTIONS 10, 13, 14, 23, 24 CHURCHILL TWP., 22N-3E, SECTION 31																			
	HORTON TWP., 21N-2E, SECTIONS 1, 2 MILLS TWP., 21N-3E, SECTIONS 5, 6																			
GF	WHEATLAND	MICHIGAN STRAY	1947	NECOSTA	1,399	3 S		DETROIT RIVER	3,849	4	0	0	1	160				516,496	DOMESTIC USE	
AOF		DUNDEE	1945		3,690	2 L	43.0			6	ABANDONED 1960			100		141,631			1,416	
	WHEATLAND TWP., 14N-7W, SECTIONS 7, 8, 9																			
AOF	WHITE CLOUD	TRAVERSE	1963	NEWAYGO	2,537	1 L		TRAVERSE	2,540	1	ABANDONED 1964			40		1,295			32	
	WILCOX TWP., 14N-12W, SECTION 19																			
OF	WHITE OAK 29-2N-2E	SALINA-NIAGARAN REEF	1974	INGHAM	4,066	19 D		NIAGARAN	4,583	3	0	0	2	160	10,946	48,917			306	30
	WHITE OAK TWP., 2N-2E, SECTION 29																			
OF	WHITE OAK 32-2N-2E	SALINA-NIAGARAN REEF	1973	INGHAM	3,970	8 D		CATARACT	4,583	2	0	0	2	160	8,131	63,208	1,841	15,889	395	407
OF	WHITE OAK 32-2N-2E POOL A	NIAGARAN REEF	1977	INGHAM	4,046	6 D			4,278	1	0	0	1	80	3,332	10,770			135	
	WHITE OAK TWP., 2N-2E, SECTIONS 31, 32 WHITE OAK 29-2N-2E, WHITE OAK 32-2N-2E AND WHITE OAK 32-2N-2E POOL A MADE SEPARATE FIELDS IN 1978 DUE TO ABROGATION OF PREVIOUS SPACING ORDER																			
AOF	WHITE RIVER	DUNDEE	1950	MUSKEGON	2,053	2 L	28.0	DUNDEE	2,055	1	ABANDONED 1951			20		7,061			353	
	WHITE RIVER TWP., 12N-18W, SECTION 15																			
OF	WILEY	TRAVERSE	1962	MASON	1,663	5 L	39.9	ST. PETER SS.	5,890	18	0	0	4	380	0	426,108			1,121	154
	EDEN TWP., 17N-16W, SECTION 18 RIVERTON TWP., 17N-17W, SECTION 12																			
OF	WINFIELD	DUNDEE-REED CITY	1936	MONTCALM	3,340	1 L	43.2	REED CITY	3,500	8	1	0	1	120	167	119,412			995	0
	WINFIELD TWP., 12N-9W, SECTIONS 20, 28, 29																			
GS	WINFIELD (STRAY)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	WINTERFIELD	TRAVERSE	1940	CLARE	3,105	1 L		SYLVANIA	5,273	}				260	7,332	311,447		261,718	1,198	10
OF		DUNDEE	1940		3,794	3 L	44.2							740	12,442	4,854,765			6,560	1,600
OF		RICHFIELD	1942		5,015	15 D				63	10	0	26	500	20,032	269,195			418	58
	WINTERFIELD TWP., 20N-6W, SECTIONS 28 THROUGH 32, 35, 36 REDDING TWP., 19N-6W, SECTIONS 1, 5 GREENWOOD TWP., 19N-5W, SECTION 6 THE 26 WELLS INCLUDE 9 TRAVERSE, 4 DUNDEE, 12 RICHFIELD & 1 TRAVERSE & RICHFIELD																			
GF	WISE	MICHIGAN STRAY	1940	ISABELLA	1,250	5 S		SYLVANIA	5,205	?	0	0	5	1,280				1,739,233	DOMESTIC USE & LEASE FUEL	
OF		TRAVERSE	1953		3,090	31 L	43.0			}					1,131	53,096				
OF		DUNDEE	1938		3,700	11 L	45.2			79	0	0	*21	1,640	12,923	3,974,333			2,456	1,329
OF		DETROIT RIVER SZ	1955		4,415	48 DL	42.6			2	0	0	**1	80	2,100	69,542			869	20
	WISE TWP., 16N-3W, SECTIONS 8, 9, 16, 17, 20, 21, 28, 29, 32, 33 *THE 21 WELLS INCLUDE 17 DUNDEE, 4 TRAVERSE AND DUNDEE **DUNDEE AND DETROIT RIVER																			
AGF	WOLF LAKE	"BEREA"	1949	MUSKEGON	1,050	7 D		DETROIT RIVER	2,250	2	ABANDONED 1956			320				101,751		
OF		TRAVERSE	1968		1,741	23 L				4	1	0	2	60	287	4,901			82	15
	EGELSTON TWP., 10N-15W, SECTIONS 7, 8, 18 MUSKEGON TWP., 10N-16W, SECTION 13																			
GF	WOODSTOCK	TRAVERSE	1969	LENAWEE	1,469	2 L		TRAVERSE	1,467	2	0	0	1	80			SHUT-IN FOR MARKET			
	WOODSTOCK TWP., 5S-1E, SECTION 8																			
OF	WOODVILLE	TRAVERSE	1943	NEWAYGO	2,820	5 L	43.5	DETROIT RIVER	3,534	10	0	1	9	350	2,619	582,014			1,663	130
	NORWICH TWP., 15N-11W, SECTIONS 20, 28, 29																			

POOL CLASSIFICATION	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP PRODUCING SECTIONS	PAY ZONE DEPTH IN FEET	PAY ZONE THICKNESS AND LITHOLOGY	PAY ZONE OIL GRAVITY A.P.I.	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978 TO END	NUMBER OF WELLS 1978 COMP IN	NUMBER OF WELLS 1978 ABAND IN	NUMBER OF WELLS 1978 ACT VE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS PRODUCED IN 1978	OIL PRODUCTION - BBLS CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf PRODUCED IN 1978	GAS PRODUCTION - Mcf CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GS	WOODVILLE (NORWICH)	REFER TO TABLE 4 DEVELOPED GAS STORAGE RESERVOIRS																		
OF	WRIGHT	"BEREA"	1954	OTTAWA	1,170	3 L		DETROIT RIVER	2,337	7	0	3	1	60	1,150	42,345	SHUT-IN - LACK OF STORAGE		806	10
OF		TRAVERSE	1953	OTTAWA	1,920	1 L				7	0	0	2	70	73	18,571			265	1
	WRIGHT TWP., 8N-13W, SECTIONS 26, 32, 33 TALLMADGE TWP., 7N-13W, SECTION 4 NONCOMMERCIAL GAS PRODUCTION IN BASE OF GLACIAL DRIFT																			
AGF	WYOMING PARK	TRAVERSE	1939	KENT	1,870	6 L	39.0	DETROIT RIVER	2,255	21	ABANDONED 1970			300		157,873			526	
	WYOMING TWP., 6N-12W, SECTIONS 13, 14, 23																			
GF	YANKEE	NIAGARAN REEF	1963	ST. CLAIR	2,620	20 D		CLINTON	2,629	2	0	0	2	80			0	363,109		
	ST. CLAIR TWP., 5N-16E, SECTION 25																			
AGF	ZEELAND	"BEREA"	1946	OTTAWA	945	9 D		NIAGARAN	3,388	7	ABANDONED 1975			280					DOMESTIC USE	
	ZEELAND TWP., 5N-14W, SECTIONS 2, 11, 12, 13, 14																			
AGF	ZEELAND	TRAVERSE	1942	OTTAWA	1,514	3 L	41.9	NIAGARAN	3,052	21	ABANDONED 1967			400		310,085			775	
AOF		SALINA	1958		2,792	5 D	20.5			2	1	0	1	10	7,554	9,780			978	54
	SALINA ABANDONED 1962 - REACTIVATED 1976 ZEELAND TWP., 5N-14W, SECTIONS 25, 30, 31, 32, 36 HOLLAND TWP., 5N-15W, SECTIONS E½ 35, 36 (TRAVERSE) ZEELAND TWP., 5N-14W, SECTION 29 (SALINA)																			
AOF	ZEELAND, SEC. 28	TRAVERSE	1954	OTTAWA	1,491	1 L		DETROIT RIVER	2,215	3	ABANDONED 1956			30		4,437			148	
	ZEELAND TWP., 5N-14W, SECTIONS 21, 28																			
	1977 TOTALS														9,592,555	672,929,824	23,480,045	545,839,504		124,927

LISTING OF A SECTION OR PART OF A SECTION DOES NOT NECESSARILY MEAN THE ENTIRE SECTION TO BE PRODUCTIVE OF OIL OR GAS IN ANY OR ALL POTENTIALLY PRODUCTIVE FORMATIONS. ONLY THOSE SECTIONS OR PARTS OF SECTIONS WHICH HAVE HAD AT LEAST ONE WELL COMPLETED AS AN OIL OR GAS WELL ARE LISTED.

CHANGES IN GAS VOLUMETRIC MEASUREMENT

IN AN ATTEMPT TO OBTAIN NATIONAL UNIFORMITY OF DATA, ALL ANNUAL AND CUMULATIVE GAS PRODUCTION FIGURES FOR MICHIGAN WERE CONVERTED TO A STANDARD BASE PRESSURE FOR VOLUMETRIC MEASUREMENT OF 14.73 POUNDS PER SQUARE INCH IN 1978. THIS CONVERSION AND SUBSEQUENT ADJUSTMENT OF GAS PRODUCTION FIGURES RESULTED IN SLIGHT CHANGES IN CUMULATIVE PRODUCTION VOLUMES IN THOSE FIELDS WHICH HAD BEEN MEASURED AT VARYING PRESSURE BASES IN PRIOR YEARS.

1978 OIL AND CONDENSATE PRODUCTION FROM TABLE 2 . . . . . 25,070,932 BARRELS
1978 OIL PRODUCTION FROM TABLE 3 AND 4 9,592,555

TOTAL 1978 OIL PRODUCTION 34,663,487

CUMULATIVE OIL AND CONDENSATE PRODUCTION FROM TABLE 2 95,969,124
CUMULATIVE OIL PRODUCTION FROM TABLE 3 AND 4 673,055,755

TOTAL STATE CUMULATIVE OIL PRODUCTION THROUGH 1978 . . . . 769,035,965*

*CUMULATIVE FIGURE INCLUDES 11,086 BARRELS OF OIL FROM MISCELLANEOUS OIL WELLS DRILLED FROM 1925 THROUGH 1978 AND SUBSEQUENTLY COMPLETED AS DRY HOLES

1978 GAS PRODUCTION FROM TABLE 2 . . . . . 127,054,997 MCF
1978 GAS PRODUCTION FROM TABLE 3 AND 4 23,480,260

TOTAL 1978 GAS PRODUCTION 150,535,257

CUMULATIVE GAS PRODUCTION FROM TABLE 2 . . . . . 482,082,853 MCF
CUMULATIVE GAS PRODUCTION FROM TABLE 3 AND 4 912,564,355

TOTAL CUMULATIVE GAS PRODUCTION THROUGH 1978 1,394,647,208

CHANGES IN FIELD NAMES

HISTORICALLY, WITH FEW EXCEPTIONS, MICHIGAN OIL AND GAS FIELDS HAVE BEEN NAMED AFTER NEARBY GEOGRAPHIC ENTITIES SUCH AS TOWNS, VILLAGES, LAKES AND TOWNSHIP NAMES. DUE TO NUMEROUS NIAGARAN REEF DISCOVERIES AND A LACK OF SUITABLE IDENTIFYING GEOGRAPHIC NAMES FOR SO MANY DISCRETE FIELDS IN CLOSE PROXIMITY TO EACH OTHER, THE NAMING SYSTEM FOR MOST NIAGARAN-RELATED FIELDS HAS BEEN MODIFIED, BEGINNING IN 1971, MOST NEW NIAGARAN REEF FIELDS HAVE BEEN NAMED ACCORDING TO TOWNSHIP NAME, FOLLOWED BY THE SECTION NUMBER FOR THE DISCOVERY WELL, AND THEN BY THE NUMERICAL TOWN AND RANGE. SUBSEQUENTLY-DISCOVERED, DISTINCT UNDERGROUND RESERVOIRS LOCATED IN THE SAME TOWNSHIP AND SECTION AS A PREVIOUSLY NAMED FIELD ARE DESIGNATED POOL A, B, C, ETC., AS NECESSARY. IN THESE CASES WHEN ONLY ONE UNDERGROUND RESERVOIR IS ASSOCIATED WITH EACH FIELD, THE WORDS "FIELD" AND "POOL" ARE SYNONYMOUS. WHERE MORE THAN ONE RESERVOIR IS ASSOCIATED WITH A PARTICULAR FIELD, EACH RESERVOIR IS INDICATED BY A SEPARATE FORMATION OR ZONE LISTING UNDER THE TABLE HEADING "PRODUCING FORMATION OR POOL."

TABLE 4 GAS STORAGE RESERVOIRS

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY & API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	COMP IN	ABAND IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GS	AUSTIN	MICHIGAN STRAY	1933	MECOSTA	1,380	14 S		DETROIT RIVER	4,043		0	0	91	3,970				6,231,214		
	AUSTIN TWP., 14N-9W, SECTIONS 2, 3, 4, 9, 10, 11, 12, 13, 14 COLFAX TWP., 15N-9W, SECTIONS 32, 33 MORTON TWP., 14N-8W, SECTIONS 6, 7																			
GS	BELLE RIVER MILLS	SALINA-NIAGARAN	1961	ST. CLAIR	2,215	305 D		CLINTON	2,694		0	0	43	840		1,212		24,457,396		
	CHINA TWP., 4N-16E, SECTIONS 11, 14, 15																			
GS	CLARENCE 19-1S-4W	NIAGARAN REEF	1971	CALHOUN	3,154	24 D		NIAGARAN	3,240	1	0	0	1	160				1,057,656		
	CLARENCE TWP., 1S-4W, SECTION 19																			
GS	COLDWATER	MICHIGAN STRAY	1945	ISABELLA	1,390	10 S		SYLVANIA	5,090		8	0	72	2,400				7,530,450		
	COLDWATER TWP., 16N-6W, SECTIONS 28 THROUGH 33 SHERMAN TWP., 15N-6W, SECTION 6																			
GS	COLUMBUS	SALINA-NIAGARAN	1964	ST. CLAIR	2,738	190 D		CLINTON	3,232		0	0	20	320				13,598,373		
	COLUMBUS TWP., 5N-15E, SECTIONS 15, 16, 21, 22																			
GS	COLUMBUS, WEST	SALINA-NIAGARAN REEF	1967	ST. CLAIR	3,183	144 D		CLINTON	3,447	29	0	0	25	520				16,613,514		
	COLUMBUS TWP., 5N-15E, SECTIONS 7, 17, 18																			
GS	CRANBERRY LAKE	MICHIGAN STRAY	1943	CLARE-MISSAUKEE	1,321	10 S		RICHFIELD	5,201		0	0	171	7,000				7,688,200		
	SUMMERFIELD TWP., 20N-5W, SECTIONS 4, 5, 6, 7, 8, 9, 15, 16, 17, 18, 22, 23 WINTERFIELD TWP., 20N-6W, SECTIONS 1, 2, 3, 10, 11, 12 CLAM UNION TWP., 21N-6W, SECTIONS 25, 34, 35																			
GS	CROTON	MARSHALL	1951	NEWAYGO	917	4 S		SALINA	3,993		0	0	60	860				1,347,252		
	CROTON TWP., 12N-11W, SECTIONS 29, 32																			
GS	FOUR CORNERS	SALINA-NIAGARAN	1966	ST. CLAIR	2,205	212 D		CLINTON	2,638		0	0	5	80				1,124,375		
	CASCO TWP., 4N-15E, SECTION 36 IRA TWP., 3N-15E, SECTION 1																			
GS	FREEMAN-LINCOLN	MICHIGAN STRAY	1938	CLARE	1,500	10 S		DETROIT RIVER	3,957		24	0	169	6,600				18,461,480		
	LINCOLN TWP., 18N-5W, SECTIONS 7, 16, 17, 18, 19, 20, 21, 27, 28, 29 FREEMAN TWP., 18N-6W, SECTIONS 2, 3, 4, 9, 10, 11, 13, 14, 15, 23, 24																			
GS	GOODWELL	MICHIGAN STRAY	1943	NEWAYGO	1,142	20 S		DETROIT RIVER	3,562		11	0	101	3,020				5,993,183		
	GOODWELL TWP., 14N-11W, SECTIONS 5, 6, 7, 8, 9, 16, 17 WILCOX TWP., 14N-12W, SECTION 1 NORWICH TWP., 15N-11W, SECTION 31 MONROE TWP., 15N-12W, SECTION 36																			
GS	HAMILTON, NORTH	MICHIGAN STRAY-MARSHALL	1952	CLARE	1,487	8 S		RICHFIELD	5,395		1	0	63	3,040				5,559,066		
	HAMILTON TWP., 19N-3W, SECTIONS 5, 6, 7, 8 HAYES TWP., 19N-4W, SECTION 1 FROST TWP., 20N-4W, SECTIONS 35, 36																			
GS	HESSEN	NIAGARAN REEF	1965	ST. CLAIR	2,499	261 D		NIAGARAN	2,887		3	0	21	640	0	117,492		11,747,204		
	CASCO TWP., 4N-15E, SECTIONS 2, 3, 10, 11 COLUMBUS TWP., 5N-15E, SECTIONS 34, 35																			
GS	HOWELL	SALINA-NIAGARAN	1935	LIVINGSTON	3,920	9 D		ST. PETER SS.	5,958		0	0	69	2,400				24,151,682		
	GENOA TWP., 2N-5E, SECTIONS 5, 6, 7, 8, 17 MARION TWP., 2N-4E, SECTIONS 1, 2, 12 HOWELL TWP., 3N-4E, SECTION 35																			
GS	IRA	SALINA-NIAGARAN	1953	ST. CLAIR	2,276	33 O		CLINTON	2,632		0	0	15	680				3,568,639		
	IRA TWP., 3N-15E, SECTIONS 1, 2, 11																			
GS	LACEY STATION	A-2 SALT SOLUTION CAVERN	1971	BARRY				CAMBRIAN		2	0	0	2							
	JOHNSTOWN TWP., 1N-8W, SECTION 14																			
GS	LEE 4-1S-5W	SALINA-NIAGARAN REEF	1972	CALHOUN	3,162	86 D		NIAGARAN	3,415	2	0	0	2	320		178		716,595	1	
	LEE TWP., 1S-5W, SECTIONS 4, 9																			
GS	LEE 16	SALINA-NIAGARAN		CALHOUN	3,200					1	0	0	1	300						
	LEE 16 STORAGE AREA CREATED BY SPACING ORDER OF MARCH 30, 1973. INCLUDES SE¼ AND S½, NE SECTION 16, NW OF SW¼ AND W½ SW SW¼ OF SECTION 15, T.1S., R.5W.																			
GS	LENOX	SALINA-NIAGARAN	1960	MACOMB	2,734	46 D		CLINTON	3,018		0	0	11	300		2,565		2,195,733		
	LENOX TWP., 4N-14E, SECTION 32 CHESTERFIELD TWP., 3N-14E, SECTION 5																			
GS	MARION (WINTERFIELD)	MICHIGAN STRAY	1940	CLARE-OSCEOLA	1,344	15 S		SYLVANIA	5,100		0	0	284	10,720				20,486,635		
	WINTERFIELD TWP., 20N-6W, SECTIONS 17 THROUGH 21, 27 THROUGH 35 REDDING TWP., 19N-6W, SECTIONS 1, 2, 3, 4, 6 MARION TWP., 20N-7W, SECTIONS 24, 25, 36 MIDDLE BRANCH TWP., 19N-7W, SECTION 1																			
GS	MARYSVILLE-MORTON	SEE FOOTNOTE FOR GAS STORAGE FIELDS ON NEXT PAGE																		
GS	MUTTONVILLE	SALINA-NIAGARAN REEF	1966	MACOMB	2,576	194 D		CLINTON	3,039		0	0	13	280			215	10,506,413		
	LENOX TWP., 4N-14E, SECTION 13																			
GS	NORTHVILLE	TRENTON-BLK. RIVER	1954	WAYNE-WASHTENAW	4,395	70 D		CAMBRO-ORDOVICIAN	5,850		0	0	69	2,825+				18,202,766		
	FOR LOCATION SEE NORTHVILLE, TABLE 2																	INCLUDES BOTH SALINA-NIAGARAN AND TRENTON GAS		
GS	ORIENT	MICHIGAN STRAY	1945	OSCEOLA-CLARE	1,508	11 S		SYLVANIA	5,307		1	0	76	2,600				5,457,873		
	ORIENT TWP., 17N-7W, SECTIONS 2, 3, 10, 11, 12, 13, 14 GARFIELD TWP., 17N-6W, SECTIONS 18, 19																			
GS	OVERISEL	SALINA	1956	ALLEGAN	2,650	12 D		TRENTON	4,060		0	0	186	6,660				14,937,949		
	OVERISEL TWP., 4N-14W, SECTIONS 4, 5, 8, 9, 10, 14, 15, 16, 21, 22, 23, 27, 28																			
GS	PARTELLO	SALINA A-1 CARB	1959	CALHOUN	3,192	30 D		TRENTON-BLK. RIVER	4,905		0	0	5	200				1,729,226		
	LEE TWP., 1S-5W, SECTIONS 12, 13																			
GS	PUTTYGUT	SALINA-NIAGARAN	1960	ST. CLAIR	2,423	60 D		NIAGARAN	2,774		0	0	25	440	OIL PRODUCTION COMBINED WITH ADAIR			11,485,690		
	CASCO TWP., 4N-15E, SECTIONS 11, 14, 15																			
GS	RAY	SALINA-NIAGARAN	1961	MACOMB	2,945	101 D		NIAGARAN	3,273		0	0	47	660		1,689		35,907,293		
	RAY TWP., 4N-13E, SECTIONS 1, 2, 11 ARMADA TWP., 5N-13E, SECTION 36																			
GS	REED CITY	MICHIGAN STRAY	1940	OSCEOLA-LAKE	1,217	12 S		ST. PETER SS.	8,960		0	0	105	4,880				7,795,091		
		REED CITY	1941		3,585	7 D					0	0	247	COMBINATION GAS STORAGE AND SECONDARY RECOVERY PROJECT - REFER TO TABLE 5 FOR ADDITIONAL DETAILS ON LOREED OPERATION						
	LINCOLN TWP., 18N-10W, SECTIONS 8, 9, 16, 17, 18, 19, 20, 21, 29, 30, 31, 32 PINORA TWP., 18N-11W, SECTIONS 24, 25																			
GS	RIVERSIDE	MICHIGAN STRAY	1940	MISSAUKEE	1,435	7 S		DUNDEE	3,953		0	0	99	3,680				5,292,251		
	RIVERSIDE TWP., 21N-7W, SECTIONS 15, 16, 17, 19, 20, 21, 22, 23																			
GS	SALEM	SALINA	1937	ALLEGAN	2,725	2 D		TRENTON	3,792		0	0	87	4,960		2,973		11,536,912		
	SALEM TWP., 4N-13W, SECTIONS 2, 3, 9, 10, 11, 12, 14, 15, 16, 17, 21, 22, 23 JAMESTOWN TWP., 5N-13W, SECTIONS 34, 35																			
GS	SHAVER (SUMNER-NEW HAVEN)	MICHIGAN STRAY	1935	GRATIOT-MONTCALM	1,020	11 S		DUNDEE	3,536		3	3	54	3,920				11,337,204		
	NEW HAVEN TWP., 10N-4W, SECTIONS 2, 3, 4, 5, 8, 9, 10, 11 SUMNER TWP., 11N-4W, SECTIONS 31, 32, 33, 34 CRYSTAL TWP., 10N-5W, SECTIONS 1, 2, 3, 5, 6 FERRIS TWP., 11N-5W, SECTIONS 22, 36																			
GS	SIX LAKES	MICHIGAN STRAY	1934	ISABELLA-MECOSTA, MONTCALM	1,270	25 S		DETROIT RIVER	3,790		19	6?	254	11,480				52,636,813		
	ROLLAND TWP., 13N-6W, SECTIONS 29, 30 MINTON TWP., 13N-8W, SECTIONS 23, 24, 25 MILLBROOK TWP., 13N-7W, SECTIONS 27 THROUGH 36 BELVIDERE TWP., 12N-7W, SECTIONS 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 20, 21																			
GS	SWAN CREEK	SALINA-NIAGARAN	1967	ST. CLAIR	2,256	245 D		CLINTON	2,638		0	0	1	40				417,539		
	CASCO TWP., 4N-15E, SECTION 36																			

POOL CLASSIFICATION — OF ACTIVE OIL FIELD OR POOL; AOF ABANDONED OIL FIELD OR POOL; GF ACTIVE GAS FIELD OR POOL; AGF ABANDONED GAS FIELD OR POOL; G-C GAS-CONDENSATE FIELD OR POOL; AG-C ABANDONED GAS-CONDENSATE FIELD OR POOL; GS GAS STORAGE RESERVOIR

	FIELD NAME	PRODUCING FORMATION OR POOL	YEAR OF DISC	COUNTY TOWNSHIP / PRODUCING SECTIONS	PAY ZONE: DEPTH IN FEET	PAY ZONE: THICKNESS AND LITHOLOGY	PAY ZONE: OIL GRAVITY & API	DEEPEST FORMATION OR POOL TESTED	DEPTH IN FEET	NUMBER OF WELLS 1978: TO END	COMP IN	ABAND IN	ACTIVE AT END	DRILLED ACRES	OIL PRODUCTION - BBLS: PRODUCED IN 1978	OIL PRODUCTION - BBLS: CUMULATIVE THROUGH 1978	GAS PRODUCTION - Mcf: PRODUCED IN 1978	GAS PRODUCTION - Mcf: CUMULATIVE THROUGH 1978	RECOVERY PER ACRE DRILLED (BBLS)	TOTAL BARRELS BRINE PER DAY
GS	WINFIELD	MICHIGAN STRAY	1935	MONTCALM	1,125	8 S		DETROIT RIVER	3,405		2	0	127	3,240				4,932,855		
	WINFIELD TWP., 12N-5W, SECTIONS 6, 7, 8, 16, 17, 18 REYNOLDS TWP., 12N-10W, SECTIONS 1, 12																			
GS	WOODVILLE (NORWICH)	MICHIGAN STRAY	1943	NEWAYGO	1,185	13 S		DETROIT RIVER	3,405		0	0	46	2,240				2,736,924		
	NORWICH TWP., 15N-11W, SECTIONS 16, 17, 20, 21, 28, 29																			
				TOTALS:										92,275	0	125,931	215	366,724,851		

WELL COUNTS IN THESE COLUMNS ARE AS PROVIDED BY FIELD OFFICE PERSONNEL

LACEY STATION: THIS IS A DRY-GAS STORAGE PROJECT FOR THE BATTLE CREEK GAS COMPANY. GAS IS STORED IN A CAVITY WASHED FROM SALINA A-2 SALT BEDS AT A DEPTH OF ABOUT 3100 FEET BELOW THE SURFACE.

CHANGES IN GAS VOLUMETRIC MEASUREMENT

IN AN ATTEMPT TO OBTAIN NATIONAL UNIFORMITY OF DATA, ALL ANNUAL AND CUMULATIVE GAS PRODUCTION FIGURES FOR MICHIGAN WERE CONVERTED TO A STANDARD BASE PRESSURE FOR VOLUMETRIC MEASUREMENT OF 14.73 POUNDS PER SQUARE INCH IN 1978. THIS CONVERSION AND SUBSEQUENT ADJUSTMENT OF GAS PRODUCTION FIGURES RESULTED IN SLIGHT CHANGES IN CUMULATIVE PRODUCTION VOLUMES IN THOSE FIELDS WHICH HAD BEEN MEASURED AT VARYING PRESSURE BASES IN PRIOR YEARS.

MARYSVILLE-MORTON: THIS STORAGE OPERATION, OPERATED BY SOUTHEASTERN MICHIGAN GAS COMPANY, UTILIZES WELLS PREVIOUSLY USED IN SALT SOLUTION-EXTRACTION OPERATIONS. THE OPERATION IS SO NAMED TO DISTINGUISH IT FROM THE MARYSVILLE SYNTHETIC GAS MANUFACTURING FACILITIES.

THE PRODUCING SECTIONS LISTED IN GAS STORAGE RESERVOIR TABLES DO NOT NECESSARILY RELATE TO CURRENT GAS STORAGE AREA OR BOUNDARIES. ALSO, THE SECTIONS DO NOT NECESSARILY RELATE TO POTENTIAL OR FUTURE GAS STORAGE AREA OR BOUNDARIES. THE SECTIONS, OR PARTS OF SECTIONS LISTED ARE THOSE WHICH CONTAINED AT LEAST ONE PRODUCIBLE OIL OR GAS WELL ASSIGNED TO THE FIELD OR POOL PRIOR TO CONVERSION OR DESIGNATION AS GAS STORAGE.

MARYSVILLE: THIS IS AN UNDERGROUND STORAGE PROJECT FOR LPG'S USED IN THE MANUFACTURE OF SYNTHETIC NATURAL GAS. LPG STORAGE IS IN MAN-MADE CAVERNS IN SALINA SALT BEDS. PROJECT AREA IS IN SECTION 7, T.5N., R.17E.

MOST GAS STORAGE RESERVOIRS WERE ORIGINALLY CLASSIFIED AS GAS FIELDS OR POOLS. UPON DEPLETION OR NEAR-DEPLETION OF NATIVE GAS, THEY WERE CONVERTED TO STORAGE RESERVOIRS.

GAS STORAGE RESERVOIR OPERATORS

BATTLE CREEK GAS COMPANY
- LACEY STATION

CONSUMERS POWER COMPANY
- FOUR CORNERS
- HESSEN
- IRA
- LENOX
- NORTHVILLE
- OVERISEL
- PUTTYGUT
- RAY
- SALEM
- SWAN CREEK

MGU DEVELOPMENT COMPANY
- CLARENCE 19-1S-4W

MICHIGAN CONSOLIDATED GAS COMPANY
- AUSTIN
- BELLE RIVER MILLS
- COLUMBUS
- COLUMBUS, WEST
- FREEMAN-LINCOLN
- GOODWELL
- HAMILTON, NORTH
- ORIENT
- REED CITY
- SIX LAKES
- SHAVER (SUMNER-NEW HAVEN)
- WOODVILLE

MICHIGAN GAS STORAGE COMPANY
- CRANBERRY LAKE
- MARION
- RIVERSIDE

MICHIGAN GAS UTILITIES COMPANY
- LEE 4-1S-5W
- LEE 16
- PARTELLO

MICHIGAN-WISCONSIN PIPELINE COMPANY
- CAPAC (BEING DEVELOPED)
- COLDWATER
- CROTON
- MUTTONVILLE
- WINFIELD

PANHANDLE EASTERN PIPELINE
- HOWELL

SOUTHEASTERN MICHIGAN GAS COMPANY
- MARYSVILLE-MORTON

TABLE 5 PRESSURE MAINTENANCE AND SECONDARY RECOVERY OPERATIONS

FIELD AND COUNTY	OPERATOR TYPE OF PROJECT	DISC. YEAR YEAR PROJECT BEGAN	PAY ZONE FORM.	PAY ZONE THICK	PAY ZONE DEPTH	TOTAL UNIT ACRES	INJECTION FLUIDS PRESSURE PSIG	VOLUME OF INJECTED FLUID 1978 MCF GAS	VOLUME OF INJECTED FLUID 1978 BARRELS WATER	VOLUME OF INJECTED FLUID 1978 INJ. WELLS	CUMULATIVE VOLUME OF INJECTED FLUID MCF GAS	CUMULATIVE VOLUME OF INJECTED FLUID BARRELS WATER	UNIT PRODUCTION IN 1978 BARRELS OIL	UNIT PRODUCTION IN 1978 SALES MCF GAS	UNIT PRODUCTION IN 1978 WATER PRODUCED	UNIT PRODUCTION IN 1978 NO. WELLS	UNIT CUMULATIVE 1-1-79 BARRELS OIL	UNIT CUMULATIVE 1-1-79 SALES MCF GAS	UNIT CUMULATIVE 1-1-79 BARRELS WATER
AURELIUS 35 UNIT INGHAM CO.	(1)UWF	1971 1974	NIAG.	110	4075	400	BRINE 1024	NONE	831,556	2	NONE	3,165,856	(P) NONE (S) 186,617	98,510	520,000	5	(P) 805,000 (S) 789,986	847,168	1,025,790
BEAVER CREEK CRAWFORD-KALKASKA CO.	(2)UWF	1947 1963	RICH.	17	4400	4640	FRESH WATER 2229	NONE	5,353,174	60	NONE	74,830,056	(P) NONE (S) 516,222	194,100	524,892	55	(P) 7,750,000 (S) 4,689,588	19,535,535	4,934,578
BEAVERTON, WEST GLADWIN CO.	(3)UWF	1943 1966	DD.	2	3876	480	FRESH WATER & BRINE, 2100	NONE	130,737	2	NONE	840,499	(P) NONE (S) 4,656	NONE	10,950	4	(P) 180,000 (S) 44,198	NONE	87,420
BENTLEY DUNDEE GLADWIN CO.	(4)UWF	1937 1964	DD.	13	3510	440	FRESH WATER & BRINE, 2232	NONE	148,430	4	NONE	1,476,161	(P) NONE (S) 12,554	NONE	21,900	7	(P) 382,000 (S) 111,328	NONE	488,590
BERLIN ST. CLAIR CO.	(12)UWF	1960 1970	NIAG.	30	3800	200	BRINE VACUUM	NONE	11,700	1	NONE	1,670,499	(P) 648 (S) NONE	NONE	12,775	2	(P) 348,308 (S) 27,536	NONE	85,411
CHESTER 18 OTSEGO CO.	(11)UWF	1971 1978	NIAG.	20	6330	1280	FRESH WATER VACUUM	NONE	200,000	7	NONE	200,000	(P) 780,877 (S) NONE	1,004,405	86,870	11	(P) 5,662,854 (S) NONE	4,067,054	181,377
COLUMBUS 3 UNIT ST. CLAIR CO.	(5)UWF&WF	1968 1974	NIAG.	49	3105	860	RECYCLE GAS & BRINE, VACUUM	579,094	28,011	2 GAS 1 WTR	1,865,996	91,535	(P) NONE (S) 390,308	NONE	28,000	19	(P) 3,275,000 (S) 1,246,317	NONE	308,870
CRANBERRY LAKE CLARE CO.	(4)UWF	1951 1969	RICH.	15	5048	680	FRESH WATER 2700	NONE	400,753	8	NONE	3,484,170	(P) 11,344 (S) 64,663	NONE	100,375	7	(P) 1,128,737 (S) 236,341	NONE	653,715
EAST NORWICH MISSAUKEE CO.	(5)URG&WF	1942 1947	RICH.	14	4880	4880	FRESH WATER 2450	DISCONT. 1962	1,332,048	56	11,699,478	21,400,311	(P) NONE (S) 359,857	294,715	286,890	69	(P) 5,800,000 (S) 5,409,053	10,423,560	2,637,049
ENTERPRISE MISSAUKEE CO.	(5)URG&WF	1943 1953	RICH.	16	4405	1320	FRESH WATER 2500	DISCONT. 1961	883,945	16	1,419,641	8,547,983	(P) NONE (S) 111,499	88,064	64,240	17	(P) 1,925,000 (S) 1,408,282	1,556,829	968,031
GROUT GLADWIN CO.	(5)UWF	1956 1960	RICH.	10	5039	480	FRESH WATER 2250	NONE	266,734	5	NONE	3,653,179	(P) NONE (S) 28,701	NONE	132,860	7	(P) 900,000 (S) 886,030	NONE	1,204,197
HAMILTON CLARE CO.	(5)UWF	1952 1958	RICH.	12	5145	1800	FRESH WATER 2225	NONE	954,813	17	NONE	18,829,872	(P) NONE (S) 121,904	46,172	582,540	26	(P) 2,800,000 (S) 3,651,854	4,159,792	5,683,641
HEADQUARTERS ROSCOMMON CO.	(7)UWF	1952 1969	RICH.	13	4946	720	FRESH WATER 2444	NONE	157,297	8	NONE	3,328,950	(P) NONE (S) 38,119	NONE	44,238	10	(P) 722,000 (S) 451,042	NONE	424,805
KALKASKA 21 POOL C KALKASKA CO.	(10)URG	1972 1977	NIAG.	130	6600	1040	RECYCLE GAS 1850	301,004	NONE	1	306,177[A]	NONE	(P) 68,769 (S) 3,619	11,922	NONE	1	(P) 760,091 (S) 3,619	1,257,871	NONE
KALKASKA 21 POOL D KALKASKA CO.	(10)URG	1971 1976	NIAG.	170	6590	1040	RECYCLE GAS 1700	329,005	NONE	1	721,658[B]	NONE	(P) 91,828 (S) 30,610	6,237	NONE	1	(P) 1,264,777 (S) 40,610	1,810,250	NONE
MANISTEE 1 UNIT MANISTEE CO.	(11)URG	1973 1976	NIAG.	158	4440	320	RECYCLE GAS 1700	474,217	NONE	1	1,190,115[C]	NONE	(P) 100,115 (S) 5,269	83,788	NONE	1	(P) 390,699 (S) 5,269	115,071	NONE
ONONDAGA 10 UNIT INGHAM CO.	(1)UWF	1971 1973	NIAG.	75	3784	1760	BRINE 633	NONE	5,034,075	7	NONE	14,975,046	(P) NONE (S) 876,235	1,388,429	1,708,200	15	(P) 2,703,000 (S) 3,240,150	6,143,161	2,888,552
ONONDAGA 21A UNIT INGHAM CO.	(1)UWF	1971 1978	NIAG.	65	3629	1120	BRINE 545	NONE	501,573	3	NONE	501,573	(P) 97,860 (S) NONE	588,705	43,070	12	(P) 1,513,018 (S) NONE	4,185,585	43,070
ONONDAGA 21B UNIT INGHAM CO.	(1)UWF	1971 1978	NIAG.	59	3688	480	BRINE 372	NONE	1,224,578	3	NONE	1,224,578	(P) 109,342 (S) NONE	164,315	84,680	4	(P) 1,541,293 (S) NONE	1,462,361	84,680
PENNFIELD 35 UNIT CALHOUN CO.	(1)UWF	1974 1976	NIAG.	4	2820	1360	BRINE 744	NONE	1,052,088	5	NONE	1,790,941	(P) 284,416 (S) 115,000	150,836	699,340	11	(P) 1,289,669 (S) 215,000	314,162	793,328
REED CITY** LAKE-OSCEOLA CO.	(8)GSOR	1940 1963	DD. R.C.	21	3585	5000	PRODUCED BRINE EXTRANEOUS GAS	-3,570,000	942,065	174 GAS 10 WTR	39,719,534	154,587,861	(P) NONE (S) 145,040	NONE	942,065	171	(P)39,293,000 (S) 3,086,163	16,257,876	174,622,889
ROSE CITY OGEMAW CO.	(9)UWF	1945 1964	RICH.	9	4125	4600	FRESH WATER 2489	NONE	563,636	38	NONE	6,566,172	(P) NONE (S) 208,020	126,140	25,368	46	(P) 3,558,000 (S) 1,549,891	6,545,111	408,253
ROSE CITY, CENTRAL OGEMAW CO.	(9)UWF	1951 1971	RICH.	8	4125	1560	FRESH WATER 2209	NONE	328,498	9	NONE	2,510,197	(P) NONE (S) 17,708	4,067	1,643	10	(P) 1,000,000 (S) 139,013	993,602	84,390
ROSE CITY, WEST OGEMAW CO.	(5)UWF	1952 1968	RICH.	10	4150	320	FRESH WATER & BRINE, VACUUM	NONE	146,625	5	NONE	2,283,330	(P) NONE (S) 22,263	4,516	16,060	4	(P) 570,000 (S) 231,411	847,639	116,525
ST. HELEN ROSCOMMON CO.	(5)URG&WF	1941 1958	RICH.	9	4480	4480	FRESH WATER VACUUM	DISCONT. 1959	811,330	41	3,151,610	12,800,040	(P) NONE (S) 271,516	225,979	81,030	48	(P) 3,760,000 (S) 2,361,389	11,397,216	1,018,926
WEST BRANCH OGEMAW CO.	(6)UWF	1933 1966	DD.	28	2650	2730	FRESH WATER & BRINE, 1500	NONE	1,151,894	54	NONE	7,242,556	(P) 36,176 (S) 205,100	NONE	789,395	65	(P) 3,479,352 (S) *941,565	NONE	3,703,824

NUMBER OF ACTIVE PROJECTS 26

AMOUNT OF GAS INJECTED IN 1978 . . . 1,683,320 MCF
AMOUNT OF WATER INJECTED IN 1978 . . 22,613,373 BBL

NUMBER OF GAS INJECTION WELLS 179
NUMBER OF WATER INJECTION WELLS 362

TOTAL PRIMARY OIL PRODUCTION IN 1978 . . 1,582,375 BBL
TOTAL SECONDARY OIL PRODUCTION IN 1978 . 3,735,480 BBL

OIL PRODUCTION IN EXCESS OF THAT EXPECTED THROUGH PRIMARY DEPLETION IN THE PRESSURE MAINTENANCE AND SECONDARY RECOVERY PROJECTS IS APPROXIMATELY 11% OF THE TOTAL MICHIGAN PRODUCTION FOR 1978.

TOTAL UNIT ACRES AND OTHER DATA DOES NOT NECESSARILY CORRESPOND WITH DRILLED ACRES AS NOTED ON TABLES 2 AND 3.

A. INCLUDES 86,917 MCF PURCHASED FROM OUTSIDE KALKASKA 21 POOL C.

B. INCLUDES 110,717 MCF PURCHASED FROM OUTSIDE KALKASKA 21 POOL D.

C. INCLUDES 161,584 MCF PURCHASED FROM OUTSIDE MANISTEE 1 UNIT.

(S)*36,456 BBLS. OF SECONDARY OIL CREDITED TO WEST BRANCH PROJECT ARE FROM TWO TRAVERSE FORMATION WATER SOURCE WELLS.

FIGURES DEFINED AS (P) AND (S) RESPECTIVELY REPRESENT OIL PRODUCED AS A RESULT OF PRIMARY AND SECONDARY TECHNIQUES.

COMPILATIONS ON PRESSURE MAINTENANCE AND SECONDARY RECOVERY OPERATIONS PROVIDED BY STAFF MEMBERS OF THE PRODUCTION AND PRORATION UNIT.

THERE ARE THREE SEPARATE PRESSURE MAINTENANCE AND SECONDARY RECOVERY OPERATION UNITS IN THE ROSE CITY FIELD, OGEMAW COUNTY. THEY ARE CALLED ROSE CITY, ROSE CITY, CENTRAL AND ROSE CITY, WEST. NOT ALL PRODUCING WELLS IN THE FIELD ARE INCLUDED IN THE UNITS.

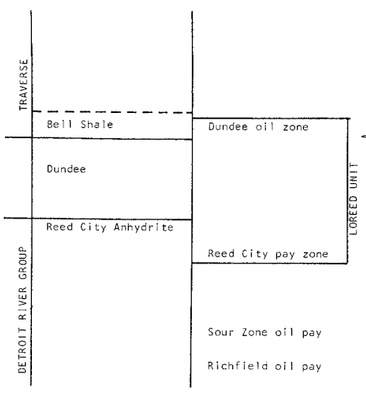
OPERATOR

(1) MOBIL OIL CORPORATION
(2) UNION OIL CORPORATION
(3) H. E. TOPE, INC.
(4) LEASE MANAGEMENT, INC.
(5) SUN OIL COMPANY
(6) MARATHON OIL COMPANY
(7) FARMERS PETROLEUM COOPERATIVE, INC.
(8) MICHIGAN CONSOLIDATED GAS COMPANY
(9) MUSKEGON DEVELOPMENT COMPANY
(10) NORTHERN MICHIGAN EXPLORATION COMPANY
(11) SHELL OIL COMPANY
(12) LOEB OIL COMPANY

PROJECT TYPE

UWF . . . UNIT WATER FLOOD
URG&WF . . UNIT RECYCLED GAS & WATER FLOOD
GSOR . . UNIT GAS STORAGE IN OIL RESERVOIR

**LOREED UNIT IN REED CITY FIELD



NOTE: THE LOREED UNIT IN THE REED CITY FIELD, A MULTI-POOL FIELD, IS A GAS STORAGE-SECONDARY OIL RECOVERY OPERATION ENCOMPASSING SEVERAL RESERVOIRS. THE RESERVOIR FORMATIONS INCLUDED IN THE LOREED UNIT ARE SHOWN IN THE STRATIGRAPHIC SECTION.

THE RICHMOND UNIT, LISTED IN THIS TABLE IN 1975 AND IN PREVIOUS ISSUES HAS BEEN DELETED FROM THE TABLE. THE RICHMOND UNIT PRODUCES FROM THE DETROIT RIVER SOUR ZONE. IT SHOULD NOT BE CONSIDERED AS A FIELD. IT IS THE NAME APPLIED TO THE DETROIT RIVER SOUR ZONE POOL RESERVOIR IN THE REED CITY FIELD. THE FORMER RICHMOND PROJECT IS NOT RELATED TO THE LOREED OPERATION.

TABLE 6 GAS PLANT OPERATIONS BY PLANT OR FIELD, 1978 (All figures in MCF)

Plant or Field	Input Totals	Plant Fuel	Lease Fuel	Line Loss	Vented	Extraction Loss	Sales To Pipe Line	L.P.G. Recovery Gallons	
Albion-Scipio	7,414,393	868,550	0	494,518	35,000	729,219	5,287,106	21,712,632	
Aurelius	5,839,133	433,645	0	130,617	30,022	394,687	4,850,162	12,157,657	
Beaver Creek	345,548	14,101	137,921	0	0	36,729	156,797	62,300	
Chester	716,283	97,166	0	0	0	36,460	582,657	1,821,369	
Columbus, Section 3	784,828	72,000	35,914	26,294	0	86,081	0	2,611,576	
Convis	307,191	26,143	0	19,397	19,714	9,706	232,231	235,154	
*Hamilton	115,802	11,973	46,113	0	0	7,499	50,217	187,488	
Kalkaska (Amoco)	42,599,684	672,252	0	490,394	4,249	1,663,040	39,769,749	58,704,064	(1)
Kalkaska (Shell)	84,981,727	2,380,545	0	727,151	0	12,224,155	69,649,876	320,611,452	(1)
Leonard	2,040,842	195,432	1,657	0	101,540	51,649	1,690,564	1,563,450	
Loreed	12,252,999	257,390	0	0	0	146,290	11,849,319	4,460,995	
Totals	157,398,430	5,029,197	221,605	1,888,371	190,525	15,385,515	134,118,678	424,128,137	

*Receives and processes oil well gas only.

(1) These LPG figures include stabilized condensate.

NOTE: The above table is the record of plants which are serving oil field operations, or which are extracting natural gas liquids from designated dry gas fields.

All data from Production and Proration Unit records.

MICHIGAN OIL REFINERIES

COMPANY	REFINERY LOCATION	NOMINAL CAPACITY* BBLS. DAY
Bay Refining, Division Dow Chemical Company	Bay City	17,000
Crystal Refining Company	Carson City	6,200
Lakeside Refining Company	Kalamazoo	5,600
Total Leonard, Inc. (Leonard Division)	Alma	42,000
Marathon Oil Company	Detroit	65,000
Osceola Refining Company	West Branch	12,500
	Total Refinery Capacity	148,300

AVERAGE DAILY AMOUNT OF CRUDE REFINED (Bbls.) - ALL REFINERIES

Michigan produced crude	75,827
Out-of-State produced crude	55,108
Total Daily Average	130,935

*Individual refinery operating rates may be less or slightly more than nominal rates shown.

PART 3
CUMULATIVE RECORDS
EXPLANATION

PART 3 contains cumulative statistics principally of oil and gas production, well completions, and oil field brine production and disposal from 1925 through the most recent year-end compilations.

OIL AND GAS PRODUCTION TABLES. Oil and gas production figures for individual years prior to 1960 can be found in issues of "Summary of Operations, Oil and Gas Fields" for 1962 and prior years, and in "Michigan's Oil and Gas Fields" 1963 to present. The tables show the year of the first recorded production from a particular formation, and the yearly and cumulative production totals from 1925 through the most recent year-end compilations. Cumulative oil and gas production by county is shown on a separate table. Refer to Part 1 for county production figures for the past year, and prior issues for previous years.

CUMULATIVE WELL COMPLETIONS. These tables show the cumulative number of yearly completions in a county. Well density figures include field development wells, exploratory wells, and service wells of all types.

DRILLING PERMITS, WELL COMPLETIONS, FIELDS DISCOVERED. These tables show the number of drilling permits issued by year from 1927 through the most recent year-end compilations. Initial classification of well completions by year, the number of new fields or pools discovered, and the number of producible oil or gas wells on a yearly basis are all shown on the same table.

BRINE PRODUCTION AND DISPOSAL. Oil field brine production records other than for individual fields were discontinued in 1968. These tables listed the reported amount of produced brine and the method of disposal from 1937 up to 1967. Most oil field brine is still returned to subsurface formations. Small quantities are used for dust control or ice and snow removal on county roads in local areas. A small amount of brine is also disposed of in burning pits.

SERVICE WELLS. Service wells as listed in this publication are those wells which were drilled to serve some purpose other than the initial production of oil or gas. Oil or gas wells are sometimes converted to salt water disposal, observation, or facility wells in gas storage or pressure maintenance projects. There are several types of service wells:

LPG Wells. These are wells drilled for underground storage of liquified petroleum gas. In Michigan, these storage reservoirs are in man-made cavities in salt beds. The cavities have been made by dissolving the salt with water and then pumping out the brine.

Gas Storage Wells. These are wells drilled in gas storage reservoirs. They are frequently referred to as facility wells, and are generally used to inject gas into or extract gas from the reservoir. Certain facility wells may sometime in the history of the field be used as salt water disposal wells or observation wells.

Observation Wells. Most observation wells are related to gas storage projects. They are used to observe underground movement of gas, brines and other fluids, or to observe pressures.

Brine Disposal Wells. These wells are used in the disposal of oil and gas field brines back into some suitable subsurface formation. Brine disposal well permits are issued for these wells.

Injection and Pressure Maintenance Wells. These are wells used in secondary recovery, or pressure maintenance projects. They may be new wells drilled specifically for injection or pressure maintenance, or they may be converted oil or gas wells; their status can change from time to time.

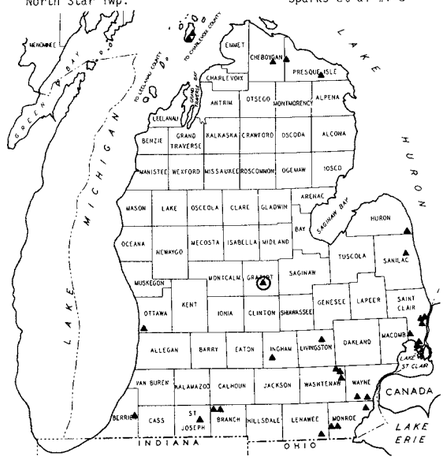
Oil or gas wells are sometimes converted to salt water disposal, observation, facility wells in gas storage reservoirs, or water injection wells used in secondary recovery or pressure maintenance projects. The types of service wells listed under "Classification of Well Completions" do not include oil or gas wells converted to service wells.

TESTS REPORTED TO HAVE PENETRATED PRECAMBRIAN ROCK IN THE SOUTHERN PENINSULA OF MICHIGAN

PERMIT				PRECAMBRIAN	TOTAL DEPTH	YEAR COMPLETED	
26112	Berrien Co. Berrien Twp.	10-6S-17W	Security Oil & Gas Thalmann #1	4604 (-3800)	5647 (-4843)	1965	
29779	Branch Co. Sherwood Twp.	7-5S-8W	Consumers Power Co. et al Lindsey-Hostetler #1	5375 (-4485)	5439 (-4549)	1974	
29969	Branch Co. Sherwood Twp.	8-5S-8W	Consumers Power Co. et al H. Clark #1	5418 (-4539)	5475 (-4586)	1974	
23478	Charlevoix Co. Peaine Twp.	6-37N-10W	McClure Oil Co. State-Beaver Island #2	4718 (-3977)	4803 (-4062)	1961 - Age: Biotite Rb-Sr: 1100 K-Ar: 1090 Feldspar: 1110	
23435	Charlevoix Co. Peaine Twp.	27-38N-10W	McClure Oil Co. State-Beaver Island #1	4566 (-3888)	5383 (-4705)	1961	
30682	Cheboygan Co. Waverly Twp.	24-35N-1W	North. Mich. Explor. Co. et al State-Waverly #1-24	5617 (-4816)	5753 (-4952)	1975	
29191	Huron Co. Sherman Twp.	26-15N-15E	Mobil Oil Corp. C. J. Volmering #1	8872 (-8161)	9086 (-8375)	1973	
28607	Ingham Co. Vevay Twp.	29-2N-1W	Mobil Oil Corp. Walter Kranz, Jr. #1	7690 (-6751)	7866 (-6927)	1971	
10448	Lenawee Co. Riga Twp.	32-8S-5E	Walter H. Eckert Harry Taylor #1	3865 (-3150)	3902 (-3186)	1944	
27986	Livingston Co. Osceola Twp.	11-3N-5E	Mobil Oil Corp. H. J. Messmore #1	7150?(-6170)	7589 (-6609)	1970	
11221	Monroe Co. Berlin Twp.	29-5S-10E	Joseph W. Sturman D. L. & R. L. Chapman #1	3342 (-2745)	3377 (-2780)	1945	
7702	Monroe Co. Ida Twp.	19-7S-7E	Jacob Beck Mrs. James Sancrant #1	3595 (-2926)	5495 (-4826)	1954	
25494	Monroe Co. Summerfield Twp.	16-7S-6E	Ferguson & Garrison Merlin Shimp #1	3637 (-2951)	3671 (-2985)	1964	
None	Ottawa Co. Holland Twp.	30-5N-15W	H. J. Heinz Co. H. J. Heinz Co. #2	6142 (-5523)	6221 (-5602)	1972	
29372	Presque Isle Co. Metz Twp.	13-33N-5E	Shell Oil Co. Taratuta #1-13	6738?(-5962)	6738 (-5962)	1973	Granite wash 6545? (-5769)
27199	Presque Isle Co. North Allis Twp.	29-35N-2E	Pan American Petro. Corp. D. E. Draysey #1	5877 (-5069)	5940 (-5132)	1968	
BD139	St. Clair Co. Casco Twp.	31-4N-15E	Consumers Power Co. Consumers Power Co. BD#1	4605 (-3989)	4627 (-4011)	1964	
25780	St. Clair Co. Clay Twp.	Projected 17-2N-16E	L. Bernhardt Puzzuoli #1	4152 (-3572)	4188 (-3608)	1965	
30376	St. Clair Co. Ira Twp.	14-3N-15E	Mich. Cons. Gas Co. Osterland #1-14	4449 (-3846)	4550 (-3947)	1975	
196	St. Clair Co. St. Clair Twp.	26-5N-16E	St. Clair Oil & Gas Corp. Hurst #1	4730 (-4080)	4770 (-4110)	1929 - Age: Biotite Rb-Sr: 1020	
BD151	St. Clair Co. St. Clair Twp.	7-5N-17E	Consumers Power Co. C.P.C. #1-7 BDW	4707 (-4069)	4733 (-4095)	1971	
BD152	St. Clair Co. St. Clair Twp.	7-5N-17E	Consumers Power Co. C.P.C. #2-7 BDW	4684 (-4052)	4702 (-4070)	1971	
31335	St. Joseph Co. Nottawa Twp.	11-6S-10W	Marathon Oil Co. Lloyd Cupp #1-11	5074 (-4182)	5283 (-4391)	1977	
30974	Sanilac Co. Bridgehampton Twp.	20-12N-15E	McClure Oil & Mich. Nat. Res. Hewett-Shadd Unit #1-20	8676 (-7891)	8975 (-8190)	1976	
10792	Washtenaw Co. Salem Twp.	27-1S-7E	I. C. Chamness Troy-Roddenberry Comm. #1	6075 (-5189)	6094 (-5208)	1944	
10141	Washtenaw Co. Salem Twp.	16-1S-7E	Colvin & Assoc. & Elec. Wm. F. Voss Comm. #1	6374 (-5459)	6410 (-5495)	1944 - Age: Biotite Rb-Sr: 950	
11341	Washtenaw Co. Superior Twp.	12-2S-7E	Colvin & Assoc. & Rot. St. Viola Meinzinger #1	5670 (-4852)	5692 (-4874)	1945 - Age: Biotite Rb-Sr: 1050	
BD146	Wayne Co., City of Woodhaven	22-4S-10E	Marathon Oil Co. Woodhaven BD#1	3704 (-3095)	3752 (-3143)	1969	
10430	Wayne Co. Huron Twp.	16-4S-9E	Colvin & Assoc. & Elec. Theisen Estate #1	3985 (-3360)	4046 (-3321)	1944	

DEEPEST EXPLORATORY WELL DRILLED IN MICHIGAN

29739	Gratiot Co. North Star Twp.	8-10N-2W	McClure Oil Co. Sparks et al #1-8	Precambrian 12,176 (-11,414)	17,466 (-16,704)	1975



▲ REPORTED PRECAMBRIAN TEST

◬ DEEPEST EXPLORATORY WELL IN MICHIGAN (PRECAMBRIAN)

TABLE 7 CUMULATIVE OIL AND GAS PRODUCTION BY COUNTY THROUGH 1978

COUNTY	CUMULATIVE PRODUCTION	
	Barrels Oil	MCF Gas
Allegan	20,089,485	32,024,731
Antrim	1,043,775	5,578,887
Arenac	47,068,562	6,856,583
Barry	742,857	0
Bay	21,028,103	7,814
Benzie	75,753	55,590
Berrien	29,757	0
Calhoun	38,489,257	82,335,811
Cass	149,222	0
Cheboygan	3,073	0
Clare	35,587,820	60,205,125
Clinton	4,121	0
Crawford	13,108,768	21,842,138
Eaton	1,320,185	18,408,832
Genesee	426,512	0
Gladwin	35,183,447	9,781
Grand Traverse	15,951,856	166,225,944
Gratiot	1,173,606	13,217,942
Hillsdale	57,796,264	77,935,748
Huron	61,324	0
Ingham	13,700,272	24,214,276
Ionia	48,479	0
Isabella	52,405,583	36,692,441
Jackson	25,339,555	38,813,605
Kalamazoo	28,519	0
Kalkaska	20,969,214	157,655,790
Kent	10,070,518	3,177,848
Lake	1,461,074	182,438
Lapeer	1,126,919	428,138
Lenawee	7,331	159,103
Livingston	9,301	29,562,870
Macomb	73,910	57,619,506
Manistee	20,831,563	59,675,047
Mason	5,933,289	16,189,884
Mecosta	10,944,302	33,044,863
Midland	69,353,628	9,679,489
Missaukee	20,347,848	19,687,553
Monroe	743,000	0
Montcalm	18,627,357	53,126,620
Montmorency	8,944	0
Muskegon	8,035,526	9,809,572
Newaygo	8,850,012	13,339,265
Oakland	79,592	5,136,219
Oceana	15,513,563	1,079,161
Ogemaw	21,144,543	10,585,026
Osceola	58,572,112	43,243,677
Oscoda	62,188	0
Otsego	33,531,396	66,587,915
Ottawa	9,437,622	5,254,219
Presque Isle	9,491	0
Roscommon	16,142,149	15,857,440
Saginaw	2,600,108	0
Shiawassee	66,389	0
St. Clair	15,819,021	167,730,338
Tuscola	2,926,868	103,517
Van Buren	12,101,751	0
Washtenaw	178,032	6,906,462
Wayne	935,980	10,055,718
Wexford	1,636,881	11,293,940
59 Counties	**769,035,965	*1,391,597,065

**Includes 11,177 barrels of oil from miscellaneous fields.

*Does not include 3,050,143 MCF of unassigned gas shown on early records.

TABLE 8 OIL PRODUCTION BY GEOLOGIC SYSTEM AND FORMATION - 1978 AND PRIOR YEARS

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

YEAR	MISSISSIPPIAN			DEVONIAN		SILURIAN	ORDOVICIAN	Total Barrels Oil All Formations
	Marshall	Berea	Traverse	Dundee-Reed City	Detroit River	Salina-Niagaran	Trenton-Black River	
	First Year of Recorded Oil Production by Formation							
	1938	1925	1927	1927	1939	1952	1935	
1925 Through 1929		876,559 (Cumulative-5 year interval)	873,777	4,017,451				5,767,787
1930 Through 1934		318,171 (Cumulative-5 year interval)	995,439	31,870,671				33,184,281
1935 Through 1939	7,411 (Cumulative-5 year interval)	310,313	13,814,816	72,339,293	14,000		43,565	86,529,398
1940 Through 1944	22,040 (Cumulative-5 year interval)	229,262	27,856,377	67,939,211	727,418		348,477	97,122,785
1945 Through 1949	17,283 (Cumulative-5 year interval)	166,687	16,914,771	62,438,443	4,302,309		106,510	83,946,003
1950 Through 1954	9,068 (Cumulative-5 year interval)	125,089	16,974,863	38,058,703	11,878,669	43,091	225,180	67,314,663
1955 Through 1959	8,183 (Cumulative-5 year interval)	110,639	8,788,785	25,618,934	13,716,790	568,085	3,108,341	51,920,757
1960 Through 1964	6,090 (Cumulative-5 year interval)	84,222	6,777,853	15,725,957	8,260,636	4,611,123	48,022,216	83,488,097
1965 Through 1969	5,293 (Cumulative-5 year interval)	113,898	3,831,321	12,186,197	8,387,775	4,195,694	39,132,615	67,852,793
1970 Through 1974	4,553 (Cumulative-5 year interval)	97,444	2,669,026	9,115,667	10,992,939	25,986,136	20,288,822	69,174,372
1975	930	21,702	435,364	1,487,417	2,377,358	17,604,834	2,492,270	24,419,525
1976	892	22,089	414,762	1,425,009	2,339,423	24,115,191	2,103,997	30,421,363
1977	937	22,261	490,336	1,422,637	2,269,774	26,832,419	1,926,139	32,964,503
1978	819	19,810	425,975	1,263,315	2,320,982	28,935,064	1,697,522	34,663,487

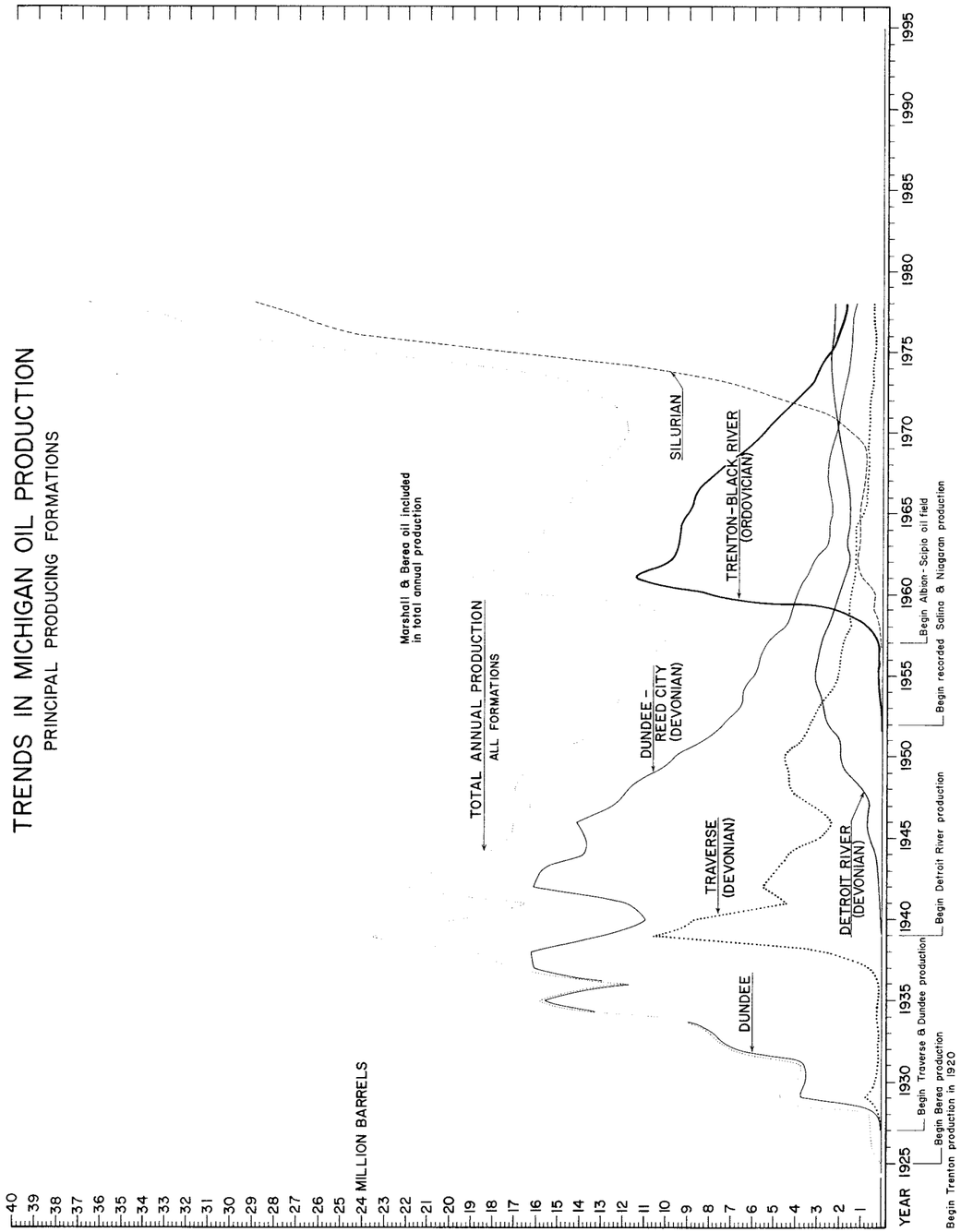


TABLE 9 GAS PRODUCTION BY GEOLOGIC SYSTEM AND FORMATION - 1978 AND PRIOR YEARS

YEAR	CENOZOIC	MISSISSIPPIAN			DEVONIAN			SILURIAN	ORDOVICIAN	Total MCF Gas All Formations
	Glacial Drift	Stray-Marshall	Berea	Antrim Shale	Traverse	Dundee-Reed City	Detroit River	Salina-Niagaran	Trenton-Black River	
	First Year of Recorded Gas Production by Formation									
	1949	1931	1936	1947	1934	1929	1946	1929	1954	
1925 Through 1929	(Cumulative-5 year interval)					1,887,732	. . . . .	74,867	. . . . .	1,962,599
1930 Through 1934	. . . . .	3,001,963	. . . . .		3,744	6,034,206	. . . . .	61,578	. . . . .	9,101,491
	(Cumulative-5 year interval)									
1935 Through 1939	. . . . .	30,769,471	1,391,076	. . . .	69,894	8,862,165	. . . . .	6,331	. . . . .	41,098,937
	(Cumulative-5 year interval)									
1940 Through 1944	. . . . .	70,498,989	5,860,831	. . . .	3,716,132	7,647,510	. . . . .	79,983	. . . . .	87,803,445
	(Cumulative-5 year interval)									
1945 Through 1949	8,020	80,217,680	1,467,460	52,495	1,414,004	15,710,636	793,763	7,393,744	. . . . .	107,057,802
	(Cumulative-5 year interval)									
1950 Through 1954	0	18,033,449	916,202	55,626	1,913,497	5,361,578	6,997,257	11,316,082	10,725	44,604,416
	(Cumulative-5 year interval)									
1955 Through 1959	0	6,834,419	148,085	56,686	266,623	2,287,066	12,539,252	20,117,524	6,609,393	48,859,048
	(Cumulative-5 year interval)									
1960 Through 1964	0	2,874,824	42,020	156,485	876,356	1,117,064	19,252,334	66,799,392	45,443,994	136,562,469
	(Cumulative-5 year interval)									
1965 Through 1969	0	2,636,857	814,223	220,305	454,198	150,659	10,649,603	106,149,601	57,253,914	178,329,360
	(Cumulative-5 year interval)									
1970 Through 1974	0	157,966	391,050	760,309	265,850	219,781	8,342,041	148,999,929	53,573,311	212,710,237
	(Cumulative-5 year interval)									
1975	0	70,370	84,591	136,853	0	2,475	1,457,146	91,142,482	9,784,250	102,678,067
1976	0	169,433	38,827	83,923	0	64,126	1,306,451	109,681,927	8,905,918	120,250,105
1977	0	43,051	59,301	170,395	12,826	32,146	1,123,994	123,858,773	7,925,966	133,226,452
1978	0	41,128	30,132	150,434	0	23,184	1,011,884	141,876,290	7,402,205	150,535,257

CHANGES IN GAS VOLUMETRIC MEASUREMENT

IN AN ATTEMPT TO OBTAIN NATIONAL UNIFORMITY OF DATA, ALL ANNUAL AND CUMULATIVE GAS PRODUCTION FIGURES FOR MICHIGAN WERE CONVERTED TO A STANDARD BASE PRESSURE FOR VOLUMETRIC MEASUREMENT OF 14.73 POUNDS PER SQUARE INCH IN 1978. THIS CONVERSION AND SUBSEQUENT ADJUSTMENT OF GAS PRODUCTION FIGURES RESULTED IN SLIGHT CHANGES IN CUMULATIVE PRODUCTION VOLUMES IN THOSE FIELDS WHICH HAD BEEN MEASURED AT VARYING PRESSURE BASES IN PRIOR YEARS.

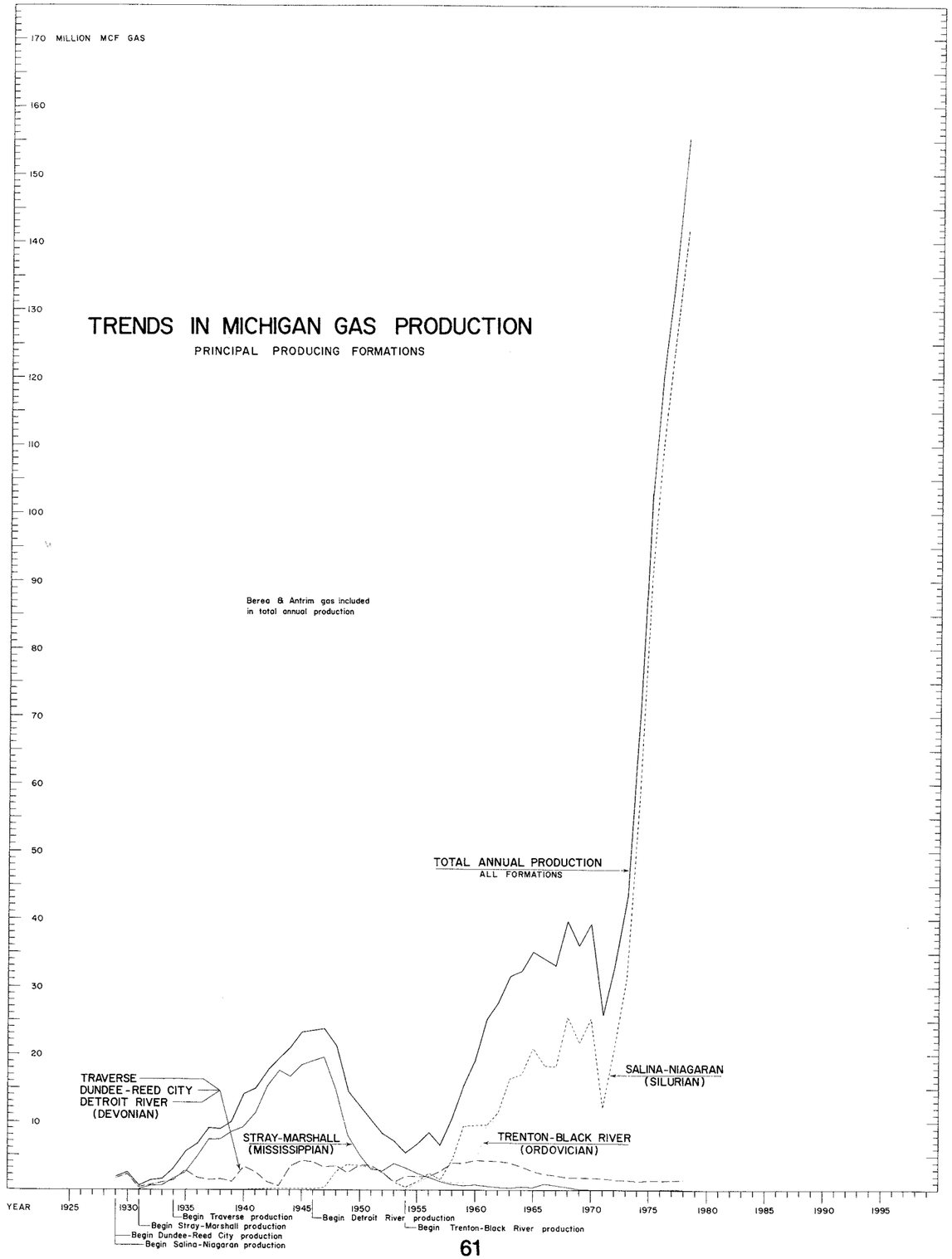


TABLE 10 CUMULATIVE OIL PRODUCTION BY GEOLOGIC SYSTEM AND FORMATION - 1978 AND PRIOR YEARS

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

YEAR	MISSISSIPPIAN			DEVONIAN		SILURIAN	ORDOVICIAN	Total Barrels Oil All Formations
	Marshall	Berea	Traverse	Dundee Reed City	Detroit River	Salina-Niagaran	Trenton-Black River	
	First Year of Recorded Oil Production by Formation							
	1938	1925	1927	1927	1939	1952	1935	
1925 Through 1929	(Cumulative-5 year interval)	876,559	873,777	4,017,451	. . . . .	. . . . .	. . . . .	5,767,787
1930 Through 1934	(Cumulative-5 year interval)	1,194,730	1,869,216	35,888,122	. . . . .	. . . . .	. . . . .	38,952,068
1935 Through 1939	(Cumulative-5 year interval)	7,411	1,505,043	15,684,032	108,227,415	14,000	 43,565	125,481,466
1940 Through 1944	(Cumulative-5 year interval)	29,451	1,734,305	43,540,409	176,166,626	741,418	 392,042	222,604,251
1945 Through 1949	(Cumulative-5 year interval)	46,734	1,900,992	60,455,180	238,605,069	5,043,727	 498,552	306,550,254
1950 Through 1954	(Cumulative-5 year interval)	55,802	2,026,081	77,430,043	276,663,772	16,922,396	43,091	723,732 373,864,917
1955 Through 1959	(Cumulative-5 year interval)	63,985	2,136,720	86,218,828	302,282,706	30,639,186	611,176	3,832,073 425,784,674
1960 Through 1964	(Cumulative-5 year interval)	70,075	2,220,942	92,996,681	318,008,663	38,900,822	5,222,299	51,854,289 509,273,771
1965 Through 1969	(Cumulative-5 year interval)	75,368	2,334,840	96,848,002	330,194,860	47,288,597	9,417,993	90,986,904 577,126,564
1970 Through 1974	(Cumulative-5 year interval)	79,668	2,077,719	83,788,468	311,232,618	102,632,670	35,417,637	111,307,955 646,555,321
1975		80,598	2,442,977	104,909,422	335,513,416	61,197,257	53,052,303	113,800,446 671,084,960
1976		81,490	2,465,066	105,324,184	336,938,425	63,536,680	77,167,494	115,904,443 701,426,388
1977		82,427	2,487,327	105,814,520	338,361,062	65,806,454	103,999,913	117,830,582 734,382,285
1978		83,246	2,507,137	106,240,495	339,624,377	68,127,436	132,934,977	119,528,104 769,045,772

Some formations show a loss in cumulative production from 1973 to 1975. This is due to recently initiated changes in the method of crediting production to each respective formation in multiple-pool fields.

TABLE 11 CUMULATIVE GAS PRODUCTION BY GEOLOGIC SYSTEM AND FORMATION - 1978 AND PRIOR YEARS

YEAR	CENOZOIC	MISSISSIPPIAN	DEVONIAN					SILURIAN	ORDOVICIAN	Cumulative MCF All Formations
	Glacial Drift	Stray-Marshall	Berea	Antrim Shale	Traverse	Dundee-Reed City	Detroit River	Salina-Niagaran	Trenton-Black River	
	First Year of Recorded Gas Production by Formation									
	1949	1931	1936	1947	1934	1929	1946	1929	1954	
1925 Through 1929	(Cumulative-5 year interval)					1,887,732	. . . . .	74,867	. . . . .	1,962,599
1930 Through 1934	(Cumulative-5 year interval)		3,001,963	. . . . .	3,744	7,921,938	. . . . .	136,445	. . . . .	11,064,090
1935 Through 1939	(Cumulative-5 year interval)		33,771,434	1,391,076	 73,638	16,784,103	. . . . .	142,776	. . . . .	52,163,027
1940 Through 1944	(Cumulative-5 year interval)		104,270,423	7,251,907	 3,789,770	24,431,613	. . . . .	222,759	. . . . .	139,966,472
1945 Through 1949	(Cumulative-5 year interval)	8,020	184,488,103	8,719,367	52,495	5,203,774	40,142,249	793,763	7,616,503	 247,024,274
1950 Through 1954	(Cumulative-5 year interval)	8,020	202,521,522	9,635,569	108,121	7,117,271	45,503,827	7,791,020	18,932,585	10,725 291,628,690
1955 Through 1959	(Cumulative-5 year interval)	8,020	209,355,971	9,783,654	164,807	7,383,894	47,790,893	20,330,272	39,050,109	6,620,118 340,487,738
1960 Through 1964	(Cumulative-5 year interval)	8,020	212,230,795	9,825,674	321,292	8,260,250	48,907,957	39,582,606	105,849,501	52,064,112 477,050,207
1965 Through 1969	(Cumulative-5 year interval)	8,020	214,867,652	10,639,897	541,597	8,714,448	49,058,616	50,232,209	211,999,102	109,318,026 655,379,567
1970 Through 1974	(Cumulative-5 year interval)	8,020	213,298,888	11,249,818	1,284,841	9,233,011	48,568,150	60,395,689	357,050,974	162,958,467 864,047,858
1975		8,020	213,369,158	10,854,319	1,421,694	8,971,034	41,283,187	69,832,340	448,196,030	176,537,235 973,572,058
1976		8,020	213,538,591	10,893,146	1,505,617	8,971,034	41,347,313	71,138,791	557,877,957	185,443,153 1,093,822,567
1977		8,020	213,581,642	10,952,447	1,670,012	8,983,860	41,379,459	72,262,785	681,736,730	193,369,119 1,227,049,019
1978		8,020	213,622,770	10,982,579	1,820,446	8,983,860	41,402,643	73,274,669	823,613,020	200,771,324 1,377,584,276

Does not include 3,050,143 Mcf of unassigned gas from early records.

Some formations show a loss in cumulative production from 1973 to 1975. This is due to recently initiated change in the method of crediting production to each respective formation in multiple-pool fields.

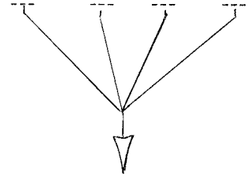
TABLE 12 CUMULATIVE WELL COMPLETIONS BY COUNTY THROUGH 1978

County	Area of County (including inland water)		Classification of Completed Wells (New Hole) (does not include reworked wells)						Approximate Well Density (All Classes)
	Square Miles	Acres	Oil Wells	Gas Wells	Service Wells GS - OBS - BDW - LPG		Dry Holes	Total Completions	Wells:Sq. Miles
Alcona	694	444,160					22	22	1:32
Allegan	837	535,680	1,313	89	174		1,716	3,292	4:1
Alpena	590	377,600		1			15	16	1:37
Antrim	520	332,800	4	2	1		52	59	1:9
Arenac	369	236,160	406	44	1		411	862	2:1
Barry	571	365,440	74		4		140	218	1:3
Bay	451	288,640	458	1			288	687	2:1
Benzie	342	218,880	2				21	23	1:15
Berrien	584	373,760	9				75	84	1:7
Branch	517	330,880					66	66	1:8
Calhoun	716	458,240	297	54	4		430	785	1:1
Cass	505	323,200	52				134	186	1:3
Charlevoix	451	288,640					15	15	1:30
Cheboygan	798	510,720	4				37	41	1:19
Chippewa	1,651	1,056,640	Northern Peninsula County				6	6	1:275
Clare	577	369,280	399	172	494		372	1,437	2:1
Clinton	573	366,720	4				81	85	1:7
Crawford	566	362,240	109	11	9		41	170	1:3
Delta	1,202	769,280	Northern Peninsula County				1	1	1:1200
Eaton	572	366,080	28	11			91	130	1:4
Emmet	477	305,280					5	5	1:95
Genesee	649	415,360	31	1			45	77	1:8
Gladwin	512	327,680	741				283	1,024	2:1
Grand Traverse	490	313,600	92	96	1		318	507	1:1
Gratiot	566	362,240	46	74	29		279	428	1:1
Hillsdale	604	386,560	306	2			509	817	1:1
Huron	824	527,360	5				80	85	1:10
Ingham	560	358,400	78	14	13		120	225	1:3
Ionia	578	369,920	9				85	94	1:6
Iosco	563	360,320					26	26	1:22
Isabella	573	366,720	659	163	57		499	1,378	2:1
Jackson	717	458,880	136	3			285	424	1:2
Kalamazoo	580	371,200	18				113	131	1:4
Kalkaska	573	366,720	136	66	1		224	427	1:1
Kent	868	555,520	461	6	2	11	349	829	1:1
Lake	577	369,280	51	1	8		159	219	1:3
Lapeer	662	423,680	42	6			65	113	1:6
Leelanau	374	239,360					9	9	1:42
Lenawee	760	486,400	3	72			114	189	1:4
Livingston	583	373,120	1	35	55		102	193	1:3
Luce	929	594,560	Northern Peninsula County				2	2	1:465
Mackinac	1,081	691,840	Northern Peninsula County				2	2	1:541
Macomb	481	307,840	6	71	35		373	485	1:1
Manistee	568	363,520	152	55	9		258	474	1:1
Mason	505	323,200	139	16	1		320	478	1:1
Mecosta	570	364,800	130	198	212		423	963	2:1
Midland	523	334,720	902	2		2	282	1,188	2:1
Missaukee	572	366,080	206	64	105		221	597	1:1
Monroe	564	360,960	45				113	158	1:4
Montcalm	720	460,800	383	262	249		613	1,479	2:1
Montmorency	567	362,880	4	2			49	55	1:10
Muskegon	519	332,160	444	120			390	954	2:1
Newaygo	867	554,880	206	47	158		391	802	1:1
Oakland	899	575,360	6	17	5		92	120	1:8
Oceana	541	346,240	338	10			558	906	2:1
Ogemaw	580	371,200	534	21	29		181	765	1:1
Osceola	585	374,400	346	121	201		381	1,049	2:1
Oscoda	568	363,520	2				12	14	1:41
Otsego	538	344,320	124	40	4		257	425	1:1
Ottawa	572	366,080	474	19	2		500	995	2:1
Presque Isle	678	433,920	5	6			86	97	1:7
Roscommon	573	366,720	189	14	1		105	309	1:2
Saginaw	814	520,960	378	2			176	556	1:1
Sanilac	961	615,040					55	55	1:17
Schoolcraft	1,229	786,560	Northern Peninsula County				2	2	1:615
Shiawassee	540	345,600	9				57	66	1:8
St. Clair	751	480,640	265	185	89	16	904	1,459	2:1
St. Joseph	518	331,520					23	23	1:23
Tuscola	820	524,800	165	4			109	278	1:3
Van Buren	615	393,600	726				1,007	1,733	3:1
Washtenaw	723	462,720	10	18	5	1	114	148	1:5
Wayne	625	400,000	12	24	18	30	54	138	1:5
Wexford	570	364,800	12	15			86	113	1:5
73 Counties	47,342	Totals:	12,185	2,216	1,989	60	15,822	32,272	

Total includes gas storage, observation, salt water disposal, water injection wells, and brine wells.

TABLE 13 PERMITS, DISCOVERIES, WELL COMPLETIONS, WELLS AT END OF YEAR, 1978 AND PRIOR YEARS

Year	Permits Issued	Classification of Well Completions						Fields or Pools Discovered		Wells at End of Year			
		Oil Wells	Gas Wells	Service Wells GS-OBS-SWD	Service Wells LPG	Dry Holes	Total Completions	Oil	Gas	Oil Wells	Gas Wells	GS OBS	Inj.* P.M. LPG*
1925	0	3					3	1		Incomplete records from 1925 through 1930			
1926	0	89				16	105		1				
1927	16	218	3			46	267	1	1				
1928	283	79	30			49	158	1		*LPG injection and extraction wells in LPG storage facilities.			
1929	576	324	22			137	483						
1930	257	154	19			158	331	2	3				
1931	111	59	17			52	128		1	634	64		
1932	184	109	10			64	183	1		645	72		
1933	429	223	10			85	318	3	1	831	70		
1934	444	272	47			150	469	3	2	977	117		
1935	700	319	101			221	641	1	5	1,167	212		
1936	777	333	206			268	807	6	5	1,360	402		
1937	973	622	66			267	985	6	1	1,778	442		
1938	996	580	27			411	1,018	17	2	2,141	448		
1939	1,465	845	56			578	1,479	8	2	2,684	485		
1940	1,121	557	59			565	1,181	8	13	2,928	510		
1941	1,044	441	97			413	951	7	8	3,158	577	13	
1942	570	297	74			331	682	14	4	3,324	631	13	
1943	627	233	47			355	635	12	8	3,386	639	13	
1944	741	246	64			400	710	10	2	3,433	651	13	
1945	755	271	57	6		467	801	11	11	3,536	663	19	
1946	822	223	53	86		461	823	19	10	3,520	547	226	
1947	886	318	43	148		387	896	10	4	3,532	534	409	
1948	918	371	32	77		437	917	10	5	3,554	502	482	
1949	999	439	22	73		473	1,007	21	2	3,818	471	554	
1950	901	336	28	47		473	884	18	4	3,954	471	610	
1951	744	227	20	43	1	466	757	16	6	3,911	417	673	1
1952	694	261	30	51	2	370	714	14	5	3,979	388	732	3
1953	824	258	18	110	1	360	747	11	6	4,089	313	901	4
1954	573	214	15	2	2	338	571	18		4,167	316	903	6
1955	484	204	13	1	1	291	510	12	2	4,223	321	904	7
1956	476	196	12	28		227	463	12	2	4,191	310	932	7
1957	461	176	40	35	3	207	461	12	5	4,233	335	977	10
1958	481	166	20	36	4	227	453	10	7	4,201	345	1,025	14
1959	727	257	47	72	4	272	652	8	7	4,327	323	1,094	18
1960	904	372	19	79	1	441	912	7	4	4,555	249	1,337	242 19
1961	849	207	57	74	3	476	817	13	10	4,619	292	1,420	260 22
1962	711	148	62	53	4	474	741	5	7	4,603	300	1,531	287 26
1963	704	135	72	56	2	384	650	7		4,598	367	1,601	287 28
1964	583	82	48	126		376	632	6	4	4,588	404	1,632	288 28
1965	494	53	34	107		291	485	6	7	4,368	424	1,859	341 28
1966	430	56	45	11	2	290	404	8	3	4,315	429	1,896	233 30
1967	405	69	38	26		287	420	8	2	4,273	481	1,921	333 30
1968	378	70	12	30	6	251	369	9	4	4,372	414	2,010	394 36
1969	379	73	9	26		239	347	7	3	4,349	410	2,034	--- 36
1970	425	50	16	108	3	211	388	11	7	4,324	418	2,119	--- 39
1971	425	83	31	83	13	186	396	28	13	4,323	418	2,299	--- 52
1972	423	84	38	64	2	186	374	34	23	4,313	450	2,377	--- 54
1973	445	81	47	67	0	173	369	38	37	4,334	491	2,462	--- 54
1974	503	134	61	54	2	235	484	55	39	4,376	488	2,494	--- 56
1975	653	167	40	38	0	330	575	55	19	---	---	---	--- 56
1976	645	120	57	50	0	333	560	30	36	---	---	---	--- 56
1977	692	136	70	49	1	341	597	35	36	---	---	---	--- 57
1978	690	146	57	74	0	325	602	29	25	---	---	---	--- 57



Figures in these columns represent the well count at the end of the year. Figures are subject to change due to well-abandonments, reclassification, etc. The figures in these columns have been discontinued. See Tables 2, 3, 4 and 5 for producible wells and service wells in individual fields.

STATE OIL AND GAS REVENUE

Years	Royalty	Rental	Bonus	Application and Assignment Fees	Total Income
1927-1931	$ 85,262.60	$ 43,821.60	$ 27,707.50	$ 1,204.00	$ 157,995.70
1932-1936	209,125.99	205,349.64	87,211.25	4,506.00	506,192.88
1937-1941	1,302,355.65	724,330.32	515,705.83	7,367.00	2,549,758.80
1942-1946	1,645,462.42	2,021,512.76	601,065.34	3,759.00	4,271,799.52
1947-1951	1,813,632.16	2,256,913.51	1,307,470.34	4,398.00	5,382,414.01
1952-1956	2,727,410.47	1,989,342.96	257,186.50	3,028.00	4,976,967.93
1957-1961	1,879,927.18	769,593.64	475,840.80	3,702.00	3,129,063.62
1962-1966	1,259,162.06	1,476,949.69	409,809.00	4,982.00	3,150,902.75
1967-1971	2,160,038.71	3,258,021.87	2,168,524.59	6,009.00	7,592,594.17
1972	944,440.64	831,057.14	10,165,150.69	2,854.00	11,943,502.47
1973	1,960,853.63	1,261,207.88	3,132.75	1,658.00	3,226,852.26
1974	5,814,636.01	1,280,108.62	7,131,732.00	2,248.00	14,228,724.63
1975	9,637,835.43	1,297,691.74	514,247.80	2,603.00	11,452,377.97
1976	13,293,209.27	1,328,660.13	524,973.00	616.00	15,147,458.40
1977	13,327,908.44	1,190,619.60	357,005.74	3,069.00	14,878,602.78
1978	18,244,756.02	1,131,238.25	14,483.00	1,733.00	19,392,210.27
TOTAL	76,306,016.68	21,066,419.35	24,561,246.13	53,736.00	121,987,418.16

ABBREVIATIONS

A.A.P.G.	American Assoc. Petroleum Geologists
A.P.I.	American Petroleum Institute
(A) I.P.	(Acid) Initial Production or Potential
A-1 Carb.	A-1 Carbonate
A-2 Carb.	A-2 Carbonate
Bbls.	Barrels
B.B.	Bois Blanc formation
B.D.	Brine Disposal
BDW	Brine Disposal Well
BOPD	Barrels Oil Per Day
B.R.	Black River
Camb.	Cambrian
"Camb."	Unidentified Cambrian
Cat.	Cataract formation
c.f.p.b.	Cubic feet per barrel
C.H.	Cabot Head formation
Cinn.	Cincinnatian
Cl.	Clinton formation
Cold.	Coldwater formation
Compl.	Completion
Coop.	Cooperative
D & A	Dry and Abandoned
Dev.	Devonian
D.R.	Detroit River formation
D.R. SZ	Detroit River Sour Zone
Dres.	Dresbach formation
Dd., DD.	Dundee
Dd.-R.C.	Dundee-Reed City
DPT	Deeper Pool Test
E.C.	Eau Claire formation
Explor.	Exploratory
Fran.	Franconia formation
Geo. Test	Geological Test
G.O.R.	Gas-Oil Ratio
Grav.	Gravity, Gravimeter
GS	Gas Storage
GSW	Gas Storage Service Well
GW	Glenwood
Incs.	Includes
Inj.	Injection
L.P.G.	Liquid Petroleum Gas
Marsh.	Marshall formation
MCF	Thousand Cubic Feet
MCFGPD	Thousand Cubic Feet Gas Per Day
Mich.	Michigan formation
Miss.	Mississippian
M.S.	Mt. Simon ss.
NFW	New Field Wildcat
(N) I.P.	(Natural) Initial Production or Potential
Niag.	Niagaran
Nt.	Nontechnical
OBS	Observation Well
OP	Out Post Well
Ord.	Ordovician
OWDD	Old Well Drilled Deeper
P.D.C.	Prairie du Chien formation
Penn.	Pennsylvanian
Pilot Wtr.	Pilot Water
P.M.	Pressure Maintenance
Prod. Form.	Producing Formation
R.C.	Reed City formation
RW	Reworked Well
Rich.	Richfield formation
Sag.	Saginaw formation
Sal.-Niag.	Salina-Niagaran
SD	Shut Down
Seis.	Seismograph
SO & G	Show Oil and Gas
S.P.	St. Peter formation
Stray	Michigan Stray formation
Sub.	Subsurface geology
SW	Service Well
SWD	Salt Water Disposal
Sylv.	Sylvania formation
SZ	Sour Zone (In Detroit River)
Thick.	Thickness
(T) I.P.	(Treatment) Initial Production or Potential
Trav.	Traverse
Tremp.	Trempealeau formation
Trent.-Blk. River	Trenton-Black River
Unit.	Unitized

Directional holes with two or more permit numbers.

29629** and 29553
29671***, 29650** and 29478
29729 and 29466*
29828 and 29451*
29900**, 29827 and 29426*
29912** and 29842
29918*** and 29839
29929** and 29905
29995** and 29947
30034** and 29955
30049***, 30013** and 29914
30052** and 30001
30077** and 29942
30099** and 30051
30113*** and 30038
30115** and 30008
30118** and 30058
30132** and 30098
30172** and 30092
30234** and 30188
30245*** and 30030
30251***, 30211** and 29703
30356** and 30197
30372** and 30313
30422*** and 30301
30423*** and 30175
30428***, 30383** and 30242
30444** and 30349
30460** and 30413
30496***, 30476** and 30364
30512** and 30221
30530** and 30459
30568** and 30363
30603** and 30557
30604** and 30562
30626** and 30499
30662** and 30602
30685** and 30651
30748** and 30693
30791** and 29309
30817***, 30789** and 30656
30836** and 30398
30837***, 30744** and 30712
30851** and 30741
30858** and 30739
30869 and 30586*
30878** and 29952
30887** and 30848
30946** and 30891
30947** and 30629
30948** and 30905
30949** and 30896
30965** and 30883
30966** and 30908
30986** and 30961
30989** and 30788
31003** and 30564
31035** and 30910
31052** and 30818
31057** and 30675
31058 and 30213*
31062** and 29417
31073***, 30876** and 30840
31103** and 30900
31132***, 30835** and 30461
31156** and 31091
31163***, 31126** and 31074
31177** and 31127
31178** and 31144
31211***, 31182** and 30914
31237** and 31198
31244** and 31215
31300** and 31168
31305** and 31262
31317** and 31216
31334** and 31167
31347** and 31304
31355***, 31322** and 31221
31380** and 31183
31415** and 31325
31435***, 31388** and 30295
31436** and 31342
31439** and 31261
31454** and 29050
31460***, 31437** and 31367
31489** and 31354
31499** and 30775
31503** and 31315
31513** and 31403
31559 and 31194*
31563** and 31511
31565****, 31554***, 31483**, and 31417
31572** and 31379
31588** and 31519
31613** and 31571
31614** and 31556
31642** and 31612
31643** and 31456
31646** and 28459
31649** and 31376
31656** and 31599
31680** and 30085
31683** and 31508
31711** and 31633
31715** and 31685
31727*** 31706** and 31586
31752** and 31664
31774** and 30233
31776** and 29902
31803** and 29027
31822** and 31757
31823****, 31816***, 31702** and 28872
31850** and 31811
31851** and 31606
31879** and 31820
31894** and 31858
31897** and 31856
31902** and 31852
31910** and 31885
31966** and 31920
31995** and 31974
32009** and 31982
32010** and 31987
32019** and 31980
32032** and 31988
32073** and 32016
32074** and 32022
32089** and 32036
32105** and 32046
32126***, 32107** and 32063
32120** and 32090
32133** and 31962
32154***, 32130** and 32086
32156** and 32115
32169** and 32124
32171** and 32110
32207** and 29254
32208** and 32155
32210** and 32114
32212** and 31761
32253** and 32113
32259** and 32177
32263** and 32148
32270** and 31992
32304** and 32271
32328** and 29350
32331** and 32261
32337** and 32257
32342** and 32266
32350** and 32176
32352** and 32301
32388***, 32374** and 32313
32399** and 32358
32411** and 32276
32420** and 29209
32445** and 31954
32455** and 32329
32460** and 32426
32478***, 30583** and 30502
32486***, 32462** and 32407
32489** and 32327
32494** and 31631
32504** and 29299
32505** and 32459
32507** and 28773
32508** and 32445
32527** and 29147
32528** and 29902
32550****, 32522***, 32516** and 32474
32573** and 32501
32576** and 32545
32583** and 32371
32605** and 30195
32606** and 32319
32630** and 32570
32675** and 32620
32759** and 32672
32773***, 32625** and 31896
32778** and 32663
32786***, 32769** and 32712
32788** and 32566

*Terminated permit.
**Directional hole drilled from plugged-back vertically drilled dry hole.
***Second directional hole drilled from plugged-back directionally drilled dry hole.
****Third directional hole drilled from a plugged-back directionally drilled dry hole.

New permits (left column) issued for a previously drilled well or for a previously issued but terminated permit.

Year of issue: 1978

32118	issued for well drilled or permitted under				31349
32120	"	"	"		32090
32126	"	"	"	32107 &	32063
32133	"	"	"		31962
32154	"	"	"	32130 &	32086
32156	"	"	"		32115
32169	"	"	"		32124
32171	"	"	"		32110
32207	"	"	"		29254
32208	"	"	"		32155
32210	"	"	"		32114
32212	"	"	"		31761
32253	"	"	"		32113
32259	"	"	"		32117
32263	"	"	"		32148
32270	"	"	"		31992
32304	"	"	"		32271
32328	"	"	"		29350
32331	"	"	"		32261
32337	"	"	"		32257
32342	"	"	"		32266
32350	"	"	"		32176
32352	"	"	"		32301
32363	"	"	"		6780
32388	"	"	"	32374 &	32313
32399	"	"	"		32358
32411	"	"	"		32276
32420	"	"	"		29209
32445	"	"	"		31954
32455	"	"	"		32329
32460	"	"	"		32426
32478	"	"	"	30583 &	30502
32481	"	"	"		6683
32486	"	"	"	32462 &	32407
32489	"	"	"		32327
32494	"	"	"		31631
32504	"	"	"		29299
32505	"	"	"		32459
32507	"	"	"		28773
32508	"	"	"		32445
32527	"	"	"		29147
32528	"	"	"		29902
32550	"	"	32522, 32516 &		32474
32573	"	"	"		32501
32576	"	"	"		32545
32583	"	"	"		32371
32605	"	"	"		30195
32606	"	"	"		32319
32625	"	"	"		31896
32630	"	"	"		32570
32675	"	"	"		32620
32681	"	"	"		22285
32706	"	"	"		28267
32713	"	"	"		28774
32726	"	"	"		24313
32727	"	"	"		20891
32759	"	"	"		32672
32773	"	"	"	32625 &	31896
32778	"	"	"		32663
32786	"	"	"	32769 &	32712
32788	"	"	"		32566
32791	"	"	"		32088

STRATIGRAPHIC SUCCESSION IN MICHIGAN

PALEOZOIC THROUGH RECENT

MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
Howard A. Tanner, Director

Geological Survey Division
Arthur E. Slaughter, State Geologist

ACKNOWLEDGMENT: Compiled with the assistance of geologists in the Department and U.S. Geological Survey. Many gas and petroleum operators, other state Geological Surveys and geologists in Michigan, Ontario and Ohio provided information. Dr. Edward L. Cross, Department of Geology, Michigan State University, identified cores of Mississippian age and suggested preferred age assignments.

GEOLOGIC NAMES COMMITTEE
Gerland D. Ells, Chairman · Robert W. Kelley, Secretary
Henry J. Hardenbergh · Donald Hough · Harry C. Sherman

PLEISTOCENE NOMENCLATURE

ERA	SYSTEM	SERIES	STAGE	
CENOZOIC	QUATERNARY	RECENT		
		PLEISTOCENE	Wisconsin Glaciation	Valders Stade
				Two Creeks Interstade
				Mankato Stade (Ft. Huron?)
				Cary Stade
				Tazewell Stade
			Sangamon Interglaciation	
			Illinoian Glaciation	

OUTCROP NOMENCLATURE

GEOLOGIC TIME: ERA	PERIOD	EPOCH	SYSTEM	SERIES	GROUP	FORMATION	MEMBER
MESOZOIC	JURASSIC	LATE	JURASSIC	KIMERIDGIAN			
PALEOZOIC	PENNSYLVANIAN	LATE	PENNSYLVANIAN	CONEMAUGH		Grand River Fm	Ionia, Eaton and Woodville Sandstones
		EARLY		POTTSVILLE		Saginaw Fm	Vayne Ls
	MISSISSIPPIAN	LATE	MISSISSIPPIAN	MERAMECIAN	GRAND RAPIDS	Bayport Ls	
						Michigan Fm	
				OSAGIAN		Marshall Ss	Napoleon Ss
		EARLY		KINDERHOOKIAN		Coldwater Sh	
	MISSISSIPPIAN-DEVONIAN			Unassigned		Ellsworth Sh	Western Michigan
	DEVONIAN	LATE		CHAUTAUQUAN		Antrim Sh	
				SENECAN		Squaw Bay Ls	
		MIDDLE		ERIAN	TRAVERSE	Thunder Bay Ls	
						Potter Farm Fm	
						Norway Point Fm	
						Four Mile Dam Fm	
						Alpena Ls	
						Newton Creek Ls	
						Genshaw Fm	Kibbon
						Ferron Point Fm	
						Rockport Quarry Ls	
						Bell Sh	
						Rogers City Ls	
				ULSTERIAN	DETROIT RIVER	Dundee Ls	
						Anderdon Fm	
						Lucas Fm	
						Amherstburg Fm	
						Sylvania Ss	
						Bois Blanc Fm	MACKINAC BRECCIA
		EARLY				Garden Island Fm	
					BASS ISLANDS	Raisin River Dol	
						Put-in-Bay Dol	
						St. Ignace Dol (Northern Peninsula)	
	SILURIAN	LATE	SILURIAN	CAYUGAN	SALINA	Pte. aux Chenes Sh	
		MIDDLE		NIAGARAN		Engadine Dol	
					MANISTIQUE	Cordell Dol	
						Schoolcraft Dol	
					BURNT BLUFF	Hendricks Dol	Fiborn Ls
						Byron Dol	
						Lime Island Dol	
		EARLY		ALEXANDRIAN	CATARACT	Cabot Head Sh	
						Manitoulin Dol	
	ORDOVICIAN	LATE	ORDOVICIAN	CINCINNATIAN	RICHMOND	Big Hill Fm	
						Stonington Fm	Dyers/ Bay de Noc
						Bill's Creek Sh	Collingwood
		MIDDLE		MOHAWKIAN	TRENTON	Groos Quarry Fm	
						Chandler Falls Fm	
					BLACK RIVER	Bony Falls Fm	
		EARLY		CHAZYAN		St. Peter Ss	Glenwood
				CANADIAN	PRAIRIE DU CHIEN	Shakopee Dol	
						New Richmond Ss	
						Oneota Dol	
	CAMBRIAN	LATE	CAMBRIAN	ST CROIXAN	LAKE SUPERIOR	Trempealeau Fm	Jordan Ss / Lodi / St. Lawrence
		MIDDLE				Munising Fm	Mona-1 Castle Ss / Chapel Rock Ss
		EARLY				Jacobsville Ss	
PRECAMBRIAN							

SUBSURFACE NOMENCLATURE

DOMINANT LITHOLOGY	ROCK-STRATIGRAPHIC FORMATION	MEMBER	GROUP	Approximate maximum thickness, in feet, of rock units in the subsurface NO SCALE
Glacial Drift				
Subsurface only(?)	"Red Beds" unnamed			220
	Grand River Fm			750
	Saginaw Fm			
	Bayport Ls		GRAND RAPIDS	360
	Michigan Fm			600
	Marshall Ss	Napoleon Ss		330
	Coldwater Sh			1300
	Sunbury Sh		(Eastern Michigan)	150
	Berea Ss			280
	Bedford Sh			240
	Antrim Sh			660
	Squaw Bay Ls			
	Alpena Ls		TRAVERSE	830
	Generally undivided in subsurface			
	Bell Sh			
	Rogers City Ls			
	Dundee Ls			475
	Lucas Fm		DETROIT RIVER	1450
	Amherstburg Fm			
	Sylvania Ss			
	Bois Blanc Fm			800
	Garden Island Fm			100
	Bass Islands Dol		BASS ISLANDS	700
	G Unit		SALINA	3950
	Evaporite			
	F Unit			
	Evaporite			
	E Unit			
	Evaporite			
	A-2 Carbonate			
	A-2 Evaporite			
	A-1 Carbonate			
	A-1 Evaporite			
	Guelph Dol		NIAGARA	950
	Generally undivided in subsurface			
	Cabot Head Sh		CATARACT	200+
	Manitoulin Dol			
	Queenston Sh		RICHMOND	950
	Utica Sh	Collingwood		
	Generally undivided in subsurface		TRENTON	1100+
			BLACK RIVER	
	Glenwood			260
	Shakopee Dol		PRAIRIE DU CHIEN	425
	New Richmond Ss			
	Oneota Dol			
	Jordan Ss		LAKE SUPERIOR	750
	Lodi			
	St. Lawrence			
	Mazomanie Ss			
	Munising Fm	Dresbach Ss		1175+
	Eau Claire			
	Mt. Simon Ss			
	Jacobsville Ss			1100+
PRECAMBRIAN				

INFORMAL TERMS

Principal oil and gas pays, and informal terms used in petroleum exploration and applied to parts of formations or groups in the subsurface

STRATIGRAPHIC POSITION	INFORMAL TERMS	PAYS
Basal sandstones of Saginaw Fm	Parma sandstone	
In lower part of Michigan	triple pay; Stray sand; Stray dol	Gas
	Stray sd	Gas & Oil
Marshall Ss		Gas & Oil
Coldwater Sh	Coldwater lime; Weir sand; Coldwater red rock	Gas
In upper part of Ellsworth Sh	Berea - Western Michigan	Oil & Gas
Berea Ss	Berea sand - Eastern Michigan	Oil & Gas
Squaw Bay Ls	Squaw Bay	Oil & Gas
Upper part of Traverse Group in Western Michigan	Traverse formation; Traverse lime; Stoney Lake zone	Oil & Gas
Rogers City Ls		Oil & Gas
Dundee Ls		Oil & Gas
Dundee Ls (?), Upper part of Lucas Fm (?)	Reed City zone	Oil & Gas
In Lucas Fm	massive salt; Bag salt; Salt zone; massive anhydrite; Bag anhydrite; Richfield zone	Oil & Gas
Amherstburg Fm	Black lime	
Part of Salina Group E Unit	E zone; or Raleigh zone	Oil
Divisions of A-2 Carbonate in Western Michigan	A-2 dolomite; A-2 lime	Gas
A-1 Carbonate	A-1 dolomite	Oil & Gas
Upper part of Niagaran Series	brown Niagaran; gray Niagaran; white Niagaran	Oil & Gas
Part of Niagaran Series	Clinton shale; Fossum (Michigan)	
Trenton Group		Oil & Gas
Black River Group	Black River formation; Black River shale; Wolf River zone	Oil & Gas
Oneota Dol		Oil

EXPLANATION

Limestone — Cherty; Sandy or silty; Argillaceous or shaly

Dolomite — Some variations as limestone

Shale — Sandy or silty; Calcareous; Dolomite

Sandstone — Cherty; Calcareous; Dolomite; Argillaceous or shaly

Coal beds

Anhydrite or gypsum

Halite (salt)

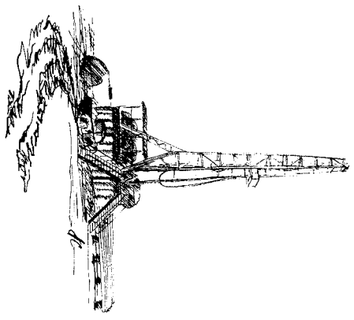
Bituminous (tarry)

Unconformity surface is sometimes irregular, with occasional valleys or channels

PRECAMBRIAN — Igneous, metamorphic and sedimentary rock

GEOLOGIC NAMES COMPILATIONS: Henry D. Stevenson, Cambrian and Ordovician; Robert W. Kelley, Early and Middle Silurian; Gerland D. Ells, late Silurian through Detroit River Group; of Devonian age; Henry J. Hardenbergh, Dundee Limestone through Traverse Group; of Devonian age; & David Johnson, Antrim Shale through the Pennsylvanian System; & Wesley Hunt-Glacial geology of the Cenozoic.

CHART 1
1964



Michigan Geological Survey, Michigan Department of Natural Resources, Ann. Stat. Sum. 30, MICHIGAN'S OIL AND GAS FIELDS, 1978