

STATE OF MICHIGAN
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DEPARTMENT OF ENVIRONMENTAL QUALITY
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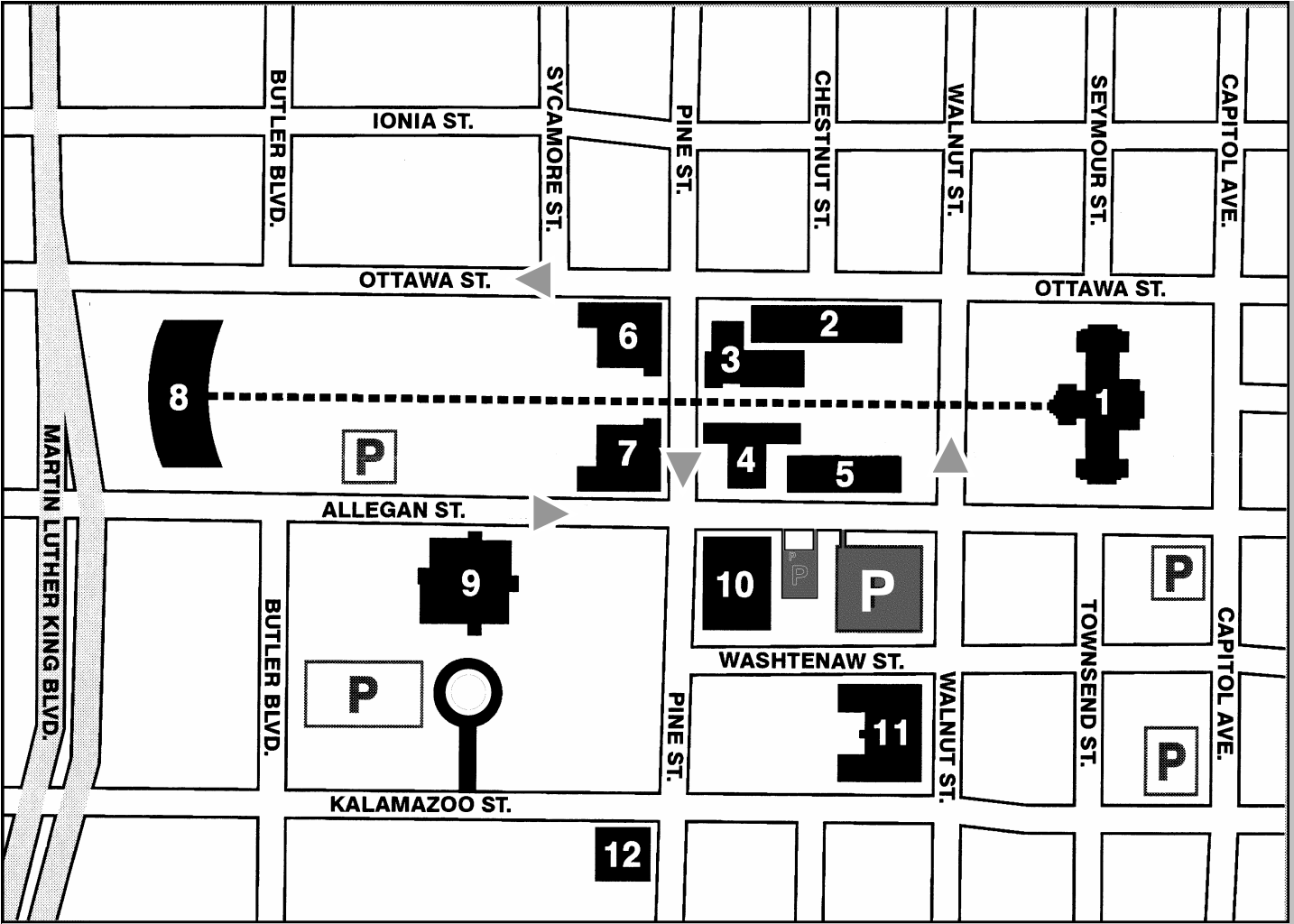


Office of Geological Survey

Geologic Publications and Information

January 2007

Street Map of Part of the Downtown Lansing Area



1 Michigan Capitol	7 Hannah Building
2 Transportation	8 Hall of Justice
3 G. Mennen Williams Building	9 State Library Complex
4 Stevens T. Mason Building	10 Constitution Hall - DEQ headquarters
5 Treasury Building	11 Lewis Cass Building
6 Ottawa Building	12 Capitol Commons

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one way street direction

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Michigan's State Stone the Petoskey stone

Petoskey Stones are masses of fossil colony coral, *Hexagonaria percarinata*. They occur abundantly in Devonian reef limestones of the Traverse Group in the northern part of the Southern Peninsula. The Devonian Period was about 350 million years ago. Coral groups weathered out of the limestone were widely scattered by Pleistocene glacial action. They are readily found on beaches and in gravel deposits as pebbles and cobbles rounded by erosion. Petoskey is the English adaptation of either "Be-dos-e-gay" or "Petosegay," an Ottawa Indian word and variant meaning "sun rays of the dawn."

Michigan's State Gem Chlorastrolite

Chlorastrolite, also commonly called Isle Royal greenstone, is a variety of the mineral pumpellyite. It is found chiefly as bean-sized, rounded beach pebbles. Chlorastrolite is an opaque, usually bluish-green stone with a finely radiating or star-like pattern of slender crystals. It displays a unique mottling of dark green "eyes" ringed with pale green which results in a "turtle back" pattern.

Visitors are Welcome

The Office of Geological Survey, Lansing Office, is open from 8:00 am to 5:00 pm, Monday through Friday except State Holidays. The Lansing Office is located in the Constitution Hall Building, 525 W. Allegan Street, 1st floor, South Tower, two blocks west of the State Capitol, in downtown Lansing.

From I-496, exit at M.L.K. Blvd. Go north following the "Capitol Loop." Turn right onto Allegan Street. Constitution Hall is on the southeast corner of Allegan and Pine. Metered parking is on Allegan, Washtenaw or Pine streets, in the circle drive (up to 60 minutes) and a fee parking lot just east of the building south of Allegan Street.

An electronic copy of this list may be obtained by contacting us at the following address or telephone:

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MICHIGAN DEPARTMENT of ENVIRONMENTAL QUALITY
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Michigan Department of Environmental Quality

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Geology and Resources of Michigan

The Michigan Geological Survey is the oldest Michigan State agency, having celebrated its sesquicentennial in 1987, the same year as the state itself. The mission of the Survey is to encourage conservation and protect natural resource values in developing the geological resources of the state, including fossil fuels, minerals and groundwater. To identify, develop, and disseminate geological information for the benefit of Michigan citizens.

The Upper and Lower Peninsulas of Michigan are geographically and geologically distinct. The bedrock of the western half of the Upper Peninsula consists of geologically complex Precambrian rocks. These very old rocks are a part of the so-called Canadian shield, which constitutes the bedrock of much of central Canada as well as the northern parts of Wisconsin and Minnesota. The bedrock of the eastern part of the Upper Peninsula and the entire Lower Peninsula of Michigan is made up of Paleozoic and Mesozoic sedimentary rocks of Cambrian to Jurassic age. These gently dipping rocks constitute a large regional geological structure known as the Michigan basin.

Repeated advances of large continental glaciers during Pleistocene time eroded and broke down soil and rocks and then re-deposited this material as sediments as they melted and retreated. Most of Michigan is covered by glacial sediments or gravel's, sands, and clays derived from them. Virtually all the geographic and topographic features of Michigan, particularly of the Lower Peninsula, were shaped by glacial and melt water action.

All the important metallic mineral deposits in Michigan, such as the historic and well-known copper and iron ore deposits are found in the Precambrian rocks. The Paleozoic rocks of the Michigan basin contain important resources of petroleum, limestone, dolomite, shale, salt, and gypsum. The Pleistocene sands, gravel's, and clays are excellent sources of important construction materials. The US Geological Survey estimates that Michigan's production of non-fuel minerals in 2000 was valued at over \$1.67 billion, ranking 6th in the nation. Michigan ranks among the top 15 states in oil & gas production.

The knowledge and understanding of geology is of fundamental importance not only to promote the wise use of mineral and energy resources, but also to protect other resources such as our groundwater, to protect against natural disasters such as earthquakes, and to provide information essential for responsible land use.

Geological Publications and Information

Geological Publications

The Office of Geological Survey. (OGS) has produced a number of informative publications on the unique geology of Michigan. What follows is a listing of documents currently in publication, for sale by the OGS

An order form, with information on ordering these items, can be found at the back of this catalog.

CODE ❖ DESCRIPTION COST
BG 01 ❖ *BEDROCK GEOLOGY OF MI*: 1987; Wilson, S. E.; Colored map of the aerial extent of geologic formations. Includes both peninsulas; 1:500,000, 2 sheets. Free while supplies last. Folded ONLY. Digital versions , page 8. Free

QG 01 ❖ *QUATERNARY GEOLOGY OF MI*: 1982; Farrand, W. R.; Colored "surface geology" of the State. Includes both peninsulas; 1:500,000, 2 sheets. Free while supplies last. For information about digital versions, see page 8. Free

BU 04-R ❖ *THE GLACIAL LAKES AROUND MI*: 1988; Farrand, W. R.; Explains the formation of the Great Lakes; 8.5 X 11; 18 pages. \$2.00

BU 06 ❖ *MINERALOGY OF MICHIGAN* Mineralogy of Michigan: Updated and revised by George W. Robinson, A. E. Seaman Mineral Museum, 2004. This is a major revision and expansion of this important reference in an 8.5" by 11" format with over one hundred full color illustrations of minerals found in Michigan, paperback. \$ 45.00

Hardbound version and quantity discounts are available through A. E. Seaman Mineral Museum, Michigan Technological University, 1400 Townsend Drive, Houghton, Michigan 49931-1295, email sjdy1@mtu.edu telephone (906)487-2572 fax (906)487-3027 web www.museum.mtu.edu

BU 07 ❖ *STRATIGRAPHY OF CAMBRIAN ROCKS, S. P. OF MI*: 1989; Milstein, R. L.; Subsurface stratigraphy of Cambrian rocks in the southern peninsula of Michigan; 8.5 X 11; 29 pages. \$5.00

BU 08 ❖ *STRATIGRAPHIC LEXICON FOR MI*: 2001; Catacosinos, P. A., et al, A comprehensive compilation of Stratigraphic terms with accompanying chart. 8.5 X 11; 56 pages \$2.50

CR 10 ❖ *MICHIGANS MINERAL WELLS AND ADMINISTRATIVE RULES*: Part 625, Mineral Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Free

CR 13 ❖ *MICHIGANS RECLAMATION OF MINING LANDS AND ADMINISTRATIVE RULES*: Part 631, Reclamation of Mining Lands, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Free

CR 14 ❖ *SEISMIC DISTURBANCES IN MI*: 1977; Bricker, D. M.; An introduction with description of causes and types of earthquake activity; 5.5 X 8.5; 13 pages, 2 tables. \$1.00

CR 15 ❖ *MICHIGANS OIL AND GAS REGULATIONS*: Part 615, Supervisor of Wells and the Administrative Rules, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; Part 616, Orphan Well Fund, Part 617, Unitization. Free

CR 15D ❖ *MICHIGANS OIL AND GAS REGULATIONS* on diskette Free

CR 15D1 ❖ *MICHIGANS OIL AND GAS PERMITTING AND REPORTING FORMS* on diskette Free

CR 18 ❖ *MICHIGAN'S DESIGNATED AND CRITICAL SAND DUNE AREAS*: Booklet containing maps of Michigan's Designated and Critical Sand Dune Areas; 8.5 x 14; 76 pages. Free

CR 19 ❖ *MICHIGAN'S SAND DUNE MINING AND ADMINISTRATIVE RULES*: Part 637, Sand Dune Mining, of the Natural Resources and Environmental Protection Act. Free

GM 03 ❖ *SELECTED GEOLOGIC MAPS OF ALLEGAN CO., MI*: 1982; Gephart, G. D.; Selected geologic maps with text, four color maps of Allegan County; 4 sheets. \$8.00

GM 33 ❖ *SELECTED GEOLOGIC MAPS OF INGHAM CO., MI*: 1982; Puzio, M. C.; Selected geologic maps with text, four color maps of Ingham County; 4 sheets. \$8.00

- GM 39 ❖ *SELECTED GEOLOGIC MAPS OF KALAMAZOO CO., MI*: 1982; Managhan, G. W. Selected geologic maps with text, four color maps of Kalamazoo County; 4 sheets. \$8.00
- PA 01 ❖ *DOUGLASS HOUGHTON, MICHIGAN'S FIRST STATE GEOLOGIST 1837-1845*: 1977; Wallin, H.; Biographic sketch of eminent early state scientist and citizen; 20 pages. \$1.00
- PA 06 ❖ *COLLECTING ROCKS, MINERALS AND FOSSILS IN MI*: 1976; Wilson, S. E.; Illustrated introduction to this enjoyable hobby; collecting rocks, minerals and fossils; 8.5 X 11; 16 pages. \$1.00
- PA 07 ❖ *MICHIGAN'S SAND DUNES*: 1980; Wilson, S. E.; An illustrated introduction to the sand dune environment; 8.5 X 11; 10 pages. \$1.00
- RI 15 ❖ *SUBSURFACE GEOLOGY OF BARRY COUNTY, MI*: 1975; Lillenthal, R. T.; Description of the stratigraphy and structure based on electric and driller's logs; 8.5 X 11; 36 pages and 16 figures. \$2.00
- RI 16 ❖ *A STUDY OF AN AEROMAGNETIC ANOMALY, NORTH CENTRAL DICKINSON COUNTY, MI*: 1977; Snider, D. W.; Report of a ground geological and geophysical study. Includes 8 tables, 18 figures; 8.5 X 11; 18 pages. \$2.00
- RI 17 ❖ *ESTABLISHING VEGETATION ON ALKALINE IRON AND COPPER TAILINGS*: 1977; Shetron, S. G., et al; A report on mine reclamation research. Includes 6 tables, 10 figures; 8.5 X 11; 14 pages. \$2.00
- RI 18 ❖ *DRILL CORE INVESTIGATION OF THE FIBORN LIMESTONE, UPPER PENINSULA, MI*: 1978; Johnson, A.; Study of the Fiborn limestone member in Schoolcraft, Mackinac, and Chippewa Counties, 3 tables, 7 figures; 56 pages. \$2.00
- RI 19 ❖ *STRATIGRAPHIC CROSS SECTIONS OF THE MI BASIN*: 1978; Lillenthal, R. T. Includes maps and appendix with 89 electric log cross sections (sold punched, loose-leaf for insertion into 3 ring binders); 8.5 X 11; 36 pages. \$8.00
- RI 22 ❖ *STRATIGRAPHIC CROSS SECTIONS, IN MI*: 1979; Ellis, G. D.; A detailed look at the stratigraphy of Michigan's oil shale; from Devonian Antrim shale to Mississippian Sunbury shale, 22 plates; 8.5 X 11; 190 pages. \$6.00
- RI 23 ❖ *DUNE TYPE INVENTORY AND BARRIER DUNE CLASSIFICATION STUDY, MI*: 1970; Buckler; Dune type inventory and barrier dune classification study of Michigan's Lake Michigan shore; 8.5 X 11; 20 pages. \$2.00
- RI 24 ❖ *A STUDY OF THE YELLOW DOG PERIDOTITE*: 1979; Klasner, J.S.; A detailed study a possibly economic geologic complex; 8.5 X 11; 54 pages. \$2.00
- RI 25 ❖ *POTASH STUDY OF THE SALINA A1 EVAPORATE IN THE MI BASIN*: 1980; Elowski, R. C.; Potassium salts (potash) of the salina a1 evaporate in the Michigan Basin. 8 maps and cross sections; 8.5 X 11; 15 pages. \$2.00
- RI 27 ❖ *LITHOSTRATIGRAPHY AND DEPOSITIONAL ENVIRONMENTS OF THE PENNSYLVANIAN ROCKS AND THE BAYPORT FORMATION OF THE MI BASIN*: 1984; Vugrinovich, R.; 8.5 X 11; 33 pages. \$3.00
- RI 28 ❖ *CRYPTOEXPLOSIVE DISTURBANCE, CALVIN 28, CASS CO., MI*: 1988; Milstein, R.L.; Impact origin a cryptoexplosive disturbance, Cass County, Michigan; 8.5 X 11; 33 pages. \$3.00
- SR 08 ❖ *WEST BRANCH FIELD, DUNDEE POOL, OGEMAW AND ROSCOMMON CO., MI*: 1981; Vugrinovich, R.; Secondary recovery study of the west branch oil field, dundee oil pool, Michigan. Includes maps & illustrations; 12 pages. \$2.00
- WI 01 ❖ *RECONNAISSANCE OF GROUNDWATER RESOURCES OF ALGER CO, MI*: 1963; Vanlier, K.; Illustrations, maps, in cooperation w/USGS; 8.5 X 11; 55 pages. \$3.00
- WI 02 ❖ *GROUNDWATER IN MENOMINEE CO, MI*: 1963; Vanlier, K.; Illustrations, maps, in cooperation w/USGS; 8.5 X 11; 42 pages. \$3.00
- WI 03 ❖ *WATER RESOURCES OF VAN BUREN CO., MI*: 1964; Giroux, P. R.; Hydrogeology and water resources of Van Buren County, Michigan. Includes 15 figures, 24 tables, 31 maps; 8.5 X 11; 76 pages. \$3.00
- WI 04 ❖ *GROUNDWATER RESOURCES OF THE BATTLE CREEK AREA, MI*: 1966; Vanlier, K. E., Illustrations, maps in cooperation w/USGS; 8.5 X 11; 52 pages. \$3.00
- WI 05 ❖ *GROUNDWATER RESOURCES OF DICKINSON COUNTY, MI*: 1966; Hendrickson, G., Hydrogeological investigation of Dickinson County, Michigan. Includes 4 figures, 6 tables, 4 maps; 8.5 X 11; 50 pages. \$3.00
- WI 07 ❖ *GROUNDWATER IN IRON CO, MI*: 1967; Doonan, Hendrickson; Illustrations, maps, in cooperation w/ USGS; 8.5 X 11; 61 pages. \$3.00
- WI 08 ❖ *GROUNDWATER IN GOGEBIC CO, MI*: 1968; Doonan, Hendrickson; Illustrations, maps, in cooperation w/USGS; 8.5 X 11; 22 pages. \$3.00
- WI 11 ❖ *GROUNDWATER AND GEOLOGY OF BARAGA CO., MI*: 1973; Doonan, C. J.; Hydrogeology study of Baraga County, Michigan. Includes 2 figures, 2 plates; 8.5 X 11; 26 pages. \$3.00
- WS 01 ❖ *UPPER RIFLE RIVER BASIN, NORTHEASTERN LOWER MI*: 1971; Knutilla, R. L.; Study of the rifle river basin, in the northeastern lower peninsula, Michigan. Includes 64 figures, 8 tables; 8.5 X 11; 65 pages. \$3.00
- WS 04 ❖ *HYDROLOGY OF COLD-WATER RIVERS OF MICHIGAN'S UPPER PENINSULA*: 1973; Hendrickson, G. E. E; Hydrology and recreation on the cold-water rivers of Michigan's upper peninsula. Includes 24 figures, 8 tables; 39 pages. \$3.00
- USGS WRI 90-4028 ❖ *GEOHYDROLOGY AND WATER QUALITY OF KALAMAZOO COUNTY, MI, 1986-88*: 1990; Rheaume, S.J.; in cooperation w/USGS. Includes 3 plates; 8.5 x 11; 102 pages. \$10.00
- USGS WRI 90-4122 ❖ *HYDROLOGY AND LAND USE IN GRAND TRAVERSE COUNTY, MI*: 1990; Cummings, T. R., et al; in cooperation w/USGS. Includes 3 plates; 8.5 x 11; 99 pages. \$10.00
- WATER 1 ❖ *HISTORY OF THE SALT, BRINE AND PAPER INDUSTRIES AND THEIR PROBABLE EFFECT ON THE GROUND WATER QUALITY IN THE MANISTEE LAKE AREA OF MI*: 1970; Childs, K. E., Includes 5 plates 8.5 x 11; 70 pages. \$5.00
- POSTER ❖ *MI FOSSILS POSTER*: Twenty four of the usual suspects from Precambrian to Pleistocene, vertebrates, invertebrates and plants, statewide. Folded to 8.5 x 11 or flat 17 x 22, sent rolled, please specify. (Rolled costs \$2.00 extra for the tube.) \$1.50

FLASH CARDS ❖ *FLASH CARDS*: Used as a teaching tool. Set of 36, 3.5" x 2.5" cards. Includes 9 sedimentary rocks as well as fossils from the above poster. \$2.00

Contributions to Michigan Geology (CMG)

CODE ❖ *DESCRIPTION* COST

CMG 90-1 ❖ *PRECAMBRIAN GEOLOGY OF THE PENNY LAKE AREA, MARQUETTE GREENSTONE BELT, MI*: 1990; Small, J.R. and Bornhorst, T.J.; 8.5 X 11; 26 pages, 1 plate. \$7.00

CMG 90-3 ❖ *GEOLOGY OF THE BOISE CREEK AREA, MARQUETTE GREENSTONE BELT, MI*: 1990; Wilkin, R.T. and Bornhorst, T.J.; 8.5 X 11; 15 pages, 1 plate. \$5.00

CMG 90-4 ❖ *PORT HURON STUDY, HISTORICAL DEVELOPMENT OF HYDROCARBONS AND SUBSEQUENT PROBLEMS*: 1990; Danyluk, W. 6 maps; 8.5 X 11; 19 pages. \$10.00

CMG 92-1 ❖ *MICHIGAN'S COPPER COUNTRY*: 1992; Courter, Ellis, W.; History of Michigan's copper country and the development of copper in Michigan; 8.5 X 11; 158 pages. \$10.00

CMG 92-2 ❖ *BEDROCK GEOLOGY MAP OF THE NEGAUNEE NW QUADRANGLE, MARQUETTE COUNTY, MI*: 1992; Wilkin, R.T., Johnson, R.C., and Bornhorst, T.J.; 8.5 X 11; 11 pages, 1 plate. \$3.00

CMG 92-3 ❖ *GEOCHEMICAL DATA FOR BEDROCK SAMPLES FROM THE NEGAUNEE NW QUADRANGLE, MARQUETTE COUNTY, MI*: 1992; Wilkin, R.T. and Bornhorst, T.J.; 8.5 X 11; 9 pages. \$2.00

CMG 94-1 ❖ *MICHOLOGIC TIME LINE*: 1994; Midwest Mineralogical and Lapidary Society of Dearborn, MICHIGAN, 8.5 X 11; 20 pages. \$3.00

Geological Open File Reports

Open File Reports (OFR's) are made from the best available copy. They are typically preliminary, unedited information, subject to revision and or subsequent publication.

CODE ❖ *DESCRIPTION* COST

OFR 62-1 ❖ *STRUCTURES ASSOCIATED WITH THE ALBION - SCIPPIO OIL FIELD TREND*: 1962; Ells, G.; 89 pages. \$5.00

OFR 77-2 ❖ *INVESTIGATION OF A REPORTED COPPER-SILVER SHOWING IN SECTION 30, T50N, R26W, MARQUETTE COUNTY, MI*: 1977; Snider, D.; 21 pages. \$2.00

OFR 78-1 ❖ *GEOCHEMICAL INVESTIGATION OF SILURIAN OUTCROPS IN THE NORTHERN PENINSULA OF MICHIGAN*: 1978; Parker, B. and Lilienthal, R.; 30 pages. \$2.00

OFR 78-3 ❖ *GEOLOGICAL STUDY OF SAND DEPOSITS IN THE STATE OF MICHIGAN; PHASE I*: 1978; Sundeen, S. P.; 130 pages, 2 plates. Available as pdf, sent via email. \$13.00

OFR 78-4 ❖ *GEOLOGICAL STUDY OF SAND DEPOSITS IN THE STATE OF MICHIGAN; PHASE II*: 1979; Sundeen, S. P.; 89 pages. Available as pdf, sent via email. \$5.00

OFR 78-5 ❖ *CRITERIA AND METHODOLOGY FOR ASSESSING THE ENVIRONMENTAL, AESTHETIC, SOCIAL, AND ECONOMIC IMPACT OF SAND MINING ON BARRIER DUNES IN MI*: 1978; 96 pages. Available as pdf, sent via email. \$5.00

OFR 79-0 ❖ *THE MISSISSIPPIAN AND PENNSYLVANIAN (CARBONIFEROUS) SYSTEMS IN THE UNITED STATES -- MICHIGAN*: 1979; Ells, G. D.; A USGS offprint; Historical review and summary of areal, stratigraphic, structural, and economic geology of Mississippian and Pennsylvanian in Michigan; 20 pages. \$2.00

OFR 80-1 ❖ *GOLD IN MI*: 1980; Various; References and Photocopies of selected out of print publications of the Michigan DEQ Office of Geological Survey ; 78 pages. . \$4.00

OFR 80-2 ❖ *REPORT ON MICHIGAN PEAT RESERVES*: 1980; Walden, W.; 22 pages. \$2.00

OFR 81-1 ❖ *REPORT ACCOMPANYING GROUND MAGNETIC MAP OF HOMER AND SPRING ARBOR 15' QUADRANGLE, MI*: 1981; Sauk, Parker, and Hoin; 21 pages. SEE OFM 81-1. \$2.00

OFR 81-2 ❖ *RARE EARTH AND RELATED ELEMENTS IN THE GOODRICH QUARTZITE, MARQUETTE COUNTY, MICHIGAN*: 1981; Parker, B.; 22 pages. \$2.00

OFR 85-2 ❖ *GEOLOGY AND PRECIOUS METAL MINERALIZATION OF THE FIRE CENTER AND HOLYKE MINES AREA, MARQUETTE COUNTY, MI*: 1985; Owens and Bornhorst; 105 pages, see GSD OFM 86-1 and GSD OFM 86-2. \$12.00

OFR 86-1 ❖ *DETAILED GEOLOGICAL STUDY OF THREE PRECIOUS METAL PROSPECTS IN MARQUETTE COUNTY AND ONE IN GOGEBIC COUNTY, MI*: 1986; Boben and Bornhorst; 46 pages, 4 plates. \$16.00

OFR 86-6 ❖ *PATTERNS OF REGIONAL SUBSURFACE FLUID MOVEMENT IN THE MI BASIN*: 1986; Vugrinovich, R.; 27 pages. \$2.00

OFR 87-4 ❖ *GEOLOGIC SETTING OF PRECIOUS METAL MINERALIZATION IN THE SILVER CREEK TO ISLAND LAKE AREA, MARQUETTE COUNTY, MI*: 1987; Johnson, Bornhorst & VanAlstine; 146 pages, 1 plate. . \$10.00

OFR 87-6 ❖ *COBALT, NICKEL, AND VANADIUM CONTENTS OF PYRITE CONCENTRATES FROM THE MICHIGAMME FORMATION, NORTHERN MI*: 1987; Bornhorst, Ruotsala, and Stadnik; 26 pages. \$5.00

OFR 87-8 ❖ *GEOLOGY, STRUCTURE, AND ASSOCIATED PRECIOUS METAL MINERALIZATION OF ARCHEAN ROCKS IN THE VICINITY OF CLARK CREEK, MARQUETTE COUNTY, MI*: 1987; Baxter et al; 62 pages, 1 plate. \$7.00

OFR 88-2 ❖ *MANGANESE INVESTIGATION IN KEWEENAW COUNTY, MI*: 1988; Blaske et al; 38 pages. \$3.00

OFR 89-2 ❖ *BEDROCK GEOLOGY OF THE REANY LAKE AREA, MARQUETTE COUNTY*: 1989; MacLellan and Bornhorst; , 122 pages, 1 plate. \$16.00

OFR 96-01 ❖ *INVENTORY OF THE GEOLOGIC CORE AND SAMPLE REPOSITORY, MARQUETTE MI*: 1996; W. Swenor; 168 pages. \$10.00

U. S. Bureau of Mines Open File Reports

CODE ❖ *DESCRIPTION* COST

USBM OFR 102-76 ❖ *MAGNITUDE AND QUALITY OF MI COAL RESERVES*: 1976; Kalliokoski, J.; 37 pages, 8 plates. \$2.50

U. S. Dept of Energy Open File Reports

CODE ❖ *DESCRIPTION* COST

DOE OFR 78 ❖ *PRELIMINARY GEOLOGIC DATA FROM DIAMOND-DRILLING IN THE MIDDLE PRECAMBRIAN BASINS IN THE WESTERN NORTHERN MI*: 1978; Trow, J.; 178 pages. \$10.00

DOE OFR 162 (79) ❖ *FINAL REPORT: DIAMOND DRILLING FOR GEOLOGIC INFORMATION IN THE MIDDLE PRECAMBRIAN BASINS IN THE WESTERN PORTION OF NORTHERN MI*; 1979; Trow, J.; 130 pages. \$5.00

U. S. Geological Survey Open File Reports

CODE ❖ DESCRIPTION	COST
USGS OFR 75-152 ❖ <i>KEWEENAWAN GEOLOGY OF THE NORTH IRONWOOD, IRONWOOD, & LITTLE GIRL POINT QUADS., GOGEBIC CO., MI</i> : 1975; Hubbard, H.; 10 pages, 2 plates.	\$8.00
USGS OFR 80-1081 ❖ <i>RADIOELEMENT DISTRIBUTION IN ARCHEAN GRANITE GNEISS, REPUBLIC AREA, MI</i> : 1980; Stuckless, J. S., Bunker C. M. and Bush, C. A.; 15 pages.	\$2.00
USGS OFR 80-390 ❖ <i>COPPER BEARING QUARTZITE NEAR WATERSMEET, MI</i> : 1980; Cannon, W.; 7 pages.	\$2.00
USGS OFR 80-591 ❖ <i>GROUNDWATER OF COAL DEPOSITS, BAY COUNTY, MI</i> : 1980; Stark J.R. and McDonald, M. G.; 40 pages. ..	\$3.00
USGS OFR 80-773 ❖ <i>HYDRAULIC CHARACTERISTICS OF AN UNDERDRAINED IRRIGATION CIRCLE, MUSKEGON CO. WASTEWATER DISPOSAL SYSTEM, MI</i> : 1980; McDonald, M. G.; 22 pages.	\$2.00
USGS OFR 80-902 ❖ <i>REVIEW OF LAKE MI SEISMIC REFLECTION DATA</i> : 1980; Wold, R.; 21 pages.	\$2.00
USGS OFR 80-GHEPWCM ❖ <i>GEOLOGY AND HYDROLOGY FOR ENVIRONMENTAL PLANNING IN WASHTENAW COUNTY, MICHIGAN</i> : 1980; Fleck, W.; 14 double sized pages.	\$3.00
USGS OFR 82-223 ❖ <i>MINERAL RESOURCE ASSESSMENT OF THE IRON RIVER 1 X 2 QUADRANGLE, MI AND WI</i> : 1982; Cannon, F. W.; 33 pages, 1 plate.	\$2.00
USGS OFR 82-301 ❖ <i>PRELIMINARY SURFICIAL GEOLOGIC MAP OF THE IRON RIVER 1 X 2 QUADRANGLE, MI AND WI</i> : 1982; Peterson, W.; 28 pgs, 2 plates.	\$2.00
USGS OFR 95-75K ❖ <i>AN INITIAL RESOURCE ASSESSMENT OF THE UPPER DEVONIAN ANTRIM SHALE IN THE MICHIGAN BASIN</i> : 1996, Dolton, G.L., and Quinn, J.C.; 23 pages.	\$2.00

Selected USGS Maps and Reports

CODE ❖ DESCRIPTION	COST
USGS Map I-1360-F ❖ <i>AEROMAGNETIC MAP OF THE IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-B ❖ <i>BEDROCK GEOLOGY MAP OF THE IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-I ❖ <i>CHROMIUM DISTRIBUTION IN B-HORIZON SOILS - IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-H ❖ <i>COPPER DISTRIBUTION IN B-HORIZON SOILS - IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map ❖ <i>HYDROLOGIC UNIT MAP-STATE OF MICHIGAN-1974</i>	\$7.00
USGS Map I-1360-N ❖ <i>INTERPRETIVE GEOCHEMICAL MAP OF THE IRON RIVER QUAD, MI & WI</i>	\$7.00

USGS Map I-1360-G ❖ <i>METAMORPHIC MAP OF THE IRON RIVER QUAD</i>	\$7.00
USGS Map I-1360-A ❖ <i>MINERAL RESOURCES MAP OF THE IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-M ❖ <i>MOLYBDENUM DISTRIBUTION IN B-HORIZON SOILS - IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-K ❖ <i>NICKEL DISTRIBUTION IN B-HORIZON SOILS - IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-L ❖ <i>SILVER DISTRIBUTION IN B-HORIZON SOILS - IRON RIVER QUAD, MI & WI</i>	\$7.00
USGS Map I-1360-D ❖ <i>STRUCTURAL & TECTONIC MAP OF THE IRON RIVER QUAD</i>	\$7.00
USGS Map I-2202 ❖ <i>MAPS & SEISMIC PROFILES SHOWING THICKNESS & DISTRIBUTION OF POST GLACIAL DEPOSITS BENEATH THE SOUTHERN 2/3 OF LAKE MI</i>	\$7.00
USGS Map I-1365 ❖ <i>GEOLOGIC MAP OF THE GOGEBIC RANGE-WATERSMEET AREA</i>	\$7.00
USGS Map I-1290 ❖ <i>BEDROCK GEOLOGIC MAP OF KENTON-PERCH LAKE AREA</i>	\$7.00
USGS Map I-1290 ❖ <i>BEDROCK GEOLOGIC MAP OF THE KENTON-PERCH LAKE AREA, NORTHERN MI</i>	\$7.00
USGS Map I-1284 ❖ <i>GEOLOGIC MAP OF THE NED LAKE QUAD, IRON & BARAGA CO, MI</i>	\$7.00
USGS Map I-1284 ❖ <i>GEOLOGIC MAP OF THE NED LAKE QUAD, IRON & BARAGA CO, MI</i>	\$7.00
USGS Map GQ-1226 ❖ <i>BEDROCK GEOLOGIC MAP OF THE NEGAUNEE SW QUAD, MARQUETTE CO, MI</i>	\$7.00
USGS Map GQ-1168 ❖ <i>BEDROCK GEOLOGIC MAP OF THE GREENWOOD QUAD, MARQUETTE CO, MI</i>	\$7.00
USGS Map GQ-1130 ❖ <i>BEDROCK GEOLOGIC MAP OF THE ISHPEMING QUAD, MARQUETTE CO, MI</i>	\$7.00
USGS Map MF-1095 ❖ <i>GEOLOGICAL & GEOPHYSICAL DATA SOURCES, LAKE MI</i>	\$7.00
USGS Map I-1058 ❖ <i>BEDROCK & GEOLOGIC MAP OF THE SOUTHERN PART OF DIORITE & CHAMPION QUADS, MARQUETTE CO, MI</i>	\$7.00
USGS Map I-987 ❖ <i>GEOLOGIC MAP & GEOPHYSICAL INTERPRETATION OF THE WITCH LAKE QUAD, MARQUETTE, IRON & BARAGA CO, MI</i>	\$7.00
USGS Map GP-947 ❖ <i>AEROMAGNETIC MAP OF EASTERN PART OF NORTHERN PENINSULA</i>	\$7.00
USGS Map GP-833 ❖ <i>AEROMAGNETIC MAP OF GLADSTONE & VICINITY, DELTA, ALGER, MENOMINEE & MARQUETTE COUNTIES, MI</i>	\$7.00
USGS Map GP-750 ❖ <i>AEROMAGNETIC MAP OF THE WESTERN PART OF THE NORTHERN PENINSULA, MI</i>	\$7.00
USGS Map GP-711 ❖ <i>AEROMAGNETIC MAP OF THE MENOMINEE-NORTHLAND AREA, DICKINSON, MARQUETTE, MENOMINEE CO, MI</i>	\$7.00
USGS Map GP-608 ❖ <i>AEROMAGNETIC MAP OF KEWEENAW BAY AREA, MI</i>	\$7.00
USGS Map I-576 ❖ <i>BEDROCK GEOLOGIC MAP OF THE MARENSICO-WATERSMEET AREA, GOGEBIC & ONTONAGON CO, MI</i>	\$7.00

USGS Map I-559 ❖ <i>GEOCHEMICAL PROSPECTING FOR COPPER, LEAD, ZINC IN THE WEST CENTRAL PART OF NEGAUNEE QUAD, MARQUETTE MI</i>	\$7.00
USGS Atlas HA-514 ❖ <i>WATER RESOURCES OF THE HURON RIVER BASIN, SOUTHEASTERN MI</i>	\$7.00
USGS Map I-497 ❖ <i>PREQUATERNARY GEOLOGIC & MAGNETIC MAP & SECTIONS OF PART OF EASTERN GOGEBIC IRON RANGE</i> .	\$7.00
USGS Atlas HA-469 ❖ <i>WATER RESOURCES OF THE CLINTON RIVER BASIN, SOUTHEASTERN MI</i>	\$7.00
USGS Map GP-467 ❖ <i>AEROMAGNETIC MAP OF PARTS OF MARQ., DICK., BARAGA, ALGER & SCHOOL., CO., MI & IT'S GEOLOGIC INTERPRETATION</i>	\$7.00
USGS Atlas HA-436 ❖ <i>RECONNAISSANCE OF THE MANISTEE RIVER-A COLD WATER RIVER IN THE NORTHWESTERN PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-426 ❖ <i>RECONNAISSANCE OF THE RIFLE RIVER-A COLD WATER RIVER IN NORTHEASTERN PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-426 ❖ <i>RECONNAISSANCE OF THE RIFLE RIVER-A COLD WATER RIVER IN NORTHEASTERN PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-384 ❖ <i>RECONNAISSANCE OF THE PERE MARQUETTE RIVER-A COLD WATER RIVER IN CENTRAL PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-384 ❖ <i>RECONNAISSANCE OF THE PERE MARQUETTE RIVER-A COLD WATER RIVER IN CENTRAL PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-356 ❖ <i>WATER RESOURCES OF THE RIVER ROUGE BASIN, SOUTHEASTERN MI</i>	\$7.00
USGS Atlas HA-354 ❖ <i>RECONNAISSANCE OF THE BLACK RIVER-A COLD WATER RIVER IN THE NORTHCENTRAL PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-353 ❖ <i>RECONNAISSANCE OF THE STURGEON RIVER-A COLD WATER RIVER IN THE NORTHCENTRAL PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-353 ❖ <i>RECONNAISSANCE OF THE STURGEON RIVER-A COLD WATER RIVER IN THE NORTHCENTRAL PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-338 ❖ <i>WATER RESOURCES OF BLACK RIVER BASIN, SOUTHEASTERN, MI</i>	\$7.00
USGS Atlas HA-333 ❖ <i>RECONNAISSANCE OF THE PIGEON RIVER-A COLD WATER RIVER IN THE NORTHCENTRAL PART OF MI SOUTHERN PENINSULA</i>	\$7.00
USGS Atlas HA-327 ❖ <i>WATER RESOURCES OF THE PINE RIVER BASIN, SOUTHEASTERN MI</i>	\$7.00
USGS Atlas HA-317 ❖ <i>WATER RESOURCES OF BELLE RIVER BASIN, SOUTHEASTERN MI</i>	\$7.00
USGS PP-310 ❖ <i>PROFESSIONAL PAPER ON GEOLOGY OF CENTRAL DICKINSON Co, MI</i>	\$7.00
USGS Map GQ-73 ❖ <i>BEDROCK GEOLOGY OF THE MANITOU ISLAND QUAD</i>	\$7.00
USGS Atlas HA-59 ❖ <i>FLOODS AT MOUNT CLEMENS, MI</i>	\$7.00
USGS Map GQ-54 ❖ <i>BEDROCK GEOLOGY OF MOHAWK QUAD, MI</i>	\$7.00

USGS Map OM-38 ❖ <i>LITHOLOGY & THICKNESS OF THE DUNDEE FORMATION & THE ROGERS CITY LIMESTONE IN MI BASIN</i>	\$7.00
USGS Chart OC-33 ❖ <i>THICKNESS & LITHOLOGY OF UPPER ORDOVICIAN & LOWER & MIDDLE SILURIAN ROCKS IN THE MI BASIN</i>	\$7.00
USGS Bulletin 1044 ❖ <i>GEOLOGY OF THE KIERNAN QUAD, IRON Co, MI</i>	\$7.00
USGS Bulletin 1077 ❖ <i>GEOLOGY OF THE LAKE MARY QUAD, IRON Co, MI</i>	\$7.00
USGS Bulletin 1226 ❖ <i>GEOLOGY OF THE KELSO JUNCTION QUAD, IRON Co, MI</i>	\$7.00
USGS Bulletin 1274F ❖ <i>THE REANY CREEK FORMATION, MARQUETTE Co, MI</i>	\$7.00
USGS Bulletin 1354F ❖ <i>THE BASE OF THE UPPER KEWEENAWAN MI & WI</i>	\$7.00

Digital Geology Library

The Geological Survey has been gathering and disseminating information about Michigan's non-renewable geologic resources since 1837. Much of the printed materials is out-of-print or difficult to access. In an effort to make geologic information publication have been scanned and are available on line. This is an ongoing project. This library will expand as files are added. The files are in Adobe Portable Document File (PDF) format. Where appropriate, bookmarks are used to aid in navigation.

The OGS Digital Geology Library files are on the internet at: www.michigan.gov/deqgeologyinmichigan (deq geology in michigan - all lowercase no s p a c e s)

U. S. Geological Survey Topographic Maps

As of June 1, 2007, the Michigan Department of Environmental Quality Office of Geological Survey has discontinued the sale of USGS topographic maps.

Topographic map files are available from a wide range of online sources. Enter the phrase "topographic maps" (and/or Michigan, GIS, GPS, ...) in your web browser search engine to generate a current list of possibilities.

Michigan County Geologic Maps

Bedrock Geology (BG), Bedrock Topography (BT), and/or Drift Thickness (DT) maps are available for the following counties at \$5.00 each. Order by map number and 2 letter map type code (i.e. Alcona Bedrock Topography 3736 BT). These maps are blue line copies showing county, township, and section lines only. Items not in the listing are not available.

Map No.	County	BG	BT	DT
3736	Alcona	BG	BT	DT
3745	Alpena	BG	BT	DT
3767	Antrim	BG	BT	DT
3495	Arenac	BG	BT	DT
3551	Barry	BG		
3560	Bay	BG	BT	DT
3704	Benzie	BG	BT	DT
3773	Charlevoix	BG	BT	DT
3771	Cheboygan	BG	BT	DT
3496	Clare	BG	BT	DT
3623	Crawford	BG	BT	DT
3717	Emmet	BG	BT	DT
3440	Gladwin	BG	BT	DT
3772	Grand Traverse	BG	BT	DT
3749	Iosco	BG	BT	DT
3477	Isabella	BG	BT	DT
3654	Kalkaska	BG	BT	DT
3570	Lake	BG	BT	DT
3719	Leelanau	BG		
3727	Manistee	BG	BT	DT
3627	Mason	BG	BT	DT
3453	Mecosta	BG	BT	DT
3494	Midland	BG	BT	DT
3564	Missaukee	BG	BT	DT
3747	Montmorency	BG	BT	DT
3581	Newaygo	BG	BT	DT
3455	Oceana	BG	BT	DT
3452	Ogemaw	BG	BT	DT
3461	Osceola	BG	BT	DT
3744	Oscoda	BG	BT	DT
3764	Otsego	BG	BT	DT
3770	Presque Isle	BG	BT	
3555	Roscommon	BG	BT	DT
3689	St. Clair	BG	BT	DT
3664	Wayne	BG	BT	DT
3714	Wexford	BG	BT	DT

Michigan Geological Maps

The following blueprint maps do not show cultural features such as buildings, airports, etc. Nor do they show oil and gas well locations. See listing below for map scales.

CODE	DESCRIPTION	COST
100	DEPTH CONTOURS ON FIRST SALT OF DETROIT RIVER GROUP; 1 in = 25 mi; 1949	\$5.00
100A	ISOPACH MAP OF ALL SALT OF DETROIT RIVER GROUP; 1 in = 25 mi; 1949	\$5.00
101	DEPTH CONTOURS ON FIRST SALT OF SALINA GROUP; 1 in = 25 mi; 1949	\$5.00
101A	ISOPACH OF SALINA GROUP SALT; 1' = 25 mi; 1949	\$5.00
3575	SAND DUNES OF MI; 1:1,000,000; 1962	\$5.00
3918	DOLOMITE MAPS: EASTERN CHIPPEWA COUNTY; 1 in = 1 mi; 1937	\$5.00
3919	DOLOMITE MAPS: EASTERN MACKINAC COUNTY; 1 in = 1 mi; 1939	\$5.00
3920	DOLOMITE MAPS: WESTERN MACKINAC COUNTY; 1 in = 1 mi; 1938	\$5.00
3527	SOUTHERN PENINSULA: ANTICLINE TREND MAP; 1:500,000; 1937	\$5.00
3528	SOUTHERN PENINSULA: GLACIAL DRIFT THICKNESS Contour Interval = 50 feet 1:500,000; 1938	\$5.00
3585	SOUTHERN PENINSULA: BEDROCK SURFACE Elevation Contour Interval = 50 feet 1:500,000; 1943	\$5.00
3800	STRUCTURE CONTOURS: TOP OF TRENTON GROUP; 1:500,000; 1988	\$5.00
3867	General Geologic Map of the Keweenaw Copper Range, MI: D. Snider; 1976	\$5.00
3976	SOUTHERN PENINSULA: PRECAMBRIAN TEST WELLS; 1:500,000; 1988	\$5.00
3977	LOWER ORDOVICIAN: FENCE DIAGRAM; 1:500,000; 1983	\$5.00
3978	STRUCTURE CONTOUR GENERALIZED: DEVONIAN K-MARKER METABENTONITE; 1:500,000; 1983	\$5.00
3980	ISOPACH MAP: THICKNESS OF EAU CLAIR MEMBER, SOUTHERN PENINSULA; 1:500,000; 1988	\$5.00
3981	ISOPACH MAP: THICKNESS OF MOUNT SIMON SANDSTONE; 1:500,000; 1988	\$5.00
3982	ISOPACH MAP: THICKNESS OF ST. PETER SANDSTONE; 1:500,000; 1987	\$5.00
3983	ISOPACH MAP: THICKNESS OF "ZONE OF UNCOMFORMITY"; 1:500,000; 1984	\$5.00
3984	PRAIRIE DU CHIEN WELL DISTRIBUTION IN MI: Map; 1:500,000; 1990	\$5.00
3984L	PRAIRIE DU CHIEN WELL DISTRIBUTION IN MI: LIST OF WELL LOCATIONS AND E-LOG DEPTHS; R. Reszka; 50pp.; 1990	\$10.00
3987	ISOPACH MAP: THICKNESS OF THE FRANCONIA SANDSTONE, SOUTHERN PENINSULA; 1:500,000; 1988	\$5.00
3988	ISOPACH MAP: THICKNESS OF DRESBACH (GALESVILLE) SANDSTONE, SOUTHERN PENINSULA; 1:500,000; 1988	\$5.00
3989	ISOPACH MAP: THICKNESS OF THE TREMPPEALEAU FORMATION, SOUTHERN PENINSULA; 1:500,000; 1988	\$5.00

3990 ❖	STRUCTURE CONTOUR: TOP OF THE FIRST ANHYDRITE WITHIN THE DETROIT RIVER GROUP; 1:500,000; 1985	\$5.00
3991 ❖	STRUCTURE CONTOUR: TOP OF THE FIRST SALT WITHIN THE DETROIT RIVER GROUP; 1:500,000; 1985	\$5.00
3992 ❖	STRUCTURE CONTOUR: TOP OF THE DETROIT RIVER GROUP; 1:500,000; 1985	\$5.00
3993 ❖	STRUCTURE CONTOUR: TOP OF THE DUNDEE FORMATION; 1:500,000; 1985	\$5.00
3994 ❖	ISOPACH MAP: THICKNESS OF THE DUNDEE FORMATION; 1:500,000; 1985	\$5.00
3995 ❖	STRUCTURE CONTOUR: TOP OF THE BELL SHALE FORMATION; 1:500,000; 1985	\$5.00
3996 ❖	ISOPACH MAP: THICKNESS OF THE BELL SHALE FORMATION; 1:500,000; 1985	\$5.00
3997 ❖	ISOPACH MAP: THICKNESS OF THE PRARIE DU CHIEN; 1:500,000; 1985	\$5.00
4000 ❖	RECORDED SEISMIC DISTURBANCES WITH EPICENTERS IN MI; 1:500,000; 1988	\$5.00
4003 ❖	ISOPACH MAP CAMBRIAN THICKNESS 1:500K; 1988 ..	\$5.00
4005 ❖	PALEOGEOLOGICAL MAP OF SOUTHERN MI - UPPER CAMBRIAN ROCKS; 1:500,000; 1988	\$5.00
4009 ❖	LOCATION MAP OF METEORITE FINDS AND CRYPTOEXPLOSIVE STRUCTURES IN MI; 1:500,000; 1987	\$5.00
4013 ❖	BEDROCK GEOLOGY OF SOUTHERN INGHAM & NORTHERN JACKSON COUNTIES, MI 1" = 1 mi; 1988	\$5.00
4017 ❖	STRUCTURE CONTOURS OF THE PRECAMBRIAN; 1988 ..	\$5.00
4023 ❖	ISOPACH MAP: NIAGARAN SERIES THICKNESS; 1988 ...	\$5.00

Michigan Geological Open File Maps

CODE ❖	DESCRIPTION	COST
OFM 80-1 ❖	RESIDUAL MAGNETIC INTENSITY MAPS OF THE EASTERN CENTRAL NORTHERN PENINSULA OF MI: 1980; 18 plates. ...	\$15.00
OFM 81-1 ❖	GROUND MAGNETIC MAP OF HOMER AND SPRING ARBOR 15' QUAD, MI: 1981; Sauk, Parker and Hoin. See also GSD OFR 81-1.	\$5.00
OFM 86-1 ❖	BEDROCK GEOLOGY OF SECTION 35, 49N, 27W & THE NORTHERN PORTION OF SECTION 2, 48N, 27W: 1985; E. Owens & T. J. Bornhorst; see also GSD OFR 85-2 and GSD OFM 86-2.	\$5.00
OFM 86-2 ❖	GEOLOGIC CROSS SECTION OF THE FIRE CENTER AREA ALONG A-A': 1985; Owens, E.; see also GSD OFR 85-2 and GSD OFM 86-1.	\$5.00

U. S. G. S. Open File Maps

CODE ❖	DESCRIPTION	COST
US-OFM-2 ❖	GEOLOGY OF PRECAMBRIAN ROCKS, IRONWOOD - RAMSEY AREA: Schmidt.	\$5.00
US-OFM-3 ❖	BEDROCK GEOLOGY OF THE MATCHWOOD QUADRANGLE, MI: Johnson et al.	\$5.00

US-OFM-4 ❖	OUTCROP AND SURFICIAL DEPOSITS MAP OF THE WAKEFIELD NE AND MARENISCO QUADRANGLES, GOGEBIC CO., MI: 2 Plates.	\$5.00
US-OFM-75-119 ❖	PRELIMINARY GEOLOGIC MAP OF THE WAKEFIELD QUAD., GOGEBIC CO., MI: 1975; Prinz, W. & Hubbard, H. A.	\$5.00
US-OFM-75-152 ❖	GEOLOGIC MAP AND SECTION OF LITTLE GIRLS POINT, NORTH IRONWOOD AND NORTHERN PART OF THE IRONWOOD QUADRANGLES, MI: 1975; Hubbard, H. A.; 2 plates.	\$5.00
US-OFM-75-389 ❖	MAGNETIC MAP OF THE WAKEFIELD NE QUAD, GOGEBIC CO., MI: 1975; Prinz.	\$5.00
US-OFM-77-467 ❖	MAP SHOWING PRECAMBRIAN GEOLOGY IN PARTS OF THE BARAGA, DEAD RIVER AND CLARK CREEK BASINS, MARQUETTE & BARAGA CO., MI: 1977; Cannon, F. W.	\$5.00
US-OFM-77-746 ❖	BOUGUER GRAVITY ANOMALY MAP, BARAGA-DEAD RIVER BASINS AREA, NORTHERN MI: 1977; Klasner.	\$5.00
US-OFM-78-211 ❖	BOUGUER GRAVITY ANOMALY MAP OF THE NORTHERN MI-LAKE SUPERIOR REGION: 1978; Klasner, et al.	\$5.00
US-OFM-78-342 ❖	GEOLOGIC MAP OF THE IRON RIVER 1 x 2 QUADRANGLE, MI & WISCONSIN: 1978; Cannon, F.W.	\$5.00
US-OFM-78-386 ❖	PRELIMINARY GEOLOGIC MAP OF THE NED LAKE QUADRANGLE, MI: 1978; Foose.	\$5.00
US-OFM-79-1305 ❖	BEDROCK GEOLOGIC MAP OF PARTS OF BARAGA, DEAD RIVER AND CLARK CREEK BASINS, MARQUETTE CO., MI: 1979; Klasner, Cannon and Brock.	\$5.00
US-OFM-79-1564 ❖	SIMPLE BOUGUER GRAVITY ANOMALY MAP AND INTERPRETATION, IRON RIVER 1 x 2 QUAD, MI AND WISCONSIN: 1979; Klasner; 1 plate and 22 pages text.	\$5.00
US-OFM-79-833 ❖	AEROMAGNETIC SURVEY OF NORTHERN MI: 1979; LKB Resources Inc.	\$5.00
US-OFM-80-149 ❖	AEROMAGNETIC MAPS OF THE EASTERN NORTHERN PENINSULA OF MI: 1980; 8 plates.	\$15.00
US-OFM-80-297 ❖	DESCRIPTION AND PRELIMINARY MAP OF AIRBORNE ELECTROMAGNETIC SURVEY OF PARTS OF IRON, BARAGA AND DICKINSON COUNTIES, MI: 1980; Heran & Smith, 2 plates text.	\$5.00
US-OFM-G29112 ❖	GEOLOGIC MAP OF THE MARENISCO AND WAKEFIELD QUADS, GOGEBIC COUNTY, MI: 1973; Trent and Prinz; 4 plates.	\$5.00

Digital Map Products

The following maps are available through email at no charge, as pdf attachments. You need Adobe Acrobat reader (free) and should use the "zoom in" feature to enhance reading capabilities. Contact Sharon Carter at carters1@michigan.gov or 517-241-1520.

Oil and Gas Maps, updated weekly

Individual Counties - Scale Approximately ½" = 1 MILE

Includes: Well location, well type, permit number, ownership, transportation (roads/airports), utility lines, political lines (township) hydrology (lakes, ponds, streams, rivers)

H2S Maps, updated weekly

Individual Counties - Scale Approximately 1" = 1 MILE

Includes: Well location, well type, permit number, ownership, transportation (roads/airports), utility lines, political lines (township) hydrology (lakes, ponds, streams, rivers)

Statewide Oil & Gas Map

This map shows color coded well locations as: Disposal Wells(fushia), Dry Holes (black), Gas Wells (red), Injection Wells(blue), Other Wells (orange), Oil Wells (green)

Bedrock Geology

Includes: County Lines - Formats: 8 X 11; 11 X 17; 30 X 40

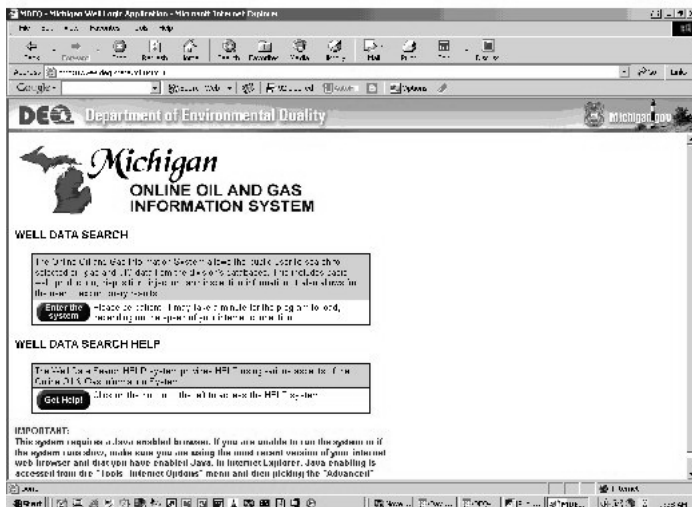
Quaternary Geology

Includes: County Lines - Formats: 8 X 11; 11 X 17; 30 X 40

Online Oil & Gas Information System

Oil and gas well information can be found at the Michigan Online Oil and Gas Information System. Access the data base at www.deq.state.mi.us/mir/.

Select the 'Enter the System,' password is not needed. After entering the site, a range of search choices are arranged in color tabs at the top of the page. After selecting a tab, an information page appears and another subset of tabs is available for specific searches. After selecting a tab, select your search criteria from the choices available in the drop down boxes (such as permit number, well name, county, town and range location), then type in the information you are looking for in the white box. Click on the first yellow binoculars and the results are shown on the page.



The welcome screen is shown above

Only 999 rows of data will be displayed. You may narrow the search results by entering additional criteria and clicking on the 'And' or 'Or' binoculars.

Geological Information from Files

Compilation of Natural Gas Analyses

This is an electronic database (Microsoft Access) of analyses of natural gas from Michigan oil and gas wells. C1-C10 Hydrocarbons, CO2, N2, H2, and He contents are listed along with specific gravity, BTU values, sampling conditions, and method of analysis. Contact Ray Vugrinovich (517) 241-1532.

Compilation of Wells Containing H2S

This is an electronic database (Microsoft Access) of all oil and gas wells in the state for which hydrogen sulfide (H2S) in concentrations have been measured. Information regarding sulfur compounds other than hydrogen sulfide is included. This information is compiled from data on file and measurements made by Office of Geological Survey staff and analyses supplied by owners and operators of oil and gas wells. For more information and availability contact Ray Vugrinovich (517) 241-1532.

Oil And Gas Permit List

An oil and gas permit list is produced weekly. It contains information about permits issued during that week. To receive this list as an email attachment, please send your request to Kimberly Wood, woodk2@michigan.gov. If you do not have electronic capabilities, a subscription to this list is available by sending a supply of self-addressed stamped envelopes to: Permits and Bonding Unit, MI DEQ Office of Geological Survey, PO Box 30256, Lansing, MI 48909. For more information contact the Permits and Bonding Unit at (517) 241-1528. This list is also published in the Oil and Gas News.

Well Cutting Samples

Over 10,000 oil and gas well cutting samples and well core samples are available for study. These samples cannot be subjected to consumptive analyses. Due to reduced direct access, it is advised that you contact Ron Elowski, (DEQ) Office of Geological Survey , 517 241-1510 at least two weeks in advance to insure that the sample sets you want will be available.

RasterLogs

the Geological Survey has converted its collection of over 55,000 wire-line logs to digital files. These geophysical logs are one of the tools commonly used in the interpretation of subsurface information in the exploration for oil and gas and, more recently, carbon sequestration activities. The resulting digital files are called RasterLogs (digital Raster files of the geophysical Logs). The digital files are in an 'industry standard' TIF format.

Do you want the Michigan RasterLogs? Do you have an external USB hard disk with at least 80 GB of available space? If you provide a USB disk to the Office of Geological Survey (and the requisite cables) we will copy a full set of RasterLogs onto the hard drive and return it.

As additional logs are converted, updates will be made available via FTP. For information about accessing the DEQ FTP site please contact Steve Wilson.

A workstation in the Lansing Office of the Geological Survey is available for making copies at no charge - if an operator and recording media are provided.

Even though this is one of the most complete sets of these records for Michigan, we know it is not complete. For a variety of reasons some records were not available for conversion. If you have any records that will add to this collection and are willing to share them, the OGS will scan the files and return the source documents and the associated digital files.

If you have questions, comments, or suggestions please contact Steven E. Wilson via email, wilsonse@michigan.gov

RasterLogs Index spreadsheet :
www.deq.state.mi.us/documents/deq-ogs-RasterLogIndex.xls

RasterLogs information summary:
www.deq.state.mi.us/documents/deq-ogs-RasterLogInfo.pdf

RasterLog web page: http://www.michigan.gov/deq/0,1607,7-135-3311_4112_32722-150609--,00.html

Geological Core And Sample Repository

The state-wide Geological Core and Sample Repository in Marquette contains material representing many miles of core drilling in Michigan. Mineral exploration, environmental geology projects and selected oil and gas drilling are major sources. Well cutting and outcrop samples are also included. Study and some selected sampling are allowed. Contact Melanie Humphrey at 906 346 8566 for more information.

Pooling of Properties for Oil and Gas Production

Request this free brochure for useful information regarding the combining of all oil and gas interests in a drilling unit. This brochure is designed in a question and answer format. Contact Sharon Carter at 517 241-1520.

Mineral Rights

Request this free brochure for general information on the description of mineral rights. This brochure is designed in a question and answer format. Contact Sharon Carter at 517 241-1520.

Salt in Michigan

Request this free brochure for a brief narrative on Salt: a Michigan Resource. Contact Sharon Carter at 517 241-1520.

Mine Maps and Records

The Office of Geological Survey Michigan Mine Maps and Records collection is housed at the Geological Core and Sample Repository in Marquette. This collection of metallic mine data is useful and important for land use planning, public safety and helping to understand the history of economic geologic deposits in Michigan. Contact Ron Elowski, (DEQ) Office of Geological Survey , 517 241-1510 for additional information or to make an appointment to work with these materials.

Drillers Logs

Over 55,000 oil and gas wells have been drilled in Michigan. Written lithologic descriptions or "Drillers' Logs" are available for most of these wells. These records are grouped and available on a county basis. Each county is further organized by township, range, and section. These logs may be obtained at \$.15 per page, contact Petroleum Geology and Production Unit at (517) 241-1509.

Oil and Gas Well Files

Oil and Gas Well Files are permit related documents used by the Office of Geological Survey staff. The files are organized by permit number. Records with permit numbers to 42,999 have been microfilmed as of December, 1999. The content of each file is variable. Typically each file contains all or part of the following records: permit application, permit, field review, survey record of well location, memos and/or correspondence, driller's log, well plugging records, change of well status records, environmental impact assessment, H2S contingency plan, transfer of ownership, deepening permits, and blow-out prevention diagrams. These records may be obtained at \$.15 per page. For more information, contact Permits and Bonding Unit at (517) 241-1528.

Microfilm

The following are available on MICROFILM from the Office of Geological Survey. These reels contain copies of most of the publications (maps and open files excluded) in this booklet, as well as many out-of-print publications. Each roll costs \$50. For more information, contact Lisa Farhat Rose at (517) 241-1558.

CODE ❖ DESCRIPTION

PB 1 ❖ *EARLY REPORTS 1837-1845, 1850, 1861; AND VOLUME SERIES 1873..1904.*

PB 2 ❖ *ANNUAL REPORT 1902..1909 AND PUBLICATION SERIES 01-16 (1910..1914).*

PB 3 ❖ *PUBLICATION SERIES 17-51 (1914..1958) AND PROGRESS REPORT SERIES (1936..1962).*

PB 4 ❖ *VARIOUS SERIES PUBLICATIONS, BULLETIN, CIRCULAR, MISCELLANY, PAMPHLET, REPORT OF INVESTIGATION, SECONDARY RECOVERY REPORT, TECHNICAL REPORT, WATER INFORMATION SERIES, WATER INVESTIGATION, WATER SUPPLY REPORT, VARIOUS NON SERIAL REPORTS (1949..1977).*

PB 5 ❖ *MINERAL STATISTICS (1927 - 1979), OIL AND GAS STATISTICS (1932 - 1981).*

PPR 74-78 ❖ *PRORATED PRODUCTION REPORTS 1974 TO 1978.*

PPR 79-82 ❖ *PRORATED PRODUCTION REPORTS 1979 TO 1982.*

PPR 83-86 ❖ *PRORATED PRODUCTION REPORTS 1983 TO 1986.*

PPR 87-88 ❖ *PRORATED PRODUCTION REPORTS 1987 TO 1988.*

PPR 89-90 ❖ *PRORATED PRODUCTION REPORTS 1989 TO 1990.*

PPR 91-92 ❖ *PRORATED PRODUCTION REPORTS 1991 TO 1992.*

PPR 93-94 ❖ *PRORATED PRODUCTION REPORTS 1993 TO 1994.*

PPR 95-96 ❖ *PRORATED PRODUCTION REPORTS 1995 TO 1996.*

OGR M ❖ *OIL AND GAS WELL INFORMATION FOR PERMIT NUMBER 1 TO 42,999*

-- 272 rolls of film in the set

OGR U ❖ *OIL AND GAS WELL INFORMATION UPDATE ROLLS*

-- 22 rolls of film in the set

See also - Digital Geology Library

<http://www.michigan.gov/deqgeologyinmichigan>
(deq geology in michigan - all lowercase - no spaces)

Michigan Museums

CITY	LOCATION	COLLECTIONS
Adrian	Adrian College	minerals
Albion	Albion College	minerals
Albion	Brueckner Museum of Starr Commonwealth for Boys, 26 Mile Rd.	minerals and fossils appt only
Alma	Alma College	minerals
Ann Arbor	University of Michigan, Dept. Geological Sciences - C. C. Little Building	minerals, gems, rocks and fossils
Ann Arbor	University of Michigan - Exhibit Museum	fossils, minerals and geology
Battle Creek	Kingman Museum of Natural History, Leila Arboretum	minerals and fossils
Bay City	Bay City State Park, Jennison Trailside Nature Center	minerals and fossils
Bloomfield Hills	Cranbrook Institute of Science	minerals geology and fossils
Calumet	Coppertown, U.S.A. Copper mining history	native copper
Caspian	South of Iron Mountain	iron county museum
Copper Harbor	Fort Wilkins State Park	copper mining and minerals
Detroit	Wayne State University	minerals
East Lansing	Michigan State University - The Museum	minerals and fossils
East Lansing	Mich St Univ - Natural Science Department Kedzie Hall	rocks, minerals and fossils
Grand Rapids	Blandford Nature Center	minerals
Grand Rapids	Public Museum	minerals, rocks and fossils
Greenland	Adventure mine	open to tourists
Hancock	Quincy Mine Hoist Museum	mining history
Houghton	Arcadian mine	open to tourists
Houghton	Michigan Tech. University - A.E. Seaman Mineralogical Museum	outstanding Michigan minerals
Ishpeming	National Ski Hall of Fame	minerals
Kalamazoo	Kalamazoo Nature Center, Inc	rocks and fossils
Kalamazoo	Western Michigan University, Geology Department	minerals, rocks, and fossils
Lake Linden	Houghton County Historical Museum Society	mining history and minerals
Lansing	DEQ - Office of Geological Survey	minerals, fossils, rocks & lapidary
Lansing	Michigan Historical Museum	minerals and fossils
Marquette	Marquette County Historical Society	mining history and minerals
Midland	Midland Historical Museum	Geolog, science and history
Milford	Kensington Metropolitan Park, Nature Center for Cultural & Nat Hist	minerals, rock, fossils and geology
Mount Pleasant	Central Michigan University, History, Rowe Hall	minerals, rock, fossils and geology
Muskegon	Muskegon County Museum	rocks, minerals, and fossils
Negaunee	Jackson Mine Museum	history of iron mining
Port Huron	Port Huron Public Library Museum	minerals and fossils
Republic	Republic Mine	mine lookout
Riceland	Old Victoria - 4 miles south of Riceland	mining history
Rogers City	Calcite Quarry observation booth	fossils & limestone
Saginaw	Saginaw Museum	minerals
South Haven	Dr. Liberty Hyde Bailey Memorial Museum	appointment only
Three Oaks	Chamberlain Memorial Museum	minerals
Traverse City	Clinch Park, Con Foster Museum	minerals and fossils
Waterloo	MI DNR - Parks and Recreation – G. E. Eddy Discovery Center	hands-on geology education



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGICAL SURVEY

Request for Maps and Publications

This information is required by authority of Act 451, P. A. 1994, as amended, to obtain maps and publications.

INSTRUCTIONS: Please read the additional information and terms of sale on the reverse side before completing this request. If you have any questions, please contact the Office of Geological Survey at (517) 241-1520.

SHIPPING INFORMATION: IF different from below - please SEND the requested maps / publications to:

NAME		AREA CODE & TELEPHONE NUMBER	
COMPANY NAME			
STREET ADDRESS			
CITY		STATE	POSTAL CODE

BILLING INFORMATION: For Visa and Master Card ONLY - \$5.00 minimum order. For checks or money orders complete page 2

NAME		AREA CODE & TELEPHONE NUMBER	
NAME AS IT APPEARS ON CARD:			
COMPANY NAME			
STREET ADDRESS			
CITY		STATE	POSTAL CODE
CARD NUMBER:			
C V V 2 (3 Digit Number on the back, not embossed on card)			
EXPIRATION DATE: (MM / YYYY)			
Authorized Signature			

Mail form, with payment to: Maps and Publications MI DEQ - Office of Geological Survey PO Box 30256 Lansing, MI 48909-7756	Credit card orders only: Email or FAX completed form as an attachment to: Sharon Carter, Carters1@michigan.gov Telephone: (517) 241-1520 Fax (517) 241-1595
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Please read and complete page 2



Request for Photocopies of Records

This information is required by authority of Act 451, P. A. 1994, as amended, to obtain photocopies
INSTRUCTIONS: Please read the additional information on the reverse side before completing this request.
If you have any questions, please contact the Office of Geological Survey at (517) 241-1558.

PLEASE SEND THE REQUESTED PHOTOCOPIES TO:		
NAME	AREA CODE & TELEPHONE NUMBER	
COMPANY NAME		
STREE ADDRESS		
CITY	STATE	POSTAL CODE
TYPE OF RECORD(S) REQUESTED		
PHOTOCOPIES REQUESTED FOR THE FOLLOWING AREA(S)		
COUNTY NAME	COUNTY NAME	
TOWNSHIP NAME	TOWNSHIP NAME	
TOWN (N/S)	RANGE (E/W)	TOWN (N/S) RANGE (E/W)
SECTION(S) OR PERMIT NUMBER(S) (AS APPLICABLE)	SECTION(S) OR PERMIT NUMBER(S) (AS APPLICABLE)	

COUNTY NAME	COUNTY NAME
TOWNSHIP NAME	TOWNSHIP NAME
TOWN (N/S)	RANGE (E/W)
SECTION(S) OR PERMIT NUMBER(S) (AS APPLICABLE)	SECTION(S) OR PERMIT NUMBER(S) (AS APPLICABLE)

Send completed form to:

MI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGICAL SURVEY
PO BOX 30256
LANSING MI 48909-7756

- OR - FAX request to:
517-241-1595

Charges for Photocopies

GROUP 1 — RECORDS FOR SALE—requests for copies of information that is offered for sale in the publication list.

CHARGES	EXAMPLES
COPY 15 ¢ per 8.5 by 11	A. Oil\Gas well permit information
COPY 20 ¢ per 8.5 by 14	B. Drillers logs
COPY 25 ¢ per 11 by 17	C. Copies made by visitors from microfilm or microfiche
Hourly - not applied	
Mailing - included	

GROUP 2— FREEDOM OF INFORMATION ACT (FOIA) REQUESTS—requests for copies of information that is not offered for sale in the publication list.

CHARGES	EXAMPLES
COPY 5 ¢ per 8.5 by 11	A. Compliance files
COPY 5 ¢ per 8.5 by 14	B. Hearings files
COPY 10 ¢ per 11 by 17	C. Production information not on microfilm
Hourly - \$19.78 clerical \$25.05 professional	D. Other
Mailing – actual cost	

GROUP 3 — SPECIAL PROCESSING and OVERSIZE ORIGINALS—(costs for other records for sale require determination on a case by case basis and are based on direct charges for special services needed to process and/or ship the request.)

CHARGES	EXAMPLES
COPY 30 ¢ per 8.5 by 11	A. Out-of-print publications from microfilm
COPY 40 ¢ per 8.5 by 14	B. Copies of E-Logs or Mud Logs made by GSD staff from microfiche
COPY 50 ¢ per 11 by 17	C. E-Logs or Mud Logs from paper (not on microfiche)
Hourly - not applied	D. Other
Mailing - included	

If you have any questions about how charges are set please contact, Lisa Farhat Rose at (517) 241-1558, or fax (517) 241-1595.

Michigan Department of Environmental Quality
Office of Geological Survey
525 West Allegan 1 south east wing,
Lansing, MI 48933