

OGS Digital Geology Library General Information

Contents of this Document

Annual Reports AR	2
Annual Statistical Summary AS.....	3
Bulletin BU	4
Contribution to MI Geology CMG.....	5
Circular CR	6
General Geology GG	8
Geologic Maps GM.....	13
Geological Seminars GS	13
Michigan's Mineral Industries MI	14
Miscellaneous MISC	14
Mineral Statistics MS.....	14
Open File Reports OFR	15
Pamphlet PA	16
Publication List PL	16
PowerPoint Presentations PPT	17
Progress Report PR.....	17
Publications PU	19
Report of Investigation RI.....	24
Secondary Recovery Report SR	27
Technical Report TR.....	28
U.S.G.S. Open File U.S.G.S.	28
USBM Open File USBM	29
Volume V	30
Water Investigation WI	31
Water Information Series WIS.....	32
Internet Resources.....	34

Copyright © 2006 by the Michigan Department of Environmental Quality (MDEQ), Office of Geological Survey (OGS). The MDEQ OGS grants permission to publish or reproduce this document, all or in part, for non-profit purposes. The contents of this document or associated electronic documents, whole or in part, can be used if, and only if, additional fees are not associated with the use or distribution of this document and credit is given to the MDEQ OGS and the author(s). This copyright notice must appear in any and all electronic or print documents using this file or any part thereof.

The Office of Geological Survey (OGS) 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.

This document is the result of an effort to make geologic information from agency publications available on the web. This is an ongoing project. This file will expand as more files are added as they become available.

Publications that make up the **OGS Digital Geology Library** can be found in the listing that follows. Some items are available only digitally, some only printed, while others are available in both digitally and printed formats.

The digital files are in Adobe Portable Document File format (PDF). Links to the files are included so you can access the files more easily. Where appropriate, bookmarks are used to aid in navigating the digital files. Word searching is possible in this file and most of the digital files.

The digital files are good faith reproductions of the material presented for publication. The process used to generate the digital files has not included extensive editing for grammar, syntax, or punctuation. The digital files have been prepared from the best available copy. Original typographic and/or computer-based optical character recognition translation inconsistencies may persist. Errors and omissions are regrettable and unintended. Information such as names, addresses, prices, and the like were valid at the time of publication and may have changed.

These digital versions express the views, opinions and interpretations of the authors. They do not necessarily reflect current thinking or do they necessarily reflect the position of the Office of Geological Survey or the Michigan Department of Environmental Quality.

Interpretation and evaluation of the usefulness, accuracy and/or correlation with contemporary scientific doctrine is up to the reader.

If you have any comments, changes, corrections, additions, contributions, ideas, or suggestions please contact:

Steven E. Wilson
MDEQ OGS
email wilsonse@michigan.gov

A special thanks to Jamie Bohr for her efforts and attention to details that make most of the **Digital Geology Library** possible.

The **OGS Digital Geology Library** and related files can be found on the internet at:

www.michigan.gov/deqgeologyinmichigan
Revised August, 2006

Annual Reports AR

The series titled ANNUAL REPORT was published between 1901 and 1908. These reports contain not only the annual report of the State Geologist, but also a number of signed and unsigned articles relating to Michigan geology. Later the State Geologist's reports were made biennially and were published as a part of the Publication series. While a majority of these were published in black cloth, a few paperbound separates were also issued.

Code - Title: AR 1877 "First Annual Report of the Commissioner of Mineral Statistics of the State of Michigan, for 1877-1878 and Previous Years"

Charles E. Wright, 1879; **Keywords:** Ganister or Quartzite, General Historical Sketch Of The Iron Region, Geology of the Lake Superior Iron Region, Gypsum, Iron Mines, Lake Superior Brown Stones, Lake Superior Copper Mining Industry, Marble, Michigan Salt, Slate, The Iron River Silver District; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-AR1877.pdf (file size 2.93 MB)

Code - Title: AR 1884A "Annual Report of the Commissioner of Mineral Statistics of the State Of Michigan, for 1884. tables"
A. P. Swineford, 1885; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-ar1884.pdf (file size 0.05 MB)

Code - Title: AR 1884B

Illustrations, tables for AR 1884; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-ar1884b.pdf (file size 1.32 MB)

Code - Title: AR 1891A "Mine and Mineral Statistics"

C. D. Lawton, 1891; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-ar1891.pdf (file size 0.28 MB)

Code - Title: AR 1891B

Illustrations, tables for AR 1891; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-ar1891b.pdf (file size 0.62 MB)

Code - Title: AR 1901A "Report of the State Board of Geological Survey of Michigan for the Year 1901, Being the Report of Alfred C. Lane, State Geologist"

A. C. Lane et al, 1902; **Keywords:** Berrien Co., Brine, Cement, Clay, Coal, Copper, Dolomite, Gas, Genesee Co., Gold, Gypsum, Iron, Limestone, Marl, Oil, Peat, Salt, Sand, Sandstone, Shale, Stone, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-ar1902.pdf (file size 0.36 MB)

Code - Title: AR 1901B

Illustrations, tables for AR 1901; **Keywords:** Illustrations, tables; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-ar1902b.pdf (file size 0.35 MB)

Code - Title: AR 1903A "Report of the State Board of Geological Survey of Michigan for the Year 1903, Being the Report of Alfred C. Lane, State Geologist; Peninsula of Michigan"

A. C. Lane, 1905; Building and Road Materials; Deep Borings for Oil and Gas; Limestone; Peat; Progress Reports on County Geological Surveys; Recent Shore Forms Relation of Soils to Natural Vegetation in Roscommon and Crawford Counties; Report on Progress Made in Porcupine Mountains; The Tamarack Mine Cross-Section and the Keweenaw Lodes; The theory of Copper Deposition; Topographical Survey; Transmission of Heat into the Earth; Water Supply of the Lower Peninsula of Michigan; Waters of the Upper; **Keywords:** Brine, Cement, Clay, Coal, Copper, Crawford Co., Gas, Keweenaw Co, Lime, Limestone, Marl, Oil, Peat, Roscommon Co, Salt, Sand, Sandstone, Shale, Stone, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-AR1903A.pdf (file size 2.00 MB)

Code - Title: AR 1903B "Report of the State Board of Geological Survey of Michigan for the Year 1903"

A. C. Lane, 1905; **Keywords:** Brine, Cement, Clay, Coal, Copper, Crawford Co., Gas, Keweenaw Co, Lime, Limestone, Marl, Oil, Peat, Roscommon Co, Salt, Sand, Sandstone, Shale, Stone, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-AR1903b.pdf (file size 0.72 MB)

Code - Title: AR 1904A "Report of the State Board of Geological Survey of Michigan for the Year 1904"

A. C. Lane et al, 1905; **Keywords:** Bay Co., Cement, Clay, Coal, Copper, Delta Co., Dickinson Co., Gas, Gladwin Co., Gravel, Gypsum, Iron, Limestone, Mackinac Island, Macomb Co., Marquette Co., Mason Co., Menominee Co., Midland Co., Northern Peninsula Counties, Oakland Co., Shale, Tuscola Co., Wayne Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1904A.pdf (file size 0.61 MB)

Code - Title: AR 1904B "Failure of Wells Along the Lower Huron River, Michigan, in 1904"

M. L. Fuller, 1905; **Keywords:** Washtenaw Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1904B.pdf (file size 0.79 MB)

Code - Title: AR 1904C "A Geological Reconnaissance Along the North Shores of Lakes Huron and Michigan;"

I. C. Russell, 1905; Black River Work; Executive Report on Some Non-Metallics; Lake Superior Gold Mining; Report of Special Committee on Nomenclature and Correlation for the Lake Superior Region; Wells and Borings; **Keywords:** Cheboygan Co., Emmet Co., Gold, Presque Isle Co., Northern Peninsula Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1904C.pdf (file size 5.06 MB)

Code - Title: AR 1908A "Annual Report of the State Geologist"

A. C. Lane, 1909; Part of the Annual Report for 1909; **Keywords:** Lime, Ontonagon Co., Sand, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1908A.pdf (file size 0.16 MB)

Code - Title: AR 1908B "Notes on the Geological Section of Michigan, for Geologists, Teachers and Drillers"

A. C. Lane and A. E. Seaman, 1909; Part of the Annual Report for 1909; **Keywords:** Arenac Co., Coal, Dolomite, Gypsum, Huron Co., Iron, Isle Royale, Oil, Salt, Sandstone, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1908B.pdf (file size 0.93 MB)

Code - Title: AR 1908C "Report on the Geology of Tuscola County"

C. A. Davis, 1909; Part of the Annual Report for 1909; **Keywords:** Coal, Gas, Gravel, Iron, Marl, Salt, Sand, Sandstone, Shale, Tuscola Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1908C.pdf (file size 1.05 MB)

Code - Title: AR 1908D "The intrusive Rocks of Mount Bohemia, Michigan"

F. E. Wright, 1909; Part of the Annual Report for 1909; **Keywords:** Copper, Iron, Keweenaw Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AR1908D.pdf (file size 1.98 MB)

Annual Statistical Summary AS

ANNUAL STATISTICAL SUMMARY(s) were issued in two separate formats starting in 1964. The first of these. Mineral Industry of Michigan has been assigned consecutive odd numbers while the second format, Michigan's Oil and Gas Fields, has been assigned consecutive even numbers. Each of these formats has had a long history under a variety of other series and titles.

Code - Title: AS 01A "Annual Statistical Summary 1, Mineral Industry of Michigan, 1963"

D. F. Klyce, 1964; illustrated, maps, done in cooperation with the U.S.B.M; **Keywords:** Brine, Cement, Copper, Gravel, Gypsum, Iron, Lime, Salt, Sand, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-as01.pdf (file size 0.41 MB)

Code - Title: AS 01B

Illustrations, tables for AS 01; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-as01b.pdf (file size 1.63 MB)

Code - Title: AS 03 "Mineral industry of Michigan, 1964"

D. F. Klyce et al, 1966; illustrated, maps, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Copper, Gravel, Gypsum, Iron, Lime, Salt, Sand, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS03.pdf (file size 1.47 MB)

Code - Title: AS 05 "Mineral industry of Michigan, 1965"

D. F. Klyce et al, 1967; illustrated, maps, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Copper, Gravel, Gypsum, Iron, Lime, Salt, Sand, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS05.pdf (file size 1.35 MB)

Code - Title: AS 07 "Mineral industry of Michigan, 1966"

D. F. Klyce et al, 1968; illustrated, maps, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Copper, Gravel, Gypsum, Iron, Lime, Peat, Salt, Sand, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS07.pdf (file size 1.38 MB)

Code - Title: AS 09 "Mineral industry of Michigan, 1967"

D. F. Klyce et al, 1969; illustrated, maps, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Clay, Copper, Gravel, Gypsum, Iron, Lime, Peat, Salt, Sand, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS09.pdf (file size 21.70 MB)

Code - Title: AS 11 "Mineral industry of Michigan, 1968"

D. F. Klyce et al, 1970; illustrated, maps, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Clay, Copper, Gravel, Gypsum, Iron, Lime, Limestone, Peat, Salt, Sand, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS11.pdf (file size 1.68 MB)

Code - Title: AS 13 "Mineral industry of Michigan, 1969"

D. F. Klyce et al, 1971; illustrated, maps, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Clay, Copper, Gravel, Gypsum, Iron, Lime, Peat, Salt, Sand, Shale, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS13.pdf (file size 1.68 MB)

Code - Title: AS 15 "Mineral industry of Michigan, 1970"

G. N. Broderick, 1970; illustrated, done in cooperation with the U.S. Bureau of Mines; **Keywords:** Brine, Cement, Clay, Copper, Gravel, Gypsum, Iron, Lime, Marl, Peat, Salt, Sand, Silver, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS15.pdf (file size 0.50 MB)

Code - Title: AS 25 "Mineral industry of Michigan, 1975"

E. C. Peterson and E. A. Middlewood, 1978; **Keywords:** Southern Peninsula Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS25.pdf (file size 0.73 MB)

Code - Title: AS 27 "Mineral industry of Michigan, 1976"

E. C. Peterson and E. A. Middlewood, 1979; Illustrated Note, This is the last odd numbered summary (Mineral Industry of Michigan) issued in this series. The U.S. Bureau of Mines preprints for subsequent years which would have been used in continuing this part of the series may be available from our Mining Unit or may be seen in the appropriate annual Bureau of Mines Mineral Yearbook; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-AS27.pdf (file size 0.71 MB)

Bulletin BU

Each BULLETIN is a comprehensive report bound in book form. It is usually technical in nature though some are prepared in a more popular style. This series began publication in 1964. New numbers are issued occasionally.

Code - Title: BU 01 "Our Rock Riches"

R. W. Kelley (ed.), 1964; A collection of selected reprinted articles on Michigan's mineral resources by various authors; **Keywords:** Brine, Cement, Clay, Coal, Copper, Dolomite, Gas, Gold, Gravel, Gypsum, Iron, Limestone, Marl, Oil, Salt, Sand, Sandstone, Shale; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-BU01.pdf (file size 1.13 MB)

Code - Title: BU 04A "The Glacial Lakes Around Michigan"

W. R. Farrand, 1988; A good perspective on the ice age history that made Michigan what it is today; **Keywords:** All Counties, Glaciers, Great Lakes, Landforms; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-BU04.pdf (file size 0.5 MB);

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: BU 04B "Glacial Lakes, illustrations"
Geological Survey, 2000; Full page illustrations for student use and reference; **Keywords:** Illustrations / tables;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-BU04PIXS.pdf (file size 1.45 MB)

Code - Title: BU 04FB "Glacial Lakes Around Michigan, flip book"
Geological Survey, 2000; Student activity to 'animate' glacial movement across the state. Cut out the illustrations, stack 'em, staple 'em and watch the glaciers move; **Keywords:** All Counties, Glaciers, Great Lakes, Landforms;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-BU04FB.pdf (file size 0.48 MB)

Code - Title: BU 05 "Meteorites of Michigan"
V. Chamberlain, 1968; Michigan has been visited by extraterrestrials illustrated, maps; **Keywords:** All Counties;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-BU05.pdf (file size 3.86 MB)

Code - Title: BU 06 "Mineralogy of Michigan Revised"
G. Robinson, 2004; Major revision, color illustrations, expanded mineral occurrences and bibliography, published by A. E. Seaman Museum, MTU; **Keywords:** All Counties. Brine; Cement; Clay; Coal; Copper; Dolomite; Gas; Gold; Gravel; Gypsum; Iron; Lime; Limestone; Marl; Oil; Peat; Salt; Sand; Sandstone; Shale; Silver; Stone; Sulfur; Uranium
Costs: \$ 45.00 - Please see [OGS publication list](#) for details.

Code - Title: BU 07 "Stratigraphy of Cambrian Rocks, Southern Peninsula of Michigan"
R. L. Milstein, 1989; Subsurface Stratigraphy of Cambrian rocks in the Southern Peninsula of Michigan
Costs: \$5.00 - Please see [OGS publication list](#) for details.

Code - Title: BU 08 "Stratigraphic Lexicon for Michigan"
P. A. Catacosinos et al, 2001; A comprehensive compilation of stratigraphic terms with accompanying stratigraphic chart;
Keywords: All Counties, Nomenclature, Stratigraphy; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-BU08.pdf (file size 1.07 MB)

Code - Title: BU 08C "Stratigraphic Nomenclature chart"
P. A. Catacosinos et al, 2001; 1 colored sheet 17 by 22 folded to 8.5 by 11, included as part of Bulletin 8; **Keywords:** All Counties, Nomenclature, Stratigraphy; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-BU08C.pdf (file size 1.22 MB);
Costs: \$2.50 - Please see [OGS publication list](#) for details.

Contribution to MI Geology CMG

CONTRIBUTIONS TO MICHIGAN GEOLOGY are reports that have been submitted electronically. Illustrations are scanned and incorporated in the final product. The resulting product is near publication quality. Complete editorial standards have not been applied.

Code - Title: CMG 901 "Precambrian Geology of the Penny Lake Area, Marquette Greenstone Belt, Michigan"
J. R. Small and T. J. Bornhorst, 1990;
Costs: \$7.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 903 "Geology of the Boise Creek Area, Marquette Greenstone Belt, Michigan"
R. T. Wilkin and T. J. Bornhorst, 1990;
Costs: \$5.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 904 "Port Huron Study, Historical Development of Hydrocarbons and Subsequent Problems"
W. Danyluk, 1990; Text and 6 maps
Costs: \$10.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 921 "Michigan's Copper Country"

E. W. Courter, 1992; History of Michigan's copper country and the development of copper in Michigan; **Keywords:** Copper, History, Keweenaw Peninsula, Western Northern Peninsula; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CMG92.pdf (file size 0.82 MB);

Costs: \$10.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 922 "Bedrock Geology Map of the Negaunee NW Quadrangle, Marquette County, Michigan"

R. T. Wilkin, R. C. Johnson and T. J. Bornhorst, 1992;

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 923 "Geochemical Data for Bedrock Samples from the Negaunee NW Quadrangle, Marquette County, Michigan"

R. T. Wilkin and T. J. Bornhorst, 1992;

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 941 "Michilic Time Line"

Midwest Mineralogical and Lapidary Society, 1994; Combine Michigan and geologic and you get "Michilic." Learn about fossils with a Michigan perspective and how they have changed through geologic time; **Keywords:** All counties, fossils, geologic time Students Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CMG94.pdf (file size 0.40 MB);

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: CMG 941P "Michilic Time Line pictures"

Full page 8.5" by 11" versions of just the illustrations, black and white; **Keywords:** All counties, fossils, geologic time Students Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CMG94PIX.pdf (file size 0.48 MB)

Circular CR

Each CIRCULAR is a short technical or semi-technical paper. Most are either bibliographic in nature or are concerned with the various laws which the Geological Survey enforces. Others give mine; ii statistics or discuss subjects such as seismic disturbances. The series began publication in 1963.

Code - Title: CR 01 "Michigan Geological Sourcebook"

W. Kelley and E. A. Kirkby, 1963; map; **Keywords:** All Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR01.pdf (file size 0.16 MB)

Code - Title: CR 02 "Geologic Contributions to "Michigan Conservation"; Classified and Annotated, 1935-1964"

E. A. Kirkby (comp.), 1964; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR02.pdf (file size 0.15 MB)

Code - Title: CR 03 "Mineral Resources, Depletion Or Deterioration?"

W. Been, 1966; **Keywords:** All Counties, Iron, Salt, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR03.pdf (file size 0.05 MB)

Code - Title: CR 04 "Outline of Procedures for Determining Gas-Oil Ratios and Subsurface Pressures"

J. S. Lorenz and T. L. Culver, 1966; illustrated; **Keywords:** All Counties, Gas, Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR04.pdf (file size 0.21 MB)

Code - Title: CR 05 "Sources of Geologic information in Michigan"

R. W. Kelley and E. A. Kirkby, 1967; map; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR05.pdf (file size 0.20 MB)

Code - Title: CR 06 "Role of Geology in State Government"

G. E. Eddy, 1966; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR06.pdf (file size 0.08 MB)

Code - Title: CR 10A "State of Michigan Mineral Well Act & General Rules Governing Mineral Well Operations"
Geological Survey, 1972; Part 625, Mineral Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; **Keywords:** Brine, Mineral wells; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-land-mw-nrepa-part625.pdf
Costs: Free - Please see [OGS publication list](#) for details.

Code - Title: CR 10B "State of Michigan Mineral Well Act & General Rules Governing Mineral Well Operations"
Geological Survey, 1972; Part 625, Mineral Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; **Keywords:** Brine, Mineral wells; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-land-mineralwells-NewMWRules.pdf
Costs: Free - Please see [OGS publication list](#) for details.

Code - Title: CR 11 "Michigan's industrial Sand Resources"
J. D. Lewis, 1975; **Keywords:** All counties, Arenac Co., Berrien Co., Mackinac Co., Mason Co., Muskegon Co., Oceana Co., Ottawa Co., Saginaw Co., Sand, Tuscola Co., Wayne Co., Wexford Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR11.pdf (file size 4.36 MB)

Code - Title: CR 12 "One Thousand Million tons; Michigan Iron Ore Shipments Through 1974"
R. C. Reed, 1975; Iron ore production data; **Keywords:** Dickinson Co., Gogebic Co., Iron Co., Marquette Co., Menominee Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR12.pdf (file size 0.33 MB)

Code - Title: CR 13 "Michigan's Reclamation of Mining Lands and Administrative Rules"
Geological Survey, 1976; Part 631, Reclamation of Mining Lands, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR13.pdf
Costs: Free - Please see [OGS publication list](#) for details.

Code - Title: CR 14 "Seismic Disturbances in Michigan"
D. M. Bricker, 1977; An introduction with description of causes and types of earthquake activity, maps. 2 tables; **Keywords:** All counties, Earth Quakes; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR14.pdf (file size 0.29 MB);
Costs: \$1.00 - Please see [OGS publication list](#) for details.

Code - Title: CR 15 "Michigan's Oil and Gas Regulations"
Geological Survey, 2004; 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; **Keywords:** Gas, Oil;
Web Link: www.deq.state.mi.us/documents/deq-ogs-land-fuelsmineral-oilandgas-regs.pdf
Costs: Free - Please see [OGS publication list](#) for details.

Code - Title: CR 16 "Annotated List of the Publications of the Michigan Geological Survey 1838-1977"
W. W. Currie, 1978; map, appendix and indices; **Keywords:** All Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR16.pdf (file size 0.77 MB)

Code - Title: CR 17 "Blowout Prevention: Equipment, Use and Testing"
D. T. Bertalan, 1979; Illustrated guide to the use of this important tool; **Keywords:** Gas, Oil, Safety;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-CR17.pdf (file size 2.28 MB)

Code - Title: CR 18 "Designated Critical Sand Dune Area Maps"
Geological Survey Maps of the designated sand dune areas in an 8.5" by 14" format; **Keywords:** Sand Dunes, Southern Peninsula counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-CR18.pdf (file size 6.75 MB)

Code - Title: CR 19 "Michigan's Sand Dune Mining and Administrative Rules: Part 637, Sand Dune Mining, of the Natural Resources and Environmental Protection Act"
Geological Survey, 2004; **Keywords:** Sand Dunes, Southern Peninsula counties; **Web Link:** www.deq.state.mi.us/documents/deq-gsd-land-sanddune-Part%20637.pdf
Costs: Free - Please see [OGS publication list](#) for details.

General Geology GG

*This is a grouping of various materials that are advanced drafts or non serial publications that cover a wide range of topics and interest levels; **Keywords**; Students Teachers*

Code - Title: GG AGLAC "A Glacier Passed this Way"

R. W. Kelley An early version of what would become Bulletin 4; **Keywords**; See BU 04;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GGAGLAC.pdf (file size 0.29 MB)

Code - Title: GG BRG "Bedrock Geology Map"

Geological Survey, 1987; This map shows what you would find if all of the glacial sands, gravels and clays were removed. Information about the printed version of this map can be found at the bottom of this page; **Keywords**; Students Teachers Statewide; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGBRG.pdf (file size 1.67 MB)

Code - Title: GG CAVES "Something about Caves"

H. M. Martin **Keywords**; Alpena Co., Bay Co., Cheboygan Co., Chippewa Co., Monroe Co., Montmorency Co., Oscoda Co., Presque Isle Co., Schoolcraft Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGCAVES.pdf (file size 0.19 MB)

Code - Title: GG CF "Michigan Geologic Core & Sample Repository & Inventory"

Melanie A. Humphrey, 2006; Information about Michigan Geologic Core & Sample Repository in Marquette; **Keywords**; Geologic core, geologic samples, Northern and Southern Peninsula counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGCF.PDF (file size 0.18 MB)

Code - Title: GG CI "Geologic Core and Sample Inventory"

Melanie A. Humphrey, 2006; Detailed listing of information about all of the cores and samples in the Marquette facility; **Keywords**; Geologic core, geologic samples, Northern and Southern Peninsula counties;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GGCI.pdf (file size 0.69 MB)

Code - Title: GG DS00 "Dimension Stone Feasibility Study, Report"

Bourque and Associates, 1999; Main report; **Keywords**; Locations and descriptions of dimension, building and or landscaping materials; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDS00.pdf (file size 0.53 MB)

Code - Title: GG DSC "Dimension Stone Feasibility Study, Charts"

Bourque and Associates, 1999; Charts from the report; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDSC.pdf (file size 0.35 MB)

Code - Title: GG DSI "Dimension Stone Feasibility Study, Illustrations d"

Bourque and Associates, 1999; Illustrations from Dimension Stone Feasibility Study report;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDSI.pdf (file size 1.38 MB)

Code - Title: GG DSM "Dimension Stone Feasibility Study, Maps"

Bourque and Associates, 1999; Maps from report; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDSM.pdf (file size 0.47 MB)

Code - Title: GG DSP "Dimension Stone Feasibility Study, 'poster'"

Bourque and Associates, 1999; 8.5" by 11" 'poster'; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDSP.pdf (file size 0.50 MB)

Code - Title: GG DSR "Dimension Stone Feasibility Study, rocks"

Bourque and Associates, 1999; pictures of rocks; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDSR.pdf (file size 0.46 MB)

Code - Title: GG DSZ "Dimension Stone Feasibility Study, graphics zip file"

Original, large size graphics **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGDSZ.ZIP (file size 5.02 MB)

Code - Title: GG FE "Michigan Iron Mines"

R. C. Reed, 1957; **Keywords:** Baraga Co., Dickinson Co., Gogebic Co., Iron Co., Marquette Co;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GGFE.pdf (file size 1.04 MB)

Code - Title: GG GEIS "Sand Dune Mining Generic Environment Impact Study"

Geological Survey, 1979; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGEIS.pdf (file size 1.50 MB)

Code - Title: GG GM "Geology of Michigan, more detailed"

The more detailed and therefore a little harder to read explanation of the geologic history of Michigan; **Keywords:** Students Teachers Statewide; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGM.pdf (file size 0.10 MB)

Code - Title: GG GMB "Geology of Michigan, brief"

A short easy to read explanation of the geologic history of Michigan, good for general audiences; **Keywords:** Students Teachers Statewide; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGMB.pdf (file size 0.04 MB)

Code - Title: GG GNUP "Geology Notes for Upper Peninsula Traveling Workshop"

R. W. Kelley (comp.), 1957; maps, Reprinted in 1959; **Keywords:** Copper, Iron, Lime, Limestone, Northern Peninsula Counties, Sandstone, Stone, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGCNUP.pdf (file size 0.42 MB)

Code - Title: GG GS "Michigan State Gem"

Geological Survey Information about the State Gem Stone pumpellyite variety chlorastrolite; **Keywords:** Greenstone Michigan State Gem Students Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGS.pdf (file size 0.02 MB)

Code - Title: GG GT "Geologic Time chart"

A one page handout of the geologic time scale; **Keywords:** Students Teachers geologic time; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGT.pdf (file size 0.05 MB)

Code - Title: GG GTLH "GTLH = Geologic Time Line Helper "

S. E. Wilson, 2006; You can learn more about Geologic Time, fossils, evolution and non-renewable geologic resources found in Michigan by making a Time Line; **Keywords:** Students Teachers geologic time, math, modeling, spreadsheet;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH.pdf

Code - Title: GG GTLHCON "GTLH Concentration"

S. E. Wilson, 2006; A document that lets students jump from one part of Geologic Time to another. Can be used on-line or off-line, even without an internet connection. The file can be printed and used by students for various activities like making your own Geologic Time Line; **Keywords:** Students Teachers geologic time, math, modeling, spreadsheet;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_con.pdf (file size 2.32 MB)

Code - Title: GG GTLHGEO "GTLH Geology"

S. E. Wilson, 2006; See the changes in the distribution of Michigan bedrock geology **Keywords:** Students Teachers geologic time, math, modeling, spreadsheet; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_geo.pdf (file size 1.60 MB)

Code - Title: GG GTLHGPDF "GTLH Graphics pdf file"

S. E. Wilson, 2006; This is a set of graphics to help student create their own model or as flashcards just to name a couple of uses **Keywords:** Students Teachers geologic time, math, modeling, spreadsheet; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_Gpdf.pdf (file size 0.72 MB)

Code - Title: GG GTLHGZIP "GTLH Graphics zip file"

S. E. Wilson, 2006; This is a set of full sized graphics to help student create their own model or as flashcards just to name a couple of uses **Keywords:** Students Teachers geologic time, math, modeling, spreadsheet;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_Gzip.zip (file size 3.56 MB)

Code - Title: GG GTLHSS "GTLH Spreadsheets"

S. E. Wilson, 2006; Set of eight Microsoft Excel worksheets to help in developing your own Geologic Time Line. The worksheets include: ? Events in Geologic Time ? an Example ? Blank / Make Your Own ? 1 cent basics ? 1 cent plus ? coin info ? conversion factors ? size of numbers **Keywords:** Students Teachers geologic time, math, modeling, spreadsheet;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-GTLH_xls.xls (file size 0.07 MB)

Code - Title: GG HIST "History of the Geological Survey"

H. M. Martin A brief history of the Geological Survey; **Keywords:** History of the Geological Survey;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-GGHIST.pdf (file size 0.07 MB)

Code - Title: GG HM "Geologic Section"

H. M. Martin Columnar Graphic of geologic time generalized, 8.5 by 11 **Keywords:** Students Teachers geologic time fossils;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-GGHM.pdf (file size 0.90 MB)

Code - Title: GG MF "Minerals found in Michigan"

List of minerals found in Michigan sorted by county and mineral name. The list is based on the revision of the 'Mineralogy of Michigan'; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-qimdl-GGMF.pdf (file size 0.06 MB)

Code - Title: GG MFPB "Michigan Fossils large format"

Geological Survey, 2004; larger format pictures setup to print four pictures per 8.5" by 11" page, six sheets in all, good for large displays, mosaics or dioramas, black and white; **Keywords:** Students Teachers Fossils;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-GGMFPB.pdf (file size 0.33 MB)

Code - Title: GG MFPF "Michigan Fossils one sheet"

Geological Survey, 2004; Poster downsized to 8.5" by 11" size, meant to be printed or copied front to back. Pictures can then be cut out and the identification will be on the back side, good for individual student or team use; **Keywords:** Students Teachers Fossils;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-GGMFPF.pdf (file size 0.33 MB)

Code - Title: GG MFPFC "Flash Cards printed set"

Geological Survey, 2004; Used as a teaching tool. Set of 36, 3.5" x 2.5" cards. Includes 9 sedimentary rocks as well as fossils from the Michigan Fossils Poster; **Keywords:** Fossil, statewide Students Teachers

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: GG MFPFCB "Michigan Fossil Poster Flash Cards Big Size "

Michigan Fossils 12 pages, 8 ½ by 11 format, good for large displays, mosaics or dioramas. The flash cards and text are meant to be printed (or copied) front-to-back, black and white; **Keywords:** Students Teachers;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-FCBIG.pdf (file size 1 MB)

Code - Title: GG MFPFCS "Michigan Fossil Poster Flash Cards Small Size "

CHECK IF EXISTS OR NOT 2 pages, 8 ½ by 11 format, good for individual or team student use. The flash cards and text are meant to be printed (or copied) front-to-back, 8 ½ by 11 format black and white; **Keywords:** Students Teachers;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-FCSML.pdf (file size 0.20 MB)

Code - Title: GG MFPFP "Michigan Fossils Poster printed"

Geological Survey, 2004; 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.);

Keywords: Fossil, statewide Students Teachers

Costs: \$1.50 - Please see [OGS publication list](#) for details.

Code - Title: GG MFPS "Michigan Fossils two sheets"

Geological Survey, 2004; Poster downsized to 8.5" by 11" size, meant to be printed or copied then used as two separate pages side by side, good for individual student use; **Keywords:** Students Teachers Fossils;

Web Link: www.deq.state.mi.us/documents/deq-ogs-qimdl-GGMFPS.pdf (file size 0.33 MB)

Code - Title: GG MFZ "Fossil poster graphics"

Full scale graphics used to make the "Michigan Fossils" poster; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-MFPFC.ZIP (file size 1.95 MB)

Code - Title: GG MGZ "Minerals graphics "

Graphics from the "Rock Cycle in Michigan"; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMGZ.ZIP (file size 2.66 MB)

Code - Title: GG MIGS "Michigan's Gem Stones"

H. J. Hardenberg, 1959; NSMIGS Mi gemstones; **Keywords:** Students Teachers All Counties, Copper, Dolomite, Iron, Gypsum, Stone; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMIGS.pdf (file size 0.06 MB)

Code - Title: GG MIN "Michigan Mineral Industry"

Geological Survey, 1940; **Keywords:** All counties,; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMIN.pdf (file size 1.37 MB)

Code - Title: GG MOG05 "Oil and Gas Map."

Geological Survey, 2005; That's right, there are oil and gas wells in Michigan, checkout this map and see just how many there are; **Keywords:** Oil Gas Map; **Web Link:** www.deq.state.mi.us/documents/deq-ogsgimdl-GGMOG05.pdf (file size 1.91 MB)

Code - Title: GG NGF "Natural Gas Fields of Michigan"

R. B. Newcombe, 1935; Reprinted American Association of Petroleum Geologists, June, 1935; **Keywords:** Southern Peninsula, Oil and Gas; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGNGF.pdf (file size 0.26 MB)

Code - Title: GG NGFB

; **Keywords:** Illustrations / tables; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGngfb.pdf (file size 0.38 MB)

Code - Title: GG NNV1 "They Need Not Vanish"

H. M. Martin, 1942; Learn about how to balance resource development and conservation of non renewable resources; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGTNNVA.pdf (file size 7.95 MB)

Code - Title: GG NNV2 "They Need Not Vanish"

H. M. Martin, 1942; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGTNNVB.pdf (file size 16.53 MB)

Code - Title: GG OF "Oldest Fossil"

Geological Survey Information about the oldest macrofossil AND it comes from Michigan; **Keywords:** Oldest Fossil Students Teachers **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGOF.pdf (file size 0.04 MB)

Code - Title: GG PEAT "Peat Reserves Report"

W. A. Walden Information and data about peat deposits in Michigan; **Keywords:** All counties,; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGPEAT.pdf (file size 0.87 MB)

Code - Title: GG PS "Petoskey Stone 4 Page Handout."

A four page handout about the lore, history and geologic information about the Official State stone Hexagonaria pericarnata; **Keywords:** Petoskey Stone handout Students Teachers Fossils; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGPS.pdf (file size 0.57 MB)

Code - Title: PT = Paper Teeth

S. E. Wilson, 2006; Students can learn about the differences between mammoth and mastodon teeth. One model uses an empty egg carton, the other uses "Paper Teeth."; **Keywords:** Students Teachers Fossils mammoth mastodon

Code - Title: GG PTEC "PT Egg Carton"

S. E. Wilson, 2006; The Egg Carton model by itself. A series of question related to mammoths and mastodons are included; **Keywords:** Students Teachers Fossils mammoth mastodon; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PT_EC.pdf (file size 0.65 MB)

Code - Title: GG PTPT "PT Paper Teeth"

S. E. Wilson, 2006; Make your own Paper Teeth. A series of question related to mammoths and mastodons are included; **Keywords;** Students Teachers Fossils mammoth mastodon; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PT_PT.pdf (file size 0.06 MB)

Code - Title: GG PTQA "PT Answers"

S. E. Wilson, 2006; Answers to the questions are available from Steven E. Wilson via email **Keywords;** Students Teachers Fossils mammoth mastodon; wilsonse@michigan.gov

Code - Title: GG PTWT "PT the Whole Tooth"

S. E. Wilson, 2006; Work with both the Egg Carton and Paper Teeth models. A series of question related to mammoths and mastodons are included; **Keywords;** Students Teachers Fossils mammoth mastodon; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PT_WT.pdf (file size 0.76 MB)

Code - Title: GG QGM "Glacial Geology Map"

W. R. Farrand, 1982; Also known as the 'Quaternary' or 'Surficial' Geology map showing what is found at the surface. Information about the printed version of this map can be found at the bottom of this page; **Keywords;** Glacial Geology Map; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGQGM.pdf (file size 2.88 MB)

Code - Title: GG RAM "Key to the Kit of Rocks and Minerals of Michigan (and Kit of Rocks and Minerals in Michigan)"

M. A. Gere, Jr. (comp.), 1977; This is the most recent key to a collection of twenty-four rock samples. Others have been published, but they have generally been very similar in number or content; **Keywords;** Copper, Gypsum, Iron, Limestone, Salt, Sandstone, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGRAM.pdf (file size 0.15 MB)

Code - Title: GG RC "Rock Classification Chart."

Find out what rocks (igneous metamorphic and sedimentary) are found in Michigan; **Keywords;** Students Teachers Rock Classification Chart; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGRC.pdf (file size 0.06 MB)

Code - Title: GG RCZ "Rock Cycle in Michigan graphics"

, 2006; Graphics used in the Rock Cycle in Michigan **Keywords;** DEQ-GL-4.ZIP; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGRCZ.ZIP (file size 1.32 MB)

Code - Title: GG RF "Rocks Found In Michigan."

Find out what rocks (igneous, metamorphic and sedimentary) are found in Michigan. The list is based on the revision of the 'Mineralogy of Michigan'; **Keywords;** Students Teachers Rocks Found In Michigan; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGRF.pdf (file size 0.06 MB)

Code - Title: GG RGZ "Rock graphics"

, 2006; Graphics used in the Rock Cycle in Michigan **Keywords;** DEQ-GL-3.ZIP; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGRGZ.ZIP (file size 9.96 MB)

Code - Title: GG SB "Salt a Michigan Resources"

Brief introduction to the geology and history of this unique and very important resource. Printed copies available on request to the Office of Geological Survey; **Keywords;** Students Teachers Salt Brochure **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGSB.pdf (file size 0.15 MB)

Code - Title: GG SDZ "Sand Dune graphics"

, 2006; Graphics from RI 23 Dune Type inventory and Barrier Dune Classification ...; **Keywords;** DEQ-GL-2.ZIP; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGSDZ.ZIP (file size 1.79 MB)

Code - Title: GG UMI "Uranium in Michigan"

DNR / DPH, 1982; A report covering many point about Uranium and where it can be found in Michigan **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GGUIM.pdf (file size 1.06 MB)

Code - Title: GG WS "Word Searches"

A standard lead-in or review especially for younger students. Collect all 10; Igneous Rocks, Metamorphic Rocks, Sedimentary Rocks, Rock Cycle, Rock Forming Minerals, Rock Types and Names, Eight Great Elements, Fossil Names from the Fossil Poster, Geologic Time and General Interest. Solutions are available by email request. **Keywords:** Students Teachers;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-words.pdf (file size 0.13 MB)

Geologic Maps GM

The Geological Survey has published several Geological maps. They are grouped together for convenience. Only the currently available maps are listed here. Electronic version of geologic maps can be found in the General Geology group.

Code - Title: GM AC "Selected Geologic Maps of Allegan Co., Michigan"

G. D. Gephart, 1982; Selected geologic maps with text, four color maps of Allegan County, Bedrock Geology, Bedrock Topography, Drift Thickness, Surficial Geology; **Keywords:** Allegan County
Costs: \$8.00 - Please see [OGS publication list](#) for details.

Code - Title: GM BG "Bedrock Geology of Michigan"

S. E. Wilson, 1987; Colored map of the aerial extent of geologic formations. Includes both Peninsulas; 1:500,000, 2 sheets;
Keywords: Bedrock, statewide
Costs: Free - Please see [OGS publication list](#) for details.

Code - Title: GM FW "Geologic Map of the 1° X 2° Fort Wayne Quadrangle, Indiana, Michigan, and Ohio"

G. H. Johnson and S. J. Keller, 1972; 3 colored sheets (1:250,000), Bloomington, IN, published by the Indiana Geological Survey in cooperation with the Michigan Geological Survey Division; **Keywords:** Branch Co., Calhoun Co., Hillsdale Co., Jackson Co., Kalamazoo Co., Lenawee Co., St Joseph Co., Washtenaw Co
Costs: \$8.00 - Please see [OGS publication list](#) for details.

Code - Title: GM IC "Selected Geologic Maps of Ingham Co., Michigan"

M. C. Puzio, 1982; Selected geologic maps with text, four color maps of Ingham County, Bedrock Geology, Bedrock Topography, Drift Thickness, Surficial Geology; **Keywords:** Ingham County
Costs: \$8.00 - Please see [OGS publication list](#) for details.

Code - Title: GM KC "Selected Geologic Maps of Kalamazoo Co., Michigan"

G. W. Managhan, 1982; Selected geologic maps with text, four color maps of Kalamazoo County, Bedrock Geology, Bedrock Topography, Drift Thickness, Surficial Geology; **Keywords:** Kalamazoo County
Costs: \$8.00 - Please see [OGS publication list](#) for details.

Code - Title: GM QG "Quaternary Geology of Michigan"

W. R. Farrand, 1982; 2 colored sheets, 1:500,000 map of Northern Peninsula (55 x 34 inches) and Southern Peninsula (48 x 39 inches); **Keywords:** All Counties
Costs: Free - Please see [OGS publication list](#) for details.

Geological Seminars GS

From 1989 to 2000 the Geological Survey hosted a series of six conferences focused on the Geology in Michigan. The proceedings have been scanned. Due to extensive formatting these items have been left in the image form and as such are not searchable.

Code - Title: GS 00 "Great Lakes Region Geological Conference"

Geological Survey, 2000; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties, various topics; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GS00.pdf (file size 6.49 MB)

Code - Title: GS 89 "Michigan: Its Geology and Geologic Resources"
Geological Survey, 1989; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties, various topics; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GS89.pdf (file size 4.77 MB)

Code - Title: GS 91 "Michigan: Its Geology and Geologic Resources"
Geological Survey, 1991; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties, various topics; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GS91.pdf (file size 5.93 MB)

Code - Title: GS 93 "Michigan: Its Geology and Geologic Resources"
Geological Survey, 1993; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties, various topics; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GS93.pdf (file size 3.95 MB)

Code - Title: GS 96 "Michigan: Its Geology and Geologic Resources"
Geological Survey, 1996; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties, various topics; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GS96.pdf (file size 2.30 MB)

Code - Title: GS 98 "Michigan: Its Geology and Geologic Resources"
Geological Survey, 1998; Geological Survey sponsored conference proceedings and abstracts, file is not indexed; **Keywords:** All counties, various topics; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-GS98.pdf (file size 4.71 MB)

Michigan's Mineral Industries MI

The series MICHIGAN'S MINERAL INDUSTRIES began publication in 1950 with a review of the year 1948. It was published annually, with the exception that no review of the year 1950 was published. In 1963, with the issue reviewing 1962, the report became a part of the Annual Statistical Summary series AS. This series is no longer active.

Miscellaneous MISC

MISCELLANY consists of only one publication.

Code - Title: MISC 01AA "Chemical and Industrial Rocks and Minerals"
W. A. Kneller (ed.), 1970; **Keywords:** Brine, Gypsum, Limestone, Salt; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-misc11.pdf (file size 2.74 MB)

Code - Title: MISC 01AB
; **Keywords:** Illustrations / tables; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-misc11b.pdf (file size 3.02 MB)

Code - Title: MISC 01BA "Building and Construction Stones and Minerals"
W. A. Kneller (ed.), 1970; **Keywords:** Clay, Dolomite, Gravel, Sand, Sandstone, Shale;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-misc12.pdf (file size 1.55 MB)

Code - Title: MISC 01BB
; **Keywords:** Illustrations / tables; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-misc12b.pdf (file size 2.23 MB)

Mineral Statistics MS

Early reports on the Mineral Industry in Michigan. These include discussion about the commodities, mines and volumes produced.

Code - Title: MS 1885A "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1885A.pdf (file size 3.11 MB)

Code - Title: MS 1885B "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1885B.pdf (file size 1.14 MB)

Code - Title: MS 1888A "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1888A.pdf (file size 2.10 MB)

Code - Title: MS 1888B "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1888B.pdf (file size 1.08 MB)

Code - Title: MS 1889 "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1889.pdf (file size 2.07 MB)

Code - Title: MS 1891 "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1891.pdf (file size 0.77 MB)

Code - Title: MS 1892 "Mineral Statistics"

Mineral products, production and value; **Keywords:** Brine, Cement, Clay, Copper, Gas, Gravel, Gypsum, Iron, Lime, Marl, Oil, Peat, Salt, Sand, Shale, Stone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-MS1892.pdf (file size 1.32 MB)

Open File Reports OFR

OPEN FILE REPORT(s) are unpublished reports, newsletters, field notes, and the like which are added to and subtracted from at various times. Because much of the material is eventually published in other series.

Code - Title: OFR 7803 "Geological Study of Sand Deposits ... Phase I"

S. P. Sundeen, 1978; Information and data about sand deposits in Michigan; **Keywords:** All counties, Sand, Sand Dunes; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-OFR7803.pdf (file size 0.41 MB)

Code - Title: OFR 7804 "Geological Study of Sand Deposits ... Phase II"

S. P. Sundeen, 1978; Information and data about sand deposits in Michigan; **Keywords:** All counties, Sand, Sand Dunes; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-OFR7804.pdf (file size 0.53 MB)

Code - Title: OFR 7805 "Criteria and Methodology for assessing the Impact of Sand Dune Mining"

Geological Survey, 1978; Information about what to include in an environmental impact study (EIS); **Keywords:** All counties, Environmental Impact Study, Sand, Sand Dunes; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-OFR7805.pdf (file size 0.52 MB)

Code - Title: OFR 8001 "Michigan Gold"

Various, 1980; Reprints of various Geological Survey reports; **Keywords:** All Counties, Gold; **Web Link:** www.deq.state.mi.us/documents/deq-oqs-gimdl-ofr8001.pdf (file size 0.80 MB)

Pamphlet PA

Each PAMPHLET is a short, non-technical report of general interest. This series began publication in 1966, and new numbers are published irregularly.

Code - Title: PA 01 "Douglass Houghton, Michigan's First State Geologist 1837-1845"

H. Wallin, 1977; Biographic sketch of eminent early state scientist and citizen; Revised from 1966 and 1970 versions illustrated; **Keywords:** All Counties, History; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PA01.pdf (file size 1.29 MB);

Costs: \$1.00 - Please see [OGS publication list](#) for details.

Code - Title: PA 02 "You Never Miss the Water"; A Few Pointers on Ground Water Supplies"

J. L. Slaughter, 1952; A general description of water resources; **Keywords:** All Counties;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PA02.pdf (file size 0.70 MB)

Code - Title: PA 03 "Guide to Michigan Fossils"

R. W. Kelley, 1962; **Keywords:** All Counties, fossils; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PA03.pdf (file size 4.98 MB)

Code - Title: PA 04 "Collecting Minerals in Michigan"

R. W. Kelley and H. J. Hardenberg, 1962; **Keywords:** All Counties, Alpena Co., Arenac Co., Charlevoix Co., Cheboygan Co., Copper, Dickinson Co., Dolomite, Gogebic Co., Houghton Co., Huron Co., Iron Co., Keweenaw Co., Marquette Co., Northern Peninsula Counties, Ontonagon Co., Presque Isle Co., Southern Peninsula Counties, Stone;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PA04.pdf (file size 0.47 MB)

Code - Title: PA 05 "Geologic Sketch of Michigan Sand Dunes"

R. W. Kelley, 1971; **Keywords:** All Counties, Sand; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PA05.pdf (file size 3.39 MB)

Code - Title: PA 06 "Collecting Rocks, Minerals and Fossils in Michigan"

S. E. Wilson, 1976; Illustrated introduction to this enjoyable hobby; collecting rocks, minerals and fossils; **Keywords:** All Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PA06.pdf (file size 0.65 MB);

Costs: \$1.00 - Please see [OGS publication list](#) for details.

Code - Title: PA 07 "Michigan's Sand Dunes"

S. E. Wilson, 1980; An illustrated introduction to the sand dune environment; block diagrams, illustrated; **Keywords:** All counties, Sand, Sand Dunes; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PA07.pdf (file size 2.04 MB);

Costs: \$1.00 - Please see [OGS publication list](#) for details.

Publication List PL

Although they do not constitute a series PUBLICATIONS LIST have been published for general distribution. The current PUBLICATION LIST is available on-line as **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PUBLIST.pdf

Code - Title: PL LIST "Sources of Geologic Information"

Geological Survey, 2005; Printed publications and related information available from the Michigan Geological Survey; **Keywords:** Publications, reports, information, data; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PUBLIST.pdf (file size 0.44 MB)

Code - Title: PL OF "Sources of Geologic Information order form"

Geological Survey, 2005; The Geological Survey Publications List Order form, major credit card are accepted; **Keywords:** Publications, reports, information, data; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PUBOF.pdf (file size 0.06 MB)

PowerPoint Presentations PPT

Several Microsoft PowerPoint presentations have been made available for earth science educators and interested students of the Geology in Michigan.

Code - Title: PPT HISTG "Honey, I Shrunk the Glacier"

S. E. Wilson, 2005; learn about glaciers and landforms that can be found in Michigan. What would happen if you were to shrink a glacier? Do not try this at home. Check this out first - learn about glaciers and landforms found in Michigan. **Keywords:** All Counties, glaciers Students Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-HISTG.ppt (file size 5.0 MB)

Code - Title: PPT HTHBHM "How Thick - How Big - How Much"

S. E. Wilson, 2003; Microsoft Excel spreadsheet that goes along with "Honey, I Shrunk the Glacier"; **Keywords:** All Counties, glaciers Students, Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-HThbHM.xls (file size 0.05 MB)

Code - Title: PPT RCIM "The Rock Cycle in Michigan"

S. E. Wilson, 2000; learn about this geological principal which explains how the rock types are related with Michigan references; **Keywords:** All Counties, Students, Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RCIM.ppt (file size 4.0 MB)

Code - Title: PPT SRYC "Something Rare Yet Common"

S. E. Wilson, 2002; Do you know what the state stone is? If you want to learn more about the Petoskey stone, then this is worth checking out; **Keywords:** All Counties, fossils, Students, Teachers; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-SRYC.ppt (file size 20 MB)

Progress Report PR

Twenty-five PROGRESS REPORT(s) were issued between 1936 and 1962. Many of them were produced in cooperation with the U.S. Geological Survey. While most deal with water resources of Michigan, others report on the general geology of the State. Since 1962, reports which would normally have been published in this series have been issued as the Water Investigation series.

Code - Title: PR 01 "Geology of the Crystal Oil Field, Montcalm County, Michigan"

G. E. Eddy, 1936; **Keywords:** Gas, Montcalm Co., Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR01.pdf (file size 0.25 MB)

Code - Title: PR 02 "Geology of Ogemaw County and West Branch Oil Field"

E. A. Newman, 1936; **Keywords:** Ogemaw Co., Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR02.pdf (file size 0.86 MB)

Code - Title: PR 03 "Geology of Arenac County"

G. H. Pringle, 1937; **Keywords:** Arenac Co., Gas, Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR03.pdf (file size 0.82 MB)

Code - Title: PR 04A "Geology of Allegan County"

C. H. Riggs, 1938; **Keywords:** Allegan Co., Gas, Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pr04.pdf (file size 0.15 MB)

Code - Title: PR 04B

; **Keywords:** Illustrations / tables; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pr04b.pdf (file size 4.16 MB)

Code - Title: PR 10 "Strategic Minerals investigations in Marquette and Baraga Counties, 1943"

A. K. Snelgrove et al, 1944; illustrated, maps, done in cooperation with the Michigan State College of Mining and Technology; **Keywords:** Baraga Co., Copper, Gold, Iron, Marquette Co., Silver; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR10.pdf (file size 0.97 MB)

Code - Title: PR 13 "Progress Report on the Ground-Water Resources of the Lansing Area, Michigan, 1945"

W. T. Stuart, 1945; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Clinton Co., Eaton Co., Ingham Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR13.pdf (file size 0.15 MB)

Code - Title: PR 14 "Ground-Water Resources of the Glacial Deposits, Bessemer Area, Gogebic County, Michigan, 1950"

E. A. Brown and W. T. Stuart, 1951; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Gogebic Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR14.pdf (file size 0.20 MB)

Code - Title: PR 15 "The Richfield Challenge"

G. H. Hautau, 1952; Information about an oil and gas producing zone in Michigan; **Keywords:** Crawford Co., Gas, Missaukee Co., Ogemaw Co., Oil, Roscommon Co., Tuscola Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR15.pdf (file size 0.16 MB)

Code - Title: PR 16 "Ground Water Resources of Southeastern Oakland County, Michigan"

J. G. Ferris et al, 1954; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Oakland Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR16.pdf (file size 3.49 MB)

Code - Title: PR 17A "Reconnaissance of the Ground-Water Resources of Chippewa County, Michigan"

K. E. Vanlier and M. Deutsch, 1958; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Chippewa Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR17.pdf (file size 0.6 MB)

Code - Title: PR 17B "Reconnaissance of the Ground-Water Resources of Chippewa County, Michigan"

K. E. Vanlier and M. Deutsch, 1958; Plates from PR 17; **Keywords:** Chippewa Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR17P.pdf (file size 0.4 MB)

Code - Title: PR 17C "Reconnaissance of the Ground-Water Resources of Chippewa County, Michigan"

K. E. Vanlier and M. Deutsch, 1958; Tables from PR 17; **Keywords:** Chippewa Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR17T.pdf (file size 0.3 MB)

Code - Title: PR 18 "Notes on the Devonian-Silurian in the Subsurface of Southwest Michigan"

G. D. Eils, 1958; Illustrated review of the subsurface geology; **Keywords:** Allegan Co., Barry Co., Berrien Co., Branch Co., Calhoun Co., Cass Co., Gas, Kalamazoo Co., Kent Co., Muskegon Co., Newaygo Co., Oil, Ottawa Co., St Joseph Co., Van Buren Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR18.pdf (file size 1.33 MB)

Code - Title: PR 19 "Reconnaissance of the Ground-Water Resources of Mackinac County, Michigan"

K. E. Vanlier and M. Deutsch, 1958; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Mackinac Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR19.pdf (file size 0.77 MB)

Code - Title: PR 20 "Summary of Ground-Water investigations in the Holland Area, Michigan"

M. Deutsch et al, 1958; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Allegan Co., Ottawa Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR20.pdf (file size 1.45 MB)

Code - Title: PR 21A "Reconnaissance of the Ground-Water Resources of Luce County, Michigan"

K. E. Vanlier, 1959; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Luce Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pr21.pdf (file size 1.39 MB)

Code - Title: PR 21B

Illustrations, tables for PR 21; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pr21b.pdf (file size 2.02 MB)

Code - Title: PR 22A "Reconnaissance of the Ground-Water Resources of Schoolcraft County, Michigan"
W. C. Sinclair, 1959; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Schoolcraft Co., Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PR22.pdf (file size 1.54 MB)

Code - Title: PR 22B "Reconnaissance of the Ground-Water Resources of Schoolcraft County, Michigan"
W. C. Sinclair, 1959; Tables for PR 22; **Keywords:** Schoolcraft Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR22T.pdf (file size 0.09 MB)

Code - Title: PR 23 "Ground-Water Hydrology and Glacial Geology of the Kalamazoo Area, Michigan"
M. Deutsch et al, 1960; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Kalamazoo Co., Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PR23.pdf (file size 1.53 MB)

Code - Title: PR 24 "Reconnaissance of the Ground-Water Resources of Delta County, Michigan"
W. C. Sinclair, 1960; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Delta Co., Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PR24.pdf (file size 1.33 MB)

Code - Title: PR 25A "Summary of Ground-Water Conditions in the Elsie Area, Michigan"
K. E. Vanlier, 1962; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Clinton Co., Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PR23.pdf (file size 0.55 MB)

Code - Title: PR 25B "Summary of Ground-Water Conditions in the Elsie Area, Michigan"
K. E. Vanlier, 1962; Tables for PR 25; **Keywords:** Clinton Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PR23T.pdf (file size 0.02 MB)

Publications PU

PUBLICATION(s) contain the greatest number of works of all of the series published by the Survey. Between 1910 and 1958, 51 PUBLICATION(s) were produced. These are reports of a technical nature on the geology and biology of Michigan. Earlier numbers in this series were published under one of two sub-series: either Geological Series or Biological Series. Biological Series 6 (Publication 31) was the final report issued in this sub-series, which was discontinued after 1921. The sub-series heading Geological Series was dropped in 1953. Most PUBLICATION(s) were issued in both hardbound and paperbound editions. In some cases separates were also available.

Code - Title: PU 01 "The Crawfishes of Michigan"
A. S. Pearse et al, 1910; illustrated, maps, (Biological Series 1); **Keywords:** All Counties;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU01.pdf (file size 5.48 MB)

Code - Title: PU 02A "The Monroe Formation of Southern Michigan and Adjoining Regions"
A. W. Grabau and W. H. Sherzer, 1910; illustrated, maps, (Geological Series 1); **Keywords:** Brine, Dolomite, Limestone, Monroe Co., Salt, Sand, Shale, Southern Peninsula Counties, Stone, Wayne Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu02.pdf (file size 5.36 MB)

Code - Title: PU 02B
Illustrations, tables for PU 02; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu02b.pdf (file size 2.46 MB)

Code - Title: PU 03 "The Iron River Iron-Bearing District of Michigan"
R. C. Allen, 1910; illustrated, maps, (Geological Series 2); **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU03.pdf (file size 6.64 MB)

Code - Title: PU 06A "The Keweenaw Series of Michigan - part 1 of 4"
A. C. Lane, 1911; illustrated, maps, Some maps and plates in separate envelope. (Geological Series 4); **Keywords:** Brine, Clay, Copper, Dolomite, Gas, Gogebic Co., Gypsum, Houghton Co., Iron, Isle Royale, Keweenaw Co., Lime, Limestone, Ontonagon Co., Salt, Sandstone, Shale, Silver, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU06A.pdf (file size 3.22 MB)

Code - Title: PU 06B

part 2 of 4; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU06B.pdf (file size 1.92 MB)

Code - Title: PU 06C

part 3 of 4; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU06C.pdf (file size 2.42 MB)

Code - Title: PU 06D

part 4 of 4; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU06D.pdf (file size 0.90 MB)

Code - Title: PU 08A "Michigan Coal; Gypsum and Gypsum Products; The Salt industry; Michigan Cement; Gold in Michigan; Oil and Gas in Michigan"

R. A. Smith, 1912; Part of PU 08; **Keywords:** Brine, Clay, Gravel, Lime, Limestone, Marl, Sand, Sandstone, Shale, Water Coal, Gypsum, Salt, Cement, Gold, Gas, Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU08A.pdf (file size 3.98 MB)

Code - Title: PU 08B "The Copper industry"

R. E. Hore, 1912; Part of PU 08; **Keywords:** Copper; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU08B.pdf (file size 6.23 MB)

Code - Title: PU 08C "The Iron Mining industry; The Pig Iron industry; The Jones Step Process"

A. E. White, 1912; Part of PU 08; **Keywords:** Iron; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU08C.pdf (file size 2.10 MB)

Code - Title: PU 13 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1912 and Prior Years"

R. C. Allen (comp.) and R. E. Hore, 1913; illustrated, (Geological Series 10); **Keywords:** All Counties, Cement, Clay, Coal, Gas, Gypsum, Iron, Lime, Oil, Salt, Sandstone; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU13.pdf (file size 3.55 MB)

Code - Title: PU 14A "The Occurrence of Oil and Gas in Michigan chapters 5-10"

R. A. Smith, 1914; illustrated, maps, (Geological Series 11); **Keywords:** Brine, Gas, Oil, Southern Peninsula Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu140510.pdf (file size 2.73 MB)

Code - Title: PU 14B

Illustrations, tables for PU 14; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu14b.pdf (file size 13.93 MB)

Code - Title: PU 15A "The Brine and Salt Deposits of Michigan chapters 1 to 3"

C. W. Cook, 1914; Their Origin, Distribution And Exploitation: illustrated, maps 1914. (Geological Series 12); **Keywords:** All Counties, Bay Co., Brine, Gratiot Co., Huron Co., Iosco Co., Isabella Co., Macomb Co., Manistee Co., Mason Co., Midland Co., Saginaw Co., Salt, St Clair Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu150103.pdf (file size 1.20 MB)

Code - Title: PU 15B

Illustrations, tables for PU 15; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu15b.pdf (file size 7.10 MB)

Code - Title: PU 15C "chapters 4 to 6"

; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu150406.pdf (file size 6.63 MB)

Code - Title: PU 16A "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1913 and Prior Years"

R. C. Allen (comp.) et al, 1914; (Geological Series 13); **Keywords:** All Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu16.pdf (file size 0.32 MB)

Code - Title: PU 16B

Illustrations, tables for PU 16; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu16b.pdf (file size 7.04 MB)

Code - Title: PU 17A "Biennial Report of the Director:., Map, 1914,"

R. C. Allen, 1914; (Geological Series 14); **Keywords:** Brine, Copper, Gas, Limestone, Mackinac Island, Northern Peninsula Counties, Oil, Salt, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu17.pdf (file size 0.63 MB)

Code - Title: PU 17B

Illustrations, tables for PU 17; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu17b.pdf (file size 4.12 MB)

Code - Title: PU 18A "Contributions to the Pre-Cambrian Geology of Northern Michigan and Wisconsin"

R. C. Allen and L. P. Barrett, 1915; **Keywords:** Baraga Co., Dickinson Co., Dolomite, Gogebic Co., Houghton Co., Iron, Marquette Co., Menominee Co., Northern Peninsula Counties, Ontonagon Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU18A.pdf (file size 5.43 MB)

Code - Title: PU 18B "The Geology of Limestone Mountain and Sherman Hill in Houghton County, Michigan"

E. C. Case and W. I. Robinson, 1915; **Keywords:** Baraga Co., Dickinson Co., Dolomite, Gogebic Co., Houghton Co., Iron, Marquette Co., Menominee Co., Northern Peninsula Counties, Ontonagon Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU18B.pdf (file size 0.15 MB)

Code - Title: PU 19A "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1914 and Prior Years;"

R. E. Hore, 1915; with A Treatise on Michigan Copper Deposits Metallic Minerals; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU19A.pdf (file size 7.61 MB)

Code - Title: PU 19B "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1914 and Prior Years;"

R. A. Smith, 1915; with A Treatise on Michigan Copper Deposits Non-Metallic Minerals; **Keywords:** Brine, Cement, Clay, Coal, Gas, Gravel, Gypsum, Lime, Limestone, Oil, Salt, Sand, Sandstone; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU19B.pdf (file size 1.12 MB)

Code - Title: PU 21A "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1915 and Prior Years;"

W. E. Hopper and R. C. Allen, 1916; with A Treatise on Limestone Resources Metallic Minerals; **Keywords:** Copper, Iron; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU21A.pdf (file size 0.17 MB)

Code - Title: PU 21B "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1915 and Prior Years;"

R. A. Smith, 1916; **Keywords:** Brine, Cement, Clay, Coal, Dolomite, Gas, Gravel, Gypsum, Lime, Limestone, Marl, Oil, Salt, Sand, Sandstone, Shale, Silver, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU21B.pdf (file size 5.10 MB)

Code - Title: PU 21C "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1915 and Prior Years;"

R. A. Smith, 1916; **Keywords:** Limestone; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU21C.pdf (file size 0.80 MB)

Code - Title: PU 22 "Biennial Report of the Director and Report on Retracement and Permanent Monumenting of the Michigan-Ohio Boundary"

R. C. Allen, 1916; illustrated, maps, (Geological Series 18); **Keywords:** Hillsdale Co., Keweenaw Co., Limestone, Mackinac Island, Monroe Co., Northern Peninsula Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu22.pdf (file size 2.90 MB)

Code - Title: PU 22B

Illustrations, tables for PU 22; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu22b.pdf (file size 6.55 MB)

Code - Title: PU 24 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1916 and Prior Years"

R. C. Allen (comp.) et al, 1917; illustrated, maps, (Geological Series 20); **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU24.pdf (file size 2.80 MB)

Code - Title: PU 26A "The Agaricaceae of Michigan "

C. H. Kauffman, 1918; 172 plates, 2v., illustrated, map, (Biological Series 5); **Keywords:** part 1 of 3;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU26A.PDF (file size 2.17 MB)

Code - Title: PU 26B

part 2 of 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU26B.PDF (file size 1.61 MB)

Code - Title: PU 26C

part 3 of 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU26C.PDF (file size 1.89 MB)

Code - Title: PU 27 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1917 and Prior Years"

R. C. Allen (comp.) et al, 1918; map, (Geological Series 22); **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU27.pdf (file size 0.93 MB)

Code - Title: PU 28 "Drainage in Michigan"

D. G. Miller and P. T. Simons, 1919; illustrated, maps, (Geological Series 23); **Keywords:** Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU28.pdf (file size 4.48 MB)

Code - Title: PU 29 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1918 and Prior Years"

R. C. Allen (comp.) et al, 1920; illustrated, maps, (Geological Series 24); **Keywords:** Limestone;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU29.pdf (file size 1.19 MB)

Code - Title: PU 30A "Inland Lakes of Michigan"

I. D. Scott, 1921; illustrated, maps, (Geological Series 25); **Keywords:** Water, inland lakes part 1 of 3;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU30A.PDF (file size 5.18 MB)

Code - Title: PU 30B

part 2 of 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU30B.PDF (file size 4.65 MB)

Code - Title: PU 30C

part 3 of 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU30C.PDF (file size 0.24 MB)

Code - Title: PU 32 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1920 and Prior Years"

R. A. Smith (comp.) et al, 1920; **Keywords:** All Counties, Copper, Iron Gas, Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU32.pdf (file size 0.91 MB)

Code - Title: PU 33 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1921 and Prior Years"

R. A. Smith (comp.), and H. M. Martin, 1921; (Geological Series 26); **Keywords:** All Counties;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU33.pdf (file size 1.24 MB)

Code - Title: PU 34 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1922 and Prior Years"

R. A. Smith (comp. and L. P. Barrett, 1922; (Geological Series 28); **Keywords:** All Counties;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU34.pdf (file size 1.46 MB)

Code - Title: PU 36A "Clays and Shales of Michigan and their Uses"

G. G. Brown, 1924; illustrated, maps, (Geological Series 30); **Keywords:** All Counties, Cement, Clay, Dolomite, Gypsum, Iron, Limestone, Marl, Sand, Shale, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU36A.pdf (file size 16.78 MB)

Code - Title: PU 36B "Clays and Shales of Michigan and their Uses"

G. G. Brown, 1924; illustrated, maps, (Geological Series 30); **Keywords:** All Counties, Cement, Clay, Dolomite, Gypsum, Iron, Limestone, Marl, Sand, Shale, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU36B.pdf (file size 5.66 MB)

Code - Title: PU 37 "Mineral Resources of Michigan with Statistical Tables of Production and Value of Mineral Products for 1924, 1925, 1926 and Prior Years with A Report on Oil and Gas Development"

R. B. Newcombe et al, 1928; illustrated, maps, (Geological Series 31); **Keywords:** All Counties, Dickinson Co., Gogebic Co., Iron Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU37.PDF (file size 1.56 MB)

Code - Title: PU 40A "The Pleistocene History of the Tahquamenon and Manistique Drainage Region of the Northern Peninsula"

S. G. Bergquist, 1936; **Keywords:** Alger Co., Chippewa Co., Luce Co., Schoolcraft Co., Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU40A.pdf (file size 1.13 MB)

Code - Title: PU 40B "The Pennsylvanian System in Michigan"

W. A. Kelly, 1936; **Keywords:** Arenac Co., Bay Co., Brine, Calhoun Co., Clinton Co., Coal, Eaton Co., Genesee Co., Gypsum, Ingham Co., Ionia Co., Jackson Co., Limestone, Midland Co., Ogemaw Co., Roscommon Co., Saginaw Co., Sandstone, Shale, Shiawassee Co., Tuscola Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU40B.pdf (file size 3.02 MB)

Code - Title: PU 40C "The Trenton and Black River Rocks of Michigan"

R. C. Hussey, 1936; **Keywords:** Alger Co., Delta Co., Menominee Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU40C.pdf (file size 14.16 MB)

Code - Title: PU 41A "Molding Sands of Michigan and their Uses"

G. G. Brown, 1936; illustrated, maps, (Geological Series 35); **Keywords:** All Counties, Cement, Clay, Dolomite, Gypsum, Iron, Lime, Limestone, Sand, Stone, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU41A.PDF (file size 2.63 MB)

Code - Title: PU 41B

; **Keywords:** Part 2 of 2; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU41B.PDF (file size 1.40 MB)

Code - Title: PU 43A "Pre-Historic Mackinac Island"

G. M. Stanley, 1945; illustrated, maps, (Geological Series 36); **Keywords:** Mackinac Island;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-pu43.pdf (file size 8.80 MB)

Code - Title: PU 43B

Illustrations, tables for PU 43; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu43b.pdf (file size 3.97 MB)

Code - Title: PU 44 "Geology of the Mackinac Straits Region and Sub Surface Geology of the Northern Southern Peninsula"

K. K. Landes et al, 1945; illustrated, maps, (Geological Series 37); **Keywords:** Charlevoix Co., Cheboygan Co., Dolomite, Emmet Co., Gas, Gypsum, Limestone, Mackinac Co., Mackinac Island, Monroe Co., Oil, Presque Isle Co., Salt, Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU44.pdf (file size 11.79 MB)

Code - Title: PU 46 "The Middle and Upper Ordovician Rocks of Michigan"

R. C. Hussey, 1952; illustrated, (Geological Series 39); **Keywords:** Alger Co., Chippewa Co., Delta Co., Dickinson Co., Luce Co., Marquette Co., Menominee Co., Northern Peninsula Counties, Schoolcraft Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU46.pdf (file size 9.23 MB)

Code - Title: PU 47 "Oil and Gas Conservation in Michigan: , 1954"

L. S. Miller, 1954; **Keywords:** Gas, Oil; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-PU47.PDF (file size 0.16 MB)

Code - Title: PU 48A "The Glacial Geology and Groundwater Resources of Van Buren County, Michigan"

F. W. Terwilliger, 1954; **Keywords:** Clay, Gas, Gravel, Iron, Oakland Co., Salt, Sand, Van Buren Co., Water, Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-pu48b.pdf (file size 3.94 MB)

Code - Title: PU 48B "A Survey of the Groundwater Resources in Oakland County, Michigan"
A. J. Mozola, 1954; **Keywords:** Environmental Geology, Groundwater, Hydrology, Oakland Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-PU48II.pdf (file size 1.92 MB)

Code - Title: PU 48C
Illustrations, tables for PU 48; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu48bb.pdf (file size 11.33 MB)

Code - Title: PU 51A "The Cambrian Sandstones of Northern Michigan"
W. K. Hamblin, 1958; **Keywords:** Alger Co., Baraga Co., Chippewa Co., Dickinson Co., Gogebic Co., Houghton Co., Keweenaw Co., Luce Co., Marquette Co., Menominee Co., Ontonagon Co., Sandstone, Schoolcraft Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-pu51.pdf (file size 19.38 MB)

Code - Title: PU 51B
Illustrations, tables for PU 51; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-pu51b.pdf (file size 12.92 MB)

Report of Investigation RI

Geological and geophysical investigations which may be of immediate public interest are released in the series REPORT OF INVESTIGATION. These reports are generally short and are paperbound. The series began publication in 1963 and is still active.

Code - Title: RI 03 "Geology for Land and Ground-Water Development in Wayne County, Michigan"
A. J. Mozola, 1969; illustrated, maps, done in cooperation with Wayne State University, Department of Geology; **Keywords:** Brine, Dolomite, Gas, Gravel, Gypsum, Limestone, Oil, Salt, Sand, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI03.pdf (file size 0.19 MB)

Code - Title: RI 03MBG
Bedrock Geology Map, Plate 1; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI03MBG.PDF (file size 1.07 MB)

Code - Title: RI 03MBT
Bedrock Topography Map, Plate 2; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI03MBT.PDF (file size 0.17 MB)

Code - Title: RI 03MDT
Drift Thickness Map, Plate 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI03MDT.PDF (file size 0.26 MB)

Code - Title: RI 03MGG
Glacial Geology Map, Plate 4; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI03MGG.PDF (file size 0.96 MB)

Code - Title: RI 04 "Geologic and Magnetic Data for Northern Iron River Area, Michigan"
H. L. James et al, 1967; illustrated, maps, done in cooperation with the U.S. Geological Survey; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI04.PDF (file size 0.62 MB)

Code - Title: RI 05 "Geology and Magnetic Data for the Central Iron River Area, Michigan"
C. E. Dutton, 1969; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI05.pdf (file size 0.28 MB)

Code - Title: RI 06 "Geology and Magnetic Data for the Southeastern Iron River Area, Michigan"
H. L. James and K. L. Wier, 1969; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI06.pdf (file size 0.55 MB)

Code - Title: RI 07 "Geology and Magnetic Data Between Iron River and Crystal Falls, Michigan"
H. L. James et al, 1970; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI07.pdf (file size 0.42 MB)

Code - Title: RI 08A "Geology and Magnetic Data for the Northern Crystal Falls Area, Michigan:"
F. J. Pettijohn, 1970; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI08.pdf (file size 0.44 MB)

Code - Title: RI 08B
Illustrations, Tables for RI 08; **Keywords:** Illustrations / tables; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI08T.pdf
(file size 0.03 MB)

Code - Title: RI 09A "Geology and Magnetic Data for Southern Crystal Falls Area, Michigan:"
F. J. Pettijohn, 1972; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI09.pdf (file size 0.63 MB)

Code - Title: RI 09B "Geology and Magnetic Data for Southern Crystal Falls Area, Michigan:"
F. J. Pettijohn, 1972; Tables for RI 09; **Keywords:** Iron, Iron Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI09T.pdf
(file size 0.03 MB)

Code - Title: RI 10 "Geology and Magnetic Data for Alpha-Brule River and Panola Plains Areas, Michigan"
F. J. Pettijohn et al, 1969; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI10.pdf (file size 0.36 MB)

Code - Title: RI 11 "Geology and Magnetic Data for Northern Crystal Falls Area. Michigan"
K. L. Wier, 1971; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Iron Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI11.pdf (file size 0.25 MB)

Code - Title: RI 12 "Geological interpretation of Aeromagnetic Data in Western Upper Peninsula of Michigan"
W. M. Meshref and W. J. Hinze, 1970; illustrated, maps, done in cooperation with Michigan State University, Department of Geology; **Keywords:** Baraga Co., Gogebic Co., Houghton Co., Iron Co., Ontonagon Co;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI12.pdf (file size 0.50 MB)

Code - Title: RI 13 "Geology for Environmental Planning in Monroe County, Michigan"
A. J. Mozola, 1970; Geologic Maps are included with printed version; **Keywords:** Cement, Dolomite, Gas, Limestone, Monroe Co., Oil, Salt, Sand, Shale, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13.pdf (file size 0.77 MB)

Code - Title: RI 13MBR
Bedrock Geology Map, Plate 1; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13MBR.PDF (file size 1.92 MB);
Costs: MBR - Please see [OGS publication list](#) for details.

Code - Title: RI 13MBT
Bedrock Topography Map, Plate 2; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13MBT.PDF (file size 0.55 MB);
Costs: MBT - Please see [OGS publication list](#) for details.

Code - Title: RI 13MDT
Drift Thickness Map, Plate 1 Map, Plate 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13.MDT.PDF (file size 0.55 MB);
Costs: MDT - Please see [OGS publication list](#) for details.

Code - Title: RI 13MGG
Glacial Geology Map, Plate 5; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13MGG.PDF (file size 2.35 MB);
Costs: MGG - Please see [OGS publication list](#) for details.

Code - Title: RI 13MPL

Piezometric (artesian) Level Map, Plate 1 Map, Plate 6; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13MPL.PDF (file size 0.48 MB);

Costs: MPL - Please see [OGS publication list](#) for details.

Code - Title: RI 13MXS

Cross Sections, Plate 4; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI13MXS (file size 1.56 MB);

Costs: MXS - Please see [OGS publication list](#) for details.

Code - Title: RI 14 "Gravity and Aeromagnetic Anomaly Maps of the Southern Peninsula of Michigan"

W. J. Hinze et al, 1971; illustrated, maps, Revision of Report of Investigation No. 1. done in cooperation with Michigan State University, Department of Geology; **Keywords:** Southern Peninsula Counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI14.pdf (file size 0.63 MB)

Code - Title: RI 14MGRAV

Gravity map of the Southern Peninsula, Plate 1; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI14MGR.PDF (file size 1.29 MB);

Costs: RI14MGR. - Please see [OGS publication list](#) for details.

Code - Title: RI 14MMAG

Magnetic map of the Southern Peninsula, Plate 2 **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI14MGR.PDF (file size 0.90 MB);

Costs: RI14MmG. - Please see [OGS publication list](#) for details.

Code - Title: RI 15 "Subsurface Geology of Barry County, Michigan"

R. T. Lillenthal, 1974; Description of the stratigraphy and structure based on electric and driller's logs; illustrated, maps;

Keywords: Barry Co., Brine, Clay, Gas, Gravel, Gypsum, Limestone, Marl, Oil, Salt, Sand, Shale;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI15.pdf (file size 1.27 MB);

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 16 "A Ground investigation of An Aeromagnetic Anomaly in North Central Dickinson County, Michigan. 977"

D. W. Snider, 1977; Report of a ground geological and geophysical study. Includes 8 tables, 18 figures; illustrated maps;

Keywords: Dickinson Co

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 17 "Establishing Vegetation on Alkaline Iron and Copper Tailings"

S. G. Shetron et al, 1977; A report on mine reclamation research. Includes 6 tables, 10 figures; **Keywords:** Copper, Houghton Co., Iron; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI17.pdf (file size 0.74 MB);

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 18 "Drill Core investigation of the Fiborn Limestone Member in Schoolcraft, Mackinac, and Chippewa Counties, Michigan"

A. D. Johnson and H. O. Sorensen, 1978; Study of the Fiborn limestone member in Schoolcraft, Mackinac, and Chippewa Counties, 3 tables, 7 figures; maps, illustrated

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 19 "Stratigraphic Cross-Sections of the Michigan Basin"

R. T. Lillenthal, 1978; Includes maps and appendix with 89 electric log cross sections punched for insertion into 3 ring binders

Costs: \$8.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 20 "An Economic Study of Coastal Sand Dune Mining in Michigan"

Ayres et al, 1978; Dune formation, classification and terminology, maps illus; **Keywords:** All counties, Sand, Sand Dunes;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI20.pdf (file size 0.96 MB)

Code - Title: RI 21 "Economic Geology of the Sand and Sandstone Resources of Michigan"

E. W. Heinrich, 1979; Study of the sand and sandstone resources in Michigan, illustrated; **Keywords:** All counties, Sand, Sandstone; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI21.pdf (file size 1.75 MB)

Code - Title: RI 22 "Stratigraphic Cross-Sections Extending from Devonian Antrim Shale to Mississippi Sunbury Shale in the Michigan Basin"

G. D. Eils, 1979; A detailed look at the stratigraphy of Michigan's oil shale; from Devonian Antrim shale to Mississippian Sunbury shale, 22plates; maps, illustrated, with 6 gamma-ray log cross-sections; **Keywords:** Southern Peninsula counties;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI22.pdf (file size 0.98 MB);

Costs: \$6.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 23 "Dune Type inventory and Barrier Dune Classification Study of Michigan's Lake Michigan Shore:, Maps, Block Diagrams, Illus"

W. R. Buckler, 1979; Dune type Inventory and barrier dune classification study of Michigan's Lake Michigan shore; **Keywords:** All counties, Sand, Sand Dunes; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI23.pdf (file size 0.88 MB);

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 24 "The Yellow Dog Peridotite and A Possible Buried Igneous Complex of Lower Keweenaw Age in the Northern Peninsula of Michigan"

J. S. Klasner, 1979; A detailed study a possibly economic geologic complex; maps, illustrated; **Keywords:** Marquette Co;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-RI24.pdf (file size 1.16 MB);

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 25 "Potassium Salts - Potash - of the Salina A1 Evaporite in the Michigan Basin"

R. C. Elowski, 1980; Potassium salts (potash) of the Salina A1 evaporate in the Michigan Basin. 8 maps and cross sections;

Keywords: Salt, Southern Peninsula counties; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-RI25.pdf (file size 0.21 MB);

Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 27 "Upper Carboniferous Rocks of the Michigan Basin: Lithostratigraphy and Depositional Environments of the Pennsylvanian Rocks and the Bayport Formation of the Mi Basin"

R. Vugrinovich, 1984; **Keywords:** Missippian age, Pennsylvanian age, Southern Peninsula counties

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: RI 28 "Cryptoexplosive Disturbance, Calvin 28, Cass County, Michigan"

R. L. Milstein, 1988; Impact origin a cryptoexplosive disturbance, Cass County, Michigan; **Keywords:** Houston we have been hit

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Secondary Recovery Report SR

SECONDARY RECOVERY REPORTs discuss the enhanced recovery of oil in a different Michigan fields. This series began publication in 1976 is currently not active.

Code - Title: SR 01 "Hamilton Field, Richfield Oil Pool; Enhanced Oil and Gas Recovery in Michigan"

S. E. Wilson et al, 1976; Secondary recovery study and data Includes maps & illustrations; **Keywords:** Clare Co., Enhanced Recovery, Gas, Oil, Secondary Recovery; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-SR01.pdf (file size 0.39 MB)

Code - Title: SR 02 "Beaver Creek Field; Enhanced Oil and Gas Recovery in Michigan"

R. J. Pollom et al, 1976; Secondary recovery study and data Includes maps & illustrations; **Keywords:** Crawford Co., Enhanced Recovery, Gas, Kalkaska Co., Oil, Secondary Recovery,; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-SR02.pdf (file size 0.41 MB)

Code - Title: SR 03 "Cranberry Lake Field, Richfield Oil Pool; Enhanced Oil and Gas Recovery in Michigan"

S. E. Wilson et al, 1976; Secondary recovery study and data Includes maps & illustrations; **Keywords:** Clare Co;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-SR03.pdf (file size 0.25 MB)

Code - Title: SR 05 "Onondaga 10 Unit; Enhanced Oil and Gas Recovery in Michigan"

R. J. Pollom et al, 1977; Secondary recovery study and data Includes maps & illustrations; **Keywords:** Enhanced Recovery, Ingham Co., Secondary Recovery; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-SR05.pdf (file size 0.32 MB)

Code - Title: SR 06 "Aurelius 35 Unit; Enhanced Oil and Gas Recovery in Michigan"

A. D. Matzkanin et al, 1977; Secondary recovery study and data Includes maps & illustrations; **Keywords:** Enhanced Recovery, Ingham Co., Secondary Recovery; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-SR06.pdf (file size 0.31 MB)

Code - Title: SR 07 "Columbus 3 Unit"

A. D. Matzkanin et al, 1978; Secondary recovery study and data Includes maps & illustrations; **Keywords:** Enhanced Recovery, Secondary Recovery, Saint Clair Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-SR07.pdf (file size 0.33 MB)

Code - Title: SR 08 "West Branch Field, Dundee Pool, Ogemaw and Roscommon Co., Michigan"

R. G. Vugrinovich et al, 1981; Secondary recovery study and data Includes maps & illustrations
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: SUR 01 "Summary Report"

R. A. Smith, 1933; Production and Value of Minerals and Mineral Products in Michigan 1927 to 1931 and Prior Years
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-SUR01.pdf (file size 1.10 MB)

Technical Report TR

TECHNICAL REPORT(s), which were published between 1948 and 1954, discuss ground water problems. They are of a technical nature and were published in limited editions. This series is no longer in publication.

Code - Title: TR 02A "Ground-Water Problems of the Iron River District, Michigan"

W. T. Stuart et al, 1948; illustrated, maps, done in cooperation with U.S.G.S; **Keywords:** Iron, Iron Co., Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-tr02.pdf (file size 1.71 MB)

Code - Title: TR 02B

Illustrations, tables for TR 02; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-tr02b.pdf (file size 3.13 MB)

Code - Title: TR 03A "Ground-Water investigations of the Marquette Iron-Mining District, Michigan"

W. T. Stuart et al, 1954; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Iron, Marquette Co., Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-tr03.pdf (file size 0.70 MB)

Code - Title: TR 03B

Illustrations, tables for TR 03; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-tr03b.pdf (file size 0.54 MB)

U.S.G.S. Open File U.S.G.S.

U.S.G.S. OPEN FILE REPORTs are unpublished reports from the United States Geological Survey. Much of the material is eventually published in other series.

Code - Title: U.S.G.S.OFR 75152 "Keweenaw Geology of the North Ironwood, Ironwood, & Little Girl Point Quads., Gogebic Co., Michigan"

H. Hubbard, 1975;
Costs: \$8.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 801081 "Radioelement Distribution in Archean Granite Gneiss, Republic Area, Michigan"
J. S. Stuckless et al, 1980;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 80390 "Copper Bearing Quartzite Near Watersmeet, Michigan"
F. W. Cannon, 1980;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 80591 "Groundwater of Coal Deposits, Bay County, Michigan"
J.R. Stark and M. G. McDonald, 1980;
Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 80773 "Hydraulic Characteristics of an Underdrained Irrigation Circle, Muskegon Co. Wastewater Disposal System, Michigan"
M. G. McDonald, 1980;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 80902 "Review of Lake Michigan Seismic Reflection Data"
R. Wold, 1980;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 80GHEPWCM "Geology and Hydrology For Environmental Planning in Washtenaw County, Michigan"
W. Fleck, 1980;
Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 82223 "Mineral Resource Assessment of the Iron River 1 X 2 Quadrangle, Michigan and WI"
F. W. Cannon, 1982;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 82301 "Preliminary Surficial Geologic Map of the Iron River 1 X 2 Quadrangle, Michigan and WI"
W. Peterson, 1982;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.OFR 9575K "An Initial Resource Assessment of the Upper Devonian Antrim Shale in the Michigan Basin"
G.L. Dolton, and J.C. Quinn, 1996;
Costs: \$2.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.WRI 904028 "Geohydrology and Water Quality of Kalamazoo County, Michigan, 1986-88"
S. J. Rheaume, 1990;
Costs: \$10.00 - Please see [OGS publication list](#) for details.

Code - Title: U.S.G.S.WRI 904122 "Hydrology and Land Use in Grand Traverse County, Michigan"
T. R. Cummings et al, 1990;
Costs: \$10.00 - Please see [OGS publication list](#) for details.

USBM Open File USBM

USBM OPEN FILE REPORTs are unpublished reports from the United States Bureau of Mines. Much of the material is eventually published in other series.

Code - Title: USBM OF76 "Magnitude and Quality of Michigan Coal Reserves"

J. Kalliokoski, 1976; Eight geologic maps are included with printed version; **Keywords:** Coal, Southern Peninsula counties;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-USBMOF76.pdf (file size 1.34 MB);

Costs: \$2.50 - Please see [OGS publication list](#) for details.

Volume V

The first major publication series of the Survey was titled VOLUME. Between 1873 and 1904 nine numbers and an atlas of maps were produced. Each VOLUME consists of in-depth technical reports on the geology of Michigan. The VOLUME(s) are bound in green cloth or leather with gold lettering. Paperbound separates of most of the reports were also available.

Code - Title: V5 1 "Geological Report on the Upper Peninsula of Michigan, Iron and Copper Regions"

C. Rominger, 1895; Baraga Co., Copper, Dickinson Co., Dolomite, Gogebic Co., Houghton Co., Iron, Iron Co., Keweenaw Co., Limestone, Marquette Co., Menominee Co., Ontonagon Co., Sandstone, Shale, Silver, Stone;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-V51.pdf (file size 0.48 MB);

Costs: V5 - Please see [OGS publication list](#) for details.

Code - Title: V5 2 "The Geology of Lower Michigan with Reference to Deep Borings, "

A. C. Lane et al, 1895; Brine, Cement, Clay, Coal, Dolomite, Gas, Gravel, Gypsum, Lime, Limestone, Marl, Oil, Peat, Salt, Sand, Sandstone, Shale, Southern Peninsula Counties, Stone, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V52.pdf (file size 0.83 MB)

Code - Title: V6 1A "A Geological Report on Isle Royale"

A. C. Lane, 1898; Clay, Copper, Dolomite, Iron, Isle Royale, Sandstone, Shale; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V61A.pdf (file size 1.15 MB)

Code - Title: V6 1B

part 2 of 2; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V61B.pdf (file size 3.56 MB)

Code - Title: V6 2A "Keweenaw Point, with Particular Reference to the Felsites and their Associated Rocks"

L. L. Hubbard, 1898; Copper, Houghton Co., Iron, Keweenaw Co., Sandstone; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V62.pdf (file size 1.40 MB)

Code - Title: V6 2ApA "The Crystallization of the Calcite from the Copper Mines of Lake Superior - text"

C. Palache, 1898; Charles Palache was a renowned and accomplished professor of geology, mineralogy and morphological crystallography, the study of the external shapes of crystals. When you review his work on the calcite from the Lake Superior Region, you will see the depth of his attention to detail, organizational and descriptive skills and ability to understand the results of crystallographic studies. The illustrations, albeit technically accurate, have an artistic quality as well. **Keywords:** Calcite, copper, mineralogy, crystals; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V62AA.pdf (file size 2.6 MB)

Code - Title: V6 2ApB "The Crystallization of the Calcite from the Copper Mines of Lake Superior - plates"

C. Palache, 1898; Set of five plates showing the crystal forms of some 24 calcite crystals from the Copper Mines of Lake Superior; **Keywords:** Calcite, copper, mineralogy, crystals; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V62AB.pdf (file size 0.77 MB)

Code - Title: V7 1A "A Geological Report on Monroe County, Michigan"

W. H. Sherzer, 1900; Cement, Clay, Coal, Dolomite, Emmet Co., Gas, Gravel, Gypsum, Hillsdale Co., Iron, Jackson Co., Lenawee Co., Lime, Limestone, Livingston Co., Monroe Co., Oakland Co., Oil, Peat, Presque Isle Co., Salt, Sand, Sandstone, Shale, St Clair Co., Stone, Sulfur, Washtenaw Co., Water, Wayne Co; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V71A.pdf (file size 2.88 MB)

Code - Title: V7 1B

part 2 of 2; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V71B.pdf (file size 2.37 MB)

Code - Title: V7 1C "Monroe Fossils Plate XVII"

W. H. Sherzer Fossil poster with description 8.5 by 11, black and white; **Keywords:** Students teachers, fossils, Monroe Co., stratigraphy **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V7F8511.pdf (file size 0.02 MB)

Code - Title: V7 1D "Monroe Fossils Plate XVII"

W. H. Sherzer Fossil poster 11 by 17, black and white; **Keywords:** Students teachers, fossils, Monroe Co., stratigraphy **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V7F1117.pdf (file size 0.04 MB)

Code - Title: V7 2A "A Geological Report on Huron County, Michigan"

A. C. Lane, 1900; Arenac Co., Branch Co., Brine, Calhoun Co., Cement, Clay, Coal, Copper, Dolomite, Gratiot Co., Gravel, Gypsum, Huron Co., Iosco Co., Iron, Lime, Limestone, Monroe Co., Oil, Ottawa Co., Salt, Sand, Sandstone, Sanilac Co., Shale, Stone, Sulfur, Tuscola Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V72A.pdf (file size 2.29 MB)

Code - Title: V7 2B

part 2 of 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V72B.pdf (file size 0.91 MB)

Code - Title: V7 2C

part 3 of 3; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V72C.pdf (file size 1.06 MB)

Code - Title: V7 3 "Geological Report on Sanilac County, Michigan"

C. H. Gordon, 1900; Cement, Clay, Coal, Gas, Gravel, Huron Co., Iron, Lapeer Co., Oil, Sand, Sandstone, Sanilac Co., Shale, St Clair Co., Stone, Tuscola Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V73.pdf (file size 0.97 MB)

Code - Title: V8 1 "Clays and Shales of Michigan"

H. Ries, 1903; Arenac Co., Branch Co., Brine, Cement, Clare Co., Clay, Coal, Gypsum, Huron Co., Iron, Lime, Monroe Co., Sand, Shale, Stone, Sulfur, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V81.pdf (file size 2.18 MB)

Code - Title: V8 2 "Coal of Michigan"

A. C. Lane, 1903; Brine, Clay, Coal, Gas, Gypsum, Iron, Limestone, Peat, Salt, Sandstone, Sulfur; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-V82.pdf (file size 1.16 MB)

Water Investigation WI

WATER INVESTIGATION reports were comparable to the series Report of Investigation except that they focus on the geological aspects of water resources.

Code - Title: WI 01 "Reconnaissance of the Ground-Water Resources of Alger County, Michigan"

K. E. Vanlier, 1963; Illustrations, maps, in cooperation with U.S.G.S; **Keywords:** Alger Co., Dolomite, Gravel, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-WI01.pdf (file size 1.32 MB); **Costs:** \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 02 "Ground-Water in Menominee County"

K. E. Vanlier, 1963; Illustrations, maps, in cooperation with U.S.G.S; **Keywords:** Menominee Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-WI02.pdf (file size 0.95 MB); **Costs:** \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 03A "Water Resources of Van Buren County, Michigan"

P. R. Giroux, 1964; Hydrogeology and water resources of Van Buren County, Michigan. Includes 15 figures, 24 tables, 31 maps; Reprinted in 1972; **Keywords:** Van Buren Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wi03.pdf (file size 2.91 MB); **Costs:** \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 03B

Illustrations, tables for WI 03; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wi03b.pdf (file size 9.03 MB)

Code - Title: WI 03C "Water Resources of Van Buren County, Michigan"

P. R. Giroux, 1964; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wi03c.pdf (file size 5.89 MB)

Code - Title: WI 04A "Ground-Water Resources of the Battle Creek Area. Michigan"

K. E. Vanlier, 1966; Illustrations, maps in cooperation with U.S.G.S; **Keywords:** Calhoun Co., Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-wi04.pdf (file size 1.23 MB);

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 04B

Illustrations, tables for WI 04; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wi04b.pdf (file size 2.78 MB)

Code - Title: WI 05A "Ground-Water Resources of Dickinson County, Michigan"

G. E. Hendrickson and C. J. Doonan, 1966; Hydrogeological investigation of Dickinson County, Michigan; **Keywords:** Dickinson Co., Iron, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wi05.pdf (file size 0.74 MB);

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 05B

Illustrations, tables for WI 05; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wi05b.pdf (file size 9.34 MB)

Code - Title: WI 06 "Water Resources of Branch County, Michigan"

P. R. Giroux et al, 1966; illustrated, maps, done in cooperation with the U.S. Geological Survey; **Keywords:** Branch Co., Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WI06.PDF (file size 4.01 MB)

Code - Title: WI 07 "Ground Water in Iron County, Michigan"

C. J. Doonan and G. E. Hendrickson, 1968; Illustrations, maps, in cooperation with U.S.G.S; **Keywords:** Iron Co., Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WI07.pdf (file size 0.56 MB);

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 08 "Ground Water in Gogebic County, Michigan"

C. J. Doonan and G. E. Hendrickson, 1968; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** Gogebic Co., Iron, Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-WI08.pdf (file size 0.64 MB);

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WI 09 "Ground Water in Ontonagon County, Michigan"

C. J. Doonan and G. E. Hendrickson, 1969; maps, done in cooperation with the U.S.G.S; **Keywords:** Ontonagon Co., Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WI09.pdf (file size 0.59 MB)

Code - Title: WI 10 "Ground Water and Geology of Keweenaw Peninsula, Michigan:"

C. J. Doonan et al, 1970; maps, done in cooperation with the U.S.G.S; **Keywords:** Copper, Houghton Co., Keweenaw Co., Water;

Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WI10.pdf (file size 0.52 MB)

Code - Title: WI 11 "Ground Water and Geology of Baraga County, Michigan"

C. J. Doonan and J. R. Byerlay, 1973; Hydrogeology study of Baraga County, Michigan. Includes 2 figures, 2plates; maps, done in cooperation with the U.S.G.S; **Keywords:** Baraga Co., Water; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-WI11.pdf (file size 0.27 MB);

Costs: \$3.00 - Please see [OGS publication list](#) for details.

Water Information Series WIS

the WATER INFORMATION SERIES reports in cooperation with the Michigan Geological Survey.

Code - Title: WIS 01A "Summary of Ground-Water Conditions in Michigan, 1956"
P. R. Giroux, 1957; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WIS01.pdf (file size 6.11 MB);
Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WIS 01B
Illustrations, tables for WIS 01; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr01b.pdf (file size 2.83 MB)

Code - Title: WIS 02A "Summary of Ground-Water Conditions in Michigan, 1957"
P. R. Giroux, 1958; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WIS02.pdf (file size 1.55 MB)

Code - Title: WIS 02B
Illustrations, tables for WIS 02; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr02b.pdf (file size 3.98 MB)

Code - Title: WIS 03A "Summary of Ground-Water Conditions in Michigan, 1958"
P. R. Giroux and T. Thompson, 1960; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-WIS03.pdf (file size 7.80 MB)

Code - Title: WIS 03B
Illustrations, tables for WIS 03; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr03b.pdf (file size 4.35 MB)

Code - Title: WIS 04A "Summary of Ground-Water Conditions in Michigan, 1959"
P. R. Giroux and T. Thompson, 1961; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr04.pdf (file size 1.68 MB);
Costs: \$3.00 - Please see [OGS publication list](#) for details.

Code - Title: WIS 04B
Illustrations, tables for WIS 04; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr04b.pdf (file size 4.60 MB)

Code - Title: WIS 05A "Summary of Ground-Water Conditions in Michigan, 1960"
P. R. Giroux and T. Thompson, 1961; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr05.pdf (file size 1.74 MB)

Code - Title: WIS 05B
Illustrations, tables for WIS 05; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr05b.pdf (file size 4.07 MB)

Code - Title: WIS 06A "Summary of Ground-Water Conditions in Michigan, 1961"
P. R. Giroux, 1962; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr06.pdf (file size 2.54 MB)

Code - Title: WIS 06B
Illustrations, tables for WIS 06; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr06b.pdf (file size 6.32 MB)

Code - Title: WIS 07A "Summary of Ground-Water Conditions in Michigan, 1962"
P. R. Giroux and G. C. Huffman, 1963; illustrated, maps, done in cooperation with the U.S.G.S; **Keywords:** All Counties, Water;
Web Link: www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr07.pdf (file size 3.26 MB)

Code - Title: WIS 07B
Illustrations, tables for WIS 07; **Web Link:** www.deq.state.mi.us/documents/deq-ogs-gimdl-wsr07b.pdf (file size 7.01 MB)

Internet Resources

Michigan Department of Environmental Quality (DEQ)

home page

www.michigan.gov/deg

Michigan Geological Survey

home page

www.michigan.gov/degogs

Geology in Michigan page

www.michigan.gov/deggeologyinmichigan

(deg geology in michigan - all in lowercase, no spaces)

Online Oil and Gas Information System ('MIR' Data base)

<http://ww2.deq.state.mi.us/mir/>

Water well records (scanned)

<http://www.deq.state.mi.us/well-logs/>

Well Logic water well data base

<http://www.deq.state.mi.us/wellogic/main.html>

Groundwater Mapping Project

<http://gwwmap.rsgis.msu.edu/>

Mineral Information Institute

505 Violet Street Golden, CO 80401 USA

Phone: 303/277-9190

Web Link: www.mii.org

Email: mii@mii.org

Please send questions, comments, corrections or ideas to

Steven E. Wilson

wilsonse@michigan.gov