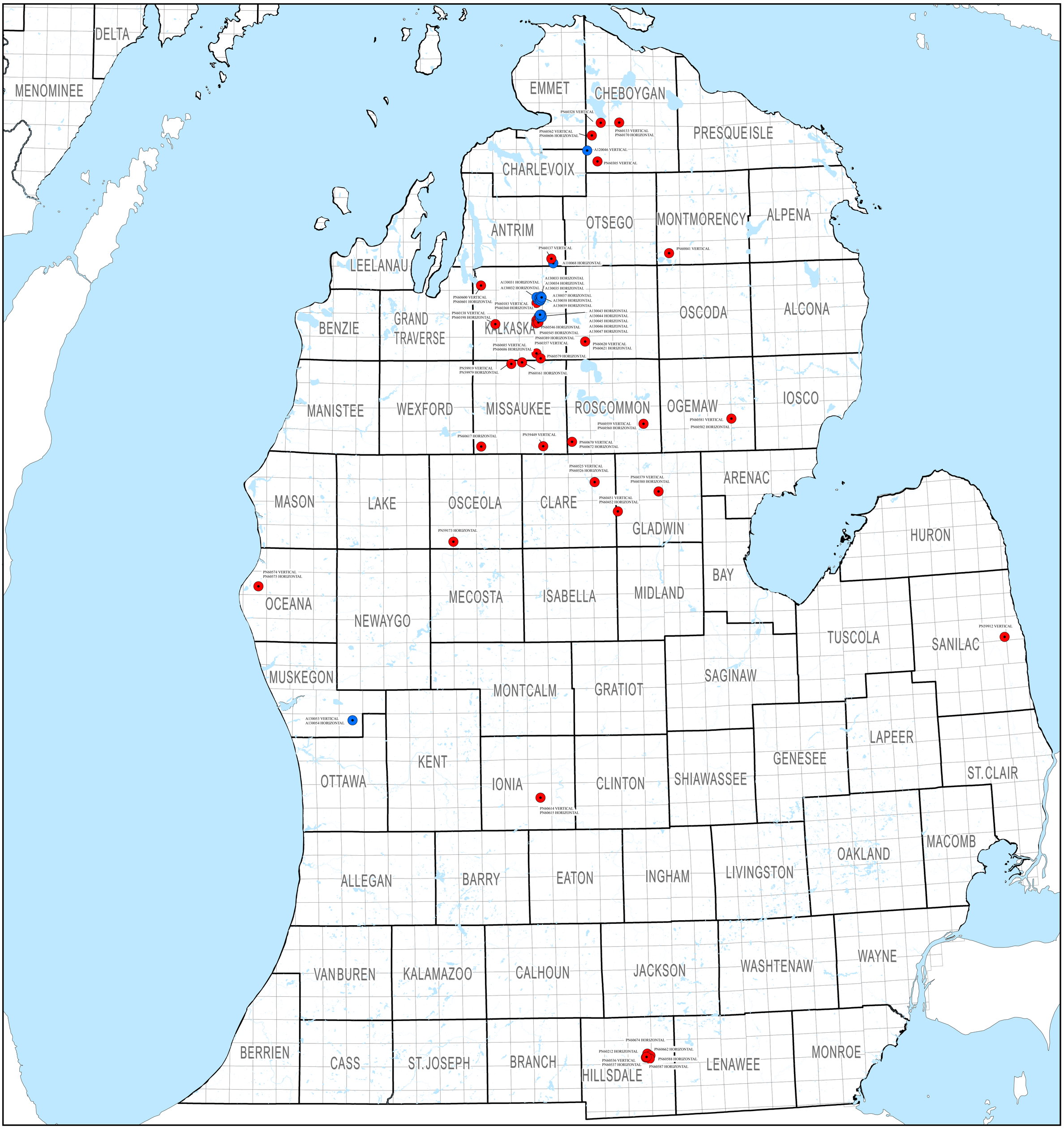
HIGH VOLUME HYDRAULIC FRACTURING

ACTIVE APPLICATIONS AND ISSUED PERMITS - SINCE 2008*

AS OF 5/09/2013



HIGH VOLUME (>100,000 gallons) HYDRAULIC FRACTURING SINCE 2008 - ACTIVE PERMITS

#	Permit #	Company Name	Well Name	Well No	County	Wellhead T.R.S	comments	target formation	Well type	Well status	Confidential
1	59112	BEACON EXPLORATION AND PRODUCTION CO LLC	SCHULTZ	1--36	SANILAC	12N 15E 36	well completed Feb. 2012	A1 Carbonate	Oil	Shut-in	NO
2	59173	CIMAREX ENERGY CO.	SOFER	1-26 HD1	OSCEOLA	17N 10W 25	well completed Aug. 2008	Antrim	Gas	Plugging complete	NO
3	59449	O I L NIAGARAN LLC	HENKEL	D4-24	MISSAUKEE	21N 6W 24	proposed deepening of Antrim permit	Utica-Collingwood	Dry Hole	Plugging complete	NO
4	59979	ENCANA OIL AND GAS USA INC	PIONEER	1-3 HD1	MISSAUKEE	24N 7W 3	well completed Feb 2010	Utica-Collingwood	Gas	Shut-in	NO
5	60041	MERIT ENERGY COMPANY	HUBBEL	2-22 HD1	MONTMORENCY	29N 1E 22	well completed June 2011	Niagaran	Oil	Producing	NO
6	60133	ENCANA OIL AND GAS USA INC	KENDALL	1-33	CHEBOYGAN	39N 2W 33	permit for vertical well	Utica-Collingwood	Dry hole	Well complete	NO
7	60137	ATLAS RESOURCES LLC	STATE MANCELONA	1-28	ANTRIM	29N 5W 28	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Dry Hole	Temporarily abandoned	NO
8	60138	ATLAS RESOURCES LLC	LUCAS	1-13	KALKASKA	26N 8W 13	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Dry Hole	Plugging complete. HD permitted	NO
9	60161	ATLAS RESOURCES LLC	STATE NORWICH	1-6 HD1	MISSAUKEE	24N 6W 6	permit for horizontal well	Utica-Collingwood	Dry Hole	Temporarily abandoned	NO
10	60170	ENCANA OIL AND GAS USA INC	STATE KOEHLER & KENDALL	1-27 HD1	CHEBOYGAN	39N 2W 33	well completed Oct 2010	Utica-Collingwood	Oil	Temporarily abandoned	NO
11	60183	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	1-24	KALKASKA	27N 6W 24	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Dry Hole	Plugging complete. HD drilled	NO
12	60198	ATLAS RESOURCES LLC	LUCAS	1-13 HD1	KALKASKA	26N 8W 13	permit for horizontal well (60138)	Utica-Collingwood	Not available	Temporarily abandoned	NO
13	60212	CONTINENTAL RESOURCES INC	KELLY ET AL	1-26 HD1	HILLSDALE	6S 2W 26	well completed Sept. 2011	Black River (Van Wert)	Oil	Producing	NO
14	60305	ENCANA OIL AND GAS USA INC	STATE WILMOT	1--21	CHEBOYGAN	33N 3W 21	well completed July 2011	Utica-Collingwood	Oil	Plugging complete	NO
15	60328	ENCANA OIL AND GAS USA INC	STATE TUSCARORA	1--34	CHEBOYGAN	39N 5W 34	permit for vertical well	Utica-Collingwood	Location	Permitted Well	YES
16	60357	ENCANA OIL AND GAS USA INC	STATE OLIVER	1-1	KALKASKA	26N 6W 1	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Dry Hole	Well complete. HD drilled	NO
17	60360	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	1-13 HD1	KALKASKA	27N 6W 24	well completed Nov 2011	Utica-Collingwood	Gas	Producing	NO
18	60379	DEVON ENERGY PRODUCTION COMPANY LP	CRONK	1-24 P	GLADWIN	19N 1W 24	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Dry Hole	Well Complete	NO
19	60380	DEVON ENERGY PRODUCTION COMPANY LP	CRONK	1-24 HD1	GLADWIN	19N 1W 24	permit for horizontal well	A1 Carbonate	Gas	Well Complete	NO
20	60389	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	1-25 HD1	KALKASKA	26N 6W 1	well completed Nov 2011	Utica-Collingwood	Gas	Producing	NO
21	60451	DEVON ENERGY PRODUCTION COMPANY LP	WILEY	1-18 P	GLADWIN	18N 2W 18	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Other	Well Complete	NO
22	60452	DEVON ENERGY PRODUCTION COMPANY LP	WILEY	1-18 HD1	GLADWIN	18N 2W 18	well completed may/june 2012	A1 Carbonate	Gas	Temporarily abandoned	NO
23	60525	DEVON ENERGY PRODUCTION COMPANY LP	SCHOCK	1-7P	CLARE	19N 3W 7	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Other	Well Complete	NO
24	60526	DEVON ENERGY PRODUCTION COMPANY LP	SCHOCK	1-7HD1	CLARE	19N 3W 7	well not hydraulic fractured	A1 Carbonate	Other	Well Complete	NO
25	60536	CONTINENTAL RESOURCES INC	MCNAIR ET AL	1-26 P	HILLSDALE	6S 2W 26	permit for vertical well	Black River (Van Wert)	Other	Plugging complete	NO
26	60537	CONTINENTAL RESOURCES INC	MCNAIR ET AL	1-26 HD1	HILLSDALE	6S 2W 26	permit for horizontal well	Black River (Van Wert)	Oil	Producing	NO
27	60545	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	2-25 HD1	KALKASKA	26N 6W 1	permit for horizontal well	Utica-Collingwood	Gas	Drilling complete	NO
28	60546	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	3-25 HD1	KALKASKA	26N 6W 1	permit for horizontal well	Utica-Collingwood	Location	Drilling complete	NO
29	60559	DEVON ENERGY PRODUCTION COMPANY LP	STATE RICHFIELD	3-27P	ROSCOMMON	22N 1W 27	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Other	Well Complete	NO
30	60560	DEVON ENERGY PRODUCTION COMPANY LP	STATE RICHFIELD	1-3A HD1	ROSCOMMON	22N 1W 27	permit for horizontal well (60559)	Collingwood	Gas	Well Complete	NO
31	60562	ENCANA OIL AND GAS USA INC	STATE MENTOR	1-17	CHEBOYGAN	34N 3W 17	permit for vertical well	Utica-Collingwood	Location	Permitted Well	YES
32	60574	ALTA ENERGY OPERATING LLC	RILEY	1-22	OCEANA	15N 18W 22	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Other	Plugged back	NO
33	60575	ALTA ENERGY OPERATING LLC	RILEY	1-22 HD1	OCEANA	15N 18W 22	permit for horizontal well (60574)	A1 Carbonate	Location	Drilling complete	NO
34	60579	ENCANA OIL AND GAS USA INC	STATE GARFIELD	1-25 HD1	KALKASKA	29N 6W 36	permit for horizontal well	Utica-Collingwood	Location	Drilling complete	NO
35	60581	DEVON ENERGY PRODUCTION COMPANY LP	DAVIDS ACRES, LLC	1-19 P	OGEMAW	22N 4E 19	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Other	Well Complete	NO
36	60582	DEVON ENERGY PRODUCTION COMPANY LP	DAVIDS ACRES, LLC	1-19 HD1	OGEMAW	22N 4E 19	well not hydraulic fractured	A1 Carbonate	Other	Well Complete	NO
37	60587	COUNTRYMARK ENERGY RESOURCES LLC	ARNO	1-25 HD1	HILLSDALE	6S 2W 25	permit for horizontal well	Black River (Van Wert)	Location	Permitted Well	NO
38	60588	COUNTRYMARK ENERGY RESOURCES LLC	ARNO & TIMMONS	1-24 HD1	HILLSDALE	6S 2W 24	permit for horizontal well	Black River (Van Wert)	Location	Permitted Well	NO
39	60600	ENCANA OIL AND GAS USA INC	WESTERMAN	1-29	KALKASKA	28N 8W 29	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Location	Permitted Well	YES
40	60601	ENCANA OIL AND GAS USA INC	WESTERMAN	1-32 HD1	KALKASKA	28N 8W 29	permit for horizontal well	Utica-Collingwood	Location	Permitted Well	YES
41	60606	ENCANA OIL AND GAS USA INC	STATE MENTOR	1-17 HD1	CHEBOYGAN	34N 3W 17	permit for horizontal well (60562)	Utica-Collingwood	Location	Permitted Well	YES
42	60614	ROSETTA RESOURCES OPERATING LP	CHRISTENSEN	1-21 P	IONIA	6N 6W 21	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Location	Permitted Well	YES
43	60615	ROSETTA RESOURCES OPERATING LP	CHRISTENSEN	1-21 HD1	IONIA	6N 6W 21	permit for horizontal well	A1 Carbonate	Location	Permitted Well	YES
44	60617	DEVON ENERGY PRODUCTION COMPANY LP	YOUNKMAN	1-29 HD1	MISSAUKEE	21N 8W 29	permit for horizontal well	Utica	Location	Permitted Well	YES
45	60620	ENCANA OIL AND GAS USA INC	STATE BEAVER CREEK	C3-11	CRAWFORD	25N 4W 11	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Location	Permitted Well	YES
46	60621	ENCANA OIL AND GAS USA INC	STATE BEAVER CREEK	1-23 HD1	CRAWFORD	25N 4W 11	permit for horizontal well	Utica-Collingwood	Location	Permitted Well	YES
47	60662	COUNTRYMARK ENERGY RESOURCES LLC	STIVERSON & FRENCH	1-25 HD1	HILLSDALE	6S 2W 24	permit for horizontal well	Black River (Van Wert)	Location	Permitted Well	NO
48	60670	ENCANA OIL AND GAS USA INC	STATE ROSCOMMON	D1-17	ROSCOMMON	21N 4W 17	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Location	Permitted Well	YES
49	60672	ENCANA OIL AND GAS USA INC	STATE ROSCOMMON	1-7 HD1	ROSCOMMON	21N 4W 17	permit for horizontal well	Utica-Collingwood	Location	Permitted Well	YES
50	60674	MUZYL OIL CORPORATION	BURNS	A1-23 HD1	HILLSDALE	6S 2W 23	permit for horizontal well	Black River (Van Wert)	location	Permitted Well	NO
51	60685	ENCANA OIL AND GAS USA INC	STATE GARFIELD	1-26	KALKASKA	29N 6W 26	permit for vertical well	PILOT - Not to be Hydraulic Fractured	Location	Permitted Well	YES
52	60686	ENCANA OIL AND GAS USA INC	STATE GARFIELD	1-23 HD1	HILLSDALE	29N 6W 26	permit for horizontal well	Utica-Collingwood	Location	Permitted Well	YES

HIGH VOLUME (>100,000 gallons) HYDRAULIC FRACTURING PROPOSALS - ACTIVE APPLICATIONS

#	App. #	Company Name	Well Name	Well No	County	Wellhead T.R.S	target formation	comments
1	A110068	MERIT ENERGY COMPANY	STATE MANCELONA	8-33	ANTRIM	29N 5W 33	Utica-Collingwood	application for horizontal well
2	A120046	ENCANA OIL AND GAS USA INC	STATE WILMONT	1-6	CHEBOYGAN	33N 3W 6	Utica-Collingwood	application for vertical well
3	A130031	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	1-14 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
4	A130032	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	1-12 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
5	A130033	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	1-11 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
6	A130034	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	2-14 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
7	A130035	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	2-12 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
8	A130037	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	3-12 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
9	A130038	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	4-12 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
10	A130039	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	5-12 HD1	KALKASKA	27N 6W 24	Utica-Collingwood	application for horizontal well
11	A130043	ENCANA OIL AND GAS USA INC	STATE OLIVER	3-13 HD1	KALKASKA	26N 6W 1	Utica-Collingwood	application for horizontal well
12	A130044	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	4-25 HD1	KALKASKA	26N 6W 1	Utica-Collingwood	application for horizontal well
13	A130045	ENCANA OIL AND GAS USA INC	STATE OLIVER	2-13 HD1	KALKASKA	26N 6W 1	Utica-Collingwood	application for horizontal well
14	A130046	ENCANA OIL AND GAS USA INC	STATE OLIVER	1-13 HD1	KALKASKA	26N 6W 1	Utica-Collingwood	application for horizontal well
15	A130047	ENCANA OIL AND GAS USA INC	STATE EXCELSIOR	5-25 HD1	KALKASKA	26N 6W 1	Utica-Collingwood	application for horizontal well
16	A130053	ROSETTA RESOURCES OPERATING LP	SWANSON TRUST	1-1 P	MUSKEGON	9N 14W 1	A1-Carbonate	application for plot - not to be hydraulically fractured
17	A130054	ROSETTA RESOURCES OPERATING LP	SWANSON TRUST	1-1 HD1	MUSKEGON	9N 14W 1	A1-Carbonate	application for horizontal well

Legend

ISSUED ACTIVE PERMITS (52)

PENDING ACTIVE APPLICATIONS (17)

NOTE: PERMIT NUMBER AND APPLICATION NUMBER CAN BE CROSS REFERENCED BETWEEN THE MAP AND SPREADSHEET.

* HIGH VOLUME HYDRAULICALLY FRACTURED WELL COMPLETIONS ARE DEFINED IN SUPERVISOR OF WELL INSTRUCTION 1-2011 AS A 'WELL COMPLETION OPERATION THAT IS INTENDED TO USE A TOTAL OF MORE THAN 100,000 GALLONS OF HYDRAULIC FRACTURING FLUID'. WE MADE ALL EFFORTS TO TRACE BACK THE WELL COMPLETION RECORDS THRU 2008 TO COMPLILE THIS MAP AND LIST. THIS INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF OUR KNOWLEDGE AND IS SUBJECT TO CHANGE ON A REGULAR BASIS, WITHOUT NOTICE. WHILE THE DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF OIL, GAS, AND MINERALS (DEQ-OOGM) MAKES EVERY EFFORT TO PROVIDE USEFUL AND ACCURATE INFORMATION, WE DO NOT WARRANT THE INFORMATION TO BE AUTHORITATIVE, COMPLETE, FACTUAL, OR TIMELY. IT IS SUGGESTED THAT THIS INFORMATION BE COMBINED WITH SECONDARY SOURCES AS A MEANS OF VERIFICATION. INFORMATION IS PROVIDED "AS IS" AND AN "AS AVAILABLE" BASIS. THE STATE OF MICHIGAN DISCLAIMS ANY LIABILITY, LOSS, INJURY, OR DAMAGE INCURRED AS A CONSEQUENCE, DIRECTLY OR INDIRECTLY, RESULTING FROM THE USE, INTERPRETATION, AND APPLICATION OF ANY OF THIS INFORMATION.

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