

MICHIGAN GROUNDWATER USE ASSOCIATED WITH HIGH VOLUME HYDRAULIC FRACTURING SINCE 2008						
Permittee (current permittee)	Well name and number	Wellhead Co/T/R/S	Permit #/App. #	analyzed proposed withdrawal	Water withdrawal tool results	Well completion fluid volumes and dates
2008						
Cimerex	SOPER 1-25 HD1	Osceola (17N 10W 25)	59173/A080523	(NOT A LARGE VOLUME WATER WITHDRAWAL)	NA. 2008 completion	1,838 million gallons slickwater/Aug. 2008
2009						
NO HIGH VOLUME HYDRAULIC FRACTURING WELL COMPLETIONS OCCURRED IN 2009						
2010						
Encana (Marathon)	STATE PIONEER 1-3 HD1	Missaukee (24N 7W 3)	59979/A090305	5 million gallons	Zone A - Passed. 6/22/2011	6.72 million gallons slickwater/Feb. 2010
Encana (Marathon)	STATE KOEHLER & KENDALL 1-27 HD1	Cheboygan (35N 2W 33)	60170/A100212	5 million gallons	Zone B/Cold Transitional - Failed 8/20/2010. SSR cleared by WRD.	3.26 million gallons slickwater/Oct. 2010
Merit	HUBBEL 2-22 HD/HD1	Montmorency (29N 1E 22)	60041/A100042	(NOT A LARGE VOLUME WATER WITHDRAWAL)	NA. 2010 completion	HD/HD1 - 96,000 gallons N2 & 27,000 gallons diluted acid/June 2010
2011						
Merit	HUBBEL 2-22 HD1	Montmorency (29N 1E 22)	60041/ACOW	(NOT A LARGE VOLUME WATER WITHDRAWAL)	NA. 2011 recompletion	HD 1 - 230,000 gallons slickwater/July 2011
Continental (CountryMark)	KELLY ET AL 1-26 HD1	Hillsdale (6S 2W 26)	60212/A100244	3 million gallons	Zone A - Passed. 3/19/2012	228,291 gallons gelled water/Sept. 2011
Encana (Marathon)	STATE EXCELSIOR 1-13 HD1	Kalkaska (27N 6W 24)	60360/A110099	7.2 million gallons	Zone B/Cold transitional - Failed 5/10/2011. SSR cleared by WRD.	5.86 million gallons slickwater/Nov. 2011
Encana (Marathon)	STATE EXCELSIOR 1-25 HD1	Kalkaska (26N 6W 1)	60389/A110139	7.4 million gallons	Zone B/Cold Transitional - Failed 8/1/2011. SSR cleared by WRD.	8.46 million gallons slickwater/Nov. 2011
2012						
Merit	HUBBEL 2-22 HD2	Montmorency (29N 1E 22)	60041/ACOW	(NOT A LARGE VOLUME WATER WITHDRAWAL)	NA. 2012 rework and completion	HD 2 - 147,000 gallons N2 & 18,000 gallons diluted acid/July 2012
Whiting	SCHULTZ 1-36	Sanilac (12N 15E 36)	59112/A080354	<200,000 gallons. (NOT A LARGE VOLUME WITHDRAWAL)	2012 rework	154,600 gallons slickwater/Feb. 2012
Devon	CRONK 1-24 HD1	Gladwin (19N 1W 24)	60380/A110141	7.2 million gallons	Zone B - Passed. 9/16/2011	758,000 gallons/April and May 2012
Devon	WILEY 1-18 HD1	Gladwin (18N 2W 18)	60452/A110199	13.3 million gallons	Zone B/Cold Transitional - Failed 10/5/2011. SSR cleared by WRD.	1.42 million gallons slickwater/May and June 2012
Rosetta	STATE ORANGE & CHRISTENSEN 1-25 HD1	Ionia (6N 6W 21)	60615/A120106	2.1 million gallons (NOT A LARGE VOLUME WITHDRAWAL)	Zone A - Passed 8/3/2012	394,000 gallons diluted acid/May June 2012 & 394,000 gallons slickwater/June 2012
Continental (CountryMark)	MCAIR ET AL 1-26 HD1	Hillsdale (6S 2W 25)	60537/A110262	385,000 gallons (NOT A LARGE VOLUME WITHDRAWAL)	Zone A - Passed 3/19/2012	350,448 gallons gelled water/August 2012
Encana (Marathon)	STATE EXCELSIOR 2-25 HD1	Kalkaska (26N 6W 1)	60545/A120041	12.6 million gallons/modified to 15 million	Zone B/Cold Transitional - Failed 3/28/2012. SSR cleared by WRD.	12.7 million gallons slickwater/Oct. 2012
Encana (Marathon)	STATE EXCELSIOR 3-25 HD1	Kalkaska (26N 6W 1)	60546/A120044	16.8 million gallons/modified to 20 million	Zone B/Cold Transitional - Failed 3/28/2012. SSR cleared by WRD.	21.2 million gallons slickwater/Oct. 2012
Devon	STATE RICHFIELD 1-34 HD1	Roscommon (22N 1W 27)	60560/A120052	7.2 million gallons	Zone A - Passed 4/13/2012 and 10/11/2012	4.8 million gallons slickwater/Nov 2012
Encana (Marathon)	STATE GARFIELD 1-25 HD1	Kalkaska (25N 6W 36)	60579/A120079	10.5 million gallons/ modified to 15 million	Zone A - Passed 6/7/12	12.5 million gallons slickwater/Dec. 2012
2013						
Alta	RILEY 1-22 HD1	Oceana (15N 18W 22)	60575/A120072	214,000 gallons (NOT A LARGE VOLUME WITHDRAWAL)	Zone A - Passed 12/12/12	844,937 gallons N2/Dec. 2012 & 93,000 gallons diluted acid/May 2013
Encana (Chevron)	WESTERMAN 1-32 HD1	Kalkaska (28N 8W 29)	60601/A120095	8.4 million gallons/modified to 25.2 million gallons	Zone A - Passed 7/11/12	12,718,500 gallons water used during fracturing completion/May and June 2013.
Encana (Marathon)	STATE BEAVER CREEK 1-23 HD1	Crawford (25N 4W 11)	60621/A120124	14.7 million gallons	Zone A - Passed 8/21/12	15,810,735 gallons water used during fracturing completion/May 2013
Jordan	STATE JEROME & STARNES 15-8 HD1	Midland (8N 1W 8)	60718/A130024	(NOT A LARGE VOLUME WITHDRAWAL)	NA	294,747 gallons water and 6,000 gallons diluted acid/October 2013
Tiger	STATE GARFIELD & TIGER 1-14	Kalkaska (25N 6W 14)	54696/ACOWS PB	Rework for HVHF	NA	210,000 gallons slickwater/Oct. 2013
Whiting	WALKER 11-25 HD1	Sanilac (12N 15 E 25)	60809/A130124	1 million gallons (NOT A LARGE VOLUME WITHDRAWAL)	Zone A - Passed 7/11/2013	2,544,121 gallons water and 40,000 gallons 15% Fe Acid/December 2013
2014						
Union	MERTEN 1-24 HD1	Oceana (15N 17W 22)	60788/A130103	3 million gallons	Zone A/Cold Stream - Passed 6/26/2013	156,000 gal. water and 2,436 gal 15% HCL/February 2014. 41,538 gal 10.4# Brine and 529 gal 15% HCL/November 2014
Geosouthern	SHERWOOD 1-22 HD1	Livingston (4N 3E 23)	60811/A130128	3 million gallons	Zone A - Passed 7/17/2013	258,132 gallons gel water, brine, and fresh water/May-June 2014
Whiting	VAN DAMME 41-4 HD1	Sanilac (9N 13E 9)	60955/A140057	2,800,000 gallons (NOT A LARGE VOLUME WITHDRAWAL) Rework for HVHF (906,000 gallons) (NOT A LARGE VOLUME WITHDRAWAL)	Zone A Proceed (OOGM - 5/8/2014)	750 gal 28% Fe Acid, 10,500 gal 15% Fe Acid, 144,559 gal water, and 246,706 gal Q Foam/Oct - Nov 2014
Merit	USA BIG CREEK 3-16	OSCODA (25N 2E 16)	53588/ACOWS		NA - Zone A Proceed (OOGM 10/3/2014)	841,302 gallons slickwater and 2,142 gal 15% HCL/October 2014
O.I.L. Energy	USA MERRILL 1-18A	NEWAYGO (15N 13W 18)	60859/A130196	99,600 gallons (NOT A LARGE VOLUME WITHDRAWAL)	NA	114,618 gallons water used during hydraulic fracturing /October 2014
2015						
HSE MI	SMITH 1-26	Saginaw (9N 2E 28)	61061/A140181	No water use proposed in well completion (NOT A LARGE VOLUME WITHDRAWAL)	NA	No water used in HF. 188,034 gallons mineral oil/butane and 4,477 bbls propane gas/February 2015
HSE MI	VONDRUSKA 1-24	Gratiot (9N 1W 24)	61072/A140200	No water use proposed in well completion (NOT A LARGE VOLUME WITHDRAWAL)	NA	No water used in HF. 179,454 gallons mineral oil/butane and 3,797 bbls propane gas/March 2015
Marathon	STATE BEAVER CREEK 1-14 HD1	Crawford (25N 4W 11)	61130/A150072	1.82 million gallons (NOT A LARGE VOLUME WITHDRAWAL)	NA	1.64 million gallons water/November 2015
2016						
Marathon	SCHLABACH 1-7 HD1	Clare (17N 3W 18)	61154/A150077	1.82 million gallons (NOT A LARGE VOLUME WITHDRAWAL)	NA	947,778 gal water and 20,000 gal acid/February 2016
Interstate Explorations	ROOT 1-15	Eaton (4N 5W 15)	61176/ACOWS	Rework for HVHF (575,000 gal water) (NOT A LARGE VOLUME WITHDRAWAL)	NA	449,970 gallons total treated water, cross link, gelled 28%NeFe acid, 15% HCl acid/July & August 2016
Interstate Explorations	ROLL 2-28	Eaton (4N 5W 28)	61180/ACOWS	Rework for HVHF (504,000 gal water) (NOT A LARGE VOLUME WITHDRAWAL)	NA	637,896 gallons total treated water, cross link, 15% HCl acid/November 2016
Interstate Explorations	BURK 1-30	Eaton (4N 5W 30)	61184/ACOWS	Rework for HVHF (756,000 gal water) (NOT A LARGE VOLUME WITHDRAWAL)	NA	938,154 gallons total treated water, cross link, 15% HCl acid/November 2016
2017						

NONE TO DATE...

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