

Final Fracture Pressure Gradient Values

In 1992 and 1993, the Region 5 Underground Injection Control Program public noticed draft and final values for fracture pressure gradients for specific oil fields in Michigan. These values were published in the *Federal Register* in three groups. The column headed "FRN" indicates in which *Federal Register* Notice the final fracture pressure gradient (FPG) value for each field was published. (Internet-accessible copies of the *Federal Register* do not go back this far, so these notices are not viewable over the Internet at this time.)

County	Field	Formation	Township/Range/Section	FPG (psi/ft)	FRN*
Bay	Kawkawlin	Dundee	T15N, R4E, S27, 28, 33, 34 and T14N, R4E, S3	1.23	3
Calhoun	Pennfield 35	Niagaran Reef	T1S, R7W, S35	0.60	1
Clare	Cranberry Lake	Richfield	T20N, R6W, S1, 2, 11, 12	1.10	1
	Hamilton	Richfield	T19N, R3W, S5-8 and T19N, R4W, S1, 2 and T20N, R4W, S35,36	1.06	2
Crawford/Kalkaska	Beaver Creek	Richfield	T25N, R5W, S12, 13, 24 and T25N, R4W, S7, 8, 16-21, 28, 29	1.07	1
Gladwin	Beaverton	Dundee	T17N, R2W, S19	1.11	3
	Bentley-Dundee	Dundee	T17N, R2E, S18, 19, 20	1.15	1
	Billings:				
	Billings 2 Unit	Dundee	T17N, R1E, S2, 3, 10, 11	1.12	1
	Billings-Bentley Unit		T17N, R1E, S12, 13 and T17N, R2E, S18		
Grout	Richfield	T18N, R2W, S10, 11, 14, 15	1.05	3	
Ingham	Aurelius 35	Niagaran Reef	T2N, R2W, S26, 35, 36	0.65	1
	Ingham 13	Salina-Niagaran	T2N, R1E, S13	0.76	1
	Onondaga 10	Salina-Niagaran	T1N, R2W, S2-4, 10, 11, 14	0.61	1
	Onondaga 21A	A-1 Carbonate (Salina)	T1N, R2W, S15-17, 21, 22	0.81	3
Isabella	North Wise	Dundee	T16N, R3W, S17	1.12	3
Kalkaska	Kalkaska "21"	Salina-Niagaran	T27N, R8W, S22	0.92	1
Lapeer	Richfield	Richfield	T10N, R10E, S21-23, 26-28, 33-35	1.09	3
Manistee	Manistee	Niagaran	T22N, R17W, S36	0.82	2
	Bear Lake	Niagaran	T23N, R15W, S12	0.58	3
Missaukee	Enterprise	Richfield	T23N, R4W, S18 and T23N, R5W, S10-14	1.10	2
	East Norwich	Richfield	T24N, R5W, S1-3, 9-16, 21, 22 and T24N, R4W, S6, 7, 18	1.14	2

	Falmouth	Richfield	T22N, R6W, S30, 31 and T22N, R7W, S25, 36	1.10	3
Ogemaw	Rose City:				
	Rose City Unit	Richfield	T23, 24N, R2E, S3, 19-21, 27-30, 32-35	1.07	1
	Rose City Central Unit		T24N, R1E, 2E, S25		
	Rose City West Unit		T24N, R1E, S21		
	West Branch:				
	West Branch Unit (excluding West Branch 28: see below)	Dundee	T21N, R2E, S2 and T22N, R2E, S21, 26, 27, 33-36 and all of S28 except the S/2 of the NW/4	1.15	2
	Country Club Unit		T22N, R1E, S13, 24 and T22N, R2E, S18-21, 29		
West Branch 28	Dundee	T22N, R2E, S28, S/2 of NW/4	1.25	3	
Otsego	Chester:				
	Chester 18 Unit	A1 Carbonate & Niagaran	T30N, R2W, S7, 8, 17, 18, 19, 20	0.99	1
	Chester 21 Unit		T30N, R2W, S21, 22	0.78	1
	Hayes:				
	Hayes 15 Unit	Salina-Niagaran	T29N, R4W, S15	0.67	1
	Hayes 21A Unit		T29N, R4W, S21, 28		
Roscommon	Headquarters:				
	Headquarters Unit	Richfield	T21N, R3W, S19, 29, 30	1.22	1
	Headquarters-Sour Unit		T21N, R3W, S29, 30, 32, 33		
	St. Helen	Richfield	T24N, R1W, S16, 19-21, 27-30	1.16	2
St. Clair	Columbus 3	Niagaran	T5N, R15E, S3, 10 and T6N, R15E, S34	0.79	1

*FRN = Federal Register Notice:

Ref. No.	Page	Date
1	FR 57 (247): 61084	12/23/92
2	FR 58 (224): 61910	11/23/93
3	FR 58 (240): 65711	12/16/93