

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
September 2025

All Ground Vibrations (PPV) were below State of Wisconsin and Village of Caledonia Maximum Limits

All Airblasts (AO) were below State of Wisconsin and Village of Caledonia Maximum Limits

Time	Activity	Location	Distance	PPV	Freq	AO
9/26/2025 11:42	EAST 43	Ellis	2,231	N/T	N/T	N/A
9/26/2025 11:42	EAST 43	St. Rita	2,055	0.0225	29.4	114
9/26/2025 11:42	EAST 43	Marquette	479	0.31	41.7	116
9/26/2025 11:42	EAST 43	Berkeley	618	0.16	45.5	120
9/26/2025 9:24	EAST 42	Ellis	2,074	N/T	N/T	N/A
9/26/2025 9:24	EAST 42	St. Rita	1,930	0.025	17.2	107
9/26/2025 9:24	EAST 42	Marquette	410	0.26	55.6	118
9/26/2025 9:24	EAST 42	Berkeley	778	0.1375	38.5	118
9/25/2025 10:00	EAST 41	Ellis	1,392	0.0675	22.7	113
9/25/2025 10:00	EAST 41	St. Rita	1,422	0.05	23.8	115
9/25/2025 10:00	EAST 41	Marquette	745	0.1325	13.9	112
9/25/2025 10:00	EAST 41	Berkeley	1,464	0.0475	31.3	114
9/18/2025 11:07	EAST 40	Ellis	2,179	0.02	10.2	109
9/18/2025 11:07	EAST 40	St. Rita	1,824	0.025	26.3	114
9/18/2025 11:07	EAST 40	Marquette	887	0.2725	33.3	114
9/18/2025 11:07	EAST 40	Berkeley	685	0.2525	41.7	113
9/18/2025 8:59	EAST 39	Ellis	2,178	N/T	N/T	N/A
9/18/2025 8:59	EAST 39	St. Rita	1,798	0.0225	29.4	114
9/18/2025 8:59	EAST 39	Marquette	944	0.1325	45.5	113
9/18/2025 8:59	EAST 39	Berkeley	716	0.195	35.7	111
9/10/2025 12:00	EAST 38	Ellis	2,088	0.02	21.7	109
9/10/2025 12:00	EAST 38	St. Rita	1,747	0.025	13.5	117
9/10/2025 12:00	EAST 38	Marquette	855	0.205	38.5	112
9/10/2025 12:00	EAST 38	Berkeley	763	0.27	50	109
9/10/2025 9:15	EAST 37	Ellis	2,138	0.025	9.6	111
9/10/2025 9:15	EAST 37	St. Rita	1,731	0.0275	15.2	117
9/10/2025 9:15	EAST 37	Marquette	1,004	0.17	35.7	112
9/10/2025 9:15	EAST 37	Berkeley	792	0.2575	29.4	112
9/8/2025 9:30	EAST 36	Ellis	1,405	N/T	N/T	N/A
9/8/2025 9:30	EAST 36	St. Rita	1,429	0.025	25	121
9/8/2025 9:30	EAST 36	Marquette	735	0.175	55.6	114
9/8/2025 9:30	EAST 36	Berkeley	1,449	0.16	31.3	111
9/8/2025 13:03	EAST 35	Ellis	2,052	0.06	18.5	112
9/8/2025 13:03	EAST 35	St. Rita	1,748	0.0725	19.2	115
9/8/2025 13:03	EAST 35	Marquette	774	0.225	15.2	113
9/8/2025 13:03	EAST 35	Berkeley	772	0.0625	25	113
9/2/2025 11:53	EAST 34	Ellis	1,641	0.03	18.5	104
9/2/2025 11:53	EAST 34	St. Rita	1,579	0.0375	20	108
9/2/2025 11:53	EAST 34	Marquette	563	0.205	35.7	109

9/2/2025 11:53	EAST 34	Berkeley	1,202	0.0525	29.4	112
9/2/2025 9:09	EAST 33	Ellis	2,041	N/T	N/T	N/A
9/2/2025 9:09	EAST 33	St. Rita	1,699	0.0275	15.2	114
9/2/2025 9:09	EAST 33	Marquette	861	0.135	33.3	111
9/2/2025 9:09	EAST 33	Berkeley	811	0.275	26.3	109

N/T - seismograph did not trigger

Ground Vibration (PPV) Limit - The Village of Caledonia explosives use ordinance states that “The maximum ground vibration at the location of any dwelling, public building, place of employment, school, church or community or institutional building outside or beyond the permitted explosives use area shall have a maximum peak-particle-velocity limit as provided by the Department, the scaled-distance equation of paragraph (ii), or the blasting level chart of paragraph (iii), whichever is applicable hereunder. Notwithstanding this general requirement, an annual permit holder who is subject to the limitations of paragraph (iii)a (Figure A, incorporated by herein reference), below, may exceed the limitation of Figure A on up to five percent (5%) of the blasts it initiates outing the six (6) month period from July 1 to December 31 and during the six (6) month period from January 1 to June 30 without violating this Section, provided that the ground vibration produced by such blasts does not exceed 0.65 inches per second or the limitations imposed by the Wisconsin Department of Industry, Labor and Human Relations in Section ILHR 7.64(4), Wis. Adm. Code, as amended from time to time, whichever is more stringent”.

Airblast (AO) Limit - The Village of Caledonia explosives use ordinance states that “Airblast shall not exceed the maximum limits listed in Table A-1 at the location of any dwelling, public building, place of employment, school, church or community or institutional building outside and beyond the permitted explosives use area. Notwithstanding this general requirement, an annual permit holder subject to this limitation may exceed the limitation on up to five percent (5%) of the blasts it initiates during the six (6) month period from July 1 to December 31, and during the six (6) month period from January 1 to June 30, without violating this ordinance, provided that the airblast produced by such blasts does not exceed the limitations on airblast imposed by Wisconsin Department of Industry, Labor and Human Relations in Subsection ILHR 7.64(2), Wis. Adm. Code, as amended from time to time.”

TABLE A-1 AIRBLAST
LIMITS

Lower Frequency Limit of Measuring System in Hz	<u>Maximum Level in db</u>
2 Hz or lower -- Flat response	123 peak
6 Hz or lower -- Flat response	129 peak

PPV vs. Frequency

USBM Blasting Level Criteria
(RI 8507, 1980)

