

**Payne & Dolan, Inc.**  
**Racine Quarry - Village of Caledonia**  
**Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area**  
**August 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
8/22/2025 11:27	EAST 32	Ellis	2,041	0.0275	11.9	114
8/22/2025 11:27	EAST 32	St. Rita	1,775	0.0325	13.9	121
8/22/2025 11:27	EAST 32	Marquette	690	0.215	22.7	116
8/22/2025 11:27	EAST 32	Berkeley	769	0.25	31.3	114
8/22/2025 9:13	EAST 31	Ellis	2,127	0.0225	10.2	114
8/22/2025 9:13	EAST 31	St. Rita	1,753	0.04	15.6	119
8/22/2025 9:13	EAST 31	Marquette	930	0.1725	20.8	114
8/22/2025 9:13	EAST 31	Berkeley	759	0.24	29.4	112
8/21/2025 11:53	EAST 30	Ellis	1,823	0.0225	15.6	109
8/21/2025 11:53	EAST 30	St. Rita	1,571	0.02	31.3	113
8/21/2025 11:53	EAST 30	Marquette	735	0.1725	25	113
8/21/2025 11:53	EAST 30	Berkeley	988	0.31	41.7	114
8/6/2025 12:01	EAST 29	Ellis	2,285	N/T	N/T	N/A
8/6/2025 12:01	EAST 29	St. Rita	2,090	N/T	N/T	N/A
8/6/2025 12:01	EAST 29	Marquette	533	0.1725	35.7	113
8/6/2025 12:01	EAST 29	Berkeley	554	0.24	62.5	119
8/6/2025 9:24	EAST 28	Ellis	2,272	N/T	N/T	N/A
8/6/2025 9:24	EAST 28	St. Rita	2,073	N/T	N/T	N/A
8/6/2025 9:24	EAST 28	Marquette	538	0.31	31.3	114
8/6/2025 9:24	EAST 28	Berkeley	562	0.205	25	117

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 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 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  
2 Hz or lower -- Flat response  
6 Hz or lower -- Flat response

Maximum Level in db  
123 peak  
129 peak

# PPV vs. Frequency

USBM Blasting Level Criteria  
(RI 8507, 1980)

