

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
May 2021

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
5/24/2021 11:30	20	Ellis	2,150	N/T	N/T	N/A
5/24/2021 11:30	20	St. Rita	1,865	N/T	N/T	N/A
5/24/2021 11:30	20	Marquette	726	0.138	31.3	108
5/24/2021 11:30	20	Berkeley	663	0.195	38.5	112
5/24/2021 10:00	19	Ellis	1,987	0.03	13.5	114
5/24/2021 10:00	19	St. Rita	1,658	0.028	25	118
5/24/2021 10:00	19	Marquette	839	0.175	41.7	110
5/24/2021 10:00	19	Berkeley	855	0.12	35.7	115
5/14/2021 12:33	18	Ellis	2,141	N/T	N/T	N/A
5/14/2021 12:33	18	St. Rita	1,860	N/T	N/T	N/A
5/14/2021 12:33	18	Marquette	716	0.105	45.5	108
5/14/2021 12:33	18	Berkeley	670	0.143	35.7	114
5/14/2021 9:34	17	Ellis	1,749	0.043	13.5	113
5/14/2021 9:34	17	St. Rita	1,458	0.03	12.8	115
5/14/2021 9:34	17	Marquette	844	0.213	22.7	114
5/14/2021 9:34	17	Berkeley	1,078	0.103	26.3	119
5/11/2021 10:32	16	Ellis	1,316	0.045	17.2	110
5/11/2021 10:32	16	St. Rita	1,128	0.053	25	115
5/11/2021 10:32	16	Marquette	1,017	0.125	29.4	106
5/11/2021 10:32	16	Berkeley	1,498	0.085	23.8	112
5/5/2021 10:29	15	Ellis	1,341	0.085	12.8	106
5/5/2021 10:29	15	St. Rita	1,153	0.065	41.7	112
5/5/2021 10:29	15	Marquette	993	0.115	19.2	107
5/5/2021 10:29	15	Berkeley	1,472	0.053	18.5	111

N/T - seismograph did not trigger

Ground Vibration (PPV) Limit - The Village of Caledonia explosives use ordinance states 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	Maximum Level in db
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)

