

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
April 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
4/29/2021 10:29	14	Ellis	1,178	0.075	15.6	106
4/29/2021 10:29	14	St. Rita	1,037	0.068	23.8	110
4/29/2021 10:29	14	Marquette	1,104	0.095	23.8	110
4/29/2021 10:29	14	Berkeley	1,633	0.053	14.7	116
4/20/2021 9:31	13	Ellis	1,220	0.07	13.9	106
4/20/2021 9:31	13	St. Rita	1,074	0.07	20	110
4/20/2021 9:31	13	Marquette	1,066	0.098	20	110
4/20/2021 9:31	13	Berkeley	1,591	0.058	13.5	118
4/16/2021 9:30	12	Ellis	2,322	N/T	N/T	N/A
4/16/2021 9:30	12	St. Rita	2,031	N/T	N/T	N/A
4/16/2021 9:30	12	Marquette	761	0.138	31.3	107
4/16/2021 9:30	12	Berkeley	489	0.195	41.7	114
4/14/2021 12:45	11	Ellis	2,377	N/T	N/T	N/A
4/14/2021 12:45	11	St. Rita	2,043	N/T	N/T	N/A
4/14/2021 12:45	11	Marquette	876	0.098	38.5	107
4/14/2021 12:45	11	Berkeley	466	0.195	62.5	114
4/14/2021 9:48	10	Ellis	1,330	0.063	13.5	106
4/14/2021 9:48	10	St. Rita	1,141	0.06	17.2	110
4/14/2021 9:48	10	Marquette	1,005	0.128	20	111
4/14/2021 9:48	10	Berkeley	1,483	0.103	17.9	114
4/7/2021 10:34	9	Ellis	1,431	0.08	14.3	107
4/7/2021 10:34	9	St. Rita	1,207	0.055	15.6	114
4/7/2021 10:34	9	Marquette	957	0.118	16.7	111
4/7/2021 10:34	9	Berkeley	1,386	0.063	16.1	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)

