

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
April 2023

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
4/26/2023 10:57	EAST 8	Ellis	1,527	0.125	20	109
4/26/2023 10:57	EAST 8	St. Rita	1,315	0.105	10.6	113
4/26/2023 10:57	EAST 8	Marquette	862	0.205	20	112
4/26/2023 10:57	EAST 8	Berkeley	1,284	0.105	13.9	112
4/24/2023 11:57	EAST 7	Ellis	1,770	0.043	23.8	113
4/24/2023 11:57	EAST 7	St. Rita	1,559	0.04	17.2	122
4/24/2023 11:57	EAST 7	Marquette	686	0.308	18.5	112
4/24/2023 11:57	EAST 7	Berkeley	1,036	0.215	27.8	110
4/19/2023 12:00	EAST 6	Ellis	1,748	0.045	17.9	112
4/19/2023 12:00	EAST 6	St. Rita	1,487	0.04	15.2	119
4/19/2023 12:00	EAST 6	Marquette	790	0.448	16.7	110
4/19/2023 12:00	EAST 6	Berkeley	1,067	0.183	16.7	112
4/19/2023 9:58	EAST 5	Ellis	1,639	0.08	17.9	110
4/19/2023 9:58	EAST 5	St. Rita	1,455	0.103	12.2	114
4/19/2023 9:58	EAST 5	Marquette	733	0.43	17.9	114
4/19/2023 9:58	EAST 5	Berkeley	1,167	0.13	17.9	115
4/10/2023 13:15	EAST 4	Ellis	1,940	0.04	21.7	116
4/10/2023 13:15	EAST 4	St. Rita	1,691	0.033	13.2	123
4/10/2023 13:15	EAST 4	Marquette	679	0.225	16.1	113
4/10/2023 13:15	EAST 4	Berkeley	868	0.123	23.8	111
4/10/2023 10:49	EAST 3	Ellis	1,840	0.068	20.8	108
4/10/2023 10:49	EAST 3	St. Rita	1,610	0.068	15.6	118
4/10/2023 10:49	EAST 3	Marquette	682	0.26	17.9	113
4/10/2023 10:49	EAST 3	Berkeley	967	0.133	23.8	107
4/3/2023 10:31	EAST 2	Ellis	1,703	0.043	9.3	110
4/3/2023 10:31	EAST 2	St. Rita	1,479	0.043	12.5	120
4/3/2023 10:31	EAST 2	Marquette	752	0.208	15.6	113
4/3/2023 10:31	EAST 2	Berkeley	1,105	0.103	31.3	108

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
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)

