

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
November 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
11/29/2021 10:02	EAST 79	Ellis	2,216	0.03	33.3	109
11/29/2021 10:02	EAST 79	St. Rita	1,993	0.023	14.3	114
11/29/2021 10:02	EAST 79	Marquette	586	0.398	41.7	115
11/29/2021 10:02	EAST 79	Berkeley	598	0.21	31.3	118
11/23/2021 10:17	EAST 78	Ellis	2,208	N/T	N/T	N/A
11/23/2021 10:17	EAST 78	St. Rita	1,967	0.023	20	114
11/23/2021 10:17	EAST 78	Marquette	625	0.338	45.5	113
11/23/2021 10:17	EAST 78	Berkeley	600	0.253	22.7	113
11/23/2021 9:22	EAST 77	Ellis	2,116	0.05	25	104
11/23/2021 9:22	EAST 77	St. Rita	1,910	0.025	31.3	110
11/23/2021 9:22	EAST 77	Marquette	545	0.353	33.3	113
11/23/2021 9:22	EAST 77	Berkeley	699	0.24	31.3	120
11/23/2021 9:20	EAST 76	Ellis	2,169	N/T	N/T	N/A
11/23/2021 9:20	EAST 76	St. Rita	1,938	N/T	N/T	N/A
11/23/2021 9:20	EAST 76	Marquette	601	0.083	62.5	106
11/23/2021 9:20	EAST 76	Berkeley	640	0.085	71.4	109
11/15/2021 9:33	EAST 75	Ellis	2,300	N/T	N/T	N/A
11/15/2021 9:33	EAST 75	St. Rita	2,112	N/T	N/T	N/A
11/15/2021 9:33	EAST 75	Marquette	522	0.22	62.5	114
11/15/2021 9:33	EAST 75	Berkeley	548	0.155	26.3	116
11/10/2021 9:30	EAST 74	Ellis	2,079	0.028	17.2	111
11/10/2021 9:30	EAST 74	St. Rita	1,907	N/T	N/T	N/A
11/10/2021 9:30	EAST 74	Marquette	473	0.21	55.6	128
11/10/2021 9:30	EAST 74	Berkeley	751	0.148	27.8	123
11/3/2021 9:29	EAST 73	Ellis	2,153	0.02	23.8	105
11/3/2021 9:29	EAST 73	St. Rita	1,909	N/T	N/T	N/A
11/3/2021 9:29	EAST 73	Marquette	632	0.223	45.5	115
11/3/2021 9:29	EAST 73	Berkeley	653	0.413	45.5	119

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)

