

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
April 2022

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
4/29/2022 11:30	EAST 13	Ellis	1,641	N/T	N/T	N/A
4/29/2022 11:30	EAST 13	St. Rita	1,465	0.023	15.6	109
4/29/2022 11:30	EAST 13	Marquette	719	0.105	18.5	108
4/29/2022 11:30	EAST 13	Berkeley	1,165	0.03	13.2	107
4/29/2022 9:32	EAST 12	Ellis	1,717	0.025	20	104
4/29/2022 9:32	EAST 12	St. Rita	1,594	N/T	N/T	N/A
4/29/2022 9:32	EAST 12	Marquette	576	0.125	26.3	108
4/29/2022 9:32	EAST 12	Berkeley	1,104	0.05	21.7	112
4/27/2022 12:29	EAST 11	Ellis	1,691	0.033	15.2	98
4/27/2022 12:29	EAST 11	St. Rita	1,502	0.023	11.6	105
4/27/2022 12:29	EAST 11	Marquette	701	0.093	21.7	114
4/27/2022 12:29	EAST 11	Berkeley	1,115	0.043	29.4	113
4/27/2022 9:34	EAST 10	Ellis	1,765	N/T	N/T	N/A
4/27/2022 9:34	EAST 10	St. Rita	1,625	N/T	N/T	N/A
4/27/2022 9:34	EAST 10	Marquette	565	0.128	23.8	113
4/27/2022 9:34	EAST 10	Berkeley	1,054	0.063	20.8	121
4/25/2022 9:15	EAST 9	Ellis	1,718	0.033	16.1	108
4/25/2022 9:15	EAST 9	St. Rita	1,511	0.025	13.9	109
4/25/2022 9:15	EAST 9	Marquette	713	0.115	25	119
4/25/2022 9:15	EAST 9	Berkeley	1,088	0.043	20.8	113
4/22/2022 9:09	EAST 8	Ellis	1,778	N/T	N/T	N/A
4/22/2022 9:09	EAST 8	St. Rita	1,647	N/T	N/T	N/A
4/22/2022 9:09	EAST 8	Marquette	541	0.115	45.5	112
4/22/2022 9:09	EAST 8	Berkeley	1,045	0.048	21.7	112
4/12/2022 12:33	EAST 7	Ellis	1,747	0.033	16.1	101
4/12/2022 12:33	EAST 7	St. Rita	1,529	0.025	16.1	104
4/12/2022 12:33	EAST 7	Marquette	713	0.148	19.2	109
4/12/2022 12:33	EAST 7	Berkeley	1,060	0.065	25	113
4/12/2022 10:00	EAST 6	Ellis	1,822	0.023	17.9	103
4/12/2022 10:00	EAST 6	St. Rita	1,638	N/T	N/T	N/A
4/12/2022 10:00	EAST 6	Marquette	606	0.148	45.5	113
4/12/2022 10:00	EAST 6	Berkeley	987	0.05	38.5	112
4/5/2022 11:52	EAST 5	Ellis	1,898	N/T	N/T	N/A
4/5/2022 11:52	EAST 5	St. Rita	1,737	N/T	N/T	N/A
4/5/2022 11:52	EAST 5	Marquette	516	0.11	29.4	110
4/5/2022 11:52	EAST 5	Berkeley	922	0.033	18.5	112

4/5/2022 11:03	EAST 4	Ellis	1,805	0.03	16.1	97
4/5/2022 11:03	EAST 4	St. Rita	1,563	N/T	N/T	N/A
4/5/2022 11:03	EAST 4	Marquette	723	0.103	19.2	107
4/5/2022 11:03	EAST 4	Berkeley	1,004	0.053	19.2	110
4/1/2022 14:29	EAST 3	Ellis	1,944	N/T	N/T	N/A
4/1/2022 14:29	EAST 3	St. Rita	1,787	N/T	N/T	N/A
4/1/2022 14:29	EAST 3	Marquette	485	0.11	31.3	113
4/1/2022 14:29	EAST 3	Berkeley	881	0.055	21.7	117
4/1/2022 12:33	EAST 2	Ellis	1,896	0.025	15.6	102
4/1/2022 12:33	EAST 2	St. Rita	1,706	N/T	N/T	N/A
4/1/2022 12:33	EAST 2	Marquette	575	0.165	20.8	113
4/1/2022 12:33	EAST 2	Berkeley	914	0.06	18.5	120
4/1/2022 9:11	EAST 1	Ellis	1,858	0.028	15.2	102
4/1/2022 9:11	EAST 1	St. Rita	1,617	N/T	N/T	N/A
4/1/2022 9:11	EAST 1	Marquette	695	0.165	20.8	111
4/1/2022 9:11	EAST 1	Berkeley	950	0.055	25	115

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)

