

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
July 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
7/28/2023 11:29	EAST 34	Ellis	1,828	0.028	22.7	107
7/28/2023 11:29	EAST 34	St. Rita	1,680	0.043	35.7	111
7/28/2023 11:29	EAST 34	Marquette	534	0.445	29.4	125
7/28/2023 11:29	EAST 34	Berkeley	992	0.163	26.3	108
7/28/2023 9:30	EAST 33	Ellis	2,037	0.03	20	118
7/28/2023 9:30	EAST 33	St. Rita	1,847	0.053	38.5	118
7/28/2023 9:30	EAST 33	Marquette	523	0.468	45.5	123
7/28/2023 9:30	EAST 33	Berkeley	780	0.125	55.6	117
7/25/2023 12:29	EAST 32	Ellis	988	0.163	26.3	110
7/25/2023 12:29	EAST 32	St. Rita	1,045	0.263	35.7	113
7/25/2023 12:29	EAST 32	Marquette	1,169	0.223	27.8	116
7/25/2023 12:29	EAST 32	Berkeley	1,823	0.098	22.7	115
7/18/2023 10:36	EAST 31	Ellis	979	0.23	18.5	110
7/18/2023 10:36	EAST 31	St. Rita	948	0.203	26.3	112
7/18/2023 10:36	EAST 31	Marquette	1,231	0.175	27.8	115
7/18/2023 10:36	EAST 31	Berkeley	1,828	0.055	20.8	115
7/11/2023 10:34	EAST 30	Ellis	1,323	0.065	11.1	103
7/11/2023 10:34	EAST 30	St. Rita	1,156	0.073	21.7	109
7/11/2023 10:34	EAST 30	Marquette	987	0.198	26.3	116
7/11/2023 10:34	EAST 30	Berkeley	1,487	0.06	31.3	116
7/11/2023 9:15	EAST 29	Ellis	1,065	0.105	29.4	108
7/11/2023 9:15	EAST 29	St. Rita	851	0.148	27.8	111
7/11/2023 9:15	EAST 29	Marquette	1,289	0.118	26.3	112
7/11/2023 9:15	EAST 29	Berkeley	1,777	0.05	22.7	116
7/7/2023 10:28	EAST 28	Ellis	1,003	0.138	13.5	109
7/7/2023 10:28	EAST 28	St. Rita	866	0.213	26.3	113
7/7/2023 10:28	EAST 28	Marquette	1,286	0.158	23.8	115
7/7/2023 10:28	EAST 28	Berkeley	1,821	0.045	9.3	113

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)

