

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
August 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
8/24/2022 11:30	EAST 50	Ellis	1,517	0.05	13.5	102
8/24/2022 11:30	EAST 50	St. Rita	1,393	0.07	14.7	107
8/24/2022 11:30	EAST 50	Marquette	754	0.27	22.7	111
8/24/2022 11:30	EAST 50	Berkeley	1,293	0.135	22.7	111
8/24/2022 9:13	EAST 49	Ellis	1,702	0.023	27.8	101
8/24/2022 9:13	EAST 49	St. Rita	1,669	N/T	N/T	N/A
8/24/2022 9:13	EAST 49	Marquette	471	0.153	45.5	108
8/24/2022 9:13	EAST 49	Berkeley	1,172	0.043	38.5	106
8/16/2022 11:59	EAST 48	Ellis	1,647	N/T	N/T	N/A
8/16/2022 11:59	EAST 48	St. Rita	1,603	N/T	N/T	N/A
8/16/2022 11:59	EAST 48	Marquette	537	0.115	35.7	111
8/16/2022 11:59	EAST 48	Berkeley	1,208	0.033	41.7	111
8/16/2022 9:30	EAST 47	Ellis	1,473	0.065	19.2	101
8/16/2022 9:30	EAST 47	St. Rita	1,312	0.06	17.9	105
8/16/2022 9:30	EAST 47	Marquette	840	0.23	17.9	114
8/16/2022 9:30	EAST 47	Berkeley	1,333	0.078	27.8	120
8/12/2022 11:17	EAST 46	Ellis	1,846	N/T	N/T	N/A
8/12/2022 11:17	EAST 46	St. Rita	1,770	N/T	N/T	N/A
8/12/2022 11:17	EAST 46	Marquette	397	0.32	38.5	113
8/12/2022 11:17	EAST 46	Berkeley	1,022	0.11	38.5	112
8/12/2022 10:01	EAST 45	Ellis	1,607	N/T	N/T	N/A
8/12/2022 10:01	EAST 45	St. Rita	1,555	N/T	N/T	N/A
8/12/2022 10:01	EAST 45	Marquette	585	N/T	N/T	N/A
8/12/2022 10:01	EAST 45	Berkeley	1,237	N/T	N/T	N/A
8/5/2022 9:57	EAST 44	Ellis	1,588	0.045	11.1	103
8/5/2022 9:57	EAST 44	St. Rita	1,447	0.038	18.5	108
8/5/2022 9:57	EAST 44	Marquette	712	0.173	22.7	113
8/5/2022 9:57	EAST 44	Berkeley	1,221	0.085	20.8	116

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)

