

**Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
November 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
11/28/2022 10:32	EAST 71	Ellis	1,655	0.06	31.3	111
11/28/2022 10:32	EAST 71	St. Rita	1,396	0.058	14.7	118
11/28/2022 10:32	EAST 71	Marquette	842	0.253	20	110
11/28/2022 10:32	EAST 71	Berkeley	1,163	0.138	25	110
11/14/2022 13:36	EAST 70	Ellis	1,265	0.128	35.7	110
11/14/2022 13:36	EAST 70	St. Rita	1,249	0.085	25	109
11/14/2022 13:36	EAST 70	Marquette	909	0.148	25	115
11/14/2022 13:36	EAST 70	Berkeley	1,553	0.075	20.8	113
11/14/2022 10:56	EAST 69	Ellis	1,196	0.14	15.6	110
11/14/2022 10:56	EAST 69	St. Rita	1,146	0.125	35.7	113
11/14/2022 10:56	EAST 69	Marquette	1,007	0.145	20	123
11/14/2022 10:56	EAST 69	Berkeley	1,612	0.053	20	120
11/2/2022 10:34	EAST 68	Ellis	1,395	0.07	11.9	108
11/2/2022 10:34	EAST 68	St. Rita	1,361	0.075	20.8	111
11/2/2022 10:34	EAST 68	Marquette	785	0.198	35.7	112
11/2/2022 10:34	EAST 68	Berkeley	1,429	0.063	18.5	111
11/1/2022 11:00	EAST 67	Ellis	1,288	0.185	25	110
11/1/2022 11:00	EAST 67	St. Rita	1,272	0.105	22.7	110
11/1/2022 11:00	EAST 67	Marquette	884	0.178	21.7	124
11/1/2022 11:00	EAST 67	Berkeley	1,532	0.1	21.7	126

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)

