

**Payne & Dolan, Inc.**  
**Racine Quarry - Village of Caledonia**  
**Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area**  
**July 2024**

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
7/30/2024 11:27	EAST 28	Ellis	1,662	0.03	17.9	106
7/30/2024 11:27	EAST 28	St. Rita	1,605	0.0225	29.4	107
7/30/2024 11:27	EAST 28	Marquette	537	0.2175	35.7	112
7/30/2024 11:27	EAST 28	Berkeley	1,187	0.095	33.3	108
7/30/2024 9:29	EAST 27	Ellis	1,459	0.1825	17.2	102
7/30/2024 9:29	EAST 27	St. Rita	1,162	0.1025	29.4	107
7/30/2024 9:29	EAST 27	Marquette	1,036	0.1875	17.2	107
7/30/2024 9:29	EAST 27	Berkeley	1,386	0.0825	15.6	106
7/25/2024 9:09	EAST 26	Ellis	1,744	N/T	N/T	N/A
7/25/2024 9:09	EAST 26	St. Rita	1,734	N/T	N/T	N/A
7/25/2024 9:09	EAST 26	Marquette	407	0.0925	62.5	112
7/25/2024 9:09	EAST 26	Berkeley	1,162	0.03	31.3	106
7/24/2024 9:31	EAST 25	Ellis	1,438	0.075	33.3	103
7/24/2024 9:31	EAST 25	St. Rita	1,165	0.115	14.7	106
7/24/2024 9:31	EAST 25	Marquette	1,018	0.1925	22.7	105
7/24/2024 9:31	EAST 25	Berkeley	1,396	0.0975	22.7	107
7/23/2024 9:16	EAST 24	Ellis	1,540	0.06	13.9	107
7/23/2024 9:16	EAST 24	St. Rita	1,218	0.035	13.2	113
7/23/2024 9:16	EAST 24	Marquette	1,018	0.13	26.3	105
7/23/2024 9:16	EAST 24	Berkeley	1,314	0.1175	22.7	104
7/19/2024 12:34	EAST 23	Ellis	1,439	0.075	13.2	103
7/19/2024 12:34	EAST 23	St. Rita	1,124	0.0825	16.1	107
7/19/2024 12:34	EAST 23	Marquette	1,078	0.1425	16.1	102
7/19/2024 12:34	EAST 23	Berkeley	1,417	0.085	23.8	104
7/19/2024 9:31	EAST 22	Ellis	1,848	N/T	N/T	N/A
7/19/2024 9:31	EAST 22	St. Rita	1,805	N/T	N/T	N/A
7/19/2024 9:31	EAST 22	Marquette	344	0.135	62.5	112
7/19/2024 9:31	EAST 22	Berkeley	1,052	0.0275	31.3	109
7/16/2024 13:11	EAST 21	Ellis	1,925	N/T	N/T	N/A
7/16/2024 13:11	EAST 21	St. Rita	1,860	N/T	N/T	N/A
7/16/2024 13:11	EAST 21	Marquette	315	0.205	55.6	115
7/16/2024 13:11	EAST 21	Berkeley	973	0.0375	33.3	108
7/16/2024 9:32	EAST 20	Ellis	2,021	N/T	N/T	N/A
7/16/2024 9:32	EAST 20	St. Rita	1,931	N/T	N/T	N/A
7/16/2024 9:32	EAST 20	Marquette	307	0.135	50.0	113
7/16/2024 9:32	EAST 20	Berkeley	874	0.04	55.6	116
7/11/2024 9:35	EAST 19	Ellis	2,215	N/T	N/T	N/A
7/11/2024 9:35	EAST 19	St. Rita	2,080	N/T	N/T	N/A
7/11/2024 9:35	EAST 19	Marquette	382	0.185	31.3	116
7/11/2024 9:35	EAST 19	Berkeley	679	0.085	27.8	114

7/9/2024 13:05	EAST 18	Ellis	2,213	N/T	N/T	N/A
7/9/2024 13:05	EAST 18	St. Rita	2,075	N/T	N/T	N/A
7/9/2024 13:05	EAST 18	Marquette	388	0.1725	26.3	118
7/9/2024 13:05	EAST 18	Berkeley	676	0.1025	38.5	116
7/9/2024 9:36	EAST 17	Ellis	2,448	N/T	N/T	N/A
7/9/2024 9:36	EAST 17	St. Rita	2,252	N/T	N/T	N/A
7/9/2024 9:36	EAST 17	Marquette	596	0.085	62.5	111
7/9/2024 9:36	EAST 17	Berkeley	425	0.1075	33.3	118

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)

