

**Payne & Dolan, Inc.**  
**Racine Quarry - Village of Caledonia**  
**Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area**  
**June 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
6/27/2024 12:29	EAST 16	Ellis	2,445	N/T	N/T	N/A
6/27/2024 12:29	EAST 16	St. Rita	2,239	N/T	N/T	N/A
6/27/2024 12:29	EAST 16	Marquette	618	0.095	29.4	113
6/27/2024 12:29	EAST 16	Berkeley	411	0.1225	45.5	121
6/27/2024 11:02	EAST 15	Ellis	2,310	0.0475	15.2	110
6/27/2024 11:02	EAST 15	St. Rita	2,139	0.0575	22.7	116
6/27/2024 11:02	EAST 15	Marquette	489	0.2325	12.8	111
6/27/2024 11:02	EAST 15	Berkeley	559	0.095	23.8	109
6/21/2024 12:31	EAST 14	Ellis	1,435	0.0975	27.8	114
6/21/2024 12:31	EAST 14	St. Rita	1,385	0.1225	29.4	120
6/21/2024 12:31	EAST 14	Marquette	757	0.235	25	118
6/21/2024 12:31	EAST 14	Berkeley	1,389	0.14	25	119
6/21/2024 9:31	EAST 13	Ellis	2,439	0.1275	27.8	117
6/21/2024 9:31	EAST 13	St. Rita	2,222	0.1575	29.4	122
6/21/2024 9:31	EAST 13	Marquette	636	0.205	20.8	115
6/21/2024 9:31	EAST 13	Berkeley	403	0.0675	23.8	113
6/12/2024 13:08	EAST 12	Ellis	2,389	N/T	N/T	N/A
6/12/2024 13:08	EAST 12	St. Rita	2,168	N/T	N/T	N/A
6/12/2024 13:08	EAST 12	Marquette	624	0.13	35.7	121
6/12/2024 13:08	EAST 12	Berkeley	441	0.1225	55.6	115
6/12/2024 11:28	EAST 11	Ellis	952	0.1725	25	113
6/12/2024 11:28	EAST 11	St. Rita	1,006	0.175	26.3	118
6/12/2024 11:28	EAST 11	Marquette	1,211	0.2575	22.7	113
6/12/2024 11:28	EAST 11	Berkeley	1,857	0.0625	25	113
6/12/2024 9:15	EAST 10	Ellis	962	0.14	23.8	107
6/12/2024 9:15	EAST 10	St. Rita	1,010	0.17	21.7	109
6/12/2024 9:15	EAST 10	Marquette	1,203	0.11	23.8	114
6/12/2024 9:15	EAST 10	Berkeley	1,847	0.035	16.1	113
6/4/2024 10:30	EAST 9	Ellis	1,093	0.1475	29.4	109
6/4/2024 10:30	EAST 9	St. Rita	1,116	0.1875	31.3	116
6/4/2024 10:30	EAST 9	Marquette	1,071	0.225	25	113
6/4/2024 10:30	EAST 9	Berkeley	1,720	0.0325	25	112
6/3/2024 9:29	EAST 8	Ellis	2,242	N/T	N/T	N/A
6/3/2024 9:29	EAST 8	St. Rita	2,068	N/T	N/T	N/A
6/3/2024 9:29	EAST 8	Marquette	478	0.1425	29.4	119
6/3/2024 9:29	EAST 8	Berkeley	609	0.185	45.5	111

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)

