

**Payne & Dolan, Inc.**  
**Racine Quarry - Village of Caledonia**  
**Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area**  
**October 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
10/25/2022 10:14	EAST 66	Ellis	1,272	0.123	12.8	111
10/25/2022 10:14	EAST 66	St. Rita	1,175	0.09	26.3	113
10/25/2022 10:14	EAST 66	Marquette	967	0.173	20	119
10/25/2022 10:14	EAST 66	Berkeley	1,535	0.073	18.5	119
10/10/2022 12:45	EAST 65	Ellis	1,337	0.115	23.8	105
10/10/2022 12:45	EAST 65	St. Rita	1,301	0.11	27.8	109
10/10/2022 12:45	EAST 65	Marquette	847	0.173	22.7	119
10/10/2022 12:45	EAST 65	Berkeley	1,481	0.078	16.7	119
10/10/2022 10:14	EAST 64	Ellis	1,293	0.093	8.8	111
10/10/2022 10:14	EAST 64	St. Rita	1,193	0.095	16.1	111
10/10/2022 10:14	EAST 64	Marquette	948	0.15	16.7	120
10/10/2022 10:14	EAST 64	Berkeley	1,513	0.07	20	118
10/5/2022 11:46	EAST 63	Ellis	1,363	0.108	20.8	107
10/5/2022 11:46	EAST 63	St. Rita	1,307	0.068	26.3	106
10/5/2022 11:46	EAST 63	Marquette	837	0.223	16.7	120
10/5/2022 11:46	EAST 63	Berkeley	1,452	0.07	18.5	118
10/5/2022 9:16	EAST 62	Ellis	1,648	0.03	16.7	108
10/5/2022 9:16	EAST 62	St. Rita	1,545	N/T	N/T	N/A
10/5/2022 9:16	EAST 62	Marquette	607	0.193	25	110
10/5/2022 9:16	EAST 62	Berkeley	1,175	0.078	26.3	106

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

<p>Lower Frequency Limit of  <u>Measuring System in Hz</u>                  2 Hz or lower -- Flat response                  6 Hz or lower -- Flat response</p>	<p><u>Maximum Level in db</u>                  123 peak                  129 peak</p>
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# PPV vs. Frequency

USBM Blasting Level Criteria  
(RI 8507, 1980)

