

Payne & Dolan, Inc.
Racine Quarry - Village of Caledonia
Recorded Ground Vibration and Airblast Levels for the East Quarry CUP (New) Area
October 2021

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
10/26/2021 9:31	EAST 72	Ellis	2,078	0.028	21.7	101
10/26/2021 9:31	EAST 72	St. Rita	1,860	0.03	20	102
10/26/2021 9:31	EAST 72	Marquette	578	0.323	50	113
10/26/2021 9:31	EAST 72	Berkeley	731	0.263	45.5	119
10/20/2021 11:06	EAST 71	Ellis	2,311	N/T	N/T	N/A
10/20/2021 11:06	EAST 71	St. Rita	2,106	N/T	N/T	N/A
10/20/2021 11:06	EAST 71	Marquette	563	0.21	50	115
10/20/2021 11:06	EAST 71	Berkeley	522	0.198	83.3	120
10/20/2021 9:30	EAST 70	Ellis	2,202	N/T	N/T	N/A
10/20/2021 9:30	EAST 70	St. Rita	1,947	N/T	N/T	N/A
10/20/2021 9:30	EAST 70	Marquette	659	0.413	55.6	115
10/20/2021 9:30	EAST 70	Berkeley	604	0.378	41.7	119
10/13/2021 11:30	EAST 69	Ellis	2,063	0.04	22.7	106
10/13/2021 11:30	EAST 69	St. Rita	1,834	0.023	17.9	103
10/13/2021 11:30	EAST 69	Marquette	605	0.283	31.3	115
10/13/2021 11:30	EAST 69	Berkeley	744	0.248	35.7	115
10/13/2021 9:29	EAST 68	Ellis	2,206	0.023	27.8	110
10/13/2021 9:29	EAST 68	St. Rita	1,931	0.02	15.6	110
10/13/2021 9:29	EAST 68	Marquette	703	0.475	55.6	113
10/13/2021 9:29	EAST 68	Berkeley	603	0.318	45.5	118
10/6/2021 9:42	EAST 67	Ellis	2,093	0.028	19.2	102
10/6/2021 9:42	EAST 67	St. Rita	1,825	0.023	20.8	104
10/6/2021 9:42	EAST 67	Marquette	687	0.173	55.6	113
10/6/2021 9:42	EAST 67	Berkeley	716	0.3	45.5	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
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)

