

ILLINOIS POLLUTION CONTROL BOARD
April 7, 1983

JOHN L. DONOVAN,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 81-134
	)	
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
	)	
Respondent.	)	

MR. THOMAS JACOB, ATTORNEY AT LAW, AND MR. JAMES BASS,
ATTORNEY AT LAW, APPEARED ON BEHALF OF PETITIONER;

MR. KEVIN MC CLAIN, ATTORNEY AT LAW, APPEARED ON BEHALF
OF THE RESPONDENT;

MR. JAMES YODER, ATTORNEY AT LAW, APPEARED ON BEHALF OF
THE INTERVENORS;

OPINION AND ORDER OF THE BOARD (by D. Anderson):

This matter comes before the Board upon a petition for variance filed August 21, 1981 by John L. Donovan, on behalf of himself and Donovan Dynamiting, Inc., an Illinois corporation. The petition requests a variance from Section 24 of the Environmental Protection Act (Act) and Rules 102 and 206* of Chapter 8: Noise Pollution in order to allow continuation of a steel hardening operation in McLean County. On September 25 and October 19, 1981, the Illinois Environmental Protection Agency (Agency) recommended that the variance be granted with conditions. On September 10, 1981 the Board received several objections, and on October 2, 1981 received a petition to intervene from objectors Marjorie Ferrill; Loren, Kathryn, Greg and Karen Otto; and, Dean and Phyllis Yoder. Intervention was allowed. Public hearings were held on January 27 and March 24, 1982, at which time there was public comment concerning the grant of the variance.

On September 20, 1982 the intervenors filed a motion to dismiss based on failure of Petitioner to file the transcript of the hearing with the Board within 15 days after the hearing, as required by 35 Ill. Adm. Code 104.202(a). On October 14 the Board ordered the transcript filed. On October 29 Petitioner filed the transcripts, but not the exhibits. On January 10, 1983 intervenors again moved for dismissal based on failure to file the exhibits and failure to file a final argument as ordered by the hearing officer. On January 12, 1983

*Rule 206 has been amended and renumbered as Rule 205
(R76-14,6 Ill. Reg. 10,960, effective September 1, 1982).

Petitioner delivered the exhibits and final argument to the Board. On January 27, 1983 the Board reserved decision on the final series of motions until this Opinion.

Shortly before the petition was filed an enforcement action was filed by objector Marjorie Ferrill and others against John Donovan. This was subsequently dismissed on the motion of the complainants (PCB 81-123, 44 PCB 239, December 17, 1981).

OPERATION DESCRIPTION

The steel hardening operation is situated on a 300 acre farm owned by Petitioner about 1/2 mile northeast of Danvers, McLean County. The farm includes most of the E 1/2 of Section 13, T24N, R1W of the 3rd P.M.

Petitioner hardens "frogs", which are pieces of steel used in rail switches. Small quantities of explosive are glued to the frogs and detonated to accomplish the hardening. Petitioner uses 10 to 18 ounces of explosive for each shot; 10 to 24 shots are required for each frog (I. 11, 22). Shots come about once every 8 to 12 minutes (I. 43). Operations are limited to 8 hours per day during daylight hours on weekdays.*

The operating site is near the center of the farm, about 3/4 of a mile northeast of Danvers. This is at the head of a valley leading northwest (Rec., Ex. 4). The site presently consists of a 10 x 80 foot concrete pit, 5 1/2 feet deep, with a sand floor (I. 16). There is a 10 foot high berm to the immediate west of the pit (I. 80; Ex. 3). There is also a semi-circular berm to the east, a maximum of 80 to 90 feet from the pit. This space allows movement of equipment for loading and unloading the frogs (Rec., Ex. 4).

Frogs range in size from 12 to 40 feet (I. 20). They are brought to the site by truck and unloaded into the pit with a lift operated off a small tractor. Sixteen inch steel I-beams are laid across the top of the pit. Over this are placed a rope wire mat and a rubber blasting mat made of old tires cut in half (I. 24). Between shots workmen go under the mats to clean the frogs and glue new explosives. A manhole is left in the mats for access, but this is covered with a curtain (I. 21, 32).

*The pages of the transcript are not numbered sequentially. (I. 22) refers to page 22 of the transcript of January 27, 1982; (II. 22) refers to page 22 of the transcript of the hearing of March 24, 1982.

Petitioner began operations around 1977 (I. 39). At first the blasting was done in the open (I. 16). The present operation is the result of many stages of noise reduction which have cost \$36,000, reduced the flexibility of the operation and increased the amount of time and labor required to treat a frog. Noise reduction steps which have been taken include the following:

1. Restriction to daylight hours on weekdays, Monday through Friday;
2. Reduction in the amount of explosive per shot (I. 83);
3. Construction of a pit;
4. Construction of berms;
5. Relocation of one berm closer to the pit;
6. Use of mats;
7. Use of a curtain to cover the manhole.

REGULATIONS INVOLVED

The parties do not directly address the land use classification for purposes of application of Rule 205. The Donovan operation appears to be Standard Land Use Classification Manual (SLUCM) 344, manufacture of transportation equipment. Part of the farm may be zoned for residential use however (II. 11). Adjacent land is mostly SLUCM 812, farming, also Class C land. Residential uses are Class A. The land around the operation is partially zoned for residential use, but it seems likely that agricultural uses are grandfathered in (II. 19). In the case of the Ferrill residence, it is not clear whether the land on which the sound measurements were taken is farm or strictly residence.

Rule 205 sets an allowable A-weighted sound level in decibels with respect to a standard reference sound pressure of 20 micronewtons per square meter [dB(A)] for impulsive sound emitted from Class C land in the daytime to Class A land of 56 dB(A) Fast. Rule 102 and §24 of the Act prohibit violation of this standard.

Rule 210 sets sound limits for impulsive sound from explosive blasting. Rule 208(h) limits Rule 210 to emissions

from SLUCM codes 852 and 854, coal mining and quarrying. Although Rule 210 is not applicable to Petitioner's blasting operation, the standards for receiving Class A land will be set out for purposes of comparison:

	<u>dB Slow</u>	<u>dB Peak</u>
To Class A	109	130-135

OBJECTORS

The objection is the noise and vibration produced by the blasting. The objectors include the following intervenors, with the distance and direction from the site indicated:

Greg Otto	5/8 mile southwest	(I. 123)
Marjorie Ferrill	1/2 mile southwest	(I. 144)
Kathryn Otto	1 1/4 mile east	(I. 155)
Dean Yoder	1/4 mile southeast	(I. 164)

Other objectors besides the intervenors listed above appeared and testified at the hearing (I. 164).

Of the objectors, most live farther away than the town of Danvers, which is about 3/4 of a mile away (I. 140). About 80 persons, most of whom live in Danvers, signed a petition supporting the variance grant (Ex. 5). Danvers has a population of 921 according to the 1980 Census.

The bad effects alleged include the following:

1. Cracked windows and plaster;
2. Startle effect;
3. Inability of small children to sleep during the day;
4. Inability of adults, including an elderly and a disabled person, to sleep during the day;
5. Dogs howling after blasts;
6. Startle effect on pigs and horses.

The noise is described as comparable to a gunshot, although some say it is not like a gunshot (I. 200). It is audible over farm equipment and lawnmowers, although it is not necessarily

louder (I. 128, 158, 177, 189). One person described it as like thunder. Another compared it to running the lawnmower into the side of the house (I. 178). Another compared it to a knock on the door (I. 125, 137).

SOUND LEVEL MEASUREMENTS

Experts for Petitioner and Objectors and the Agency have made sound level measurements. Petitioner's expert made measurements near the pit and at Marjorie Ferrill's property line (I. 77, 100, 102, 109). One hundred yards from the blast, he read 118.8 dB(A) with the frog in the open and 113.1 with it in the pit. This 5.7 dB reduction with the pit corresponds to roughly a 75% reduction in sound energy (I. 110). At the property line, he had difficulty hearing the shot over traffic and the wind, and was unable to measure it (I. 78). Petitioner also does continuous sound monitoring while operations are in progress (I. 59).

The Agency performed sound measurements at the Ferrill residence on January 14, June 24 and November 19, 1981. Measurements were also taken at the Dean Yoder residence on April 24, 1981, but the impulse levels are not directly comparable to Board standards. The Agency inspections are summarized as follows:

	<u>dB(A) Fast</u>	<u>dB Peak</u>
January 14, 1981	65-67	--
June 24, 1981	69	109-113
November 19, 1981	60-68	82-89

The Agency concluded that the sound levels were lower than the level necessary to protect the public health and safety. The probability of breakage of glass or plaster was less than one in one hundred million. Using an International Standards Organization (ISO) technique to measure response to noise, the Agency determined that no community response should be observed. The Agency recommended a five year variance with conditions including some additional operational changes.

Objectors' expert made sound and vibration measurements at the Loren Otto and Marjorie Ferrill residences (I. 225):

	<u>dB(A) Fast</u>
Loren Otto - November 5, 1981	64-67
Marjorie Ferrill - November 5, 1981	64-74

NECESSITY FOR VARIANCE

For purposes of this variance the Board will assume that Petitioner's operation is on Class C land and that the Ferrill residence is on Class A land. Sound levels at the adjacent Ferrill residence range from 60 to 74 dB(A) Fast, in excess of the 56 dB(A) daytime Class C to A standard of Rule 205. Because the blasting is not done at a mining operation, it is not subject to Rule 210. A variance from Rules 102, 205 and Section 24 of the Act are therefore necessary.

ADDITIONAL NOISE REDUCTION STEPS

A number of additional noise reduction steps have been suggested. In the petition, Petitioner suggested a vegetative barrier. The Agency suggested placement of the charges in the downwind corner of the pit (Rec.). The record also suggests that the noise carries better when there is high humidity or a thermal inversion. The noise also tends to carry downwind (I. 194). Blasting could be cancelled when conditions are such that the sound would carry well in a direction toward objectors.

The Agency also suggested sequential blasting to avoid the startle effect by having fewer sequences than individual blasts. Petitioner responded that either the first blast would detonate all the charges, or they would be blown off the frogs.

The objectors' expert suggested construction of a removable steel structure over the pit. This is impractical for a number of reasons, including prohibitive weight were it to be made large enough to cover 40 foot frogs, and build up of toxic gasses inside after explosions.

HARDSHIP

Petitioner's operation is a small business engaged in a new basic manufacturing industry. Petitioner has made substantial progress toward compliance with the most restrictive noise standards. It is apparent that the business would be shut down if immediate compliance were required. Grant of a variance will allow time for further efforts toward compliance.

The noise seems to interfere with the objectors' enjoyment of their residences. However, the near neighbors willing to sign a petition in support of the operation seem to outnumber

the objectors. The objectors themselves have compared the noise to a knock on the door, hardly a level capable of unreasonable interference with enjoyment of life.

The surrounding land is predominantly Class C agriculture. The peak levels seem to be well within the 130 to 135 dB Peak Class C to A standards for blasting at mines, although direct comparison with dB(A) readings is impossible.

The Board therefore finds that it would impose an arbitrary or unreasonable hardship to require Petitioner to come into immediate compliance with the Class C to A standard of Rule 205. The Board will grant a variance subject to conditions as discussed above in connection with compliance steps.

Intervenors contend that Section 33(c) of the Act applies to consideration of variances. This is incorrect; §33(c) applies only to enforcement actions. However, it makes no difference in this case because the factors enumerated in 35 Ill. Adm. Code 104.121 encompass all of the points the intervenors seek to make.

Petitioners should be cautioned that renewal of this variance will depend on continued progress toward compliance. In that the Act does not allow perpetual variances, it may be necessary for Petitioner to request a site specific rule, or a general rule for this type of operation similar to Rule 210.

The motion to dismiss is denied. However, the Board finds that Petitioner has caused unreasonable delay in this proceeding. The maximum variance term of five years will be shortened by one year to compensate for this delay.

This Opinion constitutes the Board's findings of fact and conclusions of law in this matter.

ORDER

Petitioner John L. Donovan and Donovan Dynamiting, Inc., are granted a variance from Section 24 of the Environmental Protection Act and Rules 102 and 205 of Chapter 8: Noise Pollution, subject to the following conditions:

1. This variance will expire on April 7, 1987.
2. This variance authorizes the hardening of steel products by use of explosives at an existing site in the E 1/2 of Section 13, T24N, R1W of the 3rd P.M., McLean County.

3. Detonations shall occur only between 8:00 a.m. and 4:30 p.m. on weekdays, Monday through Friday.
4. No more than 18 ounces of explosive shall be detonated at any time.
5. Detonations shall occur at the bottom of the pit with steel mesh and rubber mats placed over the top of the pit and a sheet of lead loaded vinyl over the opening in the mat.
6. The steel mesh mat, rubber mat and lead loaded vinyl curtain shall be adequately maintained.
7. Steel items to be hardened shall be placed as close to the south end of the pit as practicable.
8. If the wind is from the east, the opening shall be located in the southwest corner of the mat; if the wind is from the west, it shall be located in the southeast corner.
9. A continuous record of sound levels shall be made during operation and shall be made available to the Agency for inspection on request.
10. Berms shall be maintained at their present or a greater height. Vegetation shall be established over the entire surface to prevent erosion. Petitioner shall attempt to establish evergreen shrubs on the inner slope to damp reflections off the face of the berms.
11. On or before June 21, 1983 Petitioner shall plant a barrier to the west of the near berm consisting of at least 50 coniferous trees at least six feet in height. These trees shall be maintained and replanted if necessary during the term of this variance.
12. On or before April 6, 1984, and annually thereafter during the term of this variance, Petitioner shall report to the Agency the noise reduction steps being taken during the term of the variance together with data indicating the degree of success.
13. Within forty-five days of the date of this Order, Petitioner John L. Donovan, individually and on behalf of Donovan Dynamiting, Inc., shall execute and forward to the Illinois Environmental Protection Agency, Variance Section, 2200 Churchill Road,

Springfield, Illinois 62706, a Certificate of Acceptance and Agreement to be bound to all terms and conditions of this variance. This forty-five day period shall be held in abeyance for any period this matter is being appealed. The form of the certificate shall be as follows:

CERTIFICATION

I, John L. Donovan, individually, and on behalf of Donovan Dynamiting, Inc., having read and fully understanding the Order in PCB 81-134, hereby accept and agree to be bound by all of its terms and conditions.

SIGNED

John L. Donovan, Individually
and on behalf of Donovan
Dynamiting, Inc.

TITLE

DATE

IT IS SO ORDERED.

Mr. Dumelle concurred.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order were adopted on the 7th day of April, 1983 by a vote of 50.


Christan L. Moffett, Clerk
Illinois Pollution Control Board