

ILLINOIS POLLUTION CONTROL BOARD
December 20, 1984

IN THE MATTER OF:)
)
FORGINGS AND STAMPINGS, INC.) R83-29
)
PETITION FOR A SITE-SPECIFIC)
OPERATIONAL LEVEL PURSUANT TO)
CHAPTER 8, RULE 206(d) OF THE)
RULE AND REGULATIONS OF THE)
ILLINOIS POLLUTION CONTROL BOARD)

ADOPTED RULE. FINAL OPINION AND ORDER.

OPINION AND ORDER OF THE BOARD (by B. Forcade):

On August 2, 1984, the Board proposed to adopt a new rule, 35 Ill. Adm. Code 901.116, which provides site-specific relief from the Board's noise regulations. First notice of this proposal was published at 8 Ill. Reg. 15274, on August 24, 1984. The first notice comment period expired on October 8, 1984. The Administrative Code Unit submitted a comment on September 10, 1984, regarding Illinois Register first notice format. No other comments were received. The Board made a non-substantive change in the wording of the proposed rule.

By order of the Board dated October 10, 1984, the proposed rule was submitted to the Joint Committee on Administrative Rules ("JCAR"). JCAR second notice review commenced on October 22, 1984. JCAR issued a Certification of No Objection to this rulemaking on November 8, 1984, ending the second notice period.

This matter comes before the Board on a petition filed on November 17, 1983, by Forgings and Stampings, Inc. ("F & S") for a site-specific operational level for its forging shop as an alternative to compliance with the noise limits contained in 35 Ill. Adm. Code 901.105 (old Rule 206 of Chapter 8). A public hearing was held on March 29, 1984, in Hampshire, Illinois. This hearing was scheduled with those of three other Illinois forging shops in order to conserve the time and resources of the parties involved. No public testimony or comments were received.

The Board appreciates the contribution of David G. Mueller who assisted in drafting this Opinion.

The Department of Energy and Natural Resources ("DENR") issued a statement of negative declaration of economic impact on April 19, 1984, obviating the need for an economic impact statement. On July 18, 1984, the Economic and Technical Advisory Committee concurred with the DENR's finding.

The regulatory scheme for existing forging operations requires that the Petitioner either (i) comply with the noise prohibitions contained in Table F of Rule 206(c) no later than fifteen months following the effective date of the Rule, or (ii) seek a permanent site-specific operational level as provided in Rule 206(d). These rules have been recodified as 35 Ill. Adm. Code 901.905(c) and (d). The noise prohibitions in §901.905(c) vary for different classes of receivers and for daytime and nighttime periods. A petition under §901.905(d) must demonstrate that it is technically and economically infeasible for its shop to meet the numerical limits of §901.905(c). A petition must also propose measures to reduce impulsive noise where possible and assess the consequential health and welfare impacts on the surrounding community.

F & S is located at 1025 23rd Avenue, in Rockford, Illinois. F & S's facility occupies approximately one acre and was built in 1920 when the adjacent land was either vacant or industrial (R. 53-54). At the present time, the facility is surrounded by industrial and commercial property on the southeast and the west, residential property immediately to the north and industrial property to the north and northeast (R. 57). There are 75 Class A residences that receive forging noise in excess of the regulatory limits. The facility consists of two buildings, one of which houses six forging hammers and eight furnaces (R. 58-59). The forge hammers vary in size from 1,000 pounds to 3,000 pounds (R. 58). This building has steel doors that roll up and down on the north, west and east walls. The roof also opens (R. 59-60). F & S currently employs 37 people.

The forging process consists of heating carbon or alloy steel in furnaces to approximately 2350 degrees Fahrenheit and then forcing the heated pieces between two dies. The upper die is attached to a guided ram and the lower die is attached to the forge. The metal is shaped through pressure exerted by the ram or forge hammer, forcing the workpiece into the impression on the dies. The sound produced through this process is impulsive and originates primarily from the impact between the upper and lower die and the workpiece. There is a constant flow of materials between the furnace, forge, and cooling area (R. 65). F & S manufactures forgings for the automotive, truck, tractor and machine tool markets.

The nature of the forge operation creates an extremely hot work environment. The furnaces require a tremendous amount of oxygen and emit a great deal of heat. The cooling workpieces also radiate heat into the forge shop. Consequently, the shop requires extensive ventilation which is provided by the steel

doors that roll up and down and the ability of the roof to open. This system creates a "stack effect" whereby air flows through the roof (R. 59-60). This natural ventilation system is effective and widely utilized by the forging industry. The open sides of the building also facilitate the free movement of material in and out of the forge shop. Noise escapes through these roof and side openings.

F & S currently operates its forging hammers from 6:00 a.m. to 2:00 p.m. five days per week. Historically, F & S has operated from 6:00 a.m. until 6:00 p.m. five days per week, with occasional work on Saturdays from 6:00 a.m. until 12:00 noon. The Petitioner, in a post-hearing submittal, requests a site-specific level that would allow them to operate no more than six forging hammers at any one time during the hours of 6:00 a.m. and 6:00 p.m. Monday through Friday and 6:00 a.m. and 2:00 p.m. on Saturday. Production has fluctuated over the last few years. Production levels have declined slightly since 1981 as is shown by the table below. The recent decline in production is expected to stabilize during 1983.

	<u>Total No. of forgings on hammers</u>	<u>No. of blow/yr.</u>	<u>Tonnage of all forgings</u>
1980	3,780,000	30,240,000	2,833
1981	4,485,000	35,880,000	3,363
1982	2,987,744	23,902,000	2,241

The regulations of the Board define two methods of measuring sound. The definition of dB(A), or A - weighted sound in decibels, is found in 35 Ill. Adm. Code 900.101, as is the definition of Leq, or equivalent continuous sound pressure level in decibels. Essentially, dB(A) measures the noise level at the peaks while Leq measures the average noise level over time, including peaks and background noise.

Permissible impulsive sound levels for existing forge shops are found in 35 Ill. Adm. Code 901.105. The impulsive sound level emitted to residences (Class A land) cannot exceed 58.5 Leq, during the day or 53.5 Leq at night. Actual measurement of sound were taken around the F & S facility by George F. Kamperman, an expert in the area of noise-control engineering. Based on these measurements, Kamperman predicted that the highest level at the nearest receiver would be approximately 78 Leq (R. 106-107). Approximately 75 Class A residences are exposed to forging noise in excess of the regulatory standard. Seventy-eight Leq is the maximum or "worst case" situation. F & S has received no citizen complaints. The Illinois Environmental Protection Agency did receive three complaints in 1972 and 1973, a period of high activity at the forge. In 1977, F & S installed a new roof with interior baffles to dampen the sound and began operating with the sliding doors partially closed. These modifications resulted in approximately an eight decibel reduction in noise emitted from the facility (R. 69). Since these modifications, which cost \$30,000, there have been no citizen complaints (R.110, 113).

F & S has investigated methods of compliance with the Board's noise regulations. To achieve compliance, it would be necessary to rebuild the entire forge shop into an essentially closed structure. Mechanical ventilation would replace the present natural draft system and entrances would have to be redesigned (R. 107). Material flow would be altered. Productivity would probably decrease due to the enclosed work environment and the inhibited material flow patterns that would result (R. 64). Because of the extensive rebuilding that would be required and the current lack of space at the facility, F & S would probably relocate their facility elsewhere (R. 70).

The Illinois Environmental Protection Agency ("Agency") in their written comments on the proposal filed January 20, 1984, did not challenge F & S's qualification for site-specific relief on the basis that it is an "existing impact forging operation," nor did they question the fact that the petitioner was violating Rule 206(c). The Agency stated that while technologically feasible noise reduction measures existed for forge shops, these measures were not technically feasible or economically reasonable for F & S. The Agency also stated that granting the proposed site-specific operational level would not endanger the hearing of area residents.

The Board proposes granting the site-specific operational level requested by F & S. F & S is an existing impact forging operation which is presently in violation of §901.105(c). While compliance is technically possible, its extremely high cost makes it economically unreasonable for F & S at this time. On a practical level, compliance measures would decrease production by impeding the flow of materials within the forge shop, create an unacceptable work environment for the employees and result in the closing of the facility. The record indicates that there have been no citizen complaints about the noise from area residents since the installation of a new noise-reducing roof. There is also no danger of hearing loss to area residents. The site-specific operational level will be limited to six hammers that may operate between 6:00 a.m. and 6:00 p.m. Monday through Friday and 6:00 a.m. and 2:00 p.m. on Saturdays.

No specific numerical noise level limitations are being imposed, although it is assumed that noise levels will approximate those testified to by F & S and its witness. F & S at hearing, stipulated that if site-specific relief were granted, it would continue to run its facility consistent with the operational changes initiated in 1977. This includes the requirement that the north doors of the facility be opened no more than four feet, unless weather conditions makes this impracticable (R. 119-120). The site-specific relief granted today is premised on this continued practice. F & S should make efforts to lessen noise levels in the future as equipment is replaced and new technology for noise suppression becomes available. In the event that noise levels from the forge shop become excessive, citizens have the right to initiate proceedings to change the rule which accompanies this opinion.

The operational plan set out in this Order will be incorporated into 35 Ill. Adm. Code 901.116. F & S will be required to comply upon the filing of the rule with the Secretary of State of Illinois.

ORDER

The Board hereby adopts the following rule, to be codified as 35 Ill. Adm. Code 901.116, and instructs the Clerk to file this rule with the Secretary of State:

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE H: NOISE
 CHAPTER I: POLLUTION CONTROL BOARD

PART 901
 SOUND EMISSION STANDARDS AND LIMITATIONS
 FOR PROPERTY LINE-NOISE-SOURCES

Section 901.116 Forgings and Stampings, Inc.
 Operational Level

Forgings and Stampings, Inc. and future owners of the forging facility located at 1025 23rd Avenue, Rockford, Illinois, shall comply with the following site-specific operational level:

- a) Operate no more than six forging hammers at any one time; and
- b) Operate its forging hammers only between the hours of 6:00 a.m. and 6:00 p.m. Monday through Friday and 6:00 a.m. and 2:00 p.m. on Saturday

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 20th day of December, 1984 by a vote of 5-0.

Dorothy M. Gunn
 Dorothy M. Gunn, Clerk
 Illinois Pollution Control Board