

ILLINOIS POLLUTION CONTROL BOARD  
August 2, 1984

IN THE MATTER OF: )  
 )  
ROCKFORD DROP FORGE COMPANY ) R83-30  
 )  
for a Site-Specific Operational )  
Level Pursuant to Chapter 8, )  
Rule 206(d) of the Rules and )  
Regulations of the Illinois )  
Pollution Control Board )

PROPOSED RULE. FIRST NOTICE

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

This matter comes before the Board on a petition filed on November 17, 1983, by Rockford Drop Forge Company ("Rockford") 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 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 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 require 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.

Rockford is located at 2031 Ninth Street in Rockford, Illinois. Rockford's facility occupies approximately 18 acres and has been in operation since 1911. At that time, the adjacent land was either vacant or industrial (R. 53). At the present time, the facility is surrounded by warehousing and manufacturing on the north and east, manufacturing on the west and a parking facility and alley to the south. The nearest Class A residences

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The Board acknowledges the contribution of David G. Mueller who was the administrative assistant for this rulemaking.

are approximately 500 feet south of Rockford's facility (R. 54). There are 85 Class A residences that receive forging noise in excess of the regulatory limit (Pet. p. 8). The facility consists of several buildings, one of which houses 13 forging hammers and 13 furnaces (R. 57). The forge hammers vary in size from 1,500 lbs. to 4,000 lbs. (Pet. p. 4). This building has 48 rolling steel doors on the north and east walls. Ventilation is provided by both gravity and mechanical means through the roof monitor (R. 58). Rockford currently employes 100 people (Pet. p. 4).

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. 46). Rockford manufactures forgings for railroad, farm and construction equipment, hand tools, trucks, aircraft and ordinance (Pet. p. 4).

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 rolling steel doors and the roof monitor. This system creates a "stack effect" whereby air flows through the open sides of the building and is drawn up and out through the roof (R. 58). This natural ventilation system is effective and widely utilized by the forging industry. The open sides of the building also facilitates the free movement of material in and out of the forge shop. Noise escapes through these roof and side openings.

Rockford currently operates its forging hammers from 6:00 am.m to 4:00 p.m. five days per week. Historically, Rockford has operated two shifts, from 6:00 a.m. to 10:00 p.m. five days per week, with occasional work on Saturdays from 6:00 a.m. until 4:00 p.m. (Pet. p. 4). The Petitioner requests a site-specific level that would allow them to operate no more than 12 hammers at any one time during the hours of 6:00 a.m. to 10:00 p.m. Monday through Saturday. Production has fluctuated over the last few years. Production levels have declined since 1981 as is shown by the table below. Future production is expected to be double the 1982 operating levels (Pet. p. 5).

	<u>Total No. of forgings on hammers</u>	<u>No. of blow/yr.</u>	<u>Tonnage of all forgings</u>
1980	581,524	4,652,192	4,610,667
1981	1,234,056	9,872,448	10,527,516
1982	806,613	6,452,904	7,137,098

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 Rockford 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 64 Leq (R. 110). Approximately 85 Class A residences are exposed to forging noise in excess of the regulatory standard. Eighty-five Leq is the maximum or "worst case" situation. Rockford has received no citizen complaints. The Illinois Environmental Protection Agency ("Agency") did receive a citizen complaint about the Rockford facility in 1974. This complaint did not concern forging noise, but resulted from a trimming press that was operating on a third shift after 10:00 p.m. (R. 65-66). In 1981 Rockford modified their roof exhaust system by installing consolidated steam vents. This modification has reduced noise from the facility (R. 64-65). Rockford also removed the hammers nearest the closest residences from the east and southeast portion of the shop (R. 67). There have been no citizen complaints since these modifications.

Rockford has investigated methods of compliance with the Board's noise regulations. To achieve compliance, it would be necessary to replace all windows, doors and siding on the south, east and north walls with sound deadening material, permanently closing the upper portions of the facility with sound deadening material, constructing a double-door entrance and installing accoustical louvers (R. 61). Additional mechanical ventilation would have to be installed on the roof (R. 62). The roof currently could not support any additional loading and would have to be reinforced (R. 60). These modifications would cost between \$100,000 and \$300,000 (R. 110). Material flow at the forge would be greatly altered. Productivity would decrease due to the enclosed work environment and the inhibited material flow patterns that would result (R. 62). Because the Rockford facility is presently obsolete and is barely competitive with more modern forge shops, one of the Petitioner's probable options would be to relocate their hammers at a newer facility in Iowa rather than comply through modifications (R. 71).

The Agency, in their written comments on the proposal filed January 23, 1984, did not challenge Rockford'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 Rockford. 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 Rockford. Rockford 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 Rockford 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 probably 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 implementation of noise reducing modifications. There is also no danger of hearing loss to area residents. The site-specific operational level will be limited to 12 hammers that may operate between 6:00 a.m. and 10:00 p.m. Monday through Saturday.

No specific numerical noise level limitations are being imposed, although it is assumed that noise levels will approximate those testified to by Rockford and its witness. Rockford 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 901.117. Rockford will be required to comply with the plan upon filing with the Secretary of State of Illinois.

ORDER

35 Ill. Adm. Code 901.117 will read as follows:

Section 901.117            Rockford Drop Forge Company Site-Specific Operational Level


Rockford Drop Forge Company and future owners of the forging facility located at 2031 Ninth Street, Rockford, Illinois shall comply with the following site-specific operational level or are otherwise subject to Section 901.105(c);

- a) Shall operate no more than twelve forging hammers at any one time; and
- b) Shall operate its forging hammers only between the hours of 6:00 a.m. and 10:00 p.m. Monday through Saturday.

35 Ill. Adm. Code 901.117 is directed to First Notice.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Order was adopted on the 2<sup>nd</sup> day of August, 1984 by a vote of 6-0.

  
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 Dorothy M. Gunn, Clerk  
 Illinois Pollution Control Board