

ILLINOIS POLLUTION CONTROL BOARD
August 2, 1984

IN THE MATTER OF:)
)
ATLAS FORGINGS DIVISION OF)
SCOT FORGE) R83-34
)
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 23, 1983, by Atlas Forgings Division of Scot Forge ("Atlas") 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 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.

Atlas is located at 1501 South 55th Court, Cicero, Illinois. The Atlas operation occupies 1.37 acres and is surrounded on the

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

north, south and east by heavy industry. To the west, beyond the Petitioner's parking areas, are residences (R. 57-58). The facility was built in 1914 when the surrounding land was industrial or vacant (R. 56). There are 100 Class A residences that receive forging noise in excess of the regulatory limits (Pet. p. 8). The facility consists of several buildings, one of which houses three forging hammers and four furnaces (R. 58-60). There is one 8,000 pound hammer, one 6,000 pound hammer and one 4,000 pound hammer (R. 59). This building has rolling doors and windows that are usually open during operation and a steel roof with numerous ventilators (R. 64). Atlas currently employes 40 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. Atlas utilizes open dies that have no pattern (R. 60). 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. 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. 48). Atlas produces forgings for the gear, machine tool and energy industries (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 ground level doors and windows and roof ventilators (R. 64). 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. 64). 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.

Atlas currently operates its forging hammers from 7:00 a.m. to 4:30 p.m. four to six days per week (R. 66). Often they only operate two of their three hammers. In a post-hearing submittal, Atlas requests an operational level that would allow them to operate between 6:00 a.m. and 6:00 p.m. Monday through Saturday. This level would allow some flexibility in their operation in case the need arose to work past 4:30 p.m. (R. 67). Production has fluctuated over the last few years. Production levels have declined since 1981 as shown by the table below. The decline in production is expected to continue in 1983. The figures below reflect approximations because of the nature of the open die forging process (R. 77).

	<u>Total No. of forgings on hammers</u>	<u>No. of blow/yr.</u>	<u>Tonnage of all forgings</u>
1980	27,791	973,000	3,710
1981	35,384	1,238,000	4,665
1982	24,904	892,000	3,052

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 omitted 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 Atlas 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 70 Leq (R. 116). Approximately 100 Class A residences are exposed to forging noise in excess of the regulatory standard. Seventy Leq is the maximum or "worst case" situation. Atlas has received no citizen complaints. In the early 1970's, Atlas received complaints from Cook County regarding noise from their steam exhaust. Atlas subsequently put a silencer on their steam vent (R. 70). The Illinois Environmental Protection Agency ("Agency") received a citizen complaint in 1976 about the forging noise from Atlas. Atlas has not implemented any noise reducing measures at the Cicero facility. They have, however, built a new plant in Wisconsin that utilizes noiseless presses (R. 69).

Atlas has investigated various methods of compliance with the Board's noise regulations. To achieve compliance, it would be necessary to close up the forge shop, by replacing all windows with double glazing, replacing all non-masonry surfaces and wall surfaces surrounding windows and doors with more massive materials and eliminating the large west access-door opening entirely. A mechanical ventilation system would have to be installed which would include fans and silencers. The roof would have to be structurally reinforced to support this additional burden (R. 71-72). These modifications would cost approximately \$320,000 in 1979 dollars. This figure does not reflect the installation costs, operating costs or the cost of reinforcing the roof (R. 117). 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. 73). Petitioner's president testified that if site-specific relief was not granted, they would relocate their three hammers to their Wisconsin facility (R. 74).

The Agency, in their written comments on the proposal filed January 26, 1984, did not challenge the Petitioner'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 Atlas. 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 Atlas. Atlas 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 Atlas 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. There is no danger of hearing loss to area residents. The site-specific operational level will be limited to three hammers that may operate between 6:00 a.m. and 6:00 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 Atlas and its witness. Atlas 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 901.118. Atlas will be required to comply with the plan upon filing with the Secretary of State of Illinois.

ORDER

35 Ill. Adm. Code 901.118 will read as follows:

Section 901.118 Atlas Forgings Division of Scot Forge
 Site-Specific Operational Level

Atlas Forge Division of Scot Forge and future owners
of the forging facility located at 1501 South 55th Court,
Cicero, 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 three forging hammers
at any one time; and
- b) Shall operate its forging hammers only between the
hours of 6:00 a.m. and 6:00 p.m. Monday
through Saturday

35 Ill. Adm. Code 901.118 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 Proposed Opinion and Order was adopted on the 2nd day of August, 1984 by a vote of 6-0.

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