R83-25

Clifford-Jacobs Forging Company, Site Specific
Noise (Old Rule 206(d), Chapter 8)

PUBLIC COMMENTS

PC#	Date	By:
1.	1-3-85	Engineering Dynamics International

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

In The Matter Of the Petition Of	)	
	)	
	)	
CLIFFORD-JACOBS FORGING CO.	)	No. R83-25
	)	
for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206(d) of the Rules and Regulations of the Illinois Pollution Control Board	)	

PETITION

TO: The Illinois Environmental Protection Agency and
The Illinois Pollution Control Board

Clifford-Jacobs Forging Co. (hereinafter "Petitioner"), by its attorneys Butler, Rubin, Newcomer, Saltarelli & Boyd, petition the Pollution Control Board (hereinafter "Board") for a Site Specific Operational Level pursuant to Chapter 8, Rule 206(d) of the Illinois Pollution Control Board Rules & Regulations (hereinafter "IPCB Rules & Regs").

In support hereof, Petitioner states as follows:

I.
Identity of Petitioner

1. Petitioner is a corporation duly organized and existing under the laws of the State of Illinois, is authorized to do business in Illinois and maintains an office and manufacturing complex in Champaign, Illinois.

II.
The Rules At Issue

2. On September 1, 1982 IPCB, Rules & Regs. Ch. 8, Rules 206(c) and (d) became effective pursuant to filing with the Secretary

of State and prior action of both the Board and the Joint Committee on Administrative Rules. These Rules amend pre-existing rules of the Board governing the emission of impulsive sound emitted from impact forging operations. Pursuant to Rule 209(h), the Petitioner is required to either (i) comply with the prohibitions contained in Table 7 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. For the reasons set forth below, Petitioner herewith seeks a permanent Site Specific Operational Level for its impact forging operations in lieu of compliance with Table 7 of Rule 206(c).

III.
Rule 206(d)(2)(A)

The location of the Petitioner, a description of the surrounding community, and a map locating the Petitioner within the community.

3. The Petitioner is, and has been since 1923, located in a rural area in Champaign, Illinois. Petitioner's manufacturing complex covers approximately 32 acres; its operations are housed in several separate buildings.

4. Most of the property surrounding the Petitioner is zoned for heavy industry. North and directly west of Petitioner is farmland, east is industrial property including the ICG Railroad, south of Petitioner is industrial property, including the A. E. Staley Soybean Mill and southwest of Petitioner is some residential property. When Petitioner first constructed its forge shop in 1923 the surrounding property was either vacant or used for farmland with the exception of the ICG Railroad. Over the decades the property has

been gradually developed. The few residents living near the Petitioner have, as a consequence, acquired their land with knowledge of Petitioner's operations and at values that already reflect whatever disbenefits exist, if any, as a result of exposure to sound levels from the operations of Petitioner.

5. A map of the community with Petitioner's location identified is attached hereto as Exhibit A. A site plan layout with the location of the building containing impact forging hammers and other relevant operations of the Petitioner is attached hereto as Exhibit B.

IV.
Rule 206(d)(2)(B)

A description of the Petitioner's operations, the number and size of the Petitioner's forging hammers, the current hours of hammer operation, the approximate number of forgings manufactured during each of the three prior calendar years and the approximate number of hammer blows used to manufacture the forgings.

6. Forging is essentially a shaping process, accomplished through controlled plastic deformation which permanently alters the shape and internal structure of the materials used. The alteration improves the materials' mechanical properties and capabilities.

7. Petitioner forges carbon and alloyed steel and a small amount of stainless steel using "closed dies." The dies are two matched blocks which have a particular pattern cut out of them. The metal is heated to nearly 2350 degrees Farenheit, then inserted between the dies and pressure is applied. The pressure needed to shape the metal is supplied by the repeated impact of the upper die,

which is fastened to a guided ram, falling and driven against the lower die, which is fastened to the anvil. The guided ram, the anvil and the machinery of which they are a part is commonly known as a forge hammer. The sound produced by the forge hammer is impulsive in nature and originates primarily from the impact between the upper die and the workpiece and lower die.

8. Petitioner's manufacturing complex produces many different types of forgings ranging in size up to 700 pounds. Petitioner manufactures forgings for the off-highway equipment, construction, mining and material handling, aircraft and oil field equipment industries.

9. Petitioner employs approximately 240 people. In 1982 the operations utilized raw materials and supplies costing $10,254,530. In 1982 Petitioner paid $69,205 in property tax and $40,627 in unemployment tax.

10. The facility currently operates fourteen steam-driven forging hammers, ranging in size from 1,500 lbs. to 25,000 lbs. They are housed in a single building identified as Building 1 on Exhibit B. The location of the individual forging hammers are identified on Exhibit C. The forging hammers currently operate from 7:00 a.m. to 3:00 p.m. five days per week. Historically (during normal economic conditions), the hammers have operated two shifts, between 6:00 a.m. and 11:00 p.m. five days per week, and occasionally on Saturdays.

11. Below is a table which identifies the approximate number of forgings manufactured on hammers by Petitioner for each of the last three years, the approximate number of blows used to produce

the forgings manufactured on hammers and the weight of all forgings. As can be seen from the table, the number of parts manufactured on hammers has declined recently, as has the total number of blows and total tonnage. The decline in production is expected to stabilize during 1983.

	No. of Forgings On Hammers	No. of Blows	Tonnage Of All Forgings
1980	670,000	9,447,000	12,838
1981	580,000	8,178,000	12,536
1982	286,000	4,032,600	6,556

V.

Rule 206(d)(2)(C)

A description of any existing sound abatement measure.

12. In order to appreciate the difficulty of designing and implementing abatement measures at Petitioner's facility, it is first necessary to understand the manner in which Petitioner's forge plant is constructed and operated, since these conditions preclude technically effective and economically reasonable noise control measures.

13. Petitioner's forging hammers are located in a building that was constructed sixty years ago. The building's lower levels are composed principally of corrugated sheet metal, windows, roll-open doors approximately 10 feet high and supporting steel. The upper level consists of a roof monitor with windows and ventilators that run the length of the building.

The building houses furnaces which impose a tremend us ventilation requirement on the building. The individual furnaces can heat up to 3 1/2 tons of steel per hour to a temperature of nearly 2350 degrees Farenheit. The building has been designed to utilize the "stack effect" for natural ventilation; this is an economical and highly reliable air circulation system. However, ventilation essential to a safe operation, especially during summer months, necessitates that virtually the entire perimeter (the windows and roll-open doors) be open in order to generate sufficient air flow to the work area. Thermal convection currents created by the air heated around the furnaces induce the cooler outside air to enter through the many ground level openings. The heated air then exits through the roof monitor windows and ventilators.

14. The impulsive sound generated by the forging hammers -- persisting for approximately 100 milliseconds -- is also emitted through the many building openings. Thus there is a relationship between adequate and necessary ventilation and sound emitted to the environment. Fortunately, Petitioner's new offices were constructed as an addition to the building which houses the hammers; the offices are between the hammers and the single residential area, so that the sound emitted by Petitioner is largely directed towards the north, east and west when the building is open.

15. In addition to the ventilation demands there are other factors which impact on abatement strategies; these include structural limitations and space requirements. For example, sound absorptive wall treatments and mechanical ventilation cannot be placed on walls or roofs, or hung from beams without altering the existing load-carrying capacities. (See Exhibit D attached hereto,

a report from Petitioner's outside engineers on the structural limitations of the existing forge shop.) Moreover ordinary acoustical barriers are ineffective when the receiver is downwind of the barrier and the forge shop.

16. Because of these limitations Petitioner has not achieved compliance with the regulatory limitations. Petitioner has, however, extended the existing buildings surrounding the forge shop in an attempt to shield the sound emitted to the neighborhood. Petitioner has also implemented a program to upgrade the steam hammer discharge mufflers to provide meaningful noise reduction at nearby residences. In addition, Petitioner has supported the research conducted by the Forging Industry Education and Research Foundation which has, among other things, conducted research that may someday lead to less loud hammers.

VI.

Rule 206(d)(2)(D)

The sound levels in excess of those permitted by Table 7 emitted by the Petitioner into the community in 5 decibel increments measured in Leq, shown on the map of the community.

17. Table 7 permits the emission of impulsive sound to Class A receivers of up to 58.5 Leq during the daytime and 53.5 Leq during the nighttime. Exhibit A contains isopleths describing the estimated worst case emissions in 5 decibel increments derived from both actual Leq measurements and data taken in dB(A) (fast meter response). The data taken in dB(A) has been converted to Leq by deducting 7dB; this conversion is based on actual measurements to determine the average difference between the two measurements at Petitioner's facility.

Exhibit A discloses that the estimated worst case emiss
measured at the closest Class A land is 65 Leq. This level i
estimated to be nearly the limiting case and typically will vary
downward, depending upon atmospheric conditions, particularly wind
velocity and direction.

VII.

Rule 206(d)(2)(E)

The number of residences exposed to sound levels in excess of those permitted by Table 7.

18. The number of residences exposed to sound levels in excess of those permitted by Table 7 depends on whether the Petitioner operates during nighttime hours. Currently the Petitioner operates between 7:00 a.m. and 3:00 p.m. -- which does not include nighttime hours. Historically, Petitioner has operated two (2) shifts ranging from 8 to 10 hours per shift. This would be deemed to be nighttime operations whenever night hammer operations continue for more than 16 hours in a 24 hour period.

19. There are, according to house counts made by Petitioner, 66 residences consisting of houses and trailers potentially exposed to sound levels in excess of 53.5 Leq. This is the theoretical maximum number of residences exposed to levels exceeding Table 7 during the typical limiting case.

20. Petitioner has never received a single complaint about its hammer impact sound associated with the forging operations rom any of the local residents.

VIII.
Rule 206(d)(2)(F)

A description of other significant sources of noise (mobile and stationary) and their location shown on the map of the community.

21. There is both a significant source of mobile noise and a stationary source of noise operating near Petitioner. The mobile noise source is the ICG Railroad. The stationary source is the A. E. Staley Soybean Mill.

22. Each of the significant sources of noise is shown on Exhibit A, which is the map of the community.

IX.
Rule 206(d)(2)(G)

A description of the proposed operational level and proposed physical abatement measures, if any, a schedule for their implementation and their costs.

23. Because of the inability to economically and realistically abate the impact sound emitted by the facility (see paragraph 26) Petitioner cannot alter existing community sound levels while continuing to operate. Because of the absence of any need for abatement and the community's satisfaction with Petitioner's operations, Petitioner does not propose to implement any further impact sound abatement measures, nor does it propose to limit its productive capacity or alter its normal hours of operation. Petitioner proposes to operate its fourteen hammers six days per week, from 6:00 a.m. until 11:00 p.m. Monday through Saturday.

X.

Rule 206(d)(2)(H)

The predicted improvement in community sound levels as a result of implementation of the proposed abatement measures.

24. Because of Petitioner's inability to economically and realistically abate the impact sound emitted by its facility, the absence of any need for such abatement and the community's satisfaction with Petitioner's operations, Petitioner will not alter existing community sound levels.

XI.

Rule 206(d)(2)(I)

A description of the economic and technical considerations which justify the permanent site specific allowable operational level sought by Petitioner.

25. In determining the properly allowable operational level for Petitioner the Board must remember that (i) the community surrounding Petitioner grew up with Petitioner already established and as active or more active than today; (ii) there have not been any members of the community who have complained about the hammer impact sound emitted by Petitioner's operations; and (iii) there is no adverse impact on the community's health as a result of the emission of sound from Petitioner's hammer operations. This is the context in which the Board must necessarily review the economic and technical considerations which impact upon the operational level sought by Petitioner.

26. The technical and physical considerations, or limitations, which impact on the proper operational level for Petitioner include (i) there is no available method of controlling sound from forging hammers at the source; (ii) the building which houses the

forging hammers is old, and cannot accommodate significant sound abatement measures without structural alteration; (iii) the furnaces housed along with the hammers create an enormous demand for ventilation; (iv) sound escapes from the forge shop building through the same openings as the masses of ventilation air used to cool employees; (v) space within and around the forge shop building is limited; (vi) additional acoustical noise barriers would have no significant effect on hammer noise emission to the nearby residences under prevailing weather conditions; (vii) noise barriers are only effective at distances greater than 250 ft. if the atmosphere is homogeneous (no wind or temperature gradients), a condition that seldom exists; (viii) at distances greater than approximately 250 feet from the hammer shop, weather conditions dominate the forge hammer sound propagation with or without the existence of noise barriers; (ix) weather conditions cause the forge hammer sound level to vary 1-2 dBA per 100 feet of distance (i.e., 17 dB at 1,000 feet); and (x) for all of the foregoing reasons environmental noise control at Clifford-Jacobs is not practical.

27. The last conclusion is especially significant; there is no solution that will work at Petitioner within the realm of economic reasonableness. This includes completely enclosing the shop, since no one in the United States has yet demonstrated a working, completely enclosed renovated forge shop using mechanical ventilation and Petitioner seriously doubts that anyone will do so. Aside from the staggering costs and the absence of demonstrated need for such drastic measures, Petitioner is skeptical that employees will work under such conditions. Even under optimal operating

conditions, with the maximum number of grade level doors and windows open, there are summer days when the employees work half shifts or refuse to work at all because of heat stress. Employees of forge shops who testified before the Board in the R76-14 hearings uniformly stated they did not believe they could or would work in a closed environment (see, e.g., R76-14, Feb. 23, 1981, Grabinski, pp.270-74; and Lamore, pp.429-31).

28. Consequently, there is (i) no practical, simple, economically reasonable solution to abating the sound emitted by Petitioner and (ii) the only potentially effective abatement measure -- reconstructing and closing the hammer shops using mechanical ventilation -- is technically untried, unreasonably expensive under any economic circumstances, unacceptable to affected employees and unnecessary.

29. Therefore the proposed operational level described in paragraph 23 is the only reasonable or justified solution to the economic and technical considerations impinging on the Petitioner's operations.

Respectfully submitted,

CLIFFORD-JACOBS FORGING CO.

By: James I. Rubin
One Of Its Attorneys

James I. Rubin
BUTLER, RUBIN, NEWCOMER,
SALTARELLI & BOYD
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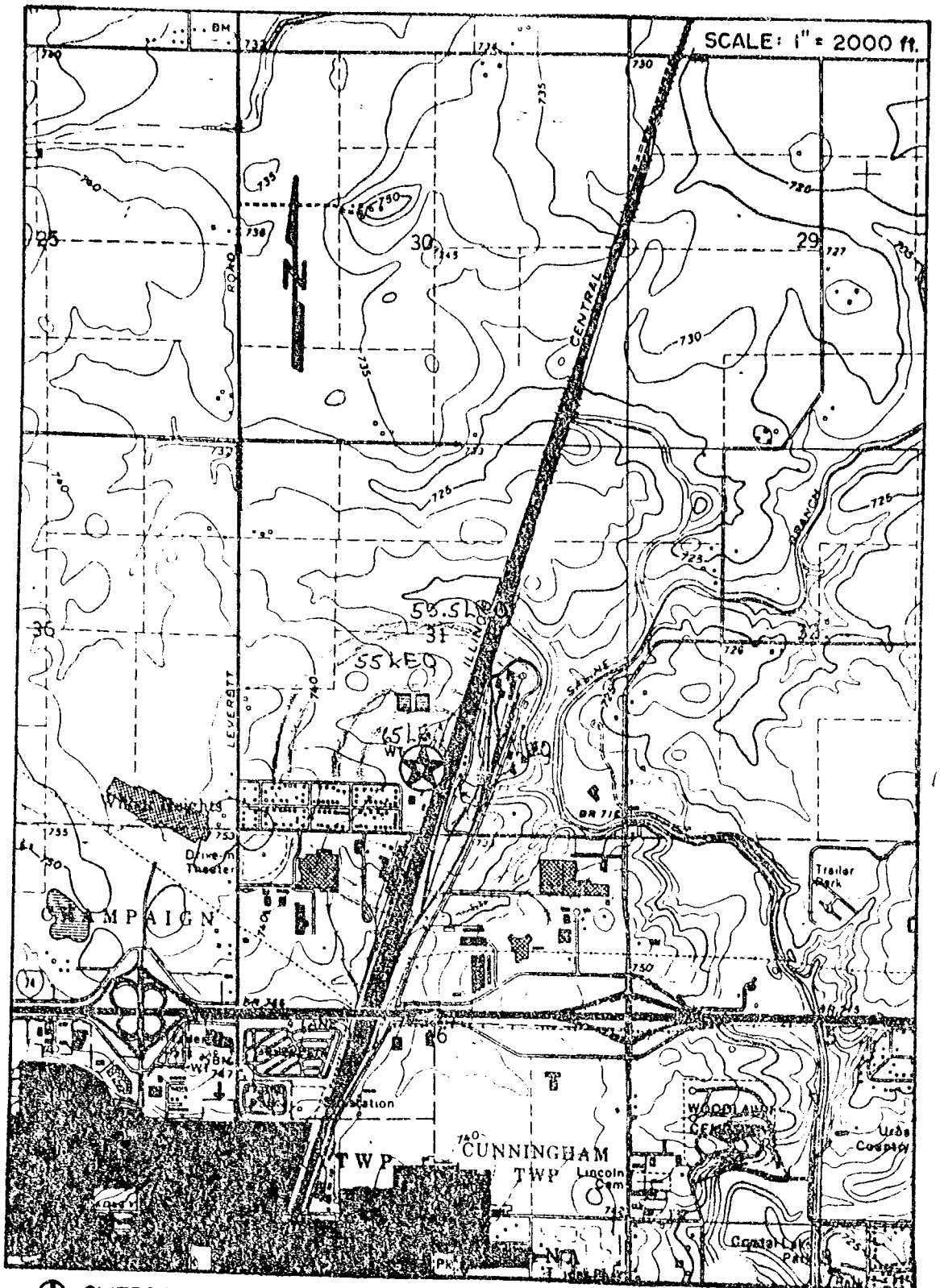
Three First National Plaza
Chicago, Illinois 60602
(312) 444-9660



CLIFFORD-JACOBS FORGING COMPANY

EXHIBIT "A"

CLIFFORD-JACOBS PLANT LOCATION

SECTION LINE
5" H.P. GAS
6" C.I.
8" C.I.
RESTAURANT
PARKING
"EXHIBIT B"
PLANT SITE
CLIFFORD-JACOBS FORGING CO
CHAMPAIGN ILLINOIS
SEC 31 - TWP 20 N - R 9 E 3rd P M
SCALE 1" TO 50'
BUILDING DIRECTORY
MAIN BUILDING
11- BRICKSHED

EXHIBIT "C"

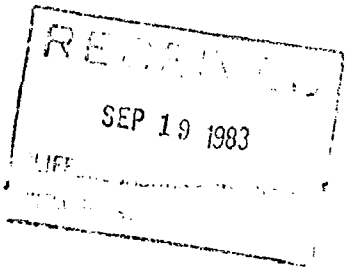
CLIFFORD-JACOBS FORGING CO.
CHAMPAIGN, ILLINOIS

FORGE SHOP
PRODUCTION EQUIPMENT

DRAWN 1-24-74 / RCE | APPROVED:
SCALE: 1"=10'

HOLLMAN ENGINEERING
4774 REDBUD CT. DECATUR, ILL. 62526
(217) 877-3177

September 16, 1983



Clifford-Jacobs Forging Co.
P. O. Box 757
Champaign, IL 61820

Attention: Mr. Brent Beazly

Re: Forge Shop Structural
Steel Stress Analysis

Gentlemen:

As directed by you, we have made an Engineering Analysis of the trusses and columns in the referenced structure, in the area of Hammer #14.

This structure was originally fabricated by Mississippi Valley Structural Steel Co., Decatur, IL - probably about 1926. A lean-to addition was also fabricated by Mississippi Valley Structural Steel Co., in approximately 1972.

Based on our calculations, this Engineer recommends that no additional load be added to this structure. To add additional stresses in the main building columns, in particular, cannot be justified by calculations. Some secondary members obviously also would need to be replaced or reinforced. Evaluation of these secondary members cannot be completed until detailed information is available on how the proposed units would attach to these secondary members.

Our evaluation was based on material having a minimum yield strength of 30,000 Pounds Per Square Inch. This is based on American Society of Testing Material (ASTM) Specification A7 or A9, as adopted in 1923. This specification was in effect until 1931.

The evaluation was made using current specifications of The American Institute of Steel Construction. Wind and snow loads were based on the recommendations of the Boca Basic Building Code/1981.

As a matter of record, Mississippi Valley Structural Steel Co., was purchased by Bristol Steel and Iron Works, Inc., in 1978. The name has since been changed to Bristol Steel Corporation. The Decatur, IL Facility is presently no longer in operation. The writer of this letter was the former Chief Engineer at the Decatur, IL Facility of Bristol Steel Corporation.

Very truly yours,

Loren C. Hollman

LOREN C. HOLLMAN
Registered Structural Engineer

LCH:ef

CERTIFICATE OF SERVICE

I, JAMES I. RUBIN, certify that I have this day served by first-class mail (postage prepaid) a copy of the Clifford-Jacobs Forging Company Petition with Exhibits upon the following persons:

Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62702

Illinois Pollution Control Board
309 West Wa hington Street
Suite 300
Chicago, Illinois 60606

James I. Rubin

November 10, 1983

BUTLER, RUBIN, NEWCOMER & SALTARELLI

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

In The Matter Of the Petition Of	)	
	)	
	)	
	)	No.
CLIFFORD-JACOBS FORGING CO.	)	
	)	
for a Site Specific Operational Level,	)	
Pursuant to Chapter 8, Rule 206(d) of	)	
the Rules and Regulations of the	)	
Illinois Pollution Control Board	)	

PETITION

BUTLER, RUBIN, NEWCOMER & SALTARELLI
A PARTNERSHIP OF PROFESSIONAL CORPORATIONS
THREE FIRST NATIONAL PLAZA - SUITE 1505
CHICAGO, ILLINOIS 60602
TELEPHONE (312) 444-9660

STATE OF ILLINOIS
POLLUTION CONTROL BOARD
309 WEST WASHINGTON STREET, SUITE 200
CHICAGO, ILLINOIS 60606
TELEPHONE
312-793-3620

NOTICE OF HEARING

IN THE MATTER OF: Petition of Clifford-Jacobs Forging Co. for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206 (d) of the Rules and Regulations of the Illinois Pollution Control Board.

BOARD DOCKET NO.: R83-25

TYPE OF HEARING: Merit

DATE AND LOCATION: Wednesday, February 15, 1984

10 a.m. to 5 p.m.

Peoria County Courthouse
324 Main St., Room 103
Peoria, Illinois 61602

ATTENDING BOARD MEMBER: John C. Marlin

HEARING OFFICER: Kevin F. Duerinck

ILLINOIS POLLUTION CONTROL BOARD
January 6, 1984

IN THE MATTER OF:)
)
)
)
PETITION OF CLIFFORD-JACOBS FORGING CO.) R83-25
FOR A SITE SPECIFIC OPERATIONAL LEVEL,)
PURSUANT TO CHAPTER 8, RULE 206(d) OF THE)
RULES AND REGULATIONS OF THE ILLINOIS)
POLLUTION CONTROL BOARD)

HEARING OFFICER ORDER

Pursuant to 35 Ill.Adm.Code 102.162, prior written submissions of expert testimony are required in this matter by February 8, 1984. Exchange between participants is required. In addition to the above requirements, please submit a copy to Board Member John C. Marlin, c/o Kevin F. Duerinck, Illinois Pollution Control Board, 104 W. University, Urbana, Il. 61801

ENTER

6 January, 1984

Kevin F. Duerinck
Hearing Officer

-for more info. copies sent to:

1/27/84

Notice List R83-23,31,32,33,35 1/84

1. Major Hearn
Illinois Environmental Protection Agency
1701 First Ave.
Maywood, Il. 60153

2. George Kamperman
Kamperman Associates Inc.
1110 Hickory Trail
Downers Grove, Il. 60515

3. James I. Rubin, Esq.
Butler, Rubin, Newcomer & Saltarelli
Three First National Plaza, Suite 1505
Chicago, Il. 60602

4. John Christy, Esq.
Coffield, Ungaretti, Harris & Slavin
3500 Three First National Plaza
Chicago, Il. 60602

5;6. William Seltzer, Esq. Dr. Richard Carlson, Director
Enforcement Programs
Illinois Environmental Protection Agency
2200 Churchill
Springfield, Il. 62706

7. Illinois Attorney General
Chief, Environmental Control Division
160 N. LaSalle
Chicago, Il. 60601

8. Illinois Attorney General
Chief, Environmental Control Division
500 S. Second
Springfield, Il. 62701

9,10 Michael B. Witte, Director Van Esser
Illinois Dept. of Energy and Natural Resources
325 W. Adams St., Room 300
Springfield, Il. 62706

11;12;13. William Withrow Lee Cunningham Christan Moffett
Illinois Pollution Control Board
309 W. Washington, Suite 300
Chicago, Il. 60606

14. Ms. Vicki Kovski
Il. Dept. of Commerce and Community Affairs
Small Business Office
222 S. College Street
Springfield, Il. 62706

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

AMENDED NOTICE OF HEARING

IN THE MATTER OF: Petition of Clifford-Jacobs Forging Co. for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206 (d) of the Rules and Regulations of the Illinois Pollution Control Board.

BOARD DOCKET NO.: R83-25

TYPE OF HEARING: Merit

DATE AND LOCATION: Reset from Wednesday, February 15, 1984 to Monday, March 12, 1984
10 a.m. to 5 p.m.

Peoria County Courthouse
324 Main St., Room 103
Peoria, Illinois 61602

ATTENDING BOARD MEMBER: John C. Marlin

HEARING OFFICER: Kevin F. Duerinck

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

JACOB D. DUMELLE, *CHAIRMAN*
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DONALD B. ANDERSON
PERU, ILLINOIS
JOAN G. ANDERSON
WESTERN SPRINGS, ILLINOIS
BILL S. FORCADE
CHICAGO, ILLINOIS
JOHN C. MARLIN
URBANA, ILLINOIS
J. THEODORE MEYER
CHICAGO, ILLINOIS
WALTER J. NEGA
CHICAGO, ILLINOIS

AMENDED NOTICE OF HEARING

IN THE MATTER OF: Petition of C. S. Norcross & Sons Co. for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206 (d) of the Rules and Regulations of the Illinois Pollution Control Board.

BOARD DOCKET NO.: R83-31

TYPE OF HEARING: Merit

DATE AND LOCATION: Reset from Wednesday, February 15, 1984 to Monday, March 12, 1984
10 a.m. to 5 p.m.

Peoria County Courthouse
324 Main St., Room 103
Peoria, Illinois 61602

ATTENDING BOARD MEMBER: John C. Marlin

HEARING OFFICER: Kevin F. Duerinck

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

JACOB D. DUMELLE, *CHAIRMAN*
OAK PARK, ILLINOIS
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JOHN C. MARLIN
URBANA, ILLINOIS
J. THEODORE MEYER
CHICAGO, ILLINOIS
WALTER J. NEGA
CHICAGO, ILLINOIS

AMENDED NOTICE OF HEARING

IN THE MATTER OF: Petition of Vaughan & Bushnell Manufacturing Co. for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206 (d) of the Rules and Regulations of the Illinois Pollution Control Board.

BOARD DOCKET NO.: R83-32

TYPE OF HEARING: Merit

DATE AND LOCATION: Reset from Wednesday, February 15, 1984 to Monday, March 12, 1984
10 a.m. to 5 p.m.

Peoria County Courthouse
324 Main St., Room 103
Peoria, Illinois 61602

ATTENDING BOARD MEMBER: John C. Marlin

HEARING OFFICER: Kevin F. Duerinck

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

JACOB D. DUMELLE, *CHAIRMAN*
OAK PARK, ILLINOIS
DONALD B. ANDERSON
PERU, ILLINOIS
JOAN G. ANDERSON
WESTERN SPRINGS, ILLINOIS
BILL S. FORCADE
CHICAGO, ILLINOIS
JOHN C. MARLIN
URBANA, ILLINOIS
J. THEODORE MEYER
CHICAGO, ILLINOIS
WALTER J. NEGA
CHICAGO, ILLINOIS

AMENDED NOTICE OF HEARING

IN THE MATTER OF: Petition of Moline Forge for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206 (d) of the Rules and Regulations of the Illinois Pollution Control Board.

BOARD DOCKET NO.: R83-33

TYPE OF HEARING: Merit

DATE AND LOCATION: Reset from Wednesday, February 15, 1984 to Monday, March 12, 1984
10 a.m. to 5 p.m.

Peoria County Courthouse
324 Main St., Room 103
Peoria, Illinois 61602

ATTENDING BOARD MEMBER: John C. Marlin

HEARING OFFICER: Kevin F. Duerinck

ILLINOIS POLLUTION CONTROL BOARD
January 26, 1984

IN THE MATTER OF:	)	
	)	
	)	
	)	
PETITION OF VAUGHAN & BUSHNELL MFG. CO. FOR A SITE SPECIFIC OPERATIONAL LEVEL, PURSUANT TO CHAPTER 8, RULE 206(d) OF THE RULES AND REGULATIONS OF THE ILLINOIS POLLUTION CONTROL BOARD	)	R83-32

HEARING OFFICER ORDER

Pursuant to 35 Ill. Adm. Code 102.162, prior written submissions of expert testimony are required in this matter by March 1, 1984. Exchange between participants is required. In a copy to Board Member John C. Marlin, c/o Kevin F. Duerinck, Illinois Pollution Control Board, 104 W. University, Urbana, IL 61801.

ENTER

26 January, 1984

Kevin F. Duerinck
Hearing Officer

ILLINOIS POLLUTION CONTROL BOARD
January 26, 1984

IN THE MATTER OF:	)	
	)	
	)	
	)	
PETITION OF C.S. NORCROSS & SONS CO.	)	R83-31
FOR A SITE SPECIFIC OPERATIONAL LEVEL,	)	
PURSUANT TO CHAPTER 8, RULE 206(d) OF THE	)	
RULES AND REGULATIONS OF THE ILLINOIS	)	
POLLUTION CONTROL BOARD	)	

HEARING OFFICER ORDER

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ENTER

26 January, 1984

Kevin F. Duerinck
Hearing Officer

ILLINOIS POLLUTION CONTROL BOARD
January 26, 1984

IN THE MATTER OF:	)	
	)	
	)	
	)	
PETITION OF MOLINE FORGE	)	R83-33
FOR A SITE SPECIFIC OPERATIONAL LEVEL,	)	
PURSUANT TO CHAPTER 8, RULE 206(d) OF THE	)	
RULES AND REGULATIONS OF THE ILLINOIS	)	
POLLUTION CONTROL BOARD	)	

HEARING OFFICER ORDER

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ENTER

26 January, 1984

Kevin F. Duerinck
Hearing Officer

ILLINOIS POLLUTION CONTROL BOARD
January 26, 1984

IN THE MATTER OF:	)	
	)	
	)	
	)	
PETITION OF CLIFFORD-JACOBS FORGING CO. FOR A SITE SPECIFIC OPERATIONAL LEVEL, PURSUANT TO CHAPTER 8, RULE 206(d) OF THE RULES AND REGULATIONS OF THE ILLINOIS POLLUTION CONTROL BOARD	)	R83-25

HEARING OFFICER ORDER

Pursuant to 35 Ill. Adm. Code 102.162, prior written submissions of expert testimony are required in this matter by March 1, 1984. Exchange between participants is required. In a copy to Board Member John C. Marlin, c/o Kevin F. Duerinck, Illinois Pollution Control Board, 104 W. University, Urbana, IL 61801.

ENTER

26 January, 1984

Kevin F. Duerinck
Hearing Officer

CORRECTED NOTICE MATERIAL FOR 3/12/84

R83-25
-31
-32
-33

PUBLIC NOTICE

NOTICE OF HEARING

PUBLIC NOTICE IS HEREBY GIVEN that the Illinois Pollution Control Board will hold a public hearing on March 12, 1984 at 10:00 a.m. in the Peoria County Courthouse, 324 Main Street, Room 103, Peoria, Illinois. These petitions for **Site Specific Forging Noise Operational Levels will be considered: R83-25, Clifford Jacobs Forging Company; R83-31. C.S. Norcross & Sons Company; R83-32, Vaughan & Bushnell Manufacturing Company; R83-33, Moline Forge.**

Jacob D. Dumelle
Chairman
2-8

I, William B. Lorton, do hereby certify that I am Publisher of the "McDonough Democrat," a weekly secular newspaper of general circulation, regularly printed and published in the City of Bushnell, County of McDonough, and State of Illinois. I further certify that said newspaper is a newspaper as defined in "An Act to Revise the Law in Relation to Notices," as amended by Act approved July 17, 1959, Illinois Revised Statues, Chapter 100, Paragraph 1 and 5.

I further certify that said newspaper has been regularly printed and published for more than one year prior to the first publication of the annexed notice, that the annexed notice was published once each week for 1 consecutive weeks, the first publication being in the issue of said newspaper dated 2-8 19 84 and the last publication was in the issue of said newspaper, dated 2-8 19 84 and that said notice was contained in each and every copy of the issues in which said notice was published.

Dated at Bushnell, Illinois, this 9th day February, A. D., 19 84

Wm B Lorton
Publisher

Printer's Fee: $ 6.30

Paid by ..... this

.....day of ..... 19.....

Wm B Lorton

Subscribed and sworn to before me this 9th day of February 19 84

Barbara Roberson

COPY OF ADVERTISEMENT

Title
ILLINOIS POLLUTION CONTROL BOARD
NOTICE OF HEARING

Public Notice is hereby given that the Illinois Pollution Control Board will hold a public hearing on March 12, 1984 at 10:00 A.M. in the Peoria County Courthouse, 124 Main Street, Room 103, Peoria, Illinois. These petitions for Site Specific Forging Noise Operational Levels will be considered: R83-23, Clifford Jacobs Forging Company; R83-31, C.S. Norcross & Sons Company; R83-22, Vaughan & Bushnell Manufacturing Company; R83-33, Moline Forge.

Jacob D. Dumelle
Chairman

#14364

Certificate of Publication

STATE OF ILLINOIS
Macon County } ss

DECATUR NEWSPAPERS, INC., a corporation, does hereby certify that it is the publisher of the Decatur Herald and Review, a daily secular newspaper of general circulation in said County, printed and published in the City of Decatur, in said County and State, and that said newspaper is a newspaper as defined in "An Act to revise the law in relation to notices," approved February 13, 1874, as amended, and that the advertisement or notice hereunto annexed and made a part of this certificate has been published in said newspaper at

~~least once each week~~ for one time ~~successive weeks~~ in each and every copy and impression of the final edition thereof, and that the ~~first~~ publication thereof was in the final edition of said newspaper on Saturday, the 4th day of February A.D. 1984, ~~and said publication was continued at least once each week in said final edition of said newspaper, and in each copy thereof until the~~ ____ ~~day of~~ ____, ~~A.D. 19~~ ____, ~~which was the last day of publication of said notice~~; and that Mary Crisler by resolution of the Board of Directors, has authority to make this certificate.

IN TESTIMONY WHEREOF, the said Mary Crisler has hereunto affixed the name of said Company, this 4th day of February, A.D. 19 84.

Fee $ 13.86

Received $ _____ DECATUR NEWSPAPERS, INC.

19 ____

By _____ By Mary Crisler

ILLINOIS POLLUTION CONTROL BOARD NOTICE OF HEARING

PUBLIC NOTICE IS HEREBY GIVEN that the Illinois Pollution Control Board will hold a public hearing on March 12, 1984 at 10:00 A.M. in the Peoria County Courthouse, 324 Main Street, Room 103, Peoria, Illinois. These petitions for Site Specific Forging Noise Operational Levels will be considered: R83-25, Clifford Jacobs Forging Company; R83-31, C.S. Norcross & Sons Company; R83-32, Vaughan & Bushnell Manufacturing Company; R83-33, Moline Forge.

JACOB D. DUMELLE
Chairman

Certificate of Publication

STATE OF ILLINOIS } SS.
ROCK ISLAND COUNTY }

The undersigned, the MOLINE DISPATCH PUBLISHING COMPANY, hereby certifies that it is a corporation, existing and doing business under the laws of the State of Delaware, licensed to do business in the State of Illinois, and states that it is publisher of THE DAILY DISPATCH, a daily, public, secular newspaper of general circulation printed and published daily in the City of Moline, County of Rock Island, State of Illinois, and further certifies that a notice, whereof the annexed printed notice is a true copy, was printed and published in said newspaper.

One time and that said notice was so printed and published in said newspaper One time in each week for One ~~successive~~ weeks; the date of the first said newspaper containing said notice being the 3rd day of February A.D. 19 84 and the date of the last said newspaper containing the said notice being the 3rd day of February A.D. 19 84

It further certifies that a meeting of the Board of Directors of said corporation, held March 22, 82, the following resolution was adopted, to-wit:

"RESOLVED, That certificates of publication of legal notices may be signed on behalf of this corporation and in its corporate name and with or without its corporate seal, by any of the following, to-wit: President, Vice President, Secretary, Treasurer, General Manager or Business Manager.

It further certifies that said THE DAILY DISPATCH has been regularly published for at least one year prior to the first publication of said notice.,

Publication Fees $ 18.00*

Paid

MOLINE DISPATCH PUBLISHING COMPANY

By J. Scott Aswege

Moline, Illinois, February 3, 19 84

STATE OF ILLINOIS } SS.
ROCK ISLAND COUNTY }

J. Scott Aswege, being first duly sworn, on his oath, says that he is the Business Manager of the MOLINE DISPATCH PUBLISHING COMPANY, and that the facts set forth in the foregoing certificate of publication are true and that the annexed notice was published as therein specified, and that said THE DAILY DISPATCH has been regularly published in said City of Moline, County of Rock Island and State of Illinois, for more than one year prior to the date of the first publication of said notice.

Subscribed and sworn to before me this 3rd day of February 19 84

Nancy E. Cottingham
Notary Public

Business Off. 283-58-8

CERTIFICATE OF PUBLICATION
IN
The News-Gazette

The undersigned, THE CHAMPAIGN NEWS-GAZETTE, INCORPORATED, by M S Duca its controller, does hereby certify that said Corporation is the publisher of The News-Gazette and that the same is a daily secular newspaper of general circulation published in Champaign, Champaign County, Illinois, and which said newspaper had been regularly published for more than six months prior to the first publication of the annexed notice; said publisher further certifies that the annexed notice was published once each week for _____ consecutive weeks in said newspaper, namely on the following dates:

Feb 4, A. D. 19 84

_____, A. D. 19

_____, A. D. 19

_____, A. D. 19

_____, A. D. 19

Said publisher further certifies that the date of the first paper containing the said notice was on the first date hereinabove set forth, and that the date of the last paper containing the said notice was on the last date hereinabove set forth.

The Champaign News-Gazette, Incorporated

By _____
Controller

PUBLISHER OF THE NEWS-GAZETTE

Publisher's fee $ 7.14

ILLINOIS POLLUTION CONTROL BOARD
NOTICE OF HEARING

PUBLIC NOTICE IS HEREBY GIVEN that the Illinois Pollution Control Board will hold a public hearing on March 12, 1984 at 10:00 A.M. in the Peoria County Courthouse, 324 Main Street, Room 103, Peoria, Illinois. These petitions for Site Specific Forging Noise Operational Levels will be considered: R83-25, Clifford Jacobs Forging Company; R83-31, C. S. Norcross & Sons Company; R83-32, Vaughan & Bushnell Manufacturing Company; R83-33, Moline Forge.

JACOB D. DUMELLE
Chairman

9408—Feb. 4, 1984

ILLINOIS POLLUTION CONTROL BOARD

NOTICE OF HEARING

PUBLIC NOTICE IS HEREBY GIVEN that the Illinois Pollution Control Board will hold a public hearing on March 12, 1984 at 10:00 A.M. in the Peoria County Courthouse, 324 Main Street, Room 103, Peoria, Illinois. These petitions for Site Specific Forging Noise Operational Levels will be considered: R83-25, Clifford Jacobs Forging Company; R83-31. C.S. Norcross & Sons Company; R83-32, Vaughan & Bushnell Manufacturing Company; R83-33, Moline Forge.

JACOB D. DUMELLE
Chairman

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

JACOB D. DUMELLE, CHAIRMAN
OAK PARK, ILLINOIS
DONALD B. ANDERSON
PERU, ILLINOIS
JOAN G. ANDERSON
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WALTER J. NEGA
CHICAGO, ILLINOIS

January 30, 1984

Champaign-Urbana News Gazette
Classified Advertising Department
P.O. Box 677
Champaign, Illinois 61820

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Enclosed find an Invoice-Voucher form. Please complete this form including your "FEIN" (Federal Employer Identification Number, Item 2 of instructions). Return to us along with your CERTIFICATE OF PUBLICATION for payment.

Thank you.

Very truly yours,

Christan L. Moffett
Clerk of the Board

Enclosure.

CLM/pw

STATE OF ILLINOIS

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JACOB D. DUMELLE, CHAIRMAN
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CHICAGO, ILLINOIS

January 30, 1984

Decatur Herald & Review
Classified Advertising Department
P.o. Box 311
Decatur, Illinois 62525

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CLM/pw

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

JACOB D. DUMELLE, CHAIRMAN
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CHICAGO, ILLINOIS

January 30, 1984

Moline Dispatch
Classified Advertising Department
1720 5th Avenue
Moline, Illinois 61265

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Very truly yours,

Christan L. Moffett
Clerk of the Board

Enclosure.

CLM/pw

STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET • SUITE 300 • CHICAGO, ILLINOIS 60606 • 312-793-3620

JACOB D. DUMELLE, CHAIRMAN
OAK PARK, ILLINOIS
DONALD B. ANDERSON
PERU, ILLINOIS
JOAN G. ANDERSON
WESTERN SPRINGS, ILLINOIS
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CHICAGO, ILLINOIS

JOHN C. MARLIN
URBANA, ILLINOIS
J. THEODORE MEYER
CHICAGO, ILLINOIS
WALTER J. NEGA
CHICAGO, ILLINOIS

January 30, 1984

McDonough Democrat
Classified Advertising Department
P.O. Box 269
Bushnell, Illinois 61422

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Enclosed find an Invoice-Voucher form. Please complete this form including your "FEIN" (Federal Employer Identification Number, Item 2 of instructions). Return to us along with your CERTIFICATE OF PUBLICATION for payment.

Thank you.

Very truly yours,

Christan L. Moffett
Clerk of the Board

Enclosure.

CLM/pw

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

In The Matter Of the Petition Of	)	
	)	
CLIFFORD-JACOBS FORGING CO.	)	No. R83-25
	)	
for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206(d) of the Rules and Regulations of the Illinois Pollution Control Board	)	

RESPONSE TO REQUEST FOR WRITTEN SUMMARY
OF EXPERT TESTIMONY

Petitioner, in response to the order of the hearing officer requiring a written summary of expert testimony, states as follows:

1. The sole expert that will testify on behalf of petitioner will be George W. Kamperman ("Kamperman").

2. Kamperman is an acoustical engineer and was one of the authors of the original noise regulations adopted by the Pollution Control Board in 1973.

3. Kamperman will testify that it is not feasible for petitioner to meet existing noise regulations due to the excessive costs of compliance. The reasons for the excessive costs are that an overall reduction of 11 dB is required and in order to obtain such a noise reduction Petitioner would have to take the following steps:

a) Seal all forge shop openings above the grade level doors.

b) Install forced air exhaust ventilation systems for each hammer unit to maintain required building ventilation.

c) Install 3 ft. long standard low pressure drop duct silencers on the exhaust discharge of each fan system.

d) Replace all corrugated fiberglass exterior wall panels on the west side of the forge shop with glass or other more massive material.

e) The impulse sound level emission from the ground level door openings cannot be controlled by noise barriers. Therefore, it would be necessary to surround the forge shop with another building having its roof level slightly above the grade level door openings. The roof area of this approximately 18 ft. high noise control structure would be slightly over 40,000 sq. ft.

4. Kamperman will explain why each of the foregoing steps would be necessary to achieve the 11 dB reduction and will also explain that there are no other steps that would be more feasible.

CLIFFORD-JACOBS FORGING CO.

by James I. Rubin
One of Its Attorneys

James I. Rubin
Butler, Rubin, Newcomer,
Saltarelli & Boyd
Three First National Plaza
Suite 1505
Chicago, Illinois 60602
(312) 444-9660

CERTIFICATE OF SERVICE

I, JAMES I. RUBIN, certify that I have this day served by first class mail (postage prepaid) copies of petitioner's Response to Request for Written Summary of Expert Testimony upon the following person:

Major Hearn
Environmental Protection Agency
1701 South 1st Avenue
Maywood, Illinois 60153

February 28, 1984

James I. Rubin

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

In The Matter Of the Petition Of	)	
	)	
	)	
CLIFFORD-JACOBS FORGING CO.	)	No. R83-25
	)	
for a Site Specific Operational Level, Pursuant to Chapter 8, Rule 206(d) of the Rules and Regulations of the Illinois Pollution Control Board	)	

RESPONSE TO REQUEST FOR WRITTEN
SUMMARY OF EXPERT TESTIMONY

BUTLER, RUBIN, NEWCOMER & SALTARELLI
A PARTNERSHIP OF PROFESSIONAL CORPORATIONS
THREE FIRST NATIONAL PLAZA · SUITE 1505
CHICAGO, ILLINOIS 60602
TELEPHONE (312) 444-9660

ENR
Illinois Department of
Energy and Natural Resources

325 W. Adams, Room 300
Springfield, Illinois 62706
217/785-2800

September 24, 1984

Mr. Jacob D. Dumelle, Chairman
Illinois Pollution Control Board
309 W. Washington, 3rd Floor
Chicago, IL 60606

Re: "Negative Declaration" for an Economic Impact Study on
Proposed Regulation ~~R83-25:~~ Clifford-Jacobs Forging Noise

Dear Mr. Dumelle:

The Department hereby informs you that we have made a finding that an economic impact study on the above-referenced IPCB docket is not necessary given the criteria and procedural requirements specified in Illinois law. This finding was based on our analysis of the regulatory proposal, the evidence presented during the technical hearing on March 12, 1984 and on recent cost information submitted by petitioner's noise consultant.

The Department notes that R83-25 is an extention of the R76-14 forging noise regulations. R76-14 is the subject of an economic impact study entitled: Economic Impact of Proposed Forging Noise Regulations, R76-14 (IDENR Document No. 78/03). Although this document examines the costs and benefits of implementing noise abatement measures at numerous Illinois forge shops, it did not specifically consider the Clifford-Jacobs shop.

Under R83-25, ~~C. S. Norcross~~ Clifford-Jacobs is requesting a permanent exemption from 35 Ill. Adm. Code, Subtitle H, Chapter 1, Section 901.105 numerical limits. Petitioner proposes to operate its 14 hammers up to six days a week from 6:00 a.m. until 11:00 p.m. The IEPA has not objected to this prepared site-specific operational level.

According to petitioner's count, approximately 66 Class A residences would be subject to sound levels in excess of those contained in Section 901.105. Given that these residences were located around the Clifford-Jacobs facility after its establishment in 1923, their market values already reflect any disbenefits which result from exposure to petitioner's operations. The IEPA has not received any complaints about the shop.

Petitioner's noise consultant, George Kampersman, has estimated (see attachment) the capital costs which Clifford-Jacobs would have to incur in order to meet current noise regulations. These costs total $1,382,000 in current dollars. If the company chooses to shut down rather than comply with current noise regulations, approximately 140 jobs would be lost.

The Department has concluded that an economic study would not contribute much beyond what has already been entered in the record. Therefore, the following criteria specified in Section IV of P.A. 83-468 applies:

> "The cost of making a formal study is economically unreasonable in relation to the value of the study to the Board in determining the adverse economic impact of the regulation."

The Economic Technical Advisory Committee will receive notification of this action for consideration at their November 1, 1984 meeting.

Sincerely,

Michael B. Witte
Director

Attachment

cc: John Marlin, Board Member

ACOUSTICAL CONSULTANTS
KAMPERMAN ASSOCIATES INC. 1920 Chatfield Lane Lisle, IL 60532 312/369-8440

27 July 1984

SUBJECT: Illinois Pollution Control Board
Case No.: R83-25
Company: Clifford Jacobs

Mr. Van Esser
Illinois Department of Energy
and Natural Resources
325 West Adams
Springfield, Illinois 62706

Dear Mr. Esser:

This letter contains my cost estimate for capital expenditures to implement the noise control recommendations required to meet the Illinois Noise Regulations.

The noise control recommendations were provided by me at the Illinois Pollution Control Board earlier this week.

1979 Recommendations and cost estimates:

1.	Closure of openings above grade level doors	$ 44,500
2.	Install mechanical ventilation	70,900
3.	Install fan silencers	43,600
4.	Replace fiberglass wall panels	13,700
5.	Architects & Engineering fee	17,300
	1979 ESTIMATED TOTAL TIMES 1.3 FOR INFLATION	$247,000

Items not included in ETA study:

1. Construction of 40,000 sq.ft. low rise warehouse type building around forge shop	$1,000,000
2. Increased ventilation requirements in forge shop and die shop due to warehouse	75,000
3. Increased lighting in forge shop due to removal of fiberglass panels	20,000

KAMPERMAN ASSOCIATES INC

Van Esser, 27 July 1984

4. Lighting of new warehouse	40,000
ESTIMATED TOTAL	$1,382,000

Please contact me if you have any questions which require any additional information.

Sincerely,

KAMPERMAN ASSOCIATES INC.

George W. Kamperman

George W. Kamperman

GWK/p

CC: Clifford Jacobs - Champaign
Butler, Rubin, Newcomer, Saltarelli & Boyd - Chicago
Illinois Pollution Control Board - Urbana
Illinois Environmental Agency - Maywood

Original Do Not Remove

Illinois Department of
Energy and Natural Resources

325 W. Adams, Room 300
Springfield, Illinois 62706
217/785-2800

November 19, 1984

R83-25
R83-31
R83-32

Mr. Jacob D. Dumelle, Chairman
Illinois Pollution Control Board
309 W. Washington, 3rd Floor
Chicago, Illinois 60606

Dear Mr. Dumelle:

In follow-up to Director Witte's findirgs that economic impact studies are not necessary for R83-25, R83-31 and R83-32, I am reporting to you the action taken by the Economic Technical Advisory Committee.

During their November 1, 1984 meeting, the ETAC concurred in the Director's finding that economic impact studies were not necessary for the above referenced IPCB dockets.

Sincerely,

Frank M. Beaver

Frank M. Beaver, Director
Energy and Environmental Affairs

FMB/wc

JOINT COMMITTEE ON ADMINISTRATIVE RULES
ILLINOIS GENERAL ASSEMBLY

509 S. SIXTH STREET • ROOM 500
SPRINGFIELD, ILLINOIS 62701
217/ 785-2254

April 16, 1985

R 83-25
R 83-31
R 83-32

Jacob D. Dumelle, Chairman
Pollution Control Board
State of Illinois Center
100 W. Randolph Street
Suite 11-500
Chicago, Illinois 60601

RE: Sound Emission Standards and Limitations for Property-Line-Noise Sources; 35 Ill. Adm. Code 901.119, 901.120 and 901.121
January 4, 1985 Illinois Register

Dear Chairman Dumelle:

This is to notify you that the Joint Committee considered the above-referenced proposed rulemaking at its April 16, 1985 meeting and determined that no objection will be issued thereto. Attached you will find a formal certification of this action. Pursuant to Section 5.01(c) of the Illinois Administrative Procedure Act, Ill. Rev. Stat. 1983, ch. 127, par. 1005.01(c), the second notice period has expired, and this rulemaking may now be adopted upon filing with the Office of the Secretary of State.

Please note that the fact that the Joint Committee will not object to the proposed rulemaking does not necessarily constitute approval, express or implied, of the substance of the rulemaking.

Thank you for your cooperation in this matter.

Sincerely yours,

Representative Sam Vinson
Co-Chairman

SV:BD:jkm
Att.
cc: Kevin F. Duerinck

JOINT COMMITTEE ON ADMINISTRATIVE RULES

ILLINOIS GENERAL ASSEMBLY

509 S. SIXTH STREET • ROOM 500
SPRINGFIELD, ILLINOIS 62701
217/ 785-2254

JOINT COMMITTEE ON ADMINISTRATIVE RULES

CERTIFICATION OF NO OBJECTION TO PROPOSED RULEMAKING

This is to certify that the Joint Committee on Administrative Rules, at its April 16, 1985 meeting, considered Sound Emission Standards and Limitations for Property-Line-Noise Sources; 35 Ill. Adm. Code 901.119, 901.120 and 901.121, proposed by the Pollution Control Board and published in the January 4, 1985 issue of the Illinois Register. After consideration, it was determined by the Joint Committee that no objection will be issued to the above-mentioned rulemaking.

April 16, 1985

Bruce A. Johnson
Acting Executive Director

Original Do Not Remove

ENGINEERING DYNAMICS INTERNATIONAL
ENGINEERING SPECIALISTS
ST. LOUIS, MO ENGLEWOOD, CO

8420 DELMAR BLVD., ST. LOUIS, MO 63124
314-991-1800

P.C. #1

December 31, 1984

Illinois Pollution Control Board
ATTN: Clerk of the Board
309 West Washington Street, Suite 300
Chicago, Illinois 60606

RE: R83-25
Clifford-Jacobs Forging Co.

Gentlemen:

It seems to me that the area in question around the forge is zoned commercial. The forge is next to Staleys, a lumber yard.

Why can't the forge buy the nearby land as an economical "buffer zone"? What are the "allowable limits" for sound level? We suggest condition c): When upgrading facility, replace worn out hammers with those that produce less sound.

Sincerely yours,

ENGINEERING DYNAMICS INTERNATIONAL

Joseph C. McBryan

Joseph C. McBryan, P.E.
Project Engineer

JCM/bev

ORIGINAL

P U B L I C H E A R I N G

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF THE
PETITION OF CLIFFORD-JACOBS
FORGING COMPANY FOR A SITE
SPECIFIC OPERATIONAL LEVEL
UNDER CHAPTER 8, RULE 206(d)

No. R83-25

Held on Monday, March 12, 1984, commencing at the hour of 10:00 o'clock a.m., at the Peoria County Courthouse, Room 103, 324 Main Street, Peoria, Illinois, Mr. Kevin F. Duerinck, Hearing Officer presiding.

Member of the Board:

Dr. John C. Marlin

PRESENT:

Neil F. Hartigan, Attorney General
of the State of Illinois, by:
Mr. Major Hearn, Jr.
Assistant Attorney General
500 South Second Street
Springfield, Illinois
appearing on behalf of the Illinois
Environmental Protection Agency;

Mr. James I. Rubin
(Butler, Rubin, Newcomer, Saltarelli & Boyd)
Three First National Plaza
Suite 1505
Chicago, Illinois 60602
appearing on behalf of Clifford-Jacobs
Forging Company;

Mr. Van W. Esser
325 West Adams Street
Room 300
Springfield, Illinois 62706
appearing on behalf of the Illinois Department of Energy and Natural Resources.

I N D E X

HEARING OFFICER DUFRINCK: This first case we'll handle today is R83-25 in the matter of the petition of Clifford-Jacobs Forging Company for site specific operational level under Chapter 8, Rule 206(d) of the Rules and Regulations of the Illinois Pollution Control Board. And I believe that has now been codified and is now 35 Illinois Administrative Code, Section 901.105(d).

And, counsel, would you like to introduce yourself and who's with you today.

MR. RUBIN: My name is James Rubin, R-u-b-i-n, with the law firm of Butler, Rubin, Newcomer, Saltarelli & Boyd. And with me today for Clifford-Jacobs is Fran Bachman who is the chief executive officer of the company, Brent Beasley who is a manager for VT Engineering, and George Kamperman who is an acoustical engineer.

And if it pleases the Board, I would like to make a very brief opening statement.

HEARING OFFICER DUFRINCK: Sure. First of all, is the Agency here?

MR. KEARN: Yes. The Illinois Environmental

Protection Agency is here represented by Major Hearn.

HEARING OFFICER DUERINCK: Okay. Thank you.

Okay. Mr. Rubin.

Oh, excuse me, also recognize Mr. Van Esser of the Illinois Department of Energy and Natural Resources is here.

Okay. Mr. Rubin.

MR. RUBIN: Thank you.

As you are aware, Clifford-Jacobs is today seeking a site specific operational level for its individual facility located in Champaign, Illinois. While you, Mr. Duerinck and Mr. Marlin may be familiar with the background of the particular regulation under which Clifford-Jacobs seeks relief, other members of the Board may not be quite so familiar, so I thought very briefly I would summarize how we came to be where we are today.

Back in 1972, the Illinois Environmental Protection Agency proposed statewide noise regulations for a variety of different industries. Included among those regulations was a specific item governing the emission of impact sound. And that applied

specifically to the forging industry. As you may well understand, hammers in the forging industry, those which produce forgings, create an impact sound during the course of producing the forging. Those regulations proposed in 1972 were drafted largely by Mr. Kamperman who is here today as a witness.

The regulations were adopted in 1973 and without significant alteration to the impact regulation that was originally proposed by the EPA and the task force of which Mr. Kamperman was part, those regulations remained in effect through 1976 subject only to a deferral that had been incorporated in the original regulation. That deferral prevented the impact regulation from becoming effective for three years. The other thing that kept those regulations from being effective was that the Forging Industry Association took an appeal, first to the Appellate Court and then eventually to the Supreme Court of Illinois to no avail.

In 1976, not having obtained any relief from the Appellate Court, the Forging Industry Association organized in Illinois the large number

of forgers. And together they proposed modifications to the then existing regulation dealing with impact sound.

From 1976 until 1980, there were some 20 hearings held throughout the state to consider whether or not the regulation ought to be modified. Those hearings included expert testimony from people including professors at Michigan Technological University which had been retained by the forging industry, people from the Environmental Protection Agency and a number of economists.

The ultimate result of those hearings was that in 1981 the Pollution Control Board modified Rule 206 as it applied to the impact forging industry. The modification permitted individual forging companies to file within 18 months seeking specific relief at their individual forge shops.

The critical provision of the modification to that rule was that it permitted the forge shops to seek an operational standard as opposed to a numerical limitation. In the past, all the noise regulations were written in terms of numerical

limitations. The old impact forging regulation had been written in terms of decibels, I believe, dba, measured on the fast meter. And the new regulation which we are facing today, while it's changed so that it's written in decibels, -- I think it's db leq, which is a time-waited average sound -- permits the individual companies to seek relief from the Board avoiding completely the application of any numerical limitation.

Instead, what is the end process of the procedure that we are now involved in is an operational standard. And in the past, the Pollution Control Board has interpreted the operational standard to mean the number of hammers permitted to operate simultaneously, the number of hours over which those hammers are permitted to operate and the days a week that those hammers are permitted to operate so that the sum of or the end product of this regulatory proceeding is a standard written in terms of number of hammers, days of the week and hours of operation for individual facilities. That way the Pollution Control Board can tailor specific regulation or specific operational

limit to an individual forging facility that meets both the needs of the community and the needs of the facility.

In the particular case of Clifford-Jacobs, the Environmental Protection Agency has evaluated the petition that has been filed, and the EPA has filed no objection to the relief sought by Clifford-Jacobs.

In addition, the community surrounding Clifford-Jacobs has had an opportunity to review that petition. And to our knowledge, they also have voiced no objection to the relief being sought. In fact, there is no member of the public here today which I think the Board can take as further evidence of the fact that the community does not oppose the relief being sought by Clifford-Jacobs.

The key to understanding the issue before the Board is that the sound emitted from an impact forging facility is a purely local subject of concern. Unlike air pollution, there is no re-entrainment. Unlike water pollution, it does not accumulate and pass through waters as they flow elsewhere.

Noise dissipates rapidly. And so that

the people that are impacted, if at all, are only those in the immediate area surrounding the forging shop. And this means that the immediate neighborhood surrounding the forging shop is the sole area of the Pollution Control Board's concern. And once again, that community surrounding Clifford-Jacobs has not objected to the relief being sought.

There is one further consideration, and that is even though the community may not have objected, it is conceivable that there could be some health hazards opposed by the operation of some individual noise source. That is not the case with these forge shops that are before the Board today, specifically not the case with Clifford-Jacobs.

We have stated in our petition that there is no hazard to the community as a result of the operations that are proposed. That has been reviewed by the Environmental Protection Agency and they agree with our statement.

And so that the two most critical concerns that the Board ought to have--and that is the well-being of the community and the response of

the community--both argue strongly in favor of granting the relief being sought.

There is, of course, another consideration that's at hand; and that is whether or not compliance with the existing regulation, the numerical limitation, is achievable. The evidence today will show that it is not achievable through any means that are available to Clifford-Jacobs.

The plant that Clifford-Jacobs operates was constructed in 1923. As a result, it does not have the flexibility that a newer facility might have. It is a typical crowded facility; that is, maximum utilization of the facility is already being undertaken.

And one will also find from the testimony that the small neighborhood that exists near the facility grew up after the facility was constructed; that is, it followed the construction of the facility.

The evidence today will show that there is no method of abating the noise produced by the facility at the source of the noise itself. That is, there is no known method of quieting a

forging hammer. And I think that intuitively we each understand that when the metal of an anvil bangs on the metal of a forged piece that it is going to make sound. And there is no way to alter that.

The evidence will further show that there is no economically reasonable technical available method for controlling the sound eminating from the hammer through the use of external means. External means would be enclosing the hammer in a structure that -- some kind of building that permits no sound to escape. But the existing structure of these buildings makes reconstruction prohibitive.

You'll find that the forge shops generate tremendous amounts of heat within the facility. That heat needs to be ventilated. As a result of the need for make-up air to maintain the ventilation, constructing an enclosed facility that would seal in the noise is virtually impossible. We know of no renovated forged facility in the United States that is completely enclosed and uses mechanical ventilation to makeup relief for lost air that would otherwise enter the facility through openings.

Further, the evidence will show that any attempt to enclose these facilities would severely impact productivity. Productivity is very important to this industry since the industry is like other metalworking industries in the United States beset by not just domestic but also foreign competition.

And so, we would ask you as a result of the evidence that we intend to introduce today to grant a site specific relief that Clifford-Jacobs has sought in its petition. That particular relief in Clifford-Jacobs' case is found in paragrph 23 of its petition at page 9.

The petitioner proposes to operate its 14 drop hammers six days per week from six in the morning until eleven in the evening Monday through Saturday.

If it pleases the Board, I'd like to now call Mr. Bachman as our first witness.

HEARING OFFICER DUERINCK: Mr. Hearn, did you have anything to add for an opening statment?

MR. HEARN: No, I don't.

HEARING OFFICER DUERINCK: Okay. Thank you.

Okay. Mr. Rubin.

FRANCIS H. BACHMAN, called as a witness herein, upon being first duly sworn on oath, was examined and testified as follows:

(Witness sworn.)

DIRECT EXAMINATION

By Mr. Rubin:

Q. Would you state your full name please.

A. Francis H. Bachman.

Q. What is your address, Mr. Bachman?

A. 407 West University Avenue, Champaign, Illinois 61820.

Q. Who are you employed by, sir?

A. Clifford-Jacobs Forging Company.

Q. What is your position with Clifford-Jacobs?

A. Chairman of the board and chief executive officer.

Q. How long have you held that position?

A. I've been in disposition for seven years and with the company 42 years this coming May.

Q. Have you held any positions with the National Forging Industry Association?

A. Yes. I'm a past president of the Forging

Industry Association.

Q. And when were you president?

A. I was president '79 to '80.

Q. As chairman of the board of Clifford-Jacobs, are you responsible for the operations and capital expenditures, things of that nature?

A. Yes. I have complete operational and management responsibilities, reporting to the board of directors.

Q. Can you tell us when Clifford-Jacobs began operating in its present location?

A. 1923.

Q. And could you describe the coordinates of its present location? Where in Champaign is it?

A. We are about a mile and a half from the city limits of Champaign, approximately eight, nine-tenths of a mile north of the city limits and half a mile to the east. That's the approximate location. We're along the Illinois Central Railroad tracks main line, the Illinois Central Gulf Railroad.

Q. Now, I realize that you were not employed by the facility when it began operations in 1923, but

do you have any information with you that describes the nature of the location when the facility was first constructed? And that is, we are interested in its surrounding neighbors where the bulding was built in 1923.

A. Yes, I do. I have a print of the location where the plant was to be laid out. And it does give information as to the date that it was laid out and the area that's involved in the plant location in 1923.

MR. RUBIN: Now if it pleases the Board, I would like to have photocopies of this made and provide them to the Board at a later time. Perhaps we could mark this as Exhibit E to the Clifford-Jacobs proceedings since we have already got A through D already marked as part of the petition, and we will submit this to the Pollution Control Board shortly.

This is -- what would you call this, Mr. Bachman, a platt?

THE WITNESS: This is a platt, yeah. This is the platt of the proposed location of Clifford-Jacobs Forging Company.

By Mr. Rubin:

Q Okay.

A. In 1923. This is -- there is a date here. Let me find that. March 10, 1923, is the date of the survey.

Q. And other than the railroad, are there any other structures, buildings, residences located on that platt?

A. There are none.

Q. What was the use of the land when Clifford-Jacobs was first constructed according to that platt?

A. It was farmland strictly.

MR. RUBIN: Okay. Again, we will mark this as Exhibit E with your permission.

HEARING OFFICER DUERINCK: That's fine.

By Mr. Rubin:

Q And do you have any early photographs showing the facility, Mr. Bachman?

A. Yes, we do. And it's -- it has not been dated but by a process of elimination, we have arrived at the year of 1938 plus six months, a year or two is the date of that picture. Because of the buildings and the construction dates, we're able to

determine it's a '38, '39 picture.

Q Now, I will show this photograph to you -- and if you would like it marked, we can mark it as Exhibit F and substitute photocopies of that for the Board at a later time.

HEARING OFFICER DUERINCK: I think it would be helpful for the Board.

By Mr. Rubin:

Q Okay. The photocopy shows that by 1938 or approximately 1938 there was still very little construction surrounding the facility. There appeared to be perhaps one or two residences on the left-hand side.

Now, I would now ask you if you could identify what we'll mark as Exhibit G.

A. Yes. This is a picture of the plant and our surrounding area taken approximately five years ago which would make it about '78, '79.

MR. RUBIN: Would you mark that as Exhibit G please.

(Whereupon, the document above-referred to was marked Exhibit G for identification.)

By Mr. Rubin:

Q. Mr. Nachman, could you describe the current land uses surrounding the facility, the forging facility?

A. Yes. To the north is farmland, to the east is the Illinois Central Gulf Railroad facilities, to the south is the Stahly soybean mill, and to the west we have a small residential community, really to the southwest of the plant. And then the rest of the west side of our property is strictly farmland.

Q. Is there a switching yard at the Illinois Central Railroad?

A. Yes, there is.

Q. Relatively adjacent to your facility?

A. It's immediately across the tracks from our facility.

Q. And are there other sources of noise beyond the railroad?

A. Yes. There is a noise area to the south of us, the Stahly soybean mill which has processing machinery, et cetera.

Q. We have marked as Exhibit B to the

petition a drawing of the plant in its entirety.

And perhaps if the Board -- do you have a copy with you?

HEARING OFFICER DUERINCK: Yes, we do.

By Mr. Rubin:

Q. Okay. We will make reference now to that specific drawing. Can you identify which building, Mr. Bachman, contains the forging hammers themselves?

A. It would be the middle number one; one, main building. And then 18 is the forge shop. 1-B, excuse me. 1-B.

Q. Okay. So that that is along building --

A. Find 1-B?

Q. The beginning which is marked general offices and then behind that is building 1-B?

HEARING OFFICER DUERINCK: Okay. We have it. Thank you.

By Mr. Rubin:

Q. And, that is, the general offices are connected to the hammer shop?

A. Yes. Well, two buildings that continue for the length of the area.

Q Okay. Can you identify the other major buildings that are located on this drawing just so that the Board members understand what other types of operations take place?

A. Immediately to the south of building 1-B is 1-A which on the first floor is the area of our machine shop and die room, office area above on the second floor. Then proceeding south, you'll notice the general office area. The general office area is three stories. The first floor is composed of a stockroom and supervisory offices. The second and third floor are general office areas.

Q And then to the -- what building is to the west of building 1 and 1-A?

A. To the west is building 14 which we term shipping and heat treatment room and number eight which is our die storage building. Number eight and number 14 extend the same length as the general offices 1-A and 1-B.

Q And what buildings are there to the east of the hammer shop?

A. To the east of the hammer shop, we have

repair areas and inspection building.

Q. Okay. How many hammers are there contained within the hammer shop at Clifford-Jacobs?

A. Fourteen steam drop hammers.

Q. If we could now refer to for your convenience drawing C. Drawing C is a schematic -- Exhibit C also attached to the petition is a schematic that identifies the operations within building 1-B; is that correct, Mr. Bachman?

A. Yes.

Q. And are the 14 hammers located within this building?

A. Yes, they are.

Q. And how are they identified?

A. They're identified as hammer -- the number on 'em, number nine hammer or number three hammer, whatever it is.

Q. Okay. So that those squares with a number in it and the letters h-a-m afterwards show the location of the hammer?

A. Correct.

Q. Are the hammers then keyed to a rated

size shown in the table up above this exhibit?

A. Yes, they are.

Q. What is the range and size of the hammers at this facility?

A. From 1500 pounds of steam to 25,000 pounds of steam.

Q. In order for the Board to get a feeling about what one of those hammers looks like, how large a structure is a hammer that -- a 25,000 pound hammer?

A. Well, I would think that offhand it's about 18 to 20 feet in the air and about that much under ground. And the average of the widths is maybe eight feet across and the width we have, three and a half, four feet. Those are approximations.

Q. Okay. Do you have any drawings with you that show what a hammer looks like?

A. Yes, I do.

MR. RUBIN: Would you mark this as H.

(Whereupon, the document above-referred to was marked Exhibit H for identification.)

By Mr. Rubin:

Q. Can you tell me what Exhibit H is?

A. Exhibit H is a copy of the brochure put out by Erie, Erie Foundry -- Erie Press Systems they're called today -- showing pictures of various sizes and pieces of equipment. For example, on the first page, there's a picture of a 10,000 pound, a 6,000 and a 4,000. And then we have a picture on the second sheet, a 15,000 pound hammer and so on. It's representative of the construction of a steam drop hammer.

Q. And Erie is a manufacturer of these hammers?

A. Erie is the manufacturer.

Q. When you said a minute ago that the hammer might be 18 feet above ground and 18 feet below ground, what part of the hammer is below ground?

A. That is the base and the foundation, the foundation and then the base on top of it.

Q. What are the foundation and base made of?

A. Steel.

Q. And that --

A. The foundation underneath the base, that's timbers and concrete. And then the base sits on top of the foundation.

Q. So that there is an 18-foot deep base or a foundation that absorbs the force of the hammer blows?

A. Yes.

Q. Okay. And there would be smaller, proportionately smaller foundations and bases for proportionately smaller hammers?

A. Right.

Q. Now, are there furnaces that serve the 14 hammers at Clifford-Jacobs?

A. Yes.

Q. Are those also shown on Exhibit C?

A. Yes. They are shown on Exhibit C, and they will show a number such as 15 and then either an N or an S sign indicating that it's the south furnace or the north furnace. But they're also keyed to a table on the print.

Q. What are the furnaces used for?

A. For heating the raw pieces of steel.

Q. How hot are the pieces of steel before they are forged?

A. We heat the steel to approximately 2,350 degrees Fahrenheit.

Q. How many furnaces are there serving your 14 hammers?

A. There are 21 slot or box furnaces and one induction heating unit.

Q. Could you describe very briefly the forging process? What happens when you receive a piece of steel and determine to forge it into a specific kind of part?

A. Yes, briefly. Upon the receipt of the steel, we verify that the piece of steel -- should it be the bars or the bullets or whatever, plates or whatever, we verify that the steel is of the proper chemistry and we see that the condition of the steel is okay for forging into parts.

We cut the steel by any one of two or three methods to proper lengths in which we end up.

We say we have a bullet then which is ready to be heated and forged. And after heating to the proper temperature, it is placed in the steam drop hammer.

And the operation may be strictly forging only or it may be a breakdown blow in the back of the hammer or it may be an edging or the filling or a blocking operation before a finishing operation. But at any rate, the piece of hot steel is hammered into shape into the impression that is cut in very hard pieces of steel, being a top die and a bottom die. The bottom die is stationary. The top die moves on a ramp, on a rod. And by group force, the hot steel is forced into the cavity and the result is a forging.

Q. Typically with the forgings that you make, how many blows are necessary in order to take a bullet of steel and create a forging?

A. It depends on the size of the piece of equipment the part is being made on. It depends on the configuration. It may run from a very small number of blows, for instance three to four blows, or it could be 30-40 blows.

Q. After the forging is hammered, what happens to it?

A. Then the trim, the part which is really cutting off the excess material, because there has to be -- to be a useable part, the cavity must be filled. And there is a certain amount of extra material which we call flashing. And so, when the forged part leaves the hammer, it goes to a trimming press or presses for the removal of the excess material.

Q. When the forging leaves the hammer, is it still hot?

A. Yes, it is hot.

Q. All right. And is it cooled before it goes to the trimming press?

A. No. It goes immediately to the trimming press.

Q. And is it still hot when it leaves the trimming press?

A. Yes, it is.

Q. Was happens to it after it leaves the trimming press?

A. When it leaves the trimming press, it is placed in a tub for cooling down or recepticle for the forge as they continue to be made. And when the tub is filled, then the tub is removed, replaced with another tub for parts to be again accumulated.

Q. Are the trimming presses in the same building as the hammers?

A. I'm sorry.

Q. Are the trimming presses in the same building as the hammers?

A. Yes. They're immediately next to the hammers.

Q. And, so that when the finished forged pieces accumulate in these tubs, these tubs are also maintained within the forged shop, the bullet.

A. Yes, yes.

Q. Okay. Do those tubs of forgings radiate heat?

A. Definitely.

Q. Now, looking again at the drawing of building 1-B on Exhibit C, can you tell us roughly the dimensions of the buiding?

A. Yes. The building 1-B is 300 feet long and 60 feet wide.

Q. Approximately how high is the building?

A. It is 27 feet to the roof line.

Q. Is the roof peaked?

A. The roof is peaked and that would be another approximately ten feet.

Q. Now, there is obviously heat produced by the furnaces and by the accumulated finished forgings within this building. How is that heat presently vented from the building?

A. It really dissipates from the fact that the -- there are openings on the side of the building. There are openings all along the side of the building, plus a door to the north of the building which is a big double door, approximately 35 openings on the sides of the building.

Q. Are those at grade level?

A. Those are at grade level. And then there is a monitor that runs on the top of the building, runs the full length of the forged shop building which is open. And then there are ventilators in the roof

of the forge shop. And there are approximately or equivalent to 56 ventilators in the roof, so that the heat that is generated is dissipated by a chimney effect. The air moves, heated air moves up. And so when the heated air moves up, you must replace and that comes from the ground level. And by a stack effect, we eliminate heat, not all of it but we try to dissipate as much of it as possible.

Q. Do you have any idea how hot it is at the hammer itself, what the temperature is?

A. Well, probably it gets up -- I've forgotten the exact amount. May I ask my engineer? I think it's 120 degrees plus.

ENGINEER: That's correct It exceeds 130 at the top.

By Mr. Rubin:

Q. How many employees are there at Clifford-Jacobs?

A. Today we have approximately 110 in the shop but 30 more. About 140. That is not our normal complement. We have gone through the last couple of years a very severe economic downturn as I think most

people are well acquainted with. Therefore, our current level of operation is considerably below what we consider a normal operation.

Q. What is the complement of employees at normal operation?

A. At normal operation, there is about 250 employees.

Q. Is it your intention to recover to the point where you again employ that many people?

A. Yes, it is.

Q. Are the taxes paid by Clifford-Jacobs and the raw materials used as described, are the numbers accurate as described in paragraph 9 of the petition?

A. Yes.

Q. And the number of blows and the tonnages, are they accurately reflected in paragraph 11 of the petition?

A. Yes, they are.

Q. When you have your full complement of employees during normal economic conditions, how many shifts do you typically work?

A. Typically two shifts.

Q. What hours do you start and what hours do you end?

A. Anywhere from 6 a.m. to 11 p.m.

Q And how many days a week do you operate?

A. Five and six days.

Q Depending on economic conditions?

A. Depending on economic conditions, correct.

Q. Never on Sunday?

A. No.

Q. Okay. Has Clifford-Jacobs attempted any sound abatement measurements for either impact sound or specifically for impact sound?

A. No.

Q. However, have you consulted with engineers, acoustical engineers in the past about what could be done at your facility?

A. Yes, we have.

Q And do those include ETA Engineering and Bolt, Beranek & Newman and Mr. Kamperman?

A. Yes, they did.

Q Has the Environmental Protection Agency

inspected your plant?

A. Yes, they have.

Q. Did you ask Mr. Kamperman to prepare measurements of the sound emitted by your facility?

A. Yes, we did.

Q. And are those the numbers that are shown on Exhibit A to the petition?

A. Yes. I've forgotten what A is but I believe it's A.

Q. A has the isopleths.

A. Yes, that is correct.

Q. Did you also obtain the distances for drawing those isopleths from Mr. Kamperman, that is, how far out the 65 dba line is?

A. Yes.

Q. Within the petition there are also house counts, that is, an attempt by Clifford-Jacobs to determine how many residences exist within the statutory level of sound emitted by the company. That is 53 1/2 leq. Who prepared those house counts?

A. We did.

Q. Okay.

A. Clifford-Jacobs did, our people. Mr. Beasley, our engineer, prepared the count.

Q. And approximately how many houses were there that are exposed on occasion to levels of sound of the maximum up to -- exceeding 53 1/2 leq?

A. Sixty-six.

Q. How many houses are there that are exposed to levels of sound exceeding 58 1/2 leq?

A. Thirty-two.

Q. Has Clifford-Jacobs in the 42 years that you've been employed at the facility ever received any complaints from anyone in the neighborhood about the sound emitted?

A. We have never received a complaint.

Q. Mr. Kamperman has at your request and my request prepared an outline of certain measures that he feels would be necessary in order to perhaps bring the Clifford-Jacobs facility into compliance with the existing numerical limitations. Are you familiar with those recommendations?

A. Yes, I am.

Q. For reference, we have filed on February 29,

1984, with the Pollution Control Board a list of Mr. Kamperman's recommendations as to what would be necessary to attempt to bring this facility into compliance within numerical limits. Those recommendations include sealing all forge shop openings above the grade level doors and installing forced air exhaust ventilation systems for each hammer unit in order to maintain ventilation, installing three-foot long standard low pressure drop duct silencers on the exhaust discharge of each fan system, replacing all corrugated fiberglass exterior wall panels on the west side of the forge shop with glass or more massive material and surrounding the forge shop with another building having its roof level slightly above the grade level doors. And that building would have a roof area of approximately 40,000 square feet and would be over 18 feet high.

Now, have you considered Mr. Kamperman's recommendations?

A. Yes.

Q. For example, looking at Exhibit B, Mr. Kamperman recommends or states that it would be necessary to construct a new building to the west

of the facility 18 feet high, having a square feet -- 40,000 square feet of roof space, roof area. Where would that be located if such a building were constructed, Mr. Bachman?

A. The south part would be above the halfway 1-A. Find the 1-A location. The line right across there to the south of the die storage area, it would be approximately across there to the die storage and inspection building. And then it would come along at the north end of the forge shop.

Q So that it would create an entirely new structure approximately the same size as existing building 1-B and the existing buildings 8 and 14?

A. Yes. Plus I believe if I remember correctly it would also extend over to the east side covering the -- so that we'd get the enclosed area which would include the inspection building, the boiler rooms and repair shop.

Q So that that would roof over the area to the east as well as the west?

A. Yes.

Q. Do you need another new building having

40,000 square feet of floor space?

A. Definitely not.

Q. If you were to build such a structure, would it interfere with existing operations in any way?

A. It definitely would. We must have the flow of materials in and out. And a walled-in type of building would be very difficult to operate with. Plus we would create a considerable amount of heat that would not be dissipated and would give us somewhat of a -- it would give us a closed area where we think the heat would be tremendously detrimental to production. And we do not believe that employees would work in such an environment.

Q. That is if the buliding were enclosed?

A. Yes, if it were enclosed.

Q. And that is not -- that is not even considering the cost of what such modifications would cost Clifford-Jacobs?

A. The cost would be prohibitive from an economic standpoint.

Q. Okay. Once again, I want to ask you, Mr. Bachman, has anyone from the neighborhood ever

complained about your operations as they exist today?

A. We have never had a complaint from our neighbors.

Q. Are you aware of any methods of effectively reducing the sound from your hammers other than those considered by Mr. Kamperman?

A. No, I am not.

MR. RUBIN: I have no further questions.

HEARING OFFICER DUERINCK: Mr. Hearn.

MR. HEARN: No questions.

HEARING OFFICER DUERINCK: Mr. Van Esser.

CROSS-EXAMINATION

By Mr Esser:

Q Mr. Van Esser from the Illinois Department of Energy and Natural Resources. Mr. Bachman, on page 6 of the petition, it indicates that a new office was constructed between the forging shop and the --

A. Just a little bit louder would you please.

Q. Sorry. A new office was constructed between the forging shop and the residential area.

A. Yes, that is correct. In fact, there is a double so-called buffer if you will. The 1-A building

is immediately to the south of 1-B which is the machine shop area. And then our general offices were constructed immediately to the south. So, there is a buffer in the way of the buildings to the forge shop. And then, also, there is a low level construction right at the west side of the general offices. And then continuing on is part of the die storage building which are buffers.

Q. Do you have a copy of the cost estimates done by Mr. Kamperman?

MR. RUBIN: There are no specific cost estimates.

MR. ESSER: So we do not know exactly what the cost of structural operation would be, the cost of implementing control measures within the forge shop itself?

MR. RUBIN: Not precisely.

By Mr. Esser:

Q. Are there any class B structures, Mr. Bachman, within the area of the forge shop around the buildings that would be subject to the sound in excess of that to the commercial buildings?

MR. RUBIN: Are there any commercial buildings?

THE WITNESS: No, no commercial buildings as such. We have Stahly as I indicated in testimony to the south of us which is a soybean mill. And the Illinois Central Gulf Railroad is across the east to us, extensibly east. Illinois Central does not run through north and south.

By Mr. Esser:

Q. On page 9 of the petition if I can refer you to that, paragraph 23.

A. Yes.

Q. The first sentence indicates that petitioner cannot alter existing community sound levels while continuing to operate.

What does that mean? Does this mean that the cost would be prohibitive or that structural alterations could not be done during the normal operations of your facility?

A. I believe there are two things involved. Economically is one thing. It would be terrifically costly and not feasible from an operation standpoint. The second is there is no known procedure or method that will quiet the noise of the impact of a forging

hammer. This has been through investigation by the forging industry, educational and research foundation along with Michigan Tech University, a three-year study or whatever it was which indicates there's no known method of reducing the noise emitted from an impact hammer.

MR. ESSER: No further questions.

HEARING OFFICER DUERINCK: Okay. Thank you.

(Witness excused.)

MR. RUBIN: I would like to call George Kamperman.

GEORGE WILLIAM KAMPERMAN, called as a witness herein, upon being first duly sworn on oath, was examined and testified as follows:

(Witness sworn.)

DIRECT EXAMINATION

By Mr. Rubin:

Q. Would you state your full name please.

A. George William Kamperman.

Q. What is your address, sir?

A. 1920 Chatfield Lane, Lisle, Illinois

Q. How old are you?

A. I am 57.

Q And who are you employed by?

A. Kamperman Associates, Incorporated.

Q What business is Kamperman Associates in?

A. Noise control, acoustical consultants.

Q How long have you been in that business?

A. Under Kamperman Associates since March of 1972.

Q And prior to that time?

A. I was with Bolt, Beranek & Newman, B-e-r-a-n-e-k.

Q What business is Bolt, Beranek & Newman in?

A. At the time I joined them in 1952, they were permanently a noise control and architectural acoustics consulting organization in the Boston area.

Q And what was your position with them in Chicago?

A. I worked for them in the Boston area for some years in industrial noise control and then opened the Chicago office in 1960 to better serve the industrial noise clients in Chicago and worked with

them until 1972.

Q. And that's when you started your own consulting organization?

A. That's correct.

Q. Would you describe your education since high school?

A. Yes. I went to Alma College, A-l-m-a, Alma, Michigan, and received a Bachelor of Science degree in 1951 and then proceeded to MIT in Cambridge, Massachussetts, graduate school, to study acoustics for a year there before joing Bolt, Beranek & Newman.

Q. Are you a member of any societies, professional societies?

A. Yes. I am a fellow of the Acoustical Society of America, member of Institute of Noise Control Engineers, member of Chicago Acoustics Group, Industrial Hygiene Association, American Hygiene Association.

Q. At one point in time, did you participate in the noise task force created by the Illinois Environmental Protection Agency?

A. Yes. I participated in that formulation

of the regulations in the early '70s.

Q. Did you work on specifically the portion of the regulations dealing with impact sound then?

A. Yes, I did.

Q Are you familiar with forge plants today?

A. Yes, I'm familiar with forge plants.

Q Have you visited many forge plants?

A. I have worked on noise control problems in approximately 12 forge plants in the State of Illinois.

Q Are you more familiar with forge plants today than you were in 1972 when you were working on the task force?

A. Indeed I am.

Q Are you familiar with the sound that is produced by forging hammers?

A. Yes.

Q Could you describe it please?

A. There is a very short impact when the two dies come together or the impact on the forging product.

The room or building that houses the

forge hammer is very reverberant and it makes a sound emitted to the residents in the nearby area that sounds more like a boom, something hitting a large metal plate. So, the sound very close to a forge hammer is a very different character than we hear in the neighborhood. But in effect, they are discrete impacts heard either inside or outside the shop.

Q And how long does the forge impact sound last, that is, at the source itself?

A. At the source itself, it's very short, in the order of maybe 10 to 100 milliseconds which would be as long as a tenth of a second then.

Q. Okay. Are you also familiar with the heat build-up inside the forge facilities?

A. Yes. I've made measurements at the tops of these plants. In some of these shops, it hits as high as 140 degrees Fahrenheit, the air coming out of the roof.

Q Is the -- let me ask it a different way. Does the need for ventilation in the heat build-up in the plants produce any difficulties in attempting to abate the noise created by the plants?

A. It does, serious problems.

Q. And could you describe that problem?

A. All the plants that I have visited are -- have what I would consider marginally adequate ventilation on hot summer days. The heat stress is so excessive that on a hot summer day that many or all of the workers must leave the operation. And it's on these days when I have noted temperatures as high as 150 degrees, the distant measured ventilation coming out of the top of the shop.

And every attempt I have made to reduce the noise emission usually restricts the airflow through the shop, thus more seriously aggravates this heat stress problem.

Q. And so that there is a natural conflict between the concept of controlling the noise and providing adequate ventilation?

A. Serious conflict, yes.

Q. Have you taken measurements of the sound emitted by the Clifford-Jacobs facility?

A. Yes, I have.

Q. And are they as contained in the petition

that was submitted?

A. That's correct.

Q. And were you the one that did the -- both the dba and leq measurements? Did you do both?

A. The initial dba measurements were obtained by ETA Engineering. I did more recent measurements to determine leq guides, two different visits to the site.

Q And was it your work that produced the isopleths drawn on Exhibit A, that is, the distances from the forge shop of the noise eminated by the forge shop?

A. That is correct.

Q The Clifford-Jacobs facility specifically has a maximum dba at the closest receiver, class A receiver of 65 leq. In your opinion, does that level create an adverse impact on the health of residents living in the area?

A. No, it does not.

Q. Are you familiar with any method of controlling the sound created by these hammers at the source of the sound itself?

A. I am familiar with the attempts to control this, but I have not seen any successful solutions to this problem.

Q. Okay. Have you wrestled with the possible ways or possibilities of attempting to control the noise generated by Clifford-Jacobs through methods other than contolling the source?

A. Yes, I have.

Q. Was that what produced -- was that analysis what produced the list of recommendations that I read to the Board just a minute ago?

A. That's correct.

Q. Okay. Now, that recommendation included mechanical ventilation; is that correct?

A. That's correct.

Q Have you done experiments to know whether or not that ventilation would adversely impact on the productivity of the employees in the facility, that is, if you went to a closed building and mechanical ventilation as opposed to an open facility as they do now?

A. No, I have no experiments to back up

that recommendation.

Q Other than the conditions or recommendations that you've made that we have submitted to the Pollution Control Board, are you aware of any other method of controlling the sound from the source that would be effective at Clifford-Jacobs?

A. No, I'm not.

Q. At one point in time, there was some consideration in the State of Illinois of the effectiveness of free standing barriers as a method of controlling sound. Are you familiar with that?

A. Yes, I am.

Q Do you have a feeling or an opinion as to whether or not free standing noise barriers would be effective in controlling the sound from Clifford-Jacobs?

A. Yes, I have an opinion on that.

Q. And what is that opinion?

A. At Clifford-Jacobs, the earlier studies showed that we depend on noise control from the barriers for the grade level, the commission from the grade level doors. We could close up the top

of the shop and put silencers on at a cost of $115,000. That was in 1979, a study by ETA Engineering.

Since then, my studies have shown around other forge shops that barriers are not effective when the receiver is downwind. That's extremely important to us, because the isopleths that we referred to earlier are based on downwind conditions around -- in any direction around the shop. That's when we received the highest noise in the neighborhood.

So when we need the barrier most, when the noise is highest, it turns out in reality the barrier is very ineffective. And it just about completely disappears.

So, theory shows us -- Fornell theory on the barrier computation predicted that the buildings on the west side of Clifford-Jacobs would give us the 10-15 dba noise reduction that was needed to meet the regulation. But indeed, this is not true. They do not perform that way in actual experience because of the wind actually blowing the sound over the building if I may use such a simple term and back down to the ground again.

So, the fraction theory does not hold up.

Q. And as a result, not only are buildings relatively ineffective but free standing barriers are very ineffective for controlling sound propagations?

A. Now, any practical barrier would be ineffective for practical gain where a vehicle could still enter into the space between the building and the barrier.

Q. Are you aware of any simple method of controlling the sound of these forged facilities which would still permit them to operate as they do today?

A. No. The simple approach I took was to put a building over the entryways because there are so many penetrations on the east and west side of Clifford-Jacobs that -- because they service all of their hammers and all this product comes out of there and the stock goes in through those exterior openings, so they must be continuously open.

So, the only solution, simple in concept, not in cost but simple in concept, would be to have a roof over this area and have that acoustically

treated so the sound would be dissipated sufficiently when you got beyond this roof. But this roof as we were saying is 40,000 square feet and warehouse type constructors cost about $25 a square foot, so that puts a price of a million dollars just to build my simple solution.

Q. I have no further questions.

That million dollars does not include any of the other aspects of the noise control program that you recommended such as the mechanical ventilators?

A. No. And silencers and redoing the sides of the wall structure, no.

MR. RUBIN: I have no further questions.

HEARING OFFICER DUERINCK: Mr. Hearn.

MR. HEARN: I have a couple questions.

CROSS-EXAMINATION

By Mr. Hearn:

Q. Mr. Kamperman, you indicated that the duration of forging noise sounds about 10 to 100 milliseconds.

A. That's correct.

Q. Okay. Did you do any studies on the frequency of that sound?

A. Yes. The energy peaks around 1,000 in the mid-frequency range. And the duration depends upon the ringing of the frame from the hammer. That's where -- it's really shorter than that if the frame is dead. But it usually rings and this is in terms of I'm saying approximately 10 to 100 milliseconds.

Q Now, is this based on information that you gathered at Clifford-Jacobs or at some other forge shop?

A. This is accumulation of data over the years.

Q. Could you explain in detail how you obtained your leq measurements at Clifford-Jacobs?

A. Yes. I measured downwind of the forge shop on two different events. Yes, two different dates. I then compared that with data obtained earlier by ETA Engineering and found that my data was in agreement with their data in one particular direction which from my experience lead me to believe that was the downwind condition for their data, because their

highest measurements were consistent with my highest measurements downwind.

At the same time I was making measurements, I was making tape recordings of this data. I took this back to my laboratory and -- well, a computer program -- and actually determined the leq for the periods of my observation which were relatively short, being in the order of 10 to 15 minutes. So, that was a machine computation of the leq from the tape recordings.

Q. So, your average -- you averaged the sound over a 10 to 15 minute period?

A. That's correct.

Q. Okay. During that 10 to 15 minute period, what was the major contribution to the leq value that you determined?

A. I was assured at the time that there were about 80 percent of the full productivity was in operation, that something like 10 or 12 hammers were operating in their normal fashion. So, the hammers was what I was measuring. I also made measurements when hammers weren't operating, so I knew what the lag

time was.

Q Could you tell me what the background level was during averaging time for your leq level?

A. I don't recall; but different locations, the single noise ratio varied, hammer noise to background noise from six to fifteen decibels. As I got further away from Clifford-Jacobs, the signal to noise ratio deteriorated so I could not make measurements very far out of the neighborhood. My measurements were based upon data obtained at the nearest neighbor and closer to the forge shop.

Q. You made a statement that downwind of the noise source and the barrier, that barriers were not effective to the receivers in that direction.

A. That's correct.

Q. Okay. What is the predominant wind direction in the area of Clifford-Jacobs?

A. I don't know what the predominant wind direction is at Clifford-Jacobs.

Q When you measured, do you remember what the wind direction was?

A. Yes. I was looking for days when I

would be downwind, and you could still reach the -- so, one day I was making measurements when the wind was out of the north to northeast. So, I was downwind.

MR. RUBIN: For the record and for your review, Mr. Hearn, my recollection is that in the original regulatory proceeding in this matter we did submit as an exhibit a wind rose that had been obtained from O'Hare Airport.

THE WITNESS: Chicago area, one of the airports, either DuPage or O'Hare.

MR. RUBIN: And suprisingly, it showed a fairly inconsistent pattern. There was no one direction. We were surprised. There was no one direction that significantly predominated.

THE WITNESS: Now, my own feeling is that in the summer months we get a lot of wind out of the southwest. And at Clifford-Jacobs, that's to their advantage because then the people that are nearest to them are upwind as it were, and so there probably are -- the majority of the summertime, the sound, noise exposure to the residents is well below the regulation. But the regulation is based on the

worse case condition, so I'm looking for that.

By Mr. Hearn:

Q. Do you have an opinion as to how wind affects the noise generated from forge hammers?

A. Yes, I do.

Q. Irrespective of barriers?

A. Yes.

Q. Could you give us that opinion?

A. Yes. I did some very definitive measurements on the sound propagation at several forge shops. But the best data I have is from modern drop forges. And making measurements at many locations on a line straight out from the forge shop upwind and downwind and crosswind with and without a barrier -- the barrier in this case was 18 foot high, the die storage building that was about the same distance from the grade level openings.

And I found that when downwind measuring north or south of the shop -- in this case the barrier is on the south side of the shop; the shop is open on both north and south side -- I received the same sound levels exactly within a decibel out to a distance of

a thousand feet. And the sound level maximum could very accurately be predicted downwind. And upwind and crosswind, the sound level was typically 1.7 decibels per hundred feet from the source lower than it was when measured downwind.

So at a thousand feet from the forge shop, one would expect a variation of sound level of 17 dba. The highest being downwind, the lowest being upwind, crosswind or no wind on a sunny day when you're in the shadow zone. I have some data that I would be glad to show you on this.

MR. HEARN: No other questions.

HEARING OFFICER DUERINCK: Mr. Esser.

CROSS-EXAMINATION

By Mr. Esser:

Q Could you give me a citation for the ETA study referred to in 1979? Was it a study done for Clifford-Jacobs?

A. It was a part of the hearings earlier. I don't remember what date this was.

MR. RUBIN: It would be found in the record in this proceeding, that is, the R76-14 record.

And I can't give you a citation better than that. I will caution you that there are literally hundreds of exhibits in that proceeding, and they include a significant number or reports, both by Bolt, Beranek & Newman and ETA. So picking one out would be a time consuming job.

By Mr. Esser:

Q Could it be the report entitled "Economic Impact of Repulsive Noise Variance on Forging"?

A No, it would not be that. This was a study specifically for Clifford-Jacobs.

MR. PUBIN: That one had an approach study and dealt with the economic issues based on the more detailed studies that Mr. Kamperman is referring to.

MR. ESSER: Okay.

HEARING OFFICER DUERINCK: Mr. Marlin.

CROSS-EXAMINATION

By Mr. Marlin:

Q I just got a question about your reference to free standing barriers. Were those to be outside the buildings or these barriers that we heard of before could be placed inside the

building as well?

A. These barriers were to be placed outside of the building. From my simplistic view, it seemed that this could act as a shield to deflect the sound upward. Because each time I've presented this to the forge companies, they would show me how impractical this was, the need to get in and out, access to the openings. But I'm saying from acoustics view, not considering the practical problems, this looked like this would do the job.

Q. Would there be any advantage at all to say a row of trees or a rather dense tall bushy barrier of some sort maybe even off site a thousand or 2,000 feet away from a noise source such as this?

A. Well, there --

Q. Particularly to shield residences.

A. No, there would not be. Because if you were to be out in the field with me making these measurements at a distance and you're looking at the barrier and you hear the sound coming out of the sky, you can literally hear it coming out of the sky. And you wonder how does this happen. So, you're in a

residential area in trees and yet it's -- you can tell subjectively that the sound source is not on a horizontal level with you. It's coming from above the trees because of the reflection from coming down from above.

HEARING OFFICER DUERINCK: Okay. Thank you.

(Witness excused.)

MR. RUBIN: We have no further witnesses on behalf of Clifford-Jacobs.

And I would offer in the way of closing remarks only that I believe that the evidence demonstrates what we set out to state in our petition and in our opening statement and that is that there is nothing economically or technically reasonable that can be done to abate the sound and that the proposed hours of operation are reasonable as a result of the historical level of acceptance by the community.

Thank you very much.

HEARING OFFICER DUERINCK: Thank you.

(HEARING CONCLUDED.)

STATE OF ILLINOIS)
) SS:
COUNTY OF LASALLE)

SHEILA LEGER hereby certifies that she is the Certified Shorthand Reporter who reported in shorthand the proceedings had in the above-entitled matter and that the foregoing is a true and correct transcript of said proceedings.

Sheila Leger
Certified Shorthand Reporter