ILLINOIS POLLUTION CONTROL BOARD
October 2, 1997

DAVID and SUSI SHELTON,	)	
	)	
Complainants,	)	PCB 96-53
	)	(Enforcement - Noise)
v.	)	
	)	
STEVEN and NANCY CROWN,	)	
	)	
Respondents.	)	

JEFFERY R. DIVER AND STEVEN KAISER OF THE JEFF DIVER GROUP APPEARED ON BEHALF OF COMPLAINANTS;

RICHARD R. ELLEDGE AND ROBERT A. CARSON OF GOULD AND RATNER APPEARED ON BEHALF OF RESPONDENTS.

OPINION AND ORDER OF THE BOARD (by G.T. Girard):

On September 8, 1995, David and Susi Shelton (Sheltons or complainants) filed this citizen's enforcement action (Comp.) concerning an air conditioner owned by Steven and Nancy Crown (Crowns or respondents) at the Crowns' home located at 685 Ardsley Road, Winnetka, Cook County, Illinois. This action was filed pursuant to Section 31(b) of the Illinois Environmental Protection Act (Act) (415 ILCS 5/31(b) (1994). The Sheltons allege that noise from the air conditioner at the Crowns' home has unreasonably interfered with the enjoyment of their lives and property, and, in addition, the air conditioner is in violation of Illinois numeric noise standards. The Sheltons claim that the Crowns have therefore violated Section 23 and 24 of the Act (415 ILCS 5/23, 5/24 (1994)) and Board regulations at 35 Ill. Adm. Code 900.102, 900.102(a), 900.102(b), and 901.104. The Sheltons request that the Board find that the Crowns violated the Act and Board regulations, and order a civil penalty pursuant to Section 42 of the Act (415 ILCS 5/42 (1994)).

Hearings were held in this matter before Board Hearing Officer June Edvenson on July 1, July 2, July 12, July 16, July 20, July 21, August 19, and August 20, 1996. Complainants filed their post-hearing brief (Comp. Br.) on February 21, 1997. Respondents filed their post-hearing brief (Resp. Br.) and a motion to dismiss with prejudice (Mot. Dis.) on May 5, 1997. On May 19, 1997, complainants filed their reply brief (Reply Br.) and Response to Motion to Dismiss (Res. Mot. Dis.). On June 2, 1997, respondents filed a "Motion to Strike" and an exhibit titled "Exhibit 1" to the reply brief. The Board denies the motion to strike. The Board also denies the motion to dismiss for the reasons discussed in a following section.

For the reasons discussed below, the Board finds that there is sufficient proof that noise from the Crowns' air conditioner unreasonably interfered with the Sheltons' enjoyment of their

lives and property during those times when the air conditioner was operating between September 15, 1993, and January 1996. The Board does not find that the air conditioner noise violated the Board's numeric noise standards. The Board finds that no monetary penalty is warranted in this case.

LEGAL FRAMEWORK

The Sheltons allege that the Crowns have violated Sections 23 and 24 of the Act and the Board's rules at 35 Ill. Adm. Code 900.102, 901.102(a), 901.102(b), and 901.104. Comp. at 2. These statutes and regulations prohibit noise pollution in Illinois which exceeds specified numeric limits or which produces nuisance noise. The Sheltons allege that noise from the Crowns' air conditioner has violated numeric noise standards and created nuisance noise which has unreasonably interfered with the Sheltons' lives and enjoyment of their property. See Ferndale Heights Utilities Co. v. Illinois Pollution Control Board, 44 Ill. App. 3d 967, 358 N.E.2d 1224, 1228 (1st Dist. 1976).

Noise violations are defined by Section 23 and 24 of the Act. With regard to nuisance noise, the prohibitions in the Act and Board regulations turn on the degree to which the noise interferes with a complainant's normal activities. Section 23 of the Act states:

> The General Assembly finds that excessive noise endangers physical and emotional health and well-being, interferes with legitimate business and recreational activities, increases construction costs, depresses property values, offends the senses, creates public nuisances, and in other respects reduces the quality of our environment. It is the purpose of this Title to prevent noise which creates a public nuisance. 415 ILCS 5/23 (1996).

Section 24 of the Act prohibits noise pollution stating:

> No person shall emit beyond the boundaries of his property any noise that unreasonably interferes with the enjoyment of life or with any lawful business or activity, so as to violate any regulation or standard adopted by the Board under this Act. 415 ILCS 5/24 (1996).

Thus, under the Act, a noise violation has occurred if the complainant has proven that the activity violates any numeric regulation or standard adopted by the Board or if a nuisance noise has unreasonably interfered with the complainant's enjoyment of life or with the pursuit of any lawful business or activity.

In this proceeding, the Sheltons allege that noise emitted by the Crowns' air conditioner violated Board regulations found at 35 Ill. Adm. Code 900.102, 901.102(a), 901.102(b), and 901.104. The specific language of those Sections provides:

> Section 900.102 Prohibition of Noise Pollution

No person shall cause or allow the emission of sound beyond the boundaries of his property, as property is defined in Section 25 of the Illinois Environmental Protection Act, so as to cause noise pollution in Illinois, or so as to violate any provision of this Chapter.

Section 901.102 Sound Emitted to Class A Land

a) Except as elsewhere in this Part provided, no person shall cause or allow the emission of sound during daytime hours from any property-line-noise-source located on any Class A, B or C land to any receiving Class A land which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within such receiving Class A land, provided, however, that no measurement of sound pressure levels shall be made less than 25 feet from such property-line-noise-source.

Octave Band Center Frequency (Hertz)	Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A Land from Class A Land	Class C Land	Class B Land
31.5	75	72	72
63	74	71	71
125	69	65	65
250	64	57	57
500	58	51	51
1000	52	45	45
2000	47	39	39
4000	43	34	34
8000	40	32	32

b) Except as elsewhere in this Part provided, no person shall cause or allow the emission of sound during nighttime hours from any property-line-noise-source located on any Class A, B or C land to any receiving Class A land which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within such receiving Class A land, provided, however, that no measurement of sound pressure levels shall be made less than 25 feet from such property-line-noise-source.

Octave Band Center Frequency (Hertz)	Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A Land from Class C Land	Class B Land	Class A Land
31.5	69	63	63
63	67	61	61
125	62	55	55
250	54	47	47
500	47	40	40
1000	41	35	35
2000	36	30	30
4000	32	25	25
8000	32	25	25

Section 901.104 Impulsive Sound

Except as elsewhere in this Part provided, no person shall cause or allow the emission of impulsive sound from any property-line-noise-source located on any Class A, B or C land to any receiving Class A or B land which exceeds the allowable A-weighted sound levels specified in the following table, when measured at any point within such receiving Class A or B land, provided, however, that no measurement of sound levels shall be made less than 25 feet from such property-line-noise-source.

Classification of Land on which Property-Line-Noise-Source is Located	Allowable A-weighted Sound Levels in Decibels of Impulsive Sound Emitted to Receiving Class A or B Land		
		Class A Land	
	Class B Land	Daytime	Nighttime
Class A Land	50	50	45
Class B Land	57	50	45
Class C Land	61	56	46

The Board has previously determined in nuisance noise proceedings that unreasonable interference is more than an ability to distinguish sounds attributable to a particular source. Rather, the sounds must objectively affect the complainant's life or business activities. See Kvatsak v. St. Michael's Lutheran Church, (Aug. 30, 1990) PCB 89-182, 114 PCB 765, 773 (Kvatsak); Kochanski v. Hinsdale Golf Club, (July 13, 1989) PCB 88-16, 1001 PCB 11, 20-21, rev'd on other grounds, 197 Ill. App. 3d 634, 555 N.E.2d 31 (2d Dist. 1990).

In determining whether unreasonable interference has occurred under the Act and Board rules, the Illinois Supreme Court has directed that the Board must consider the facts of the case in light of the factors outlined in Section 33(c) of the Act. Wells Manufacturing Co. v. Pollution Control Board, 73 Ill. 2d 226, 232-33, 383 N.E.2d 148, 150-51 (1978), see also Ferndale Heights Utilities, 44 Ill. App. 3d at 967-68, 358 N.E.2d at 1228. Those factors as set forth in Section 33(c) of the Act are as follows:

(i) the character and degree of injury to, or interference with the protection of the health, general welfare and physical property of the people;

(ii) the social and economic value of the pollution source;

(iii) the suitability or unsuitability of the pollution source to the area in which it is located, including the question of priority of location in the area involved;

(iv) the technical practicability and economic reasonableness of reducing or eliminating the emissions…resulting from such pollution source; and

(v) any subsequent compliance. 415 ILCS 5/33(c) (1996).

FACTS

General Information

The Sheltons and their three children moved into their home at 707 Ardsley Road, Winnetka, Illinois, in 1990. Tr. at 357, 395. In June 1991, the Crowns purchased the property at 685 Ardsley Road, which lies immediately south of the Sheltons' home. Tr. at 12, 1267. The Crowns' nearest property line is approximately 28 feet from the nearest wall of the Sheltons' home. Tr. at 364. The neighborhood is quiet, with private streets and individual properties larger than one-half acre each. Tr. at 356-357.

Prior to taking up residence, the Crowns extensively remodeled their home, which included removing the existing heating and air conditioning system in the structure. Tr. at 17. After remodeling, the finished structure enclosed approximately 18,000 square feet. Stip. No. 1. Remodeling began in fall of 1991. Tr. at 14, 366. The Crowns moved into their home in March 1995. Tr. at 80.

The Crowns' new HVAC [heating, ventilation, air conditioning] system was designed and installed by Mid/Res, Inc. (Mid/Res), according to specifications established by the architect, Mr. Paul Constant. Tr. at 19. On February 12, 1992, Mid/Res provided Mr. Constant with an initial proposal for the Crowns' HVAC system (Exh. 66; Exh. 69; Tr. at 322-323), and Mid/Res began installation in spring 1992. Tr. at 194. The HVAC system

included a 25-ton exterior unit (chiller unit) manufactured by the Trane Corporation (Trane), Model RAUC 25. Ex. 73. Trane Model RAUC 25 is used primarily in commercial applications. Tr. at 181. This chiller unit consists of two compressors (one ten-ton and one fifteen ton), and three fans. Tr. at 17. A Trane Engineering Bulletin published in February 1993 warned that installing commercial size equipment near a residential lot line would be a misapplication that increased the likelihood of a noise problem. Exh. 43 at III. The Bulletin also warned against locating outdoor HVAC equipment in proximity to a sound reflective wall. Exh. 43 at III. The Crowns' chiller unit was located in front of a two-story stone wall of the Crown residence and was about 60 feet from the nearest wall of the Shelton residence. Exh. 2, 51; Tr. at 794. The completed HVAC system for the Crown home cost approximately $300,000. Stip. No. 1.

The chiller unit was first tested in September 1993. Tr. at 21, 366-368. When the unit was first turned on, the Sheltons called the local police because they thought the noise resembled an explosion. Tr. at 367. The Sheltons then called the Crowns who agreed to turn off the unit. Tr. at 368. During the next three years the Sheltons and the Crowns had numerous meetings and exchanged correspondence over the Sheltons' objection to the noise level of the chiller unit. Tr. at 372, 373, 419, 421, 435, 438, 525-527, 792, 811, 815, 816, 822, 823, 826, 841, 842, 848, 853; Exh. 6, 17, 18(a)(b), 19, 21, 22, 40, 41, 43, 45 49, 90, 107.

The Crowns determined that moving the chiller was not a feasible because major HVAC components were already installed. Tr. at 1201, 1320. Mid/Res, Inc. attempted to attenuate the noise in fall 1993 and spring 1994 by several methods. Tr. at 222; Exh. 32. Sheets of one-half inch thick acoustic material, Armaflex, were applied to the interior of the chiller casing in October 1993. Tr. at 218, 621, 628. The chiller was rotated 90 degrees so that the air intake pointed east, away from the Sheltons' house, rather than north toward the Sheltons' house. Tr. at 1301; Resp. Br. at 8. Finally, metal "cones" were fabricated for installation over the chiller fans (Tr. at 1301, 1303), which Mid/Res considered at the time to be the major noise source. Tr. at 225. In June 1994, the Crowns initiated 24-hour operation of the chiller unit to protect the millwork from humidity and dry out the plaster. Tr. at 79-80. The 24-hour a day operation continued through the summer of 1994. Tr. at 80. In June 1994, the Crowns also installed wooden fences and shrubbery between the Crown and Shelton properties to reduce the sound. Tr. at 398, 1395, 1401. Ms. Marjorie Julian, the Sheltons' neighbor to the north testified that the chiller unit noise was not reduced by the fences and shrubbery. Tr. at 156-157.

On January 5, 1995, Mr. Shelton wrote a letter to the Village of Winnetka (Winnetka) including a petition signed by neighbors who had visited the Sheltons' home, asking Winnetka, pursuant to Winnetka noise ordinance, to order the Crowns to significantly reduce the noise from their chiller unit. Exh. 7. Mr. Williams, Winnetka Village Manager, convened a meeting of the parties on January 17, 1995. Tr. at 1352. At that meeting, plans to construct an acoustic enclosure were discussed. Exh. 35. The acoustic structure constructed by the spring of 1995 was eight feet high, two feet higher than the chiller, and constructed of acoustic panels. Tr. at 1131.

The Crowns again activated the chiller unit in April 1995. Tr. 442, 498. The Sheltons' noise complaints continued through the spring and summer of 1995. Tr. at 443-447. Mr. Allen Shiner of Shiner and Associates, acoustical engineers, measured noise from the chiller unit on June 19, 1995. Exh. 60. He determined that the discharge cones did not mitigate the sound and they were removed. Tr. at 217-221; Exh. 60. After removal of the cones prior to the 1995 cooling season (Tr. at 501), the Sheltons noticed "a very slight improvement in the sound." Tr. At 502. However, correspondence about the noise from the chiller unit was exchanged between the Sheltons and the Crowns during summer 1995, culminating in the Sheltons' complaint filed before the Board in September 1995. The Sheltons relocated their family to Greenville, Ohio, in January 1996. Comp. Br. at 23. The Sheltons apparently sold their home in April or May 1997 (May 5, 1997, affidavit of Arie Steven Crown).

In July and August 1996, Mid/Res installed fan motor variable speed controls. Mid/Res modified the height and configuration of the chiller unit acoustic shield to include a roof over the chiller unit. Tr. at 1534-1535. On August 15, 1996, Shiner and Associates measured sound levels at the Shelton property line and residence and found that the modifications resulted in significantly reduced noise levels from the chiller unit. Exh. 125, 126, 127. The specific results of these final sound measurements are more fully described in the subsection below entitled "Sound measurements by George Kemperman." Greg Zak, a noise expert with the Illinois Environmental Protection Agency (IEPA), testified that the final sound mitigation measures represented an "elegant solution" to the problem based on his visit to the Crown and Shelton properties on August 21, 1996. Tr. at 1477. Greg Zak further testified that based on his personal observation and review of the date available, the chiller unit operates in compliance with both the nighttime numeric noise standards at Section 901.102(b) and nuisance noise standards. Tr. at 1477.

Sound Monitoring Data

Sound emanating from the Crown chiller unit was measured on seven different occasions between July 1994 and August 1996 by Allen Shiner (7-5-94 & 6-19-95), George Kemperman (5-2-96, 8-9-96 & 8-15-96), Greg Zak (6-27-96), and Robert Elfering (8-15-96). A brief summary of the sound monitoring data obtained on each of the seven monitoring events is presented below.

Sound Measurements by Allen Shiner and Robert Elfering

Shiner and Associates, acoustical engineers, were retained by both the complainants and the respondents to monitor sound levels in the vicinity of the Crown chiller unit. Shiner's engineers measured sound levels on three occasions. On the first two occasions, Allen Shiner monitored sound levels emanating from the Crown chiller unit on behalf of the complainants. On July 5, 1994, Shiner measured the sound levels from the Shelton's property within 20 feet of Shelton's south property line. Shiner stated that the instrumentation was established in accordance with the Board regulations. Tr. at 293. Based on a comparison of the measured

sound levels with the allowable octave band sound pressure levels specified under the numeric noise standards at 35 Ill. Adm. Code 901.102, Shiner concluded that the Crown chiller unit exceeded the allowable levels at all frequencies during the night hours of operation. Exh. 56.

The sound levels from the Crown chiller unit were again measured by Shiner on June 19, 1995, after installation of the acoustical housing. Exh. 60. The sound levels were measured under different operating conditions to assess the sound-reducing effectiveness of the discharge cones and the acoustical housing placed on the chiller unit. Again, Shiner testified that the measurements were made in accordance with applicable Board regulations. Tr. at. 302. Shiner concluded that the sound levels exceeded the Board's nighttime standards at all frequencies, except for the sound level at octave band center frequency of 250 Hz. Tr. at 318.

On August 15, 1996, Robert Elfering, an engineer with Shiner and Associates, measured sound levels from the Crown chiller unit on behalf of the respondents. Exh. 124, 125. Elfering measured sound levels at five locations: near the fence (property line) between the Shelton and Crown residences; on the Shelton patio opposite the Shelton window air conditioner; near the fence, 50 feet north-east of the Crown chiller unit; on the roof of the enclosed porch; and on the edge of the Crown driveway, opposite the Crown chiller unit. The sound levels were measured at different operating conditions, which included: the Crown chiller unit operating in nighttime mode with the Shelton air conditioner switched on and off; the Crown chiller unit operating in day time mode at 60 Hz (fan at full speed) with Shelton air conditioner switched off; the Crown chiller unit operating in day time mode at 20 Hz (fan speed at 33% of full speed) with the Shelton air conditioner off; and with both Crown and Shelton air conditioners switched off to determine ambient noise conditions.

Sound Measurements by Greg Zak

Greg Zak, a noise technical expert with the IEPA, monitored sound levels on both Shelton and Crown properties on June 27, 1996 at around 9.30 p.m. The first location (site 1) was outside the second floor bedroom window of the Shelton residence. Exh. 92 at 3. The second location (site 2) was on the Crown property at a point approximately 30 feet north of the Crown chiller unit. See Attachment to Exh. 92. At the second location, Zak also measured the ambient sound, which are the background sound levels with the Crown chiller unit turned off. Tr. at 604. Zak stated that the measurements were made in accordance with the Board regulations. Tr. at 572. Zak described the acoustic properties of the area as a complex echoic field due to the parallel house walls and stockade fence. Tr. at 573-575.

Sound Measurements by George Kemperman

George Kemperman, a noise control engineer, was retained by respondent to evaluate the noise sources associated with the Crown chiller unit. Kemperman monitored the sound levels from the Crown chiller unit on three different occasions. On May 2, 1996, Kemperman recorded sound levels from the chiller unit as a part of his investigation of the noise source. Based on these measurements, he made recommendations for improving noise control that included two different modes of operation: normal operation, with two compressors and three

fans operating at full speed; and nighttime operation with one compressor and one fan operating full speed. Kemperman believed that the recommended operational changes would result in compliance with the Board's nighttime numeric noise emission standards. Tr. at 1507-1510.

However, Kemperman revised his recommendations after evaluating the sound level measurements recorded by Zak on June 27, 1996. Tr. at 1510-1511. In this regard, he stated that his earlier projections were much lower than those observed by Zak. Tr. at 1511. Kemperman then made the following recommendations: fan speed should be reduced 50 percent during night time; the height of the enclosure should be increased above the fan discharge using plywood with sound absorptive treatment; and the top opening of the enclosure should be closed so that air would be forced to go through the inlet silencer. Tr. at 1511-1512.

Kemperman measured the sound levels from the Crown chiller unit twice after implementation of his recommendations. On August 9, 1996, he measured sound levels at the property line at elevations of 8 feet, 12 feet, and 16 feet above the ground. The measurements were taken at different elevations in order to account for the line of sight from the top of the chiller unit enclosure to the second floor bedroom window of the Shelton residence. Tr. at 1515. The measurements were taken at two fan speeds: one at maximum fan speed and one at slightly less than half of the maximum speed. Tr. at 1516. Based on his measurements, Kemperman concluded that reducing fan speed resulted in the decrease of sound levels by 15 to 20 dB. Exh. 122.

Kemperman again measured sound levels at three locations in the vicinity of the Crown chiller unit on August 15, 1996. The sound levels were measured four feet above the ground at approximately eight feet north of the property line between the Shelton and Crown residences, and on the patio on the east side of the Shelton residence. The third location was a second story bedroom window over the porch roof of the Shelton residence (14 feet above ground). The sound measurements on August 15, 1996, showed significant reduction in sound emission from the chiller unit. The sound levels measured in this final sound monitoring event were below the Board's numeric noise emission standards of Section 901.102. Exh. 125.

Effects of Noise Interference

In June 1994, when the Crown chiller unit began operating 24 hours per day (Tr. at 375), the noise from the chiller unit could be heard in the Sheltons' kitchen, living room, dining room, family room, master bedroom, and the bedroom of their eldest son, David B. Shelton. Tr. at 376-377. The noise was loudest on the southern end of the Shelton home second floor, where son David B. Shelton's bedroom was located. Tr. at 377. Susi Shelton testified that the noise was so loud that her son could not sleep in his room even with the windows closed and a fan operating in his room. Tr. at 377. David B. Shelton testified that the noise was very loud and annoying. Tr. at 523. He testified that he could feel vibrations caused by the chiller unit noise if he put his head on the window or wall of his bedroom. Tr. at 530-532. The loud noises were produced by the cycling of the system on and off, pulsating

sound, and the high pitches of the fans. Tr. at 377. Susi Shelton described the noises as worse at nighttime when they would be awakened by the noise. Tr. at 380. She testified that the noise prevented the family from sleeping, leading to exhaustion, headaches, stress, and tension in the family. Tr. at 381.

David Shelton described the chiller unit noise in 1994 as "an extensive, deep, powerful drone that penetrated the house. And, it was interspersed with huge sound surges, booms, if you will, as different components of the system kicked in and out. At times, particularly in the evening, we could also hear higher pitched sound such as a waterfall and hear also beating sound, which I'm told were probably different phases of the system going in and out of phase with each other." Tr. at 818. David Shelton said that the chiller unit noise caused family impacts such as loss of sleep, his son moving from his room, inability to use their backyard or patio, extreme tiredness, depression, anxiety, and short tempers. Tr. at 818-819. The Shelton's son stopped camping in either the front or backyard. Tr. at 528-529. Susi Shelton was unable to escape the noise of the chiller unit by going indoors, closing the windows, or turning on either music or television. Tr. 388-389. These impacts continued from June through September 1994. Tr. at 532, 820. David Shelton hired Mr. Shiner to take the first noise measurements of the Crown chiller unit on July 5, 1994. Exh. 56.

Despite the installation of acoustical panels and discharge cones prior to the 1995 cooling season, the Sheltons reported that throughout April, May, and June 1995 the noise from the chiller unit created stress and tension in the Shelton family. Tr. at 445-446. Susi Shelton testified that she experienced headaches and pains down her neck and across her shoulders. Tr. at 445-447. The noise disrupted the Sheltons' sleep and could be heard in the Sheltons' kitchen, living room, dining room, family room, master bedroom, and throughout the entire second floor of their home. Tr. at 443-444. Closing windows and turning on music or television did not reduce the level of annoyance caused by the chiller unit. Tr. at 445-445. Son, David B. Shelton, testified that after the chiller unit was activated in April 1995, he slept in his bedroom only half the time. Tr. 533, 535. He testified that when sleeping in his bedroom, the chiller unit woke him when parts clicked on or off, and as a consequence in the morning he felt tired, cranky, lazy, and found it difficult to concentrate in school with little sleep. Tr. at 533-534.

On June 19, 1995, Mr. Shriner again measured noise from the chiller unit in the evening. Exh. 60. Mr. Shriner reported that the acoustic housing and removing the discharge cones significantly reduced the noise. Exh. 60. After removal of the discharge cones, the Sheltons could still hear the low drones, high pitches, and on/off cycle emitted by the chiller unit in their home with the windows closed in late June, 1995. The noise was still much worse on the second floor. Tr. at 449.

Throughout July, August, and September 1995, Susi Shelton was able to sleep in her first floor bedroom located on the northern end of her home only if the windows were closed, the overhead fan was operating, and she used a prescription sleeping additive. Tr. at 459-460. David Shelton had difficulty sleeping even when using ear plugs, with a fan operating and the windows closed. Tr. at 890. Susi Shelton testified that she was unable to wear her corrective

contact lens without problems during June, July, and August 1995 because her eyes were dry from lack of sleep. Tr. at 460-462. However, Susi Shelton did testify that the removal of the discharge cones in June 1995 and an operational adjustment to reduce on-and-off cycling resulted in a modest reduction in the chiller unit noise. Tr. at 459. David Shelton also wrote in a letter to Steven Crown on June 26, 1995, that "[t]he new enclosure has helped, but it has not solved the air conditioner noise problem." Exh. 41.

Ms. Marjorie Julian testified that she was awakened at night by the noise from the Crown chiller unit and felt her floor vibrating from the noise. Tr. at 159-160. Ms. Julian and her husband, Robert, live just north of the Sheltons' home at 727 Ardsley Road. Tr. at 126-127. The south face of the Julians' home is approximately 120 to 145 feet from the Crowns' north property line. Tr. at 155.

MOTION TO DISMISS

The Crowns filed a motion to dismiss on the grounds that the case is now moot. Mot. Dis. at 1. The Crowns assert that the modifications to the chiller unit have reduced the noise emissions so that the unit meets both the numeric noise and nuisance noise standards. Mot. Dis. at 1. The Crowns maintain that even if the Board finds that the chiller unit emitted noises in 1995 and 1996 that constituted noise pollution, there is no existing noise pollution and no future prospect of noise pollution . Mot. Dis. at 2. Therefore, the complaint should be dismissed with prejudice as moot. Mot. Dis. at 2.

The Sheltons maintain that a Board order is necessary to ensure that the Crowns maintain the physical structures and operating protocols necessary to maintain compliance with the Act. Res. Mot. Dis. at 1. The Sheltons also cite Section 33 of the Act as a basis for ruling against the motion to dismiss: "It shall not be a defense to findings of violations of provisions of the Act or Board regulations or a bar to the assessment of civil penalties that the person has come into compliance subsequent to the violation…" 415 ILCS 5/33 (1996).

The Board denies the motion to dismiss. There is ample statutory authority, as noted by the Sheltons at Section 33 of the Act (415 ILCS 5/33 (1996)), for the Board to find a violation of the Act or Board regulations in cases where compliance has been achieved subsequent to a violation. The Board will now discuss the allegations and findings of violation in the sections below.

ARGUMENTS AND ANALYSIS

The Sheltons have asserted that noise emitted by the Crowns' chiller unit has violated both the numeric noise and nuisance noise regulations of the Board. First, the Board will discuss a novel argument raised by the Crowns which asserts that Section 31(b) of the Act (415 ILCS 5/31(b) (1994)) does not authorize a citizen's enforcement action with regard to past violations, based on conditions or emissions which did not exist and were not threatened when the complaint was filed. Resp. Br. at 3. Then, we will present the arguments and discuss the

allegations concerning numeric noise violations. Finally, we will turn to the nuisance noise complaint and the civil penalty issue.

Citizen's Enforcement Authority with Regard to Past Violations

The Crowns assert that because Section 31(b) of the Act (415 ILCS 5/31(b) (1994))[1] which provides that a citizen may file "a written complaint … against any person allegedly violating the Act…" is written in the present tense (i.e., violating), a citizen has no authority to bring enforcement action for past violations. The Crowns therefore maintain that the Board should use its discretionary power under Section 31(b) to dismiss the complaint. The Board does not agree with the Crowns, and can find no appellate or Supreme Court decision during the Board's 27 years of existence that agrees with the Crowns' argument. Therefore, the Board reiterates that the Sheltons have authority under Section 31(b) of the Act to bring this citizens enforcement action.

Numeric Noise Allegations

The Sheltons argue that the numeric noise limitations set forth at 35 Ill. Adm. Code 901.102(a) and (b) apply to the Crown chiller unit and were exceeded on July 5, 1994, June 19, 1995, June 26, 1996, and August 15, 1996. Comp. Br. at 43. The Sheltons maintain that the residential exemption from the numeric noise standards (35 Ill. Adm. Code 901.107(a)) does not apply since the Crowns' chiller unit is not a residential unit but rather a commercial unit operated in a commercial manner. Comp. Br. at 43-44. In addition, the Sheltons assert that if the residential exemption does apply, it should only be applicable after March 1995, when the Crowns actually occupied their residence. Comp. Br. at 44.

The Crowns argue that the numeric noise standards Section 901.102 have no application in this proceeding. The Crowns contend that Section 901.107(a) exempts the application of the numeric standards of Section 910.102 to sound emitted from land used as specified by SLUCM Code 100[2], which includes "household units." 35 Ill. Adm. Code 901.101(a) Appendix B at B-1 Code 1100. The Crowns assert that characterization of the chiller unit as a commercial unit is irrelevant to an applicability determination with regard to the numeric noise standards at Section 901.107(a). The Crowns maintain that the use of the premises on which the chiller is located determines the applicability of Section 901.107(a), since Section 907.107(a) specifically exempts "land used as specified in SLUCM Codes 110…," where SLUCM Code 110 covers "household units." Resp. Br. at 6.

The Board finds that the Part 901.102 numeric standards do not apply in this case. The exemption at Section 901.107(a) and the SLUCM Code 110 (Part 905, Appendix B) indicates that the Part 901.102 numeric standards do not apply to sound emitted from land used for

[1] The Board notes that Section 31(b) in the 1994 version of the Illinois Compiled Statutes (415 ILCS 5/31(b) (1994)) is now found at Section 31(d) of the Act (415 ILCS 5/31(d) (1996)).
[2] The Board's regulations adopted the use of the Standard Land Use Coding Manual (SLUCM) which can be found at 35 Ill. Adm. Code 901.101(a) Appendix B.

household units.[3] Thus, it appears that the exemption at Section 901.107(a) would apply to noise emitted from the Crown chiller unit since the chiller unit is a part of the Crown residence, i.e. the "household unit." The Board is not persuaded by the Sheltons' argument that the Crown residence was a "construction site" from the time the Crowns began operating the chiller unit in 1994, until the Crowns moved into the structure in March 1995, and therefore was not entitled to the residential exemption at Section 901.107. It is clear from the SLUCM definition of household unit that the intent to occupy a structure as separate living quarters is the key to this operational definition. There is no exception that during the construction phase, a household unit intended for occupancy as separate living quarters should be treated as a commercial unit.

Even if the numeric standards were applicable, the review of the sound data indicates that the monitoring results cannot be compared with the numeric standards to establish a violation since the sound measurements were not obtained in accordance with the Board regulations at Section 900.103. Specifically, Section 900.103(b) requires sound measurements to be based upon L_{eq} averaging with a reference time of one hour. The Board has previously found that only sound levels measured on the basis of L_{eq} averaging over a period of one hour and corrected for ambient sound can be compared with the allowable octave band sound pressure levels specified at 35 Ill. Adm. Code 901.102 to show compliance or non-compliance. Tex v. Coggeshall, PCB 90-182.[4] Even though sound levels in this case appear to be measured on the basis of L_{eq} averaging, the reference times were significantly less than the required one hour. Therefore, even if the Board had not previously found that the residential exemption for the numeric noise standards applied in this case, the sound measurements in the record do not appear to be sufficient to find a numeric noise violation. However, as discussed further below, the sound evidence can still be considered when reviewing the Section 33(c) factors in a nuisance noise case. See Discovery South Group, Ltd., v. Pollution Control Board, 275 Ill. App. 3d 547, 559, 656 N.E. 2d 51, 51(1st Dist. 1995).

Nuisance Noise Allegations

[3] The term "household unit" is defined by the SLUCM Code as a house, an apartment, or other group of rooms, or a single room that is intended for occupancy as separate living quarters. Occupants of "household units" do not live and eat with other persons in the structure (such as boarding house), and there is either (1) direct access from the outside or through common hall, or (2) there is a kitchen or cooking equipment for exclusive use of the occupants of the unit. The occupants may be a family, a group of unrelated persons, or a person living alone. Mobile homes…

[4] The Board has made exception to this precedent only in cases where a party has shown that the problem noise at issue is emitted in bursts shorter than one hour, such as discrete songs. See Village of Matteson v. World Music Theater (February 25, 1993), PCB 90-146, slip. op. 45-46, 56, 275 Ill. App. 3d 547, 656 N.E. 2d 51 (1st Dist. 1995). Neither of the parties made such a demonstration in this case.

The Sheltons argue that the noise from the Crowns' chiller unit unreasonably interfered with the Sheltons' use and enjoyment of their home during those times when the chiller unit operated between September 1993 and August 1996. Comp. Br. at 8-25. The Sheltons maintain that the interference was unreasonable because a review of the five factors in Section 33(c) of the Act leads to a proposed Board finding against the Crowns for each factor. Comp. Br. at 41. Finally, the Sheltons assert that the Board should impose a $30,000 civil penalty. Comp. Br. at 44.

The Crowns maintain that this dispute has gone through two basic phases: the pre-enclosure phase from fall 1993 to spring 1995, and the post-enclosure phase including summer and fall 1995 and early summer of 1996. Resp. Br. at 7. The Crowns argue that the noise controversy during the pre-enclosure phase was mediated by Winnetka and led to construction of the initial enclosure of the chiller unit in spring 1995. Essentially, the Crowns argue that because local authorities attempted to mediate the dispute during the pre-enclosure phase, the Board does not have jurisdiction over that time period. Resp. Br. at 7. The Crowns then argue that after the acoustic enclosure was in place, the Sheltons did not establish that the chiller unit noise unreasonably interfered with the Sheltons' use or enjoyment of their property. Resp. Br. at 11. The Crowns maintain that a number of witnesses testified that the acoustic enclosure reduced the sound levels emitted by the chiller unit in early summer 1995. Resp. Br. at 11. Finally, the Crowns challenged the Sheltons credibility and asserted that the Sheltons' windows air conditioner was noisier than the Crown chiller unit. Resp. Br. at 13.

The Board finds that the testimony of the Sheltons clearly demonstrates that the noise from the Crowns' chiller unit interfered with the Sheltons' lives and use and enjoyment of their property. To determine if the interference was "unreasonable" the Board must examine the factors enumerated in Section 33(c) of the Act. Before proceeding to discuss the Section 33(c) factors, the Board will first address questions raised concerning the appropriate time frame to consider in this complaint.

Appropriate Time Period

The Crowns raise an apparent jurisdictional challenge to the Board's authority to find nuisance noise violations pursuant to the Act for the "pre-enclosure phase" from fall 1993 to spring 1995 because Winnetka was attempting to "mediate" the dispute for that time period. The Board reiterates its order of October 5, 1995, which found that this complaint was not duplicitous, and therefore directed this matter to hearing. The Sheltons argue that the time period of the complaint should include the 1996 cooling season, up until the final enclosure adjustments in August 1996. However, the record shows that the Sheltons moved from their home in January 1996 and the house has apparently been sold. There is not enough evidence in the record to show that noise from the Crowns' chiller unit interfered with the Sheltons' lives and enjoyment of their property after they moved in January 1996. Therefore, the Board finds that the proper time period to consider in the action is from the chiller unit's first operation in September 1993, until the Sheltons moved in January 1996.

Section 33(c)(i): Degree of Injury or Interference

In assessing the character and degree of injury or interference caused by the noise emissions from the Crowns' chiller unit, the Board looked to whether the noises "substantially and frequently interferes with the use and enjoyment of life and property, beyond minor trifling annoyance or discomfort." Kenneth Metivier and Cynthia Metivier v. Douglas Kenyon d/b/a Douglas Kenyon, Inc., PCB 92-74 slip op. at 4, (December 16, 1993), citing Kvatsak. Susi and David Shelton, and their son David B., all testified that they were unable to sleep due to the chiller unit noise, which was a constant feature of their environment during the cooling season for the time frame in question. Son David B. Shelton was not able to sleep in his bedroom on the second floor facing the Crowns' residence on numerous occasions when the chiller unit was operating. He testified that noise from the Crowns' chiller unit vibrated the windows and wall of his bedroom. All three Sheltons testifying noted increased stress and tension in the family when the chiller unit noise was present. In addition, Ms. Julian, the Sheltons' neighbor to the north, further from the Crowns' residence than the Sheltons, testified that the noise from the Crowns' chiller unit awakened her at night and vibrated the floor of her home. Susi Shelton attributed several of her medical problems to the noise, but did not introduce any evidence from medical personnel into the record. Nevertheless, the record in this proceeding clearly indicates that the noise from the Crowns' chiller unit went beyond mere trifling annoyance to substantially and frequently interfere with the Sheltons' use and enjoyment of their property. The decibel level of the sound measurements in this record also support this analysis. Therefore, this 33(c) factor supports a Board finding of unreasonable interference.

Section 33(c)(ii): Social and Economic Value of the Pollution Source

The record contains little information on the social and economic value of the pollution source. The only evidence concerns the necessity of removing humidity from the Crown residence to preserve elaborate interior appointments. Therefore, this 33(c) factor neither supports nor mitigates a Board finding of unreasonable interference.

Section 33(c)(iii): Suitability or Priority of Location

The documents published by the chiller unit manufacturer warned that the 25-ton chiller unit may not be suitable in a residential application because of noise emitted by the unit. The progression of sound measurements during the pendency of this dispute demonstrate that operational modification and a properly designed acoustical enclosure were essential to adapt this particular chiller unit to a residential setting. In summary, the Crowns' chiller unit was unsuitable for a residential setting before the operational controls and proper acoustical enclosure were in place. Therefore, this 33(c) factor supports a Board finding of unreasonable interference.

Section 33(c)(iv): Technical Practicability and Economic Reasonableness of Reducing Emissions

The record in this case supports a finding that the nuisance noise from the Crown chiller unit has been attenuated, therefore the control methods were technically practicable. The record does not expressly address economic reasonableness, although some monetary figures are available. The total cost of the HVAC system was approximately $300,000. Stip. No. 1. The cost of noise control was approximately $20,000. Stip. No. 1. Therefore, the Board finds that the seven percent (7%) additional cost of appropriate noise control was reasonable and this factor supports finding an unreasonable interference.

Section 33(c)(v): Subsequent Compliance

The record indicates that the operational controls and acoustic enclosure have mitigated the noise emitted from the Crown chiller unit so that it is no longer produces nuisance noise. Therefore, this 33(c) factor mitigates a Board finding of unreasonable interference.

Nuisance Noise Summary

A review of all the factors set forth in Section 33(c) of the Act supports a finding that noise from the Crowns' chiller unit was an unreasonable interference in the lives of the Sheltons during those times when the chiller unit was operating between September 1993 and January 1996. The record shows that the effects on the Sheltons' lives and enjoyment of their property went beyond mere annoyance. The record also demonstrates that the potential for noise problems in a residential setting with this chiller unit could have been anticipated before installation because of printed warnings in the manufacturer's literature. The nuisance noise emissions were mitigated with operational controls and a properly designed acoustical enclosure, which added a reasonable seven percent (7%) to the cost of the HVAC system. Therefore, the Crowns are found to have violated Section 23 and 24 of the Act because of the nuisance noise emissions from their chiller unit during the time period in question.

CIVIL PENALTY

In determing the appropriate civil penalty, the Board considers the factors set forth in Section 33(c) and Section 42(h) of the Act. See People v. Berniece Kershaw and Darwin Dale Kershaw d/b/a Kershaw Mobile Home Park, PCB 92-164 (April 20, 1994). The Board must bear in mind that no formulae exist, and all facts and circumstances must be reviewed. Kershaw, at 14.

The Board has stated that the statutory maximum penalty "is a natural or logical benchmark from which to begin considering factors in aggravation and mitigation of the penalty amounts" IEPA v. Allen Barry, individually and d/b/a Allen Barry Livestock, PCB 88-71, 111 PCB 11 at 72 (May 10, 1990). The formula for calculating the maximum penalty is contained in Section 42(a) and (b) of the Act (415 ILCS 5/42(a) and (b) (1994)). Section 42(a) provides for a civil penalty not to exceed $50,000 for violating a provision of the Act or Board regulations, and an additional civil penalty not to exceed $10,000 for each day during which the violation continues.

Section 42(h) of the Act states that "[i]n determining the appropriate civil penalty to be imposed, the Board is authorized to consider any matters of record in mitigation or aggravation of penalty, including but not limited to the following factors: (1) the duration and gravity of the violation; (2) the presence or absence of due diligence on the part of the violator in attempting to comply with the requirements of this Act and regulations there under or to secure relief therefrom as provided by this Act; (3) any economic benefits accrued by the violator because of delay in compliance with requirements; (4) the amount of monetary penalty which will serve to deter further violations by the violator and to otherwise aid in enhancing voluntary compliance wit this Act by the violator and other persons similarly subject to the Act; and (5) the number, proximity in time, and gravity of previously adjudicated violations of this Act by the violator."

The Sheltons argue that the Board could order a maximum penalty of $3,050,000 based on Section 42(a) of the Act. Comp. Br. at 46. The Sheltons maintain that based on their review of the 42(h) factors, a civil penalty of $30,000 should be levied by the Board in this case. Comp. Br. at 45-46. The Crowns argue that in view of all the eventually successful measures taken to control sounds emitted by the chiller unit, no civil penalty is warranted. Resp. Br. at 17.

After careful review of the Section 42(h) factors, as indicated in the remainder of this paragraph, and Section 33(c) factors discussed above, the Board finds that no civil penalty is warranted in this case. The record indicates that the duration and gravity of the violation supports a civil penalty. Section 42(h)(1). However, Board consideration of the other four factors does not support a civil penalty. The Board is concerned that mitigation of the nuisance noise took two full cooling seasons (see due diligence, Section 42(h)(2)), however, the record also shows that the Crowns continually experimented with noise control measures during that time. There is nothing in the record to indicate that the Crowns received economic benefits from noncompliance. Section 42(h)(3). The Crowns are presently in compliance, so no monetary penalty is necessary to enhance compliance. Section 42(h)(4). Finally, there is nothing in the record to indicate that the Crowns have any previously adjudicated violations of the Act. 415 ILCS 5/42(h)(5).

ORDER

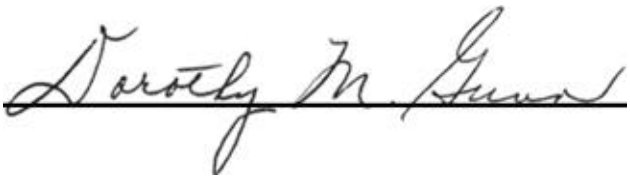
The Board finds that the Crowns have violated Section 23 and 24 of the Illinois Environmental Protection Act in relation to the nuisance noise emitted by the chiller unit on their property at 685 Ardsley Road, Winnetka, Cook County, Illinois, during the times when the chiller unit operated between September 1993 and January 1996. The Board finds that no civil penalty is warranted in this case.

This docket is closed.

IT IS SO ORDERED.

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1996)) provides for the appeal of final Board orders to the Illinois Appellate Court within 35 days of service of this order. Illinois Supreme Court Rule 335 establishes such filing requirements. See 145 Ill. 2d R. 335; see also 35 Ill. Adm. Code 101.246, Motions for Reconsideration.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 2nd day of October 1997, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board