BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

PROPOSED SITE SPECIFIC REGULATION APPLICABLE TO AMEREN ENERGY GENERATING COMPANY, ELGIN, ILLINOIS, AMENDING 35 ILL. ADM. CODE 901	))))	R04-11

NOTICE OF FILING

TO: See attached list

PLEASE TAKE NOTICE that today I have filed with the Illinois Pollution Control Board the Public Comment by Petitioner, Ameren Energy Generating Company, and a Motion to Correct Pre-Filed Testimony and Transcript in this Proceeding, a Motion to Clarify, Notice of Filing, and Certificate of Service on behalf of Petitioner, a copy of which is attached and hereby served upon you.

Respectfully submitted,

Marili McFawn
Attorney for
Ameren Energy Generating Company

Date: March 10, 2004

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CERTIFICATE OF SERVICE

I, the undersigned, certify that I have served the documents described in the attached Notice of Filing upon the Clerk of the Pollution Control Board and Hearing Officer John Knittle by Federal Express and those on the Service List by depositing them in regular U.S. mail on March 10, 2004.

Marili McFawn

CH2\ 1060957.1

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PETITIONER'S POST-HEARING PUBLIC COMMENTS

Now comes the Petitioner Ameren Energy Generating Company, by and through its attorneys, Schiff Hardin LLP, and hereby provides the Illinois Pollution Control Board ("Board") with post-hearing public comments, including responses to questions by the Board and issues raised by the Illinois Attorney General's Office through the course of this proceeding.

I. SUMMARY OF RELIEF SOUGHT

As explained more fully in the Petition and at the January 22, 2003, hearing ("Hearing"), the Petitioner is seeking site-specific relief from the Board's noise limitations found at 35 Ill. Adm. Code 901 for its electric generating facility in Elgin, Illinois, commonly known as the Elgin Energy Center ("EEC"). Currently, the noise levels associated with EEC are in compliance with the Board's noise limitations. Petitioner seeks site specific relief from the Board's noise limits for Class A receiving lands found at 35 Ill. Adm. Code 901.102 because vacant land proximate to EEC has recently been rezoned and may soon be developed residentially. Petitioner seeks site specific relief from the Board's noise limits for Class B receiving lands at 35 Ill. Adm. Code 901.103 so that the proposed Class A and Class B limits conform. Petitioner has studied the implications of the upcoming land use change, and concluded that the EEC will probably not be able to always meet the generally applicable noise limitations that heretofore were not applicable to EEC. Therefore, Petitioner is requesting the Board adopt as final the site specific noise limitations adopted by the Board for First Notice on

November 6, 2003, and published in the *Illinois Register* on November 21, 2003. 27 Illinois Register 1739.

The site specific limits sought for Class A and Class B receiving lands are:

Octave Band Center Frequency (Hertz)	31.5	63	125	250	500	1K	2K	4K	8K
Allowable dB of Sound Emitted to Receiving Class A Land	80	74	69	64	58	58	58	50	40
Allowable dB of Sound Emitted to Receiving Class B Land	80	79	74	69	63	58	58	50	45

II. WHAT THE EVIDENCE HAS SHOWN

EEC, as an electric generation plant, is classified as an industrial land use under the Board's noise rules. Located in an industrial park with an entrance on Gifford Road, EEC is surrounded by other industrial concerns including a manufacturing plant, a quarry and mining operation, two construction companies, a waste disposal company, as well as high powered transmission lines and the E J & E and Metra railroad lines. Residential subdivisions are located to the south, separated by the construction companies, the manufacturing company and West Bartlett Road.[1] Immediately west, separated by Gifford Road is the currently vacant property at issue, a portion of which was intended to be developed as a balefill operation by the Solid Waste Agency of Northern Cook County ("SWANCC")[2], but recently sold to Realen Homes ("Realen Property"). In June, 2003, the Realen Property was annexed and rezoned as residential by the Village of Bartlett.

The predominantly industrial character of the area is illustrated on the two maps attached to the Petition. Exhibits 1 and 2. At hearing, Petitioner presented a slide show of photographs of the area and testimony by Richard Smith, Manager of Generation

[1] There are residential subdivisions located east of the Facility, but they are beyond the high power transmission lines and railroad tracks.

[2] SWANCC fought for approximately 10 years to construct a balefill. In 2000, the Supreme Court 's decision cleared the way for SWANCC to so develop the property. Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159, 121 S.Ct. 675.

Services at Ameren. Together that evidence better describes and demonstrates the industrial character of the area surrounding EEC. The photographs are of the EEC and the other industrial operations that are just across the Gifford Road from the Realen Property, as well as the quarry operation just to its north. These operations and other nearby industries contribute to the area's ambient noise. The industrial nature also generates heavy truck traffic and other vehicular traffic on Gifford and West Bartlett Roads. These too contributes to the area's ambient and extraneous noise. See Exhibits 1 and 2; Exhibit 22 and Tr. 51-55.

The Facility's Power and Noise Abatement Equipment. The power generation facility at EEC is often described as a peaker facility. EEC's location was chosen due to the industrial nature, as well as its proximity to the nearby natural gas pipeline, the high power transmission corridor, and the Commonwealth Edison substation. Another factor was the nearby rail lines. Rail access was critical to deliver the generators and gas turbine components due to their exorbitant weight. Tr. 114. The Facility consists of four simple cycle Siemens Westinghouse W501D5A combustion turbines which combined are cable of generating up to 540 megawatts of electricity. Generally, the Facility is expected to operate during time periods when demand for electricity is the highest. A condition in the Facility's air permit limits operation to 16 percent of the time, annually. Tr. 122.

To generate the electricity, air, taken in through the inlet filter and silencer, is compressed and combined with natural gas. The air-fuel mixture is combusted and the hot gasses are expanded through a multi-stage turbine to produce shaft rotation/torque. The turbine shaft is directly connected to generator that is used to generate electric power. Exhaust gasses exit the system through the exhaust silencers. See Exhibits 4 and 5, Attachments C and D of the Petition.

The Facility is equipped with several different kinds of noise abatement systems; including both noise enclosures and silencers. See Exhibit 5. David Parzych of Power Acoustics, Inc., the noise expert who has advised Petitioner during the conceptual and design phase of the Facility, and more recently during this rulemaking, testified that this

Facility contains the largest amount of sound abatement equipment he has ever seen supplied by Siemens Westinghouse for this type of gas turbine. Tr. 60. Mr. Parzych is well qualified to assess the quality of the equipment at this Facility and at other power plants. He has 21 years of experience in the field of acoustics and noise control, with the last 11 years focused on power generation facilities with gas turbines. Tr. 56. See also Exhibit 12, Parzych Resume.

To begin, the air intake is equipped with inlet silencer baffles, that are combined with extensive duct structural stiffening and lagging as secondary noise attenuation to further reduce sound radiating from the air intake system. Each unit's silencer is 12 feet long, as opposed to the industry standard of 8 feet, and the stiffening and lagging of a quality to maximize noise reduction.[3] Twelve feet is the maximum length offered by Siemens Westinghouse or its competitor, General Electric, and typically reduces sound by more than 50 decibels, which corresponds to 99.999 percent efficiency in noise reduction. Tr. 98-99.

The ducting at the main inlet consists of an external steel wall that is 3/16 inch thick, followed with 4 inches of acoustical insulation and an internal steel liner that faces the air flowing into the compressor. To further reduce the sound radiated by the inlet ducting, a layer of insulation and lightweight gauge steel were added externally to encapsulate the main ducting. The encapsulation is referred to as the "acoustical lagging". Exhibit 9 at 6. Generally, parallel baffle silencers within steel ducting, like those used in the inlet system of the gas turbine, are limited to a maximum sound attenuation of 50-60 decibels. This is due to mechanical vibration that is propagated along the ducting and metal surfaces of the silencer itself. According to Parzych, simply lengthening the silencing would not necessarily improve or reduce noise associated with the inlet. Tr. 98-99.

As for the exhaust outlet, each unit is equipped with silencer panels designed specifically for this Facility to attenuate the low frequency 31.5 Hz and 63 Hz octave

[3] Initially, the individual silencer was described as 8 feet long. Upon further investigation, it was determined that each is actually 12 feet in length. Tr. 28.

bands while also providing substantial mid and high frequency noise reduction. Silencing the exhaust is the most difficult noise source in gas turbines to control because of its low frequency components. The exhaust silencer alone is approximately 50 feet in total length, that is, not including the ducting. The silencer panels at each unit are extra thick and the special horizontal section of silencer panels is approximately 35 feet in length, significantly longer than industry standards. A 3 foot thick foundation was used to accommodate the massive, horizontal exhaust silencer. Downstream of the exhaust silencer is the traditional 50 foot high vertical exhaust stack, that provides an additional 15 feet of silencers. Finally, to keep sound from radiating from the exhaust duct surfaces, an extra, secondary enclosure system was provided, which is acoustically insulated and constructed with ¼ inch or more steel plate. Tr. 28-29; This exhaust system, particularly the horizontal exhaust silencer, is considered state of the art by industry professionals. Tr. 57; Tr.152-153. The equipment cost for the exhaust system, excluding installation expenses, was $2,290,000. Petition at 10.

The noise abatement equipment was designed specifically so compliance with the Board's noise limitations would be achieved when the Facility. When compared to the standard noise abatement equipment sold by Siemens Westinghouse and its nearest competitor, the equipment installed at EEC's exhaust and inlet points is significantly greater than the industry standard for peaker power plants, and, in the case of the exhaust outlet, the silencer is mammoth. The next most competitive type of equipment consists of just 16 of feet low frequency silencing and four feet of high frequency silencing, for a total of only 20 feet in length. So, the Facility's silencer is 30 feet longer than one of the best offered by a competitor. Tr. 100; 189. As for additional noise control, Parzych testified that upgrading the exhaust silencers to achieve further noise reduction is questionable. First, he testified that making the silencers longer will not reduce sound. Second, additional exhaust stack silencing would increase the pressure drop of the system and reduce the efficiency and power output of the gas turbines. And finally, another complication is that changing the stack height or location would require new air modeling satisfactory to the Illinois Environmental Protection Agency, as well as permission for the City of Elgin due to its height restrictions. Tr. 100.

Other prominent sources of sound include the air-cooled generator, the heat exchangers, and transformers. Each of these sound sources needs air flow to provide cooling, and therefore cannot be completely enclosed. The air flow to the generator, while within a sound enclosure, cannot have major restrictions without seriously affecting its ability to generate electricity efficiently. The heat exchangers, which are of a fin-fan type, need air flow, and restricting them could cause the equipment they support to overheat and ultimately cause the Facility to fail. The transformers have similar issues. Finally, any additional noise control of these components could have a negative impact on the operational efficiency of the Facility. Exhibit 9 at 6.

In 2000, Power Acoustics, Inc. performed the preconstruction noise study that identified the equipment necessary to achieve compliance with the Board's noise regulations. Exhibit 12; "2000 PAI Noise Study." The cost of these noise abatement measures for all four units was approximately $11,650,000, and represents incremental costs because the noise abatement equipment was designed specifically for this Facility to ensure compliance when the Facility became fully operational. Tr. 30. This cost figure also represents approximately five percent of the Facility's total capital requirements. Tr. 131-132. The subsequent study conducted by Power Acoustics, Inc. in 2003, demonstrates that the Facility does comply with the Board's noise emission limitation at existing residential areas. Exhibit 11.

The Noise Studies Conducted in 2003. Three noise studies were conducted in 2003. These are in addition to the 2000 PAI Noise Study that identified the noise abatement equipment necessary to achieve compliance with the Board's generally applicable noise regulations. Two of the three studies were performed by Power Acoustics, Inc. PAI took field sound measurements in June when one unit was operating at base load, and then analytically extrapolated that information to represent four units fully operational. Exhibit 11: *Analysis and Results of Acoustical measurements Taken Near the Ameren Elgin, Illinois Power Facility During the Operation of the Unit 4 SW501D51 Gas Turbine,* "2003 PAI Noise Study". In July, Power Acoustics performed an analysis using a sound radiation model to extrapolate the four unit operation at various spatial points on the Realen Property. (Exhibit 13:

Elgin Plant Estimates of Realen Property, July 11, 2003, "Elgin Plant Estimates Report." The third study, field sound measurements taken by Noise Solutions by Greg Zak in September 2003 was done to obtain additional field data to use with the 2003 PAI Noise Study data. Exhibit 14: *Sound Assessment Report for Ameren Elgin Facility,* "2003 Zak Noise Study." Petitioner used these three studies to confirm that compliance would not be achieved during full load operation if the Realen Property is converted to residential use, and also to identify the extent of relief necessary from the Board's regulations to be able to routinely achieve compliance when operating at full load.

The 2003 PAI Noise Study consisted of two components: field sound measurements, and subsequently, an analytical extrapolation to simulate full base load operation of all four units at EEC. The field sound measurements consisted of taking two sets of field measurements on June 17, 2003 to establish the background ambient sound levels and operating sound levels with one unit operating at base load. These measurements were taken at the same five critical receptors as used in the 2000 PAI Noise Study, and at five locations on the Realen Property. They were taken at night to be representative of the quietest community conditions, and the weather conditions were nearly perfect for measuring sound with moderate temperatures and humidity, and no wind. Exhibit 11.

The second component consisted of an analytical extrapolation using the sound pressure data from the June 2003 field measurements and standard analytical procedures to estimate the sound pressure levels if all four units are fully operational. See Exhibit 11. The results showed that the Board's regulations were achieved at the five existing residential receptors, but not at the Realen Property. Rather, the operation of all the units is estimated to cause sound pressure levels that exceed the Board's Class A regulation if the Realen Property is developed for residential use. Exhibit 9 at 3.

The Elgin Plant Estimates Report was done to estimate the sound pressure levels over the entire Realen Property. Exhibit 13. (The June analysis used measured sound levels of one unit at specified field points.) This analysis estimates the sound

pressure levels at a variety of spatial positions on the Realen Property, instead of the at the five specific field points. The sound power level generated by a single unit was estimated from the June 2003 sound pressure level measurements. Sound *power* levels are different than sound *pressure* levels in that they are not impacted by sound propagation effects. Sound *power* level is the measure of sound energy that is available to be radiated by the equipment. Using this sound power level information, the sound pressure levels are estimated at the various locations at the Realen property using a theoretical sound radiation method. The highest sound pressure levels were estimated to occur directly west of Unit 4 of the Facility (identified as L-R2 in other noise studies), while sound pressure levels decreased as distance from the Facility increased to the west, north or south. Exhibit 9 at 3; and Exhibit 13.

The third study is that performed by Noise Solutions by Greg Zak. A second series of field sound measurements at the LR-2 location (that just across from Unit 4) was conducted on September 2, 2003. During this study, all four units were fully operational. Ambient measurements were taken between 9:00 pm and 9:30 pm, and operational sound measurements taken when all four units were fully operational beginning at 10:00 pm. Weather conditions were clear with warm nighttime temperature, and wind from the east. See Exhibit 14. The sound levels measured on the night of September 2, 2003 were generally lower than, or very near the numerical limits extrapolated and reported in the 2003 PAI Noise Study report. (Exhibit 11.)

The general cost estimate for fully operating the Facility for purposes of studying sound pressure levels consists of (1) start up costs that are approximately $7,500 for each machine, and (2) operating costs at full load that are approximately $8,000 per hour. Thus, a typical two hour test for all four units running simultaneously would be $90,000 to $100,000. This estimate does not include the additional costs to compensate others for non-economic dispatch of their units which is necessary if the Commonwealth Edison system cannot absorb this much energy at the time of testing. Incurring costs for non-economic dispatch is highly likely because the testing must take place at night to demonstrate worst case conditions. In fact, Petitioner did incur the additional costs because there was a non-economic dispatch when the Facility was

brought on line so that Power Acoustics and Zak could conduct the field measurements in June and September, 2003.[4] Tr. 136-138. Finally, this cost estimate does not include the cost of retaining and making available the expert consultants to conduct the study when the various necessary testing conditions are all aligned.

The Attorney General's witness, Howard Chinn, recommended that Petitioner conduct three additional sets of noise measurements with all four units fully operational, when ambient noise is at its lowest level and under similar atmospheric conditions, and at different receptor locations. Tr. 87. Scheduling three more tests satisfying each of these criteria would be expensive and difficult, if not impossible. Parzych had addressed this issue in his prefiled testimony. He stated that several months of continuous operational data would be required to define the Facility's sound spectrum, but collecting that amount and type of data is not feasible because peaker plants do not operate continuously or at fixed operating levels, and the cost of operating them for just acoustical testing is excessive. Exhibit 9 at 7. At hearing, Parzych further testified about the impediments he has encountered when attempting to conduct just one field test, such as weather delays; the inability to sell the amount of power generated during the test or even compensate another power producer for a non-economic dispatch; insufficient testing equipment to take measurements at multiple locations over a reasonable period of testing; and having all equipment successfully operate concurrently. He also noted that it is highly probable that weather conditions would not be as favorable as those fortuitously occurring during the two field tests conducted by Petitioner in 2003. Not only was the weather on those two occasions favorable for conducting the field measurements, the conditions on both nights were also favorable for measuring sound propagation in a westerly direction. Tr. 109-110.

Chinn believed that additional field tests are necessary because the database provided by the Petitioner is not sufficient for decision-making. In support, he cited to Petitioner's statement in its Petition that the database is not statistically representative. Tr. 93. This reference is incomplete. Petitioner stated: "*This data must be*

[4] See Motion to Clarify Response.

conservatively interpreted because two sets of sound pressure level data cannot be considered a complete statistical representation of sound from the Facility." (Emphasis added.) Petitioner went on to explain that "[u]fortunately conducting more actual measurements with the Facility fully operational is not feasible. The variables involved are far too numerous to run a sufficient number of tests to create such an extensive data base." Petition at 23. At hearing, this truth was further explained. As addressed above, the variables and costs for scheduling and conducting these tests is complicated, and having all testing conditions aligned highly improbable. Therefore, to compile a statically complete data base that would not have to be conservatively interpreted would most likely require far more than just five actual field measurement studies. Analytical procedures are scientifically accepted for predicting and substituting actual data, and the information provided by the field measurements collected in 2000 and 2003 coupled with the analytical analyses performed by Power Acoustics, Inc. are sufficient to demonstrate that Board should grant the relief requested.

As for the items listed by Chinn to be included in the additional tests, Petitioner did conduct testing during times of low ambient levels. Petitioner took nighttime measurements during warm weather for that very reason. Taken together, those noise studies also reliably demonstrate that the Facility will not be able to always meet the Board's Class A noise limits once the Realen Property is converted to residential. Additional field measurements or additional receptor locations will not alter that fact. The need for the relief requested has been adequately demonstrated. And, if as cautioned by Petitioner, the statistical data base is conservatively interpreted, these noise studies adequately demonstrate the requested noise limitations are those necessary for compliance to be routinely achieved when the Facility is fully operational, and the weather conditions and ambient noise levels are favorable to sound propagation in the direction of the Realen Property. Tr. 61-62.

Technical Feasibility and Economic Reasonableness of Additional Controls. As summarized above, the noise abatement equipment designed and installed at the time of construction is well beyond industry standards and noise from the exhaust and inlet outlets has been reduced to the maximum extent possible. Despite this, Petitioner

investigated the technical feasibility and economic reasonableness of seven additional noise abatement measures. Because EEC is already equipped with state of the art noise abatement equipment, the technical feasibility of significantly reducing sound through the additional measures is questionable at best, and the associated cost estimates are estimates only. Because the methods for further reducing noise to comply with the Board's general limits are experimental, these estimates are only accurate within minus 25 to plus 75 percent. The cost estimates were summarized at Attachment E to the Petition. Exhibit 6. The cost estimate for each option is broken down into material, labor, engineering, project management, the cost of construction interest (AFUCD), overhead, and contingency costs. However, these cost estimates do not include the cost of removing existing equipment, building new foundations if necessary, or the attendant cost of facility downtime during removal, reconstruction and installation. Exhibit 8; Tr. 32

At hearing, Petitioner further addressed each of the seven additional noise abatements. In response to questions by the Board and the Attorney General's office, the possibilities of constructing a berm or totally enclosing the Facility were also addressed at hearing. The first measure involves installing additional silencers to further control low frequency noise. This measure is not technically feasible because the exhaust silencer equipment already in place is providing about the maximum noise attenuation this type of silencer system can achieve. As testified, additional silencers would not reduce noise sufficiently to achieve compliance with the Board's noise limitations because the exhaust silencer at each of the four units already challenges the state of the art. Nevertheless, an estimate for installing additional exhaust silencers was provided. The estimated cost is $6,000,000, and it does not include relocating the vertical stack that would be necessary because there is no more room in the horizontal stack to accommodate such additional silencers. Tr. 32-33.

The second approach investigated for further reducing low frequency noise was a new, redesigned stack. Since no such stack is currently available in the United States, or elsewhere to Petitioner's knowledge, this approach would require entirely new research and design, including aerodynamic modeling to assure that the designed

model would achieve the reductions beyond that already provided by the existing equipment. The estimated cost of this approach is $18,000,000. Exhibit 8; Tr. 33.

The third approach investigated to further reduce low frequency noise was an active noise control system, although no such system has ever been used by the power industry. This approach would be completely experimental and the probability of success very low. Therefore, the actual cost (assuming such a system could be engineered) is likely to be much greater than the estimate of $6,000,000. Tr. 33-34.

As for adding controls at the inlet, the following were investigated: additional inlet silencers, a secondary inlet ducting enclosure, and a secondary generator enclosure. Additional silencers at the inlet to reduce high frequency noise are estimated to costs $600,000. The secondary enclosures for the inlet ducting and the generator are each estimated at $1,200,000. Yet, a secondary enclosure for the inlet ducting would not ensure compliance with the Board's noise emission limitations. As for a secondary enclosure for the generator, that would be unique to the industry, and at a minimum would require extra engineering to avoid adverse operational impacts upon the existing generator enclosures. Exhibit 8; Tr. 34.

The seventh abatement measure considered was a barrier wall. Constructing a barrier wall is the second most costly measure at $3,600,000. This estimate is based upon cost factors of $35 per square foot, and a wall 35 feet tall and 250 feet long. Such a wall would have to be high enough to block the sight line and still would not abate low frequency noise or noise from the vertical stacks. Exhibit 8; Tr. 36. In response to a question from the Attorney General's Office about a berm instead of a barrier wall, Parzych testified that to be most effective such a berm would have to be placed close to the equipment or the critical receptors. If close to the Facility's equipment, he advised that such a berm would have to be 50 or more feet tall to effectively block the line of sight. This means that such a mound would have to be very huge. Tr. 165-166.

The feasibility of enclosing the entire facility was addressed at hearing. No cost estimates were provided because this measure is probably not technically possible, and even if it is, it would not be economically reasonable. These four gas turbine units are

designed for outdoor use; they cannot necessarily be adapted to indoor use. If they could, the entire turbine enclosure would have to be ducted to the outdoors, yet large amounts of fresh air would have to be introduced to insure that any gas leaks would not result in explosions. Much of the supporting equipment would have to be moved outdoors due to air flow and heat considerations with certain equipment moved to the roof, and any remaining in the building would also require large amounts of fresh air. Assuming that the Facility could be so redesigned and reengineered, such a remedy would be comparable to constructing a new facility. Tr. 103-106.

None of these measures are warranted. The Board's regulations do not require that all noise be eliminated, and this Facility has already achieved maximum reductions by being equipped with noise abatement equipment well beyond the industry's standards. For this very reason, the likelihood of these additional measures successfully further reducing sound sufficiently to achieve compliance at the Realen Property is very doubtful according to Petitioner's noise experts.

At hearing, Chinn raised the issue of a building without a roof (which notably is comparable to the barrier and berm option addressed above.) Chinn testified that a building without a roof exists at a Hillside landfill facility that has an electric generating plant. Tr. 87-89. Chinn did not know the name of the Hillside facility, the operator, or whether it was equipped with noise control equipment. He also did not know what type or size of electrical generating equipment at the facility or whether that equipment was comparable to the EEC generation equipment. Tr. 266-270. Post hearing, the Office of the Attorney General did identify the Hillside facility, but the only relevant information provided was that the facility does not have a roof, and noise is radiated vertically. Attorney General's Response to Question Raised at Hearing filed February 9, 2004. No information is provided about the size of the facility and power generation equipment, noise abatement equipment, or whether it achieves compliance with the applicable Board regulations. Thus, there is no evidence that this landfill facility has a power generation plant that is comparable in size, generation power, or noise control to EEC,

or that may somehow support Chinn's suggestion that EEC can and should achieve compliance by erecting a barrier wall.[5]

At hearing, Chinn also cited to testimony by Versar Consulting Company in the Board's proceeding, R 01-10: In the Matter of Natural Gas-Fired, Peak Load Electric Power Generating Facilities. He did not know the power plants that were the foundation for Versar's testimony and had not looked at the Versar report. His purpose in citing to Versar's testimony was "to indicate that there is technology available to mitigate noise from peaker plants." Tr. 260/278. Petitioner agrees that technology is available to mitigate noise from peaker power plants. As well evidenced by the record in this proceeding, Petitioner investigated that very issue in 2000, and then designed and installed, at significant expense, the best noise abatement equipment available to successfully achieve compliance with the Board's noise regulations. That technology still represents the equipment that is state of the art, i.e., well beyond industry standards.

The Noise Emission Limitations Required and Their Environmental Impact. Because the monetary and operational cost associated with acoustically modifying the existing EEC facility is prohibitive and its successful outcome very unlikely, Petitioner is seeking this site specific relief. To determine the site specific sound pressure level requirements, a combination of the sound pressure level data collected in the 2003 Noise Studies was used. (Exhibits 11 and 14, respectively). The information supplied by Siemens-Westinghouse that defines the equipment sound power levels was also factored in by Power Acoustics to analytically correct the sound measurements to four unit operation. Exhibit 11 and 12.

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[5] As suggested by the Office of Attorney General in its Response filed on February 9, 2004, counsel for Petitioner did contact persons on the attached documents and learned that the three gas turbines at the Hillside facility have a combined capability to generate 16.5 megawatts of electricity versus the 540 megawatts combined capability of EEC's three turbines; that each of the Hillside turbines and associated equipment is approximately the size of Chevrolet Suburban; and that the height of the walls enclosing the three turbines is approximately 12 feet. Based upon these facts, the Hillside facility is not comparable to ECC and is not a representative example of soundproofing with a barrier wall or for any other purpose.

The following table provides of summary of the data collected and a comparison between the noise emissions proposed by Petitioner and the Board's daytime Class A and Class B noise emission limitations, as well as the noise limitations in Cook and DuPage counties. Exhibit 17. This table also provides a comparison of the sound pressure levels contained in the 2003 PAI Noise Study at Rows 1 and 2, and the measurements contained in the 2003 Zak Noise Study at Rows 3 through 6.

AMEREN ELGIN UNITS 1, 2, 3 AND 4, LOCATED AT L-R2 ON GIFFORD ROAD ACROSS FROM UNIT 4

Data Source	Description	Date 2003	31.5 Hz.	63 Hz.	125 Hz.	250 Hz.	500 Hz.	1K Hz.	2K Hz.	4K Hz.	8K Hz.	dB(A)
PAI[1]	Table 9, Extrapolated Total	6-20	78.4	71.8	63.5	ind	ind	55.0	53.2	45.7	31.9	---
PAI[1]	Table 6, Ambient	6-17	58.1	59.6	55.2	48.3	46.9	45.9	40.7	33.7	22.1	---
ZAK[2]	Raw 10 minute L_{eq} at 447 MW	9-2	73.4	66.5	62.6	57.0	53.0	53.4	55.6	49.2	42.4	60.1
ZAK[2]	10 minute L_{eq} Ambient	9-2	59.2	59.6	54.8	49.7	49.2	44.6	44.4	48.7	42.3	53.7
ZAK[2]	Corrected 10 minute L_{eq} at 447 MW	9-2	73.4	65.5	61.9	56.0	50.7	52.7	55.6	0	0	58.8
ZAK[2]	Corrected and rounded 10 minute L_{eq} at 447 MW	9-2	73	66	62	56	51	53	56	0	0	59
	Il Daytime Class A and DuPage Co.	---	75	74	69	64	58	52	47	43	40	---
	Il Nighttime Class A and DuPage Co.	---	69	67	62	54	47	41	36	32	32	---
	Cook County M1 to A	--	72	71	65	57	51	45	39	34	32	---
	901.102 C→ A	---	75	74	69	64	58	52	47	43	40	61
	901.103 C → B	---	80	79	74	69	63	57	52	48	45	---
	Site Specific Rule Requested C → A	---	**80**	74	69	64	58	**58**	**58**	**50**	40	—
	Site Specific Rule Requested C → B	---	80	79	74	69	63	**58**	**58**	**50**	45	—

Notes: (1) Power Acoustics, Inc. Report of June, 2003
(2) Noise Solutions by Greg Zak Report of September, 2003
BOLD: Numerical levels requested that are higher than corresponding limits at 35 Ill. Adm. Code 901.102 and 901.103

Petitioner tried to stay within the existing Illinois Board's daytime noise standard in developing the proposed site specific limits. However, at the 31.5 Hz, 1000 Hz, 2000 Hz and 4000 Hz octave bands, the daytime standards do not adequately allow for compliance if the Realen Property is developed residentially. Therefore, the levels requested by Petitioner represent the maximum of either the Illinois daytime standard or the average of the measured/synthesized values plus one standard deviation, as a safety factor. This standard deviation allows for unknowns caused by instrumentation (measurement) uncertainty, weather conditions and directivity effects associate with

various pieces of the power plant equipment. The standard deviation used to develop the proposed noise limitations is 3 to 5 decibels, the standard included in many of the existing national and international noise standards as the measurement uncertainty.

This comparison documents a significant difference in decibel levels at the 4000 Hz and at 8000 Hz octave bands. The difference of 15 decibels higher at 4000 Hz and 20 decibels higher at 8000 Hz is largely due to excessive insect sounds that were unavoidable during the ambient measurement period. When Power Acoustics took its measurements in June, 2003, this property, including the measurement location, was not yet bordered by an overgrowth of thick weeds and brush that are conducive to the harboring of a variety of insects. This overgrown and insect infested area was to the west of the microphone during the September, 2003 ambient measurement period and would account for these high readings.

When the ZAK corrected levels in Row 5 are compared to the levels obtained by PAI, the operational measurements at full capacity are considerably lower, with the exception of 2000 Hz. At that octave band, the PAI projection was 53.2 decibels, while the ZAK measurement was 55.6 decibels, a difference of 2.4 decibels. However, the PAI data represents a projection from the actual measurement of one unit running to the theoretical sound levels for all four units. Zak testified that a 2.4 decibel difference between extrapolated data and actual measurements falls well within the many sources of potential error in making an extrapolation from the measurement of one running unit to the actual measurement of four units, each with its own subtle characteristics even though each consists of the same turbine model and other necessary equipment and noise abatement controls. Exhibit 10 at 5; Tr. 70.

Finally, Zak compared Ameren's requested site-specific noise emission limitations for the Elgin Facility with a portion of the Board's various noise regulations. The comparison afforded by the information compiled in the following table (Exhibit 18) demonstrates that the limitations proposed in this site specific rulemaking are not significant.

A COMPARISON OF CURRENT NOISE LIMITS IN ILLINOIS WITH THE THE AMEREN ELGIN FACILITY SITE-SPECIFIC NOISE EMISSION LIMITATIONS

OCTAVE BAND CENTER FREQUENCY IN HERTZ (HZ)	INDUSTRIAL NOISE TO COMMERCIAL RECEIVER LIMITS Section 901.103	**AMEREN ELGIN FACILITY SITE-SPECIFIC NOISE EMISSION LIMITATIONS**	COMMERCIAL NOISE TO COMMERCIAL RECEIVER LIMITS Section 901.103	INDUSTRIAL NOISE TO RESIDENTIAL RECEIVER LIMITS Section 901.102a
31.5 HZ	80 dB	**80 dB**	79 dB	75 dB
63 HZ	79 dB	**74 dB**	78 dB	74 dB
125 HZ	74 dB	**69 dB**	72 dB	69 dB
250 HZ	69 dB	**64 dB**	64 dB	64 dB
500 HZ	63 dB	**58 dB**	58 dB	58 dB
1000 HZ	57 dB	**58 dB**	52 dB	52 dB
2000 HZ	52 dB	**58 dB**	46 dB	47 dB
4000 HZ	48 dB	**50 dB**	41 dB	43 dB
8000 HZ	45 dB	**40 dB**	39 dB	40 dB
APPROX. A-WT	66 dB (A)	**64 dB (A)**	62 dB (A)	61 dB (A)

Zak explained that a comparison of the values in this table demonstrates the following:

At the 31.5 Hz octave band, the 80 decibels limitation requested is equal to the current limit for "Industrial Noise Commercial Receiver Limits," that is, C to B land use, at Section 901.103 of the Board's rules.

At 63 Hz through 500 Hz octave bands, the limitations requested are equal to the "Industrial Noise to Residential Receiver Limits," that is C to A land use, at Section 901.102(a) of the Board's rules, and are considerably below the C to B land use limits of Section 901.103.

At the 1000 Hz level, the 58 decibels limitation proposed is only 1 decibel higher than the 57 decibels allowed under the limits for C to B land use.

At 2000 Hz, the 58 decibels limitation, while exceeding the C to B land use by 6 decibels, would not significantly penetrate a house of modern construction when the windows are closed, which is the likely situation when the units are operating during periods of very hot or cold weather. Exhibit 10 at 6.

At the 4000 Hz level, the 50 decibels limitation, while exceeding the C to B land use by 2 decibels, would not significantly exceed the levels frequently generated by crickets, locusts, and other insects. Additionally, 4000 Hz is even less able to penetrate a house with closed windows than is 2000 Hz. Exhibit 10 at 6.

And, at the 8000 Hz level, the proposed 40 decibels limitation is equal to the present Section 901.102(a) limit, and 5 decibels lower than C to B land use limits. Exhibit 10 at 6.

Site specific noise emission limitations applicable to receiving Class B lands are also requested by Petitioner. Six of the nine numerical levels are the same as those currently found at Section 901.103 of the Board's Class B receiving lands. However, at the remaining three octave bands, the 1000, 2000, and 4000 Herz octave bands, the Board's noise limits are more stringent than those requested by Petitioner as its site specific limits for Class A receiving lands. Petitioner proposes that the Class B site specific noise limits adopted at those octave bands be the same numerical value as those proposed for Class A receiving lands. Any environmental impact based upon those numerical changes would be of insignificant consequence. Exhibit 10 at 7.

Zak provided a perspective based upon his expert experience about the significance of the increased noise levels requested by Petitioner. Zak is an expert with more than 31 years of experience in the noise field, having been involved in both the public and private sectors with noise measurement, noise control engineering, and the effects of noise on people and communities. He explained that the character of the sound from this type of power plant is often described as similar to that of noise generated by airflow from ventilation within an office building. This type of noise, whether indoors or out of doors, is often absorbed into ambient noise. And, finally, Zak explained that the sound emanating from this Facility has been reduced with noise abatement equipment, and cautioned that care should be taken not to compare it to uncontrolled noise sources. Exhibit 10 at 6.

In response to this prefiled testimony, the Board asked Zak to address further the significance of the proposed site specific noise limits on people and the community. More specifically, the Board asked Zak why the proposed limits at the 31.5 Hz, 1000 Hz, and 2000 Hz octave bands are "not significant". Zak explained that the extraneous noise in the heavily industrialized area around EEC dominates the area at these octave bands to the extent that it masks sound emissions from the Facility at these

frequencies. He also noted that ambient, insect noise experienced at the 4000 Hz octave band during the September 2 field measurements, overrode sound emissions from EEC. Tr. 194-195. Zak then explained that extraneous noise, *i.e.*, noise such as aircraft flyovers and passbys on the road, are excluded from sound field measurements because it blocks out the ambient and sound from the noise source of concern. Tr. 196 -197. The extraneous noise so dominates that it would be the only value registered, whether measuring ambient noise or sound from the Facility. Tr. 202. Zak also explained that the Board's measurement protocol requires that the extraneous sound be excluded from measurements. Tr. 203. To demonstrate the predominance of extraneous noise in the area, Zak testified that he had to frequently pause the instrumentation due to the amount of extraneous noise during the test for the entire time he was conducting the September field sound study. Tr. 213-216.

The Board also asked Zak whether the proposed noise limits for Class A and Class B land uses offer protection against unreasonable exposure that would result in annoyance, speech interference, or adverse community reaction. In response, he explained that the extraneous noise generated by the character of the area, during both day and nighttime hours, has a greater impact than the noise emitted at the levels proposed by Petitioner. Tr. 218 -220 Most specifically, Zak explained that jet aircraft noise at nighttime and vehicle passbys were the predominant source of noise when compared to Petitioner's noise. Tr. 217.

The Board next asked that Zak further explain in general the significance of the decibel increase of the proposed levels and the current regulatory levels. Zak addressed that concern in the context of small and large decibel increases. As for small increases, such as a one decibel increase, Zak explained that increment is so small that it is not discernable by the human ear. As for larger decibel increases, the actual character of the neighborhood, based upon the extraneous and ambient noise sources, determines whether the decibel level increases are significant. For example, if the ambient is high, the decibel increase will be insignificant; if the ambient is low, the size of the decibel increase will determine its significance. Tr. 228-231.

In sum, Zak explained that significance of the difference between the Board's noise limits and the site specific limits proposed by Petitioner is dependent on the noise present in the area which is the product of the extraneous and ambient noise in the area. If either or both of those types are noise sources are prevalent, the effect on the community of the noise contributed by the noise source of interest is not significant. Petitioner has demonstrated that the noise contributed by the Facility is not significant due to the overriding effect of the ambient and extraneous noise already present in the community due in large part to its predominately industrial nature.

III. WHY RELIEF REQUESTED SHOULD BE GRANTED

Richard Smith was responsible for the construction and commissioning of the EEC. He was responsible for leading the development of the EEC, including responsibility for the construction and commissioning of the Facility. As he testified Petitioner conducted an extensive public involvement program in 2000, prior to purchasing the site in 2001. This program included Petitioner hiring a Chicago public relations firm to conduct a survey of the local community. That survey concluded that the public would accept a new peaker plant and would not view the project negatively. The City of Elgin strongly embraced Petitioner's desire to inform the public of its intentions throughout the public involvement program. Petitioner conducted three public workshops, held meetings with local business owners, the local chamber, neighborhood groups, and published information in local media, including newspapers and radio, as well as conducting mass mailings. Petitioner also participated in public meetings and official zoning hearings. Elgin approval was required for the intended use of the land use for power generation. Petitioner participated in city council meetings, obtained approvals by ordinance and for enterprise zone extensions. Tr. 21-24.

Today, the EEC still has the support of the local governments. The Village of Bartlett and the City of Elgin have both submitted letter to the Board in support of this Petition. Public Comments #1 and #3. Realen Homes, has also submitted a letter in support of the relief requested. Public Comment #2. As soon as Petitioner became aware of the zoning and intended land use change for the Realen Property, it hired noise professionals to conduct field sound measurements at significant expense to

determine if the Board's noise limitations might be exceeded after the upcoming land use change.

The Facility is equipped with noise abatement equipment that is specifically designed and engineered to abate noise to levels that meet the now applicable Board noise limitation. 2003 PAI Noise Study. Those limits were achieved as anticipated due to the extensive, state of the art equipment, installed at the time of construction (2000 PAI Noise Study). However, the sound measurements taken by Power Acoustics and Noise Solutions in 2003 confirm that the Board's noise regulations are being met, but also demonstrate that compliance would not be achieved if the Realen Property is developed residentially. 2003 Zak Noise Studies.

Petitioner then reviewed whether there are technical means available for further reducing noise levels sufficiently to achieve compliance with the Board's noise levels at the Realen Property should it be developed residentially. Petitioner investigated installing additional noise abatement equipment, as well as constructing a barrier wall or building to enclose the entire Facility. Because the Facility is already equipped with state of the art noise abatement equipment for controlling noise, adding more noise abatement equipment was either not feasible because there was no room to do so, and if there was space to do so, little or no additional noise control would be achieved. For the same reason, any additional control or replacement of existing equipment would be experimental in nature, and therefore probably not technically feasible, or economically unreasonable, or both. As for a barrier wall, there is no assurance that it would effectively reduce noise to levels that would achieve compliance.

Finding no technical solution, Petitioner filed this Petition which garnered the support of the property owner and both municipalities. Using the noise studies conducted in 2003 and information from the noise study conducted during the design stage of the Facility in 2001, Petitioner identified the extent of the relief necessary to achieve compliance. The site specific relief requested was developed using these sound measurements and a set of synthesized values plus a standard deviation of 3 to 5 decibels. To the extent possible, the Board's maximum daytime standard is proposed

at most octave bands. Petitioner's experts also explained the significance of the increased noise levels in the context of the Board's and other governmental noise regulations for both residential and commercial receiving lands. Finally, Petitioner has demonstrated that impact of the requested numerical levels on the community is not significant due to the types and amount of extraneous and ambient noise present in the area given its primarily industrial character.

Having demonstrated that the requested relief is necessary, warranted and its environmental consequences not significant primarily due to noise already present in this heavily industrial area, Petitioner requests that the Board adopt the rule proposed for First Notice on November 6, 2003 for Class A and Class B receiving lands as the final rule applicable to the ECC Facility.

Respectfully submitted,

Marili McFawn

Dated: March 10, 2004

Schiff Hardin LLP
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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

PROPOSED SITE SPECIFIC REGULATION APPLICABLE TO AMEREN ENERGY GENERATING COMPANY, ELGIN, ILLINOIS, AMENDING 35 ILL. ADM. CODE 901	))))	R04-11

MOTION TO CORRECT PREFILED TESTIMONY AND HEARING TRANSCRIPT

Now comes Ameren Energy Generating Company (Petitioner) by and through its attorney, and hereby requests that the Illinois Pollution Control Board allow Petitioner to correct the Pre-Filed Testimony of Gregory Zak, Exhibit 10 and make the following typographical corrections to the transcript of the January 22, 2004 hearing in this matter.

In support of its motion to correct Mr. Zak's prefiled testimony, Exhibit 10 in this matter, the correction requested was explained at hearing by Mr. Zak. Tr. 192, lines 8 through 18. Therefore, this correction is for clarification of the written prefiled testimony by Mr. Zak and is already included in the transcribed record. Therefore, no prejudice will result if the motion is granted.

Specifically, the correction requested in Exhibit 10 is the relocation of the final sentence on page 3: "These extraneous noises are the type that mask and even drown out the noise from the Facility" to immediately following the fourth sentence of the first paragraph at page 4. In pertinent part, that paragraph will now read:

> Extraneous sound is of relatively short duration and comes and goes, such as vehicle passbys, aircraft flyovers, train whistles, and so forth. *These extraneous noises are the type that mask and even drown out the noise from the Facility.* The measurement instrumentation is put in a "pause mode" to avoid including extraneous sound during measurement.

The typographical corrections requested by Petitioner in the transcript of the January 22, 2004 are as follows:

1. At page 25, line 7, change "nose" to "noise".

2. At page 28, line 13, change "11,$650,000" to "$11,650,000."
3. At page 32, line 2, change "no" to "not".
4. At page 49, line 6, change "citings" to "sidings".
5. At page 105, line 19, begin a new paragraph with "The $25,000 cost.."
6. At page 107, line 9, change "minute" to "minimum".
7. At page 149, line 4, change "livid" limited".
8. At page 151, line 21, change "Knox" to NO_x".
9. At page 152, lines 7 and 9, change "Knox" to NO_x".
10. At page 158, line 8, change "ducking" to "ducting".
11. At page 162, line 13, change "Weigh System" to "Weight Station".
12. At page 164, line 23, "Weigh System" to "Weight Station".
13. At page 188, delete "Question become."
14. At page 255, change "staff" which appears twice, to "stack".
15. At page 274, change "site" to "cite".

This two part motion is respectfully submitted for the purposes of clarifying the written record in this matter. Petitioner asks that the motion be granted.

Respectfully submitted,

Marili McFawn

Marili McFawn
Attorney for Ameren Energy Generating Company

Dated: March 10, 2004

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

PROPOSED SITE SPECIFIC REGULATION APPLICABLE TO AMEREN ENERGY GENERATING COMPANY, ELGIN, ILLINOIS, AMENDING 35 ILL. ADM. CODE 901	))))	R04-11

MOTION TO CLARIFY ANSWER

Now comes Ameren Energy Generating Company (Petitioner), by and through its attorneys, and hereby requests that the Illinois Pollution Control Board (Board) allow Petitioner to clarify Mr. Richard Smith's responses to questions from the Board concerning non-economic dispatch costs associated with the cost of sound measurement activities. In support thereof, Petitioner offers:

1. In response to a Board question, Mr. Richard Smith provided estimated costs for running the units at the Elgin Energy Center for the purposes of conducting sound measurement. Tr. 136-138.

2. Mr. Smith testified that for the sound measurement activities by Noise Solutions by Greg Zak on September 2-3, 2003, the units were scheduled for non-economic dispatch. Tr. 137.

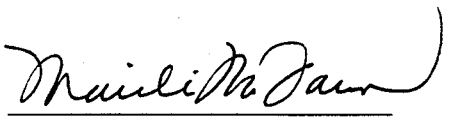
3. In response to Mr. Anand Rao's question to confirm whether Ameren did not incur all the costs mentioned earlier, *i.e.*, non-economic impact, Mr. Smith answered "yes". Tr. 138.

4. Mr. Smith's answers appear to conflict. Therefore, Petitioner consulted its records and determined that there was a non-economical dispatch on September 2-3, 2003 when all four units were operated so that sound measurements could be taken. This type of dispatch was required because there was no need for the power on the system.

5. When verifying whether a non-economic dispatch occurred, Petitioner also verified that a non-economic dispatch was also required when the Facility was operated on June 17, 2003 so Power Acoustics, Inc. could perform sound measurement activities.

Petitioner respectfully requests that the Board grant this motion so that the record in this proceeding is clear upon the question of whether Petitioner incurred the costs of a non-economical dispatch when the sound measurement activities were conducted as part of the 2003 Noise Studies.

Respectfully submitted,



Marili McFawn

Dated: March 10, 2004

Schiff Hardin LLP

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