

OCT 28 2003

STATE OF ILLINOIS  
Pollution Control Board

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED SITE SPECIFIC REGULATION	)	R04- 11
APPLICABLE TO AMEREN ENERGY	)	
GENERATING COMPANY, ELGIN, ILLINOIS	)	
AMENDING 35 Ill. Adm. Code 901	)	

**PROPOSAL FOR A SITE-SPECIFIC RULEMAKING**

NOW COMES the Proponent Ameren Energy Generating Company (hereinafter "Ameren"), by and through its attorneys, Schiff Hardin & Waite, and hereby petitions the Illinois Pollution Control Board (hereinafter "Board" or "IPCB") for site specific noise emission limitations with respect to the operation of the Ameren electric generating facility in Elgin, Illinois. This proposal is submitted pursuant to Section 28(a) of the Illinois Environmental Protection Act, 415 ILCS 5/28(a), and in accordance with Part 102, Subpart B of the Illinois Pollution Control Board's Procedural Rules, 35 Ill. Adm. Code 102.Subpart B. In support hereof, Ameren provides the following information.

**I. INTRODUCTION**

Ameren owns a power generating facility in Elgin, Illinois which consists of four simple cycle combustion turbines capable of generating up to 540 MW of electricity ("Facility"). The Facility is described as a peaking facility, a power generation plant designed to start up rapidly to generate power when critically needed. It was initially permitted to construct by the Illinois Environmental Protection Agency, Bureau of Air on June 8, 2001, and was fully operational in November, 2002. The Facility is located on 1559 Gifford Road in Elgin, Illinois in an area that is primarily industrial. Currently and when constructed, the land uses in the immediate area, in addition to industrial uses, have been agricultural, mining and excavation, and vacant land. Because the Facility is industrial (*i.e.*, a Class C land use under the Board's noise regulations) and its nearest neighbors are likewise industrial, the Board's noise regulations have generally not been applicable. The Board's noise rules provide no noise limitations concerning noise from industrial facilities to receiving industrial land uses. In those few instances where the Board's noise emission limitations for residential and commercial uses have been applicable, *i.e.*, at a few

nearby single residences and residential developments, the Facility has been able to comply with the applicable noise limitations. Furthermore, to the best of Ameren's knowledge, no noise complaints have been alleged by any of its neighbors since Ameren began construction and operation of the Facility.

Due to a proposed change in land use in the area of the Facility, Ameren must now seek site specific relief from the Board's noise emission limitations for receiving Class A and Class B lands found at 35 Ill. Adm. Code Part 901. The land immediately west of the facility is vacant and until very recently was in unincorporated Cook County and zoned Industrial. On June 3, 2003, the Village of Bartlett annexed and rezoned this parcel for residential use at the request of Realen Homes, a residential development corporation. Realen Homes intends to build single family residences on this westerly property (hereinafter, "Realen property".) Ameren has studied the implications of this land use change and concluded that the Facility will probably not be able to always meet the Class A noise limitations at 35 Ill. Adm. Code 901.102, which heretofore were not applicable. For this reason, Ameren is seeking a site specific rule from the Board that establishes noise emission limitations for this Facility that are applicable to receiving Class A lands. The Class A site specific limitations requested are equal to the Board's daytime limits for Class A receiving land but for those limits proposed at the 31.5, 1000, 2000, and 4000 Hertz octave bands.

Ameren also requests that the Board adopt site specific noise emission limitations applicable to receiving Class B lands. The site specific Class B noise limits that Ameren proposes are numerically the same as the generally applicable limitations for six of the nine octave bands found at 35 Ill. Adm. Code 901.103. As for the remaining three octave band limitations, the 1000, 2000 and 4000 Hertz octave bands, the current Board noise limits are more stringent than those requested by Ameren as its site specific noise limits for Class A lands. To reconcile this inconsistency, Ameren requests that Class B site specific noise limits adopted at the 1000, 2000 and 4000 Hertz octave bands be the same numerical value as those proposed for Class A lands.

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

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. PROPOSED SITE SPECIFIC RULE 35 Ill. Adm. Code 102.210(a)**

The Class A and Class B noise emission limitations in the Board’s Chapter Nine are found at 35 Ill. Adm. Code 901.102 and 901.103. Individual emission limitations are expressed in each of nine octave band sound pressure levels with different levels allowed during day and nighttime periods for Class A receiving lands. Ameren respectfully requests that in lieu of those noise emission limitations, the following language and numerical limits be adopted by the Board to provide site specific noise limitations for noise from the Facility to receiving Class A land and Class B land:

The Board requires that a site specific rule be proposed as its own section if proponent seeks modification of the rule of general applicability. 35 Ill. Adm. Code 102.210(a). Therefore, Ameren requests that this new language be adopted as an entirely new section at Subtitle H: Noise, Part 901 of the Board’s regulations.

Section 901.xxx Ameren Elgin Facility Site-Specific Noise Emission Limitations

The Combustion Turbine Power Generation Facility located at 1559 Gifford Road in Elgin, Illinois shall not cause or allow the emission of sound from any property-line-noise source located on that property which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within the receiving Class A or Class B land.

<u>Octave Band Center Frequency (Hertz)</u>	<u>Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A or Class B Land from Ameren Elgin Facility</u>	
	<u>Class A Land</u>	<u>Class B Land</u>
<u>31.5</u>	<u>80</u>	<u>80</u>
<u>63</u>	<u>74</u>	<u>79</u>
<u>125</u>	<u>69</u>	<u>74</u>
<u>250</u>	<u>64</u>	<u>69</u>
<u>500</u>	<u>58</u>	<u>63</u>
<u>1000</u>	<u>58</u>	<u>58</u>
<u>2000</u>	<u>58</u>	<u>58</u>
<u>4000</u>	<u>50</u>	<u>50</u>
<u>8000</u>	<u>40</u>	<u>45</u>

As explained more fully herein, the adoption of these site specific noise limitations will allow Ameren to continue to operate the Facility as designed to provide the maximum noise control that is economically reasonable and technically feasible. The only area affected by adopting the proposed rule is the Realen property in the event it converts to the proposed residential use, and any environmental impact to that property will be minimal since the area's ambient noise is comparable to and oftentimes greater than that attributable to the Facility. Moreover, the adoption of these proposed limits will allow Ameren to continue to generate power at the Facility and provide energy to the constantly growing urban community when most needed.

**III. STATEMENT OF REASONS**

In accordance with the Board's procedural rules at Sections 102.202 and 102.210, Ameren submits the information required to support this site specific petition. In sum, this

information demonstrates the need for the requested site specific noise emission limitations, the reason why compliance with the general rule is not technically feasible or economically reasonable for the Facility; describes the area affected by the proposed site specific rule, and addresses the environmental impact of the proposed noise emission limitations on the affected area.

**A. Character of the Area Involved, the Character of Surrounding Land Uses, and Description of Area Affected by Change** 415 ILCS 5/27(a), and 35 Ill. Adm. Code 102.210(b) and (c)

As described more fully below, the character of the area is industrial, and the area affected by the proposed rule change is the property directly west of the Facility, the Realen property, because of the recent change in its zoning and proposed change to a residential use.

**1. Character of Area Involved and of the Surrounding Land Uses**

The area immediately surrounding the Facility can be described as heavily industrial. The Facility, as an electric generation plant, is classified as an industrial land use. It is located at 1559 Gifford Road. To the immediate north of the Facility is GE Capital Module Space, a storage yard of temporary office trailers. Immediately east of the Elgin facility is BFI Waste Systems facility, and just further east, is Commonwealth Edison's high powered transmission line corridor, and the E E & J Railroad, both running north and south, crossing Route 20 to the north. To the immediate south of the Facility are two construction companies, and further south at 1717 Gifford Road is U.S. Can Company, a manufacturing facility. To the immediate west, separated by Gifford Road and currently vacant is the Realen property, which is a portion of property formerly proposed for use as a balefill operation by the Solid Waste Agency of Northern Cook County ("SWANCC"). To the northwest and west of Gifford Road is Bluff City Materials, a quarry and mining operation. Elsewhere in the area are different industrial concerns composed of light and heavy duty manufacturing, such as the Elgin Sweeper plant.

The predominant industrial character of the area creates heavy truck traffic and other vehicular traffic on Gifford Road and West Bartlett Road. The quarry and mining operation contributes a great number of dump trucks and heavy equipment trucks. The nature of U.S. Can Company's operations contribute many tractor trailer trucks. Gifford Road also serves as an

alternative route for vehicle and truck traffic traveling south from Lake Street, Route 20. See Attachment A: Existing Land Uses.

The closest residential or commercial use west of the Facility is more than a mile away. A single family residence is located on Spaulding Road to the north. Also on Spaulding Road, east of the EE & J railroad, is the Amber Grove Subdivision. Spring Lakes Mobile Homes on James Street is due east of the Facility and currently is the closest residential use. Two residential subdivisions and a school are located south of the Facility and south of West Bartlett Road. They are the Westridge Subdivision on Rushmore Drive, and the Westridge Subdivision on West Bartlett Road which includes the Nature Ridge School on West Bartlett Road.

## **2. Description of Area Affected by Change**

At the present time, the Facility is in compliance with the Board's noise regulations at 35 Ill. Adm. Code 901.102 and 901.103. As for its industrial neighbors, there are no applicable numerical limitations. As for the nearby residential areas, recent sound measurements taken in June, 2003 demonstrate compliance with the Class A Land limits found at 35 Ill. Adm. Code 901.102.

The only area affected by the proposed site specific rule proposed for receiving Class A land is that directly west of the Facility just across Gifford Road, the property recently purchased by Realen Homes. The Realen property is bounded on the north by Bluff City Materials, on the south by West Bartlett Road, and on the west by property recently acquired by the Illinois Department of Natural Resources from SWANCC. The Realen property is currently vacant, and was zoned industrial under the Cook County Code until recently when Realen Homes petitioned the Village of Bartlett to annex it. On June 3, 2003, the Realen Property was annexed by the Village of Bartlett and rezoned as a PD Planned Development Zoning District under the Bartlett Municipal Code. Realen Homes intends to build multi-family and single family housing on its property. Realen Homes anticipates building and selling approximately 210 single family homes and 119 townhomes in 32 buildings on the property. Realen would like to begin construction and sale of these homes in the Fall of this year.

Zoning classifications are not discussed in detail because the Board's noise regulations and this amendment proposed thereto are premised on land use as opposed to zoning classifications.

## **B. Description of the Facility Site and Operations 35 Ill. Adm. Code 102.210(c)**

### **1. Description of the Facility.**

The Facility is a power generation facility consisting of four simple cycle combustion turbines which combined are capable of generating up to 540 megawatts of electricity. The Facility is often described as a peaker facility and is comprised of model W501D5A combustion turbines manufactured and supplied by Siemens Westinghouse. Generally the Facility is expected to operate during time periods when the demand for electricity is highest, such as on hot summer days or during very cold weather in the winter. It also operates at other times as needed to meet the demand for electric power. While all four units can operate simultaneously, single units or any combination thereof may operate at any time as the market for electricity may require. *See Attachment B: Elgin Facility Site Layout Plan.*

The principal part of each unit's combustion turbine is a rotary engine, very similar to a jet engine but designed only for stationary operation. Natural gas is continuously burned in combustors and then the hot combustion gases expand through the turbine to rotate a shaft connected to the electrical generator. Air for the combustion turbine is drawn through an intake filter and parallel baffle silencer into the intake manifold. Exhaust gases from the turbine flow through an exhaust duct and stack fitted with absorptive parallel baffle silencers. Please note that the primary sources of noise from the Facility include the combustion process and the flow of air and exhaust gases.

The remainder of the Facility consists of auxiliary equipment needed to support its operation, including the air-cooled generators, transformers and heat exchangers. *See Attachment C: Simple Cycle Combustion Turbine Power Plant.*

### **2. Description of the Facility's Noise Control Equipment.**

The Facility is equipped with several different kinds of noise abatement systems which include highly engineered controls in the air inlet and exhaust systems. Noise enclosures and silencers are used extensively to control the sound produced by the combustion turbines and supporting power generation equipment. The turbine of each unit is enclosed and equipped with enclosure ventilation silencing. The majority of noise emitted by the turbine comes first from the opening needed to get air into the turbine's compressor, the inlet, and then from the opening

needed to get the combustion exhaust gases out of the turbine. Both areas are difficult to control acoustically because they are linked directly to the noisiest internal parts of the turbine engine and, to operate most efficiently, the air and gas flow paths to and from the engine must be minimally blocked. Therefore, the intake and exhaust flow paths must be treated with acoustically absorptive parallel baffles that allow flow to pass through the open gaps that exist between the absorptive sound baffles. These silencers provide a large amount of noise reduction while offering an acceptable pressure loss to the turbine. See Attachment D: Elgin Facility Noise Control Devices.

*Inlet Silencing.* At the Facility, the air intake for each turbine is enclosed, and each unit's air intake is equipped with inlet silencer baffles. This substantial inlet silencing is combined with extensive duct structural stiffening and lagging as secondary noise attenuation to further reduce sound radiating from the air intake system.

*Exhaust Silencing.* The exhaust silencing installed at each of the Facility's units is state of the art for this type of Siemens Westinghouse combustion turbine. The silencer panels were dimensionally designed by Siemens Westinghouse specifically for this Facility to attenuate the low frequency 31.5 Hz and 63 Hz octave bands while also providing substantial mid and high frequency noise reduction. The silencer panels at this Facility are extra thick and very long compared to that used at other 501D5A plants. In fact, the exhaust silencing system is so long that a special horizontal section of silencer panels approximately 35 feet in length and supported on the ground was used to accommodate the massive exhaust silencer. The traditional 50 foot high vertical exhaust stack was also used to provide an additional 15 feet of silencers. Finally, to keep sound from radiating from the exhaust ducting surfaces, an extra, secondary enclosure system was provided to encase the expansion joints and exhaust ducting. This enclosure consists of acoustically insulated ¼ inch or more steel plate.

*Costs of Noise Control Equipment:* The approximate cost for noise abatement measures for all four units was a total of \$11,650,000.



**C. Demonstration that Compliance with General Rule is not Technically Feasible or Economically Reasonable, 35 Ill. Adm. Code 102.210(b), and Description of Available Treatment or Control Options, 35 Ill. Adm. Code 102.210(c).**

At the time the Facility was built, the Board's generally applicable noise limitations for the most part did not apply because the Facility was a Class C facility surrounded by other industrial, Class C land uses. Nevertheless, Ameren commissioned a Design Phase Study to evaluate the possible impact of sound pressure levels from the planned facility on the area and to determine the necessity and value of equipping the planned facility with noise abatement equipment beyond that standard to the industry. As for the nearby residential areas to the east and south, Ameren studied and determined that the Facility would comply with the Board's noise limitations applicable to those Class A receiving lands. Based upon the study, Ameren installed a state of the art exhaust silencing system and all the other noise abatement controls described above. The Design Phase Study is discussed at the end of this section as background information.

Due to immediate proximity of the newly proposed residential area, Ameren has determined that the Facility may not always be able to comply with the Board's Class A noise limitations at the Realen property despite the extensive sound abatement equipment already in place. Therefore, Ameren investigated the technical feasibility and costs of installing additional noise control equipment at the Facility as a means of meeting the Board's general noise emission regulations for Class A receiving lands. That evaluation follows. *See also Attachment E: Estimated Costs of Noise Abatement Measures.*

Although the exhaust-silencing system installed when the Facility was built was state of the art affording maximum noise control, several experimental methods for reducing low frequency noise were recently evaluated. These alternatives are not proven technologies. Therefore, the cost estimates provided are speculative. Methods for reducing mid to high frequency noise associated with other parts of the Facility were also evaluated and projected costs estimated. While some of these options may be technically feasible, most require that additional equipment must be installed on the units creating additional backpressure that will cause the unit to be derated. Derating has a significant detrimental, real economic impact upon the value of the Facility. This economical consequence, in addition to the capital costs of additional equipment must be considered as part of the economic reasonableness of any

technology considered. Finally, the costs for controlling mid to high frequency noise are not warranted given that much of the ambient noise contributed in the area is at the same level and often not discernable from the Facility's contribution.

### **1. Technical Infeasibility and Economic Unreasonableness of Further Reducing Low Frequency Noise at the Turbine's Exhaust.**

Additional Exhaust Stack Silencers. As explained at Section B.2 above, the exhaust silencer equipment at the Facility was specially designed for the Facility. The cost for that equipment alone, excluding installation expenses, was \$2,290,000. Nevertheless, Ameren investigated whether more could be done to further reduce low frequency sound from the exhaust. One method considered was adding approximately 40 more feet of vertical exhaust stack equipped with silencers. Even then, the installation of the additional vertical stack and silencers can not guarantee that compliance will be achieved. The current aerodynamics of the exhaust silencer may not be able to accommodate additional stack height and silencers. In any case, the additional backpressure created by the installation of more equipment will cause the units to be derated. Furthermore, the installation of this type of additional control is estimated to be \$6,000,000, which is nearly three times the cost of the original exhaust ducting and silencers.

Redesigned New Stack. Ameren also investigated completely redesigning and installing a new stack. Such a new stack would require full aerodynamic modeling to design a nearly perfect aerodynamic system for low frequency noise reduction. Currently, no such exhaust stacks are available in the United States that meet that criteria, so there is no guarantee that this innovative technology could provide the noise reductions necessary to demonstrate compliance with the Board's general noise emission limitations. For all four units to be equipped with new, redesigned stacks, the cost for such an experiment is estimated to be \$18,000,000.

Experimental Active Noise Control. An active noise control system for low frequency noise reduction has been developed under a NASA contract, but it has never been used in the power industry. The NASA active noise control system would have to work in conjunction with the existing passive silencing for low frequency noise reductions. The actual technical feasibility of using such an active system with the existing passive system at the Facility is not known. The engineering team which developed the system under contract with NASA would have to first investigate the feasibility of such a system for the Facility. Even if such an untried system was determined to possibly be technically feasible, the estimated cost for such a system is estimated

to be a minimum of \$6,000,000, excluding the costs associated with the research and development efforts.

## **2. Technical Feasibility or Economic Reasonableness of Further Reducing Mid and High Frequency Noise.**

*a. Detailed Noise Study.* The first step to determine what additional noise control options might be feasible at the Facility would be to conduct a detailed noise study to determine the octave band sound power levels of each sound source such as the turbine, inlet system, exhaust system, generator, transformers, pumps, motors, fans, and coolers. Once identified, the study would then have to evaluate the feasibility of the various sound source treatments described below to determine if such additional controls could be installed and could achieve compliance. The systems to be considered include generator sound treatment, barrier walls and possibly additional inlet system silencing. Power Acoustics, Inc., the noise consultant that assess the sound impact of the Facility during its conceptual stage, estimated the cost for such a study at \$25,000.

*b. Evaluation of Mid to High Frequency Noise Reduction.* When evaluating the cost of the options described below for further reducing mid or high frequency noise levels, the cost estimate should be compared to two factors. First, many of the area's ambient noise sources contribute mid and high frequency noise, such as airplane flyovers, trains, car and truck traffic. Second, people usually act to reduce these types of noise by physically closing out the noise sources. The Facility's contributions to these types of noise levels usually has little or no impact because it generally operates during hot or cold weather when most people have closed their windows and doors and relied upon air conditioning or heating. Therefore, the costs associated with reducing mid and high frequency noise from the Facility is not warranted given the inherent reduction brought about by most people's behavior when the Facility is most likely to be operating.

*Mid Frequency Noise Reduction Control Methods.* The generator is currently enclosed, which provides noise reduction. If, however, the above described noise study found the generator to still be a significant source of mid frequency noise, the installation of a secondary enclosure could be evaluated to determine if it would sufficiently reduce noise to a level ensuring compliance. The estimated cost of this additional control method is \$1,200,000, installed.

Mid and High Frequency Noise Reduction Control Methods. A barrier wall could be installed on the west side of each unit to possibly reduce mid and high frequency noise. The total estimated cost of barrier walls for all four units is estimated to be approximately \$3,600,000.

High Frequency Noise Reduction. The inlet system is already controlled with silencers. However, if the inlet system is found to still be a significant source of noise, additional inlet silencers may be possible depending on whether there is sufficient room in the system to install them. The estimated cost of installing this such noise control equipment is \$600,000. Finally, if the additional inlet silencers are not sufficient, a secondary enclosure around the inlet ducting could be considered. The estimated installed cost of that type of noise control is \$1,200,000.

### **3. Design Phase Study of Facility Pre-Construction, 2000**

In November, 2000, Power Acoustics performed an *Acoustical Evaluation and Ambient Sound Survey* of the then proposed Facility. As a result of this Design Phase Study, the Facility was designed to meet the Board's noise regulations protective of the local community. The noise pollution control measures incorporated in the design included natural buffering by distance, shielding noise sources by structures, and add-on controls to further minimize the effect of the plant noise on the community.

Primarily there were two components to the Design Phase Study. First, background ambient sound pressure levels were measured to characterize the combined sound pressure level from all localized ambient sound sources at residential receptors near the proposed Facility. Second, an acoustical model of the proposed Facility was developed to predict whether compliance with the Board's noise emission limitations would be achieved at the critical receptor points, *i.e.*, nearby residential locations and one possibly commercial facility.

#### **a. Sound Measurement Study**

Sound field measurements were conducted to quantify the combined sound pressure level from all localized ambient noise sources at critical receptors. Since receptors closest to the proposed plant would have the highest potential impact, those were the locations measured. The critical receptor locations are listed clockwise from northeast of the proposed site as follows:

1. Patio and Ponds Landscaping on Spaulding Road
2. Single Home, Spaulding Road

3. Amber Grove Subdivision, Spaulding Road
4. Spring Lakes Mobile Homes, James Street
5. Westridge Subdivision, Rushmore Drive
6. Nature Ridge School and Westridge Subdivision, West Barlett Road and

Westridge Boulevard.

*See Attachment F: Ambient Sound Measurement Locations Representative of Critical Receptors.*

Since areas to the west of the site were vacant, and the closest residential or commercial use west of the site was more than a mile away, no sound measurements were taken west of the proposed Facility. Please note that areas further from the Facility will experience lower sound levels than those closest to the Facility.

#### **b. Sound Survey Results**

Several sound level measurements were made under representative community conditions. Daytime measurements were made between 11:30 am and 2:00 pm and 8:00 pm and 10:00 pm on October 10, 2000, and between 11:30 am and 2:00 pm on October 11, 2000. Since noise impacts are greatest when existing noise levels are lowest, the measurements were also conducted under conditions typical of a quiet nighttime period for the area. Nighttime measurements were made between 12:30 am and 2:30 am on October 11, 2000. The measurements were made under clear conditions with warm daytime and moderate nighttime temperatures and low wind. Sounds observed are primarily those associated with heavy continuous truck and automobile traffic on West Bartlett Road, sounds from the U.S. Can Company facility, trains and other industrial truck noise in the area. Distant traffic noise from Routes 20 and 25 were also heard.

The closest residential areas are within the Spring Lakes Mobile Home Park and at the Westridge Subdivision near Rushmore Drive. The existing daytime background ambient sound level was found to be approximately 50 dB(A), and the nighttime ambient sound level was found to be approximately 43 dB(A) at Spring Lakes Mobile Home Park. The ambient sound level near the Westridge Subdivision was found to be approximately 53 dB(A) during both daytime and nighttime measurements. The A-weighted equivalent sound pressure level, or  $L_{eq}$ , is generally used as the basis for quantifying or regulating noise.

### c. Sound Propagation Model

This analysis was conducted to estimate the noise that would be generated by the future operation of the Facility. The computer model used for calculating outdoor noise propagation in community and industrial environments was a world wide accepted standard, and conservative components were used to ensure that calculated sound pressure levels were representative of favorable (downwind) noise propagation conditions.

The major noise sources modeled were the combustion turbine air intake system, the combustion turbine stack walls and exit noise, the combustion turbine enclosure, and generator, transformers, and fan coolers. The source sound power level data for this equipment was provided by Siemens Westinghouse and was based on other, similar W501D5A projects. The model factored in the noise abatement measures that were later installed at the Facility.

The model predicted that compliance with the Board's nighttime limitations would be achieved at all critical residential locations. Although levels at some octave bands were estimated to approach the Board's limits, due to its conservative components, the model predicted that the Facility as designed would achieve compliance in all octave bands with four units in operation.

The following table contains a summary of the estimated sound pressure levels predicted with all four units operating and compared to the Board's generally applicable noise regulations. The sound pressure level data shown at the critical receptors is representative of the noise anticipated to be emitted from only the Facility, after correction for existing ambient sound sources.

Location	Octave Band Center Frequency, Hertz									
	31.5	63	125	250	500	1000	2000	4000	8000	DB(A)
L-1 Patio & Ponds Landscaping (Reference Only)	70	62	62	53	48	43	37	26	0	51
L-2 Home on Spaulding Rd	68	59	59	50	44	39	32	17	0	48
L-3 Amber Grove Subdivision	66	57	56	47	41	35	27	8	0	45
L-4 Spring Lakes Mobile Homes	68	60	60	51	45	41	35	22	0	49
L-5 Westridge Subdivision	69	63	61	51	45	40	34	22	0	49
L-6 Nature Ridge School	68	62	61	52	45	39	32	16	0	49
Illinois Daytime Class A Regulations	75	74	69	64	58	52	47	43	40	61
Illinois Class B Commercial Regulations	80	79	74	69	63	57	52	48	45	66

### d. Conclusion of 2000 Design Phase Study

The ambient sound pressure levels measured at the critical receptors near the proposed Facility were found to be dominated by car and truck traffic, railroad operations and industrial sounds including idling trucks. The computer noise model of the Facility estimated

the sound pressure level to be at or below the Board's noise nighttime limits at all critical residential receptors. The noise control features factored into the modeling were included when the Facility was built. See Section B above.

**D. Description of Other Facilities' Noise Equipment and Compliance** 35 Ill. Adm. Code 102.210(b)

The Facility is a Siemens Westinghouse equipped peaker power plant, with four W501D5A combustion turbines. Siemens Westinghouse sells the turbines as part of self-contained, electric power generation systems offered in a "modular package" format that includes select choices of the standard equipment necessary to build a peaker power plant equipped with this type of turbine. Because the equipment offered in this manner is fairly standardized, only other W501D5A equipped facilities should be considered for purposes of comparing equipment and sound pressure levels. Comparisons between plants equipped with other manufacturer's turbines and associated equipment and those equipped with the Siemens Westinghouse turbines cannot be accurately made.

The standard W501D5A package offers only parallel baffle silencing sections for the inlet and exhaust systems. However, as explained in Section B.2, Ameren significantly improved upon these standard features by upgrading them and adding additional noise abatement measures. Ameren had Siemens Westinghouse develop and provide at this Facility extensive inlet silencers sections, state of the art expanded exhaust silencer sections, baffles in the stacks, and a shroud covering the turbine-to-exhaust-duct expansion joint. Also included at this Facility were increased plate thicknesses and many structural stiffeners to prevent resonance of the structural members and plate materials. Siemens Westinghouse told Ameren that these additional noise control measures were the most extensive ever employed on units of this type. Ameren knows of no other W501D5A power plant equipped with this extensive amount of noise reduction equipment.

As for information about compliance by peaker power plants with noise limitations, there is none generally available about peaker power plants inside or outside of Illinois. Noise emission is not regulated by 43 states, and six of the seven states that do regulate noise emissions, have very minimal noise regulations. Therefore, information about compliance with noise limitations is not generally available. Further research indicates that peaker power plant

noise is not specifically regulated on a federal level, in the Region 5 (midwest) states, or in the states most likely to do so: California, Texas, and New York. Therefore, compliance information specific to peaker power plants is not available from these resources.

As for Illinois, probably the most active in noise regulation, compliance information is not generally available for the several reasons. Like the other midwest states, noise from these plants is not specifically regulated in Illinois. Second, peaker power plants are usually located in areas that are primarily industrial or rural, as is this Facility. In those cases, the Board's general noise limitations are usually not applicable because both land uses are considered Class C properties. Third, noise is not a subject of permitting for the peaker power plants. Finally, to Ameren's knowledge no noise complaints concerning peak power plants have been filed with the Board, the foremost forum of noise complaints in Illinois. For these reasons, compliance demonstrations with noise limitations have not been required, and therefore, information about compliance either does not exist or is not publicly available.

**E. Description of All Affected Sources and Facilities** 35 Ill. Adm. Code 102.202(b)

The only property affected by the site specific rule proposed for receiving Class A land is the Realen property directly west of the Facility, and only after residences are constructed there. The Class A limitations proposed in this site specific petition addresses those future receptors.

As part of the study to assess the noise impacts at the Realen property, actual measurements were also taken at the currently existing residences the critical receptors in the Design Phase Study. These actual measurements, taken in June 2003, demonstrated that the existing residences will not be affected by the proposed rule change. That same sound measurement survey also confirmed the Design Phase Study that predicted the Board's Class A limits would be achieved at these existing residences.

As for commercial properties, Ameren has identified only two facilities that may be considered Class B lands. However, neither property appears to be used for commercial purposes at this time and therefore neither should be affected by the proposed change. Nevertheless, a site specific rule for Class B receiving lands is advisable. As the below chart demonstrates, if the Class B limits are not changed at the 1000, 2000, and 4000 Hz octave bands, those limits will be slightly more stringent than three Class A limitations proposed at the same frequencies.



Octave Bands Hertz	31.5	63	125	250	500	1000	2000	4000	8000
Proposed Class A Limits	80	74	69	64	58	58	58	50	40
IPCB Class B Limits	80	79	74	69	63	57	52	48	45
Proposed Class B Limits	80	79	74	69	63	58*	58*	50*	45

\*Proposed Class B Limits that are the same as those proposed for Class A

In the future, a Class A or a Class C facility may convert to a Class B land use. If so and the proposed site specific limits are not adopted, the applicable Class B limits will then be more stringent at three of the nine octave bands than those proposed for Class A receiving lands. The proposed Class A limits at these three octave bands are sufficiently protective of residential receiving property, the most protected type of receptor. Therefore, if the same site specific limitations are adopted as limits for Class B lands as well, receptors at Class B lands will be equally protected.

#### **F. Assessment of Environmental Impact 35 Ill. Adm. Code 102.210(c)**

Ameren conducted two field sound measurement projects to correctly assess the potential environmental impact of the sound pressure levels on the Realan property. The studies demonstrate that the Facility currently complies with the applicable Board noise emission limitations, and therefore does not now have an adverse environmental impact on that area. These studies also demonstrate that the Facility may not be able to achieve the Board's Class A noise emission limitations at all points on the Realan property when the existing land use changes to the proposed residential use. The studies also provide the information necessary to establish site specific sound pressure levels that consistently can be achieved when the Facility is fully operating. To evaluate the impact of proposed limits, they are compared to other Board noise emission limitations, including those applicable to Class B commercial receiving properties. That comparison demonstrates that once the existing ambient noise levels in the area are accounted for, the environmental impact of the proposed site specific limitations on the Realan property is minimal.

## **1. Sound Measurement Field Studies and Conclusions**

When Ameren learned the property directly west of the Facility was under consideration for residential development, it engaged Power Acoustics, Inc. to study and estimate the acoustical impact of the Facility on the Realen property. That study was conducted in June, 2003. A second study was performed by Noise Solutions by Greg Zak in September, 2003. These two studies provide actual measurements of ambient noise levels, and sound pressure levels associated with the Facility. Along with information collected in the Design Phase Study discussed above at Section C, these two studies provide the necessary information to assess the environmental impact of the Facility on the area and develop the appropriate site specific noise emission limitations.

### **a. Acoustical Measurement Survey by Power Acoustics, Inc., June 2003**

To define the ambient sound in the area, sound measurements were taken with the Facility entirely shutdown. Next, this study consisted of measuring the sound generated by the Facility and other surrounding sound sources during baseload operation of a single unit, Unit 4, the unit nearest the Realen property. These two sets of data allowed for the sound from the Facility to be analytically extracted from the overall or total sound in the area. The critical receptors were those used in the Design Study of November 2000, as well as five new locations on the Realen property. *See Attachment F.*

The second component of this Survey was to simulate full operation of the Facility by using standard analytical practices to adjust for multiple unit operation.

**i. Ambient Sound Measurements.** The background ambient sound levels and the operating sound levels of the unit were measured on June 17, 2003. Survey measurements quantified the combined sound pressure level from all localized ambient sound sources at residential receptors near the Facility. Measurements were made under representative community nighttime conditions. Weather conditions were nearly perfect for measuring sound with moderate temperatures and humidity, and no wind.

The background levels were measured on June 17, 2003 between 10:15 pm to 11:25 pm with the Facility totally shutdown. The ambient sound levels measured with the Facility shutdown are recorded in the following table.

Location	Octave Band Center Frequency, Hertz								
	31.5	63	125	250	500	1000	2000	4000	8000
L-2 Home (Spaulding Rd)	52.4	53.4	50.8	40.9	39.5	36.4	31.8	33.7	24.6
L-3 Amber Grove Entrance	49.9	54.4	48.4	37.6	36.2	37.8	30.5	30.9	23.8
L-4 Spring Lakes (at 9th and James)	52.3	52.6	49.6	43.0	38.7	38.2	34.1	30.0	24.2
L-5 Westridge (Rushmore)	64.6	61.9	54.0	46.2	39.9	39.3	36.2	29.8	23.4
L-6 Nature Ridge School	60.0	60.5	51.5	44.9	44.6	45.4	40.8	31.7	24.5
L-41 North Realen	54.9	56.2	56.3	45.1	42.6	45.8	40.3	27.0	22.7
L-R2 on Gifford across from Ameren Unit 4	58.1	59.6	55.2	48.3	46.9	45.9	40.7	33.7	22.1
L-R3 Midpoint of Realen	59.3	57.6	55.0	46.3	43.3	41.7	36.9	32.0	26.8
L-R4 Treeline of Realen	57.5	56.7	57.3	46.0	40.5	40.3	36.9	30.8	23.5
L-R5 Corner of Gifford and West Bartlett Rd.	63.9	65.9	66.7	60.1	53.0	50.2	47.0	37.7	26.7
Illinois Daytime Class A	75	74	69	64	58	42	47	43	40
Illinois Nighttime Class A	69	67	62	54	47	41	36	32	32
Cook County M1 to Class A	72	71	65	57	51	45	39	34	32

Examination of the results reveals that in many instances, the ambient background levels approach and exceed the Board's daytime and nighttime noise limits, as well as the Cook County industrial requirements for Class A land. Sources of ambient noise included distant traffic, insect, and dog barking noise. At the receptors located on the Realen property, the ambient conditions observed included traffic on West Bartlett and noise from the U.S. Can operation.

ii. **Sound Measurement Data with Unit 4 Operating** Operational sound measurements with just Unit 4 operating were taken on June 18, 2003 between 12:35 am and 2:30 am. The weather conditions were still moderate with no wind. Unit 4 was operating at base load producing an output of 114 MW. The sound measurements were corrected for ambient sound sources. The results are shown in the following table.

Location	Octave Band Center Frequency, Hertz								
	31.5	63	125	250	500	1000	2000	4000	8000
L-2 Home (Spaulding Rd)	55.6	ind	ind	ind	40.2	ind	ind	ind	ind
L-3 Amber Grove Entrance	52.2	ind	ind	42.2	40.9	ind	ind	ind	ind
L-4 Spring Lakes (at 9th and James)	54.3	ind	ind	ind	ind	ind	ind	ind	ind
L-5 Westridge (Rushmore)	ind	ind	ind	ind	ind	ind	ind	ind	23.6
L-6 Nature Ridge School	ind	ind	51.9	ind	ind	ind	ind	ind	ind
L-41 North Realen	57.7	ind	ind	ind	ind	ind	ind	ind	ind
L-R2 on Gifford across from Ameren Unit 4	72.4	65.8	57.5	ind	ind	49.0	47.2	39.7	25.9
L-R3 Midpoint of Realen	68.8	62.3	ind	49.2	49.0	49.2	46.1	36.9	ind
L-R4 Treeline of Realen	62.4	ind	ind	ind	ind	ind	ind	ind	ind
L-R5 Corner of Gifford and West Bartlett Rd.	ind	ind	ind	ind	ind	ind	ind	ind	ind
Illinois Daytime Class A	75	74	69	64	58	52	47	43	40
Illinois Nighttime Class A	69	67	62	54	47	41	36	32	32
Cook County M1 to A	72	71	65	57	51	45	39	34	32

Note: When the operational sound pressure levels do not exceed the ambient by more than 3 dB, the Facility's sound can not be reliably extracted from the measured total sound. In those cases, the operational corrected data is present as "ind" or indeterminate. The Facility is assumed

compliant with the noise regulations if it can not be extracted from the ambient or is indeterminate.

This data demonstrates that when Unit 4 is fully operational the applicable noise regulations are met at all currently existing residential receptors. In fact, when these measurements were taken at the same residential receptor points used in the Design Phase Study, the Facility was not audible or barely audible above the ambient sound. The data also indicates that the daytime limits for Class A lands are met at the Realen property. However, the data shows that with just Unit 4 operating, the nighttime Class A limits are likely to be exceeded once the Realen property is developed for residential uses.

**iii. Extrapolated Data for All Four Units.** The sound measurements taken when Unit 4 was fully operational were then extrapolated to estimate sound pressure levels when all four units are fully operational using simple analytical procedures. Those analytical correction assumes that Units 1, 2, and 3 will generate identical sound pressure levels to that measured from Unit 4 operation and that any distance effects or barrier effects from spacing of the machines is insignificant to the far field locations represented by these critical receptor locations.

**Extrapolated Sound Pressure Levels with Ameren Elgin Units 1, 2, 3 and 4 at 114 MW each**

Location	Octave Band Center Frequency, Hertz								
	31.5	63	125	250	500	1000	2000	4000	8000
L-2 Home (Spaulding Rd)	61.6	ind	ind	Ind	46.2	ind	ind	ind	ind
L-3 Amber Grove Entrance	58.2	ind	ind	48.2	46.9	ind	ind	ind	ind
L-4 Spring Lakes (at 9th and James)	60.3	ind	ind	Ind	ind	ind	ind	ind	ind
L-5 Westridge (Rushmore)	ind	ind	ind	indi	ind	ind	ind	ind	29.6
L-6 Nature Ridge School	ind	ind	57.9	Ind	ind	ind	ind	ind	ind
L-41 North Realen	63.7	ind	ind	Ind	ind	ind	ind	ind	ind
L-R2 on Gifford across from Ameren Unit 4	78.4	71.8	63.5	Ind	ind	55.0	53.2	45.7	31.9
L-R3 Midpoint of Realen	74.8	68.3	ind	55.2	55.0	55.2	52.1	42.9	ind
L-R4 Treeline of Realen	68.4	ind	ind	Ind	ind	ind	ind	ind	ind
L-R5 Corner of Gifford and West Bartlett Rd.	ind	ind	ind	Ind	ind	ind	ind	ind	ind
Illinois Daytime Class A	75	74	69	64	58	52	47	43	40
Illinois Nighttime Class A	69	67	62	54	47	41	36	32	32
Cook County M1 to A	72	71	65	57	51	45	39	34	32

The analytical extrapolation to simulate full base load operation of Units 1, 2, 3 and 4 showed that the Board's residential noise limits are likely to be exceeded at the Realen property if the Facility is under full operation.

### **iii. Conclusion of June, 2003 Sound Measurement Survey**

When fully operational, the Facility is in compliance with the Board's applicable noise limitations when measured at currently existing residential properties. However, the operation of all the Units is estimated to cause sound pressure levels from the Facility which may exceed the Board's Class A regulations if the Realen property is developed for residential use. If the Realen property was developed industrially as originally zoned, neither that property nor the Facility would be subject to noise numerical limits that the Facility may not be able to meet at full or partial operating levels.

#### **b. Acoustical Measurements with Units 1, 2,3 and 4 Operating by Noise Solutions by Greg Zak September 2003**

On September 2, 2003 sound pressure levels were measured for ambient levels and then for sound pressure levels with all four turbine units fully operational. This field study was conducted to provide actual sound measurements when the Facility is operating at full load. These measurements are then compared to the extrapolated sound pressure levels developed as part of the June, 2003 field study.

**i. Sound Survey.** The sound measurements were taken at approximately the same location on the Realen property directly west of Unit 4 as done during the June, 2003 measurement study, and designated as L-R2 on most tables and as R-2 on the aerial map included in this Petition. By this time of year, that area was bordered with an overgrowth of thick weeds and brush, harboring a great number of insects. Noise from the large number of insects is believed to account for the significant difference in the ambient measurements at the 4000 and 8000 Hertz octave bands. At the time the measurements were taken, weather conditions were clear with warm nighttime temperatures, and wind from the east. The ambient measurements were taken between 9:00 pm and 9:30 pm before startup of the units began. The set of measurements taken with the all four units operating took place between 10:00 pm and 11:17 pm.

**ii. Sound Survey Results.** As the results reported on the table below indicate, the sound levels measured were generally lower than or very near the numerical limits extrapolated and reported in the June, 2003 Power Acoustics report.

**Measured and Extrapolated Sound Pressure Levels for Facility's Units 1 through 4  
Located at L-R2\* near Gifford Road and 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**	Extrapolated Total	6-20	78.4	71.8	63.5	ind	ind	55.0	53.2	45.7	31.9	---
PAI**	Ambient	6-17	58.1	59.6	55.2	48.3	46.9	45.9	40.7	33.7	22.1	---
ZAK***	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***	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***	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***	Corrected and rounded 10 minute $L_{eq}$ at 447 MW	9-2	73	66	62	56	51	53	56	0	0	59
	IPCB Daytime Class A	---	75	74	69	64	58	52	47	43	40	---
	Cook County M1 to Class A	---	72	71	65	57	51	45	39	34	32	---
	Site Specific Rule Requested	---	80	79	74	69	63	58	58	50	45	---

Notes: \* Reference to location on Attachment F  
 \*\* Power Acoustics, Inc. Report of June, 2003  
 \*\*\* Noise Solutions by Greg Zak Report of September, 2003

Rows 2 and 4 contain the data used to compare the ambient levels measured on June 17 and September 2, 2003, respectively. The sound pressure levels recording during both times are comparable except for those measured at the 4000 and 8000 Hertz octave bands. The differences at these levels are believed to be due to excessive insect noise on the night of September 2, 2003. This same background noise also caused the corrected values at Rows 5 and 6 to be indeterminant, and therefore listed as zero on the above chart.

Rows 1 and 5 contain the data used to compare the sound pressure levels when the Facility is fully operational. The extrapolated information at Row 1 represents data premised upon actual measurements taken when only Unit 4 was operating and projected in the June, 2003 study to include Units 1, 2 and 3 to arrive at an estimated maximum sound level. Row 5 contains the sound pressure data collected on September 2, 2003, with all four units at the Facility running at maximum full load. The actual measurement levels at Row 5 are lower than the extrapolated levels recorded at Row 1. Thus, the sound pressure levels measure during actual full capacity appear to be lower than levels anticipated by the extrapolation procedure used in the June, 2003 study.

**iii. Conclusions.** This data must be conservatively interpreted because two sets of sound pressure level data cannot be considered a complete statistical representation of sound from the Facility. Unfortunately, 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. Second, the Facility is not operated at full load often enough to conduct a sufficient number of sound measurements surveys to collect more statistical data. Therefore, the noise emission limitations requested for this Facility are based upon a combination of actual measurements at partial and full load, extrapolated information, and a safety factor of 3 decibels. Ameren is confident that the requested level are achievable at full level, but also believes that the safety margin is just the minimum necessary to be able to consistently demonstrate compliance with the proposed site specific limits.

## **2. Environmental Evaluation of Proposed Site Specific Noise Emission Limitations**

To evaluate the environmental impact of the proposed site specific limits, a comparison was made to Board's generally applicable noise limitations. Consulting the table below makes this analysis easier and simpler. The comparison demonstrates the following:

- At 31.5 Hz, the 80 decibel limitation requested is equal to the current limit from Class C to Class B receiving lands, found at 35 Ill. Adm. Code 901.103.
- At 63 Hz through 500 Hz, the requested limitations are equal to the current limits from Class C to Class A receiving lands, found at 35 Ill. Adm. Code 901.102(a), and are considerably below the Class C to Class B receiving lands limits of Section 901.103.

- At 1000 Hz, the 58 decibel limitation is only 1 decibel higher than the 57 decibel allowed under the limits for Class C to Class B receiving lands .
- At 2000 Hz, the 58 decibel limitation, while exceeding the Class C to Class B land use by 6 decibel, does not significantly penetrate a house of modern construction when the windows are closed, which is the likely situation when the Facility is operating during periods of very hot or cold weather.
- At 4000 Hz, the 50 decibel limitation, while 2 decibel greater than the Class C to Class B land use, does not significantly exceed the levels frequently generated by crickets, locusts, and other insects. Furthermore, at this level, 4000 Hz, the noise is even less able to penetrate a house with closed windows than at 2000 Hz.
- At 8000 Hz, the 40 decibel limitation is equal to the present Class A daytime limit and 5 decibel lower than Class C to Class B land use limits.

**A Comparison of Current Noise Limits in Illinois with the Ameren Elgin Facility Site  
Specific Noise Emission Limitations**

<b>Octave Band Center Frequency in Hertz ( Hz)</b>	<b>Class C to Class B Receiving Land Section 901.103</b>	<b>Proposed Facility Site Specific Noise Limitations Class A and Class B*</b>	<b>Class B to Class B Receiving Land Section 901.103</b>	<b>Class C to Class A Receiving Land Section 901.102a</b>
31.5 HZ	80 dB	<b>80 dB</b>	79 dB	75 dB
63 HZ	79 dB	<b>74 dB</b>	78 dB	74 dB
125 HZ	74 dB	<b>69 dB</b>	72 dB	69 dB
250 HZ	69 dB	<b>64 dB</b>	64 dB	64 dB
500 HZ	63 dB	<b>58 dB</b>	58 dB	58 dB
1000 HZ	57 dB	<b>58 dB*</b>	52 dB	52 dB
2000 HZ	52 dB	<b>58 dB*</b>	46 dB	47 dB
4000 HZ	48 dB	<b>50 dB*</b>	41 dB	43 dB
8000 HZ	45 dB	<b>40 dB</b>	39 dB	40 dB
APPROX. dB(A)	66 dB (A)	<b>64 dB (A)</b>	62 dB (A)	61 dB (A)

The approximate A-weighted (dB(A)) levels are included to provide additional perspective regarding noise impact. The A-weighted decibel levels are not proposed for adoption because the Board's generally applicable noise emission limitations do not include A weighted decibel limitations.



#### **G. Economic Impact of the Proposed Rule 35 Ill. Adm. Code 102.202(b)**

The Facility was built at an approximate cost of over \$200,000,000. The energy producing value of the Facility on an annual basis is estimated to be at least \$11,200,000. This value is premised upon four elements: direct sales; reserved capacity dedicated to Ameren; and outside supply contracts. To the extent that Ameren is not able to operate the Facility to meet these energy needs and additional unforeseen power needs, this value is diminished. The economic consequences to Ameren's customers if Ameren is not able to fully operate this Facility has not been determined, but would be of significant consequence to Ameren and its customers.

### **IV. PROCEDURAL MATTERS IN SUPPORT OF PETITION**

#### **A. Synopsis of Testimony to be Presented at Hearing 35 Ill. Adm. Code 102.202(c)**

Ameren will introduce several individuals to testify in support of the facts set forth in this Petition and the requested relief. Those witnesses will testify and available for question about the following topics.

1. Richard C. Smith, Manager of Generation Services, Ameren Energy Generating Company, will testify regarding the Facility's operations; the current noise reduction equipment and its costs; the economic impact of the proposed site specific regulations; and the technical feasibility and estimated costs for add-on controls for noise reduction.

2. David J. Parzych, principal and founder of Power Acoustics, Inc., will testify concerning the design phase study conducted by Power Acoustics, Inc. for the Facility in 2000. He will also testify about the sound measurements obtained from the survey conducted in June 2003, the extrapolation of that data to evaluate the impact of the Facility on the Realen property, and in the context of the proposed site specific noise emission limitations. He will also testify about the sound pressure levels associated with peaker power plants, the technical feasibility and economic reasonableness of the existing and studied add-on control noise reduction methods, and the proposed site specific limitations.

3. Gregory Zak, of Noise Solutions by Greg Zak, will testify regarding the sound pressure levels measured in the September, 2003 investigation; the development of the site

specific noise emission limitations; and the environmental impacts of the proposed site specific limitations.

**B. Statement of Most Recent Version of Rule 35 Ill. Adm. Code 102.200(h)**

The rules proposed in this Petition do not amend any existing Board rule, but instead, request that the Board adopt a site specific noise emission regulation applicable to the Ameren Elgin power plant. Therefore, a statement or certification that the proposal amends the most recent version of the rules as published on the Board's web site is not necessary.

Ameren recognizes that portions of Part 901 of the Board's noise regulations are the currently the subject of a Board rulemaking entitled In the Matter of : Proposed New and Updated Rules for Measurement and Numerical Sound Emissions Standards Amendments to 35 Ill. Adm. Code 901 and 902, R03-9. To the best of Ameren's knowledge, that rulemaking is currently in First Notice under the Administrative Procedure Act. The Board's consideration and adoption of this proposed site specific regulation should not affect the Board's existing noise regulations or the proposed amendments to the same that are the subject of that Board rulemaking.

**C. Consistency with Federal Law**

There are no federal limitations on noise from this type of power plant. Therefore, such a demonstration is not applicable to this site specific rulemaking.

**D. Attachments to Petition**

The following attachments are included by Ameren in support of the site specific noise emission limitation proposed, and are hereby made a part of this Petition.

1. Attachments A1 and A2: Map of Existing Land Uses (Two views)
2. Attachment B: Diagram of Elgin Facility Layout Plan
3. Attachment C: Simple Cycle Combustion Turbine Power Plant
4. Attachment D: Diagram of Elgin Facility Noise Control Devices
5. Attachment E: Estimated Costs of Noise Abatement Measures
6. Attachment F: Map of Ambient Sound Measurement Locations and Critical Receptors

**E. Petition Signature Requirement** 45 ILCS 5/28 and 35 Ill. Adm. Code 102.202(f).

In a separate Motion filed simultaneously with this Petition, Ameren respectfully requests that the Board waive the signature requirement applicable to site specific rulemaking petitions.

**WHEREFORE**, Ameren respectfully request that the Board promulgate a site specific rulemaking limiting noise emission limits from the Ameren power generation plant on Gifford Road in Elgin, Illinois for Class A and Class B receiving lands as proposed and supported by this Petition.

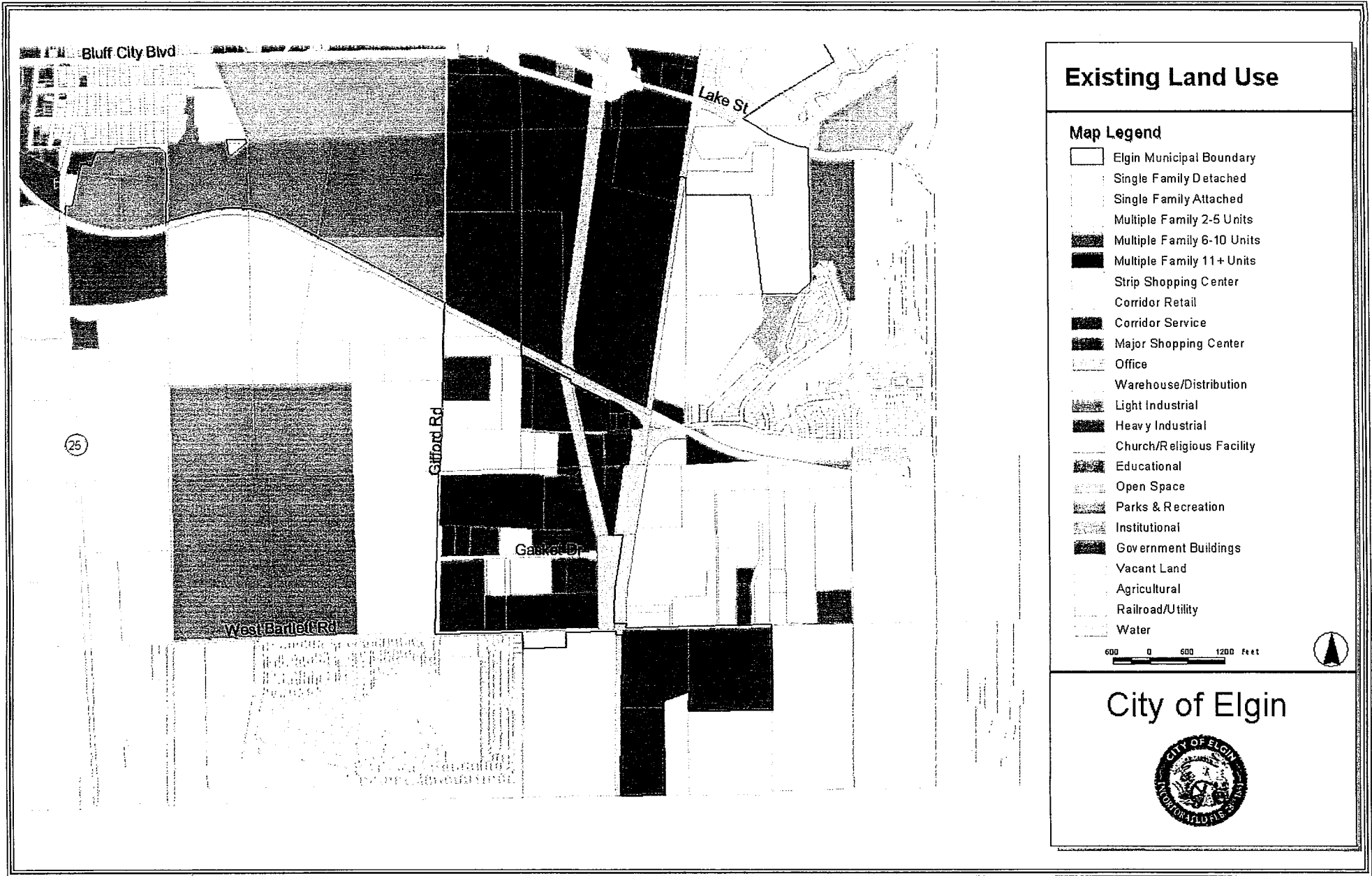
Respectfully submitted,  
Ameren Energy Generating Company,  
Petitioner,

By:   
Marili McFawn

Dated: October 28, 2003

Marili McFawn  
Schiff Hardin & Waite  
6600 Sears Tower  
Chicago, Illinois 60606  
312-258-5519

CH2\1046314.1



## Existing Land Use

### Map Legend

- Elgin Municipal Boundary
- Single Family Detached
- Single Family Attached
- Multiple Family 2-5 Units
- Multiple Family 6-10 Units
- Multiple Family 11+ Units
- Strip Shopping Center
- Corridor Retail
- Corridor Service
- Major Shopping Center
- Office
- Warehouse/Distribution
- Light Industrial
- Heavy Industrial
- Church/Religious Facility
- Educational
- Open Space
- Parks & Recreation
- Institutional
- Government Buildings
- Vacant Land
- Agricultural
- Railroad/Utility
- Water

600 0 600 1200 Feet



City of Elgin



Bluff City Materials

GE Capital

Martam Corp

Frucon Const

Gasket St

Gifford Rd

Illinois DNR

West Barlett Rd

### Existing Land Use

#### Map Legend

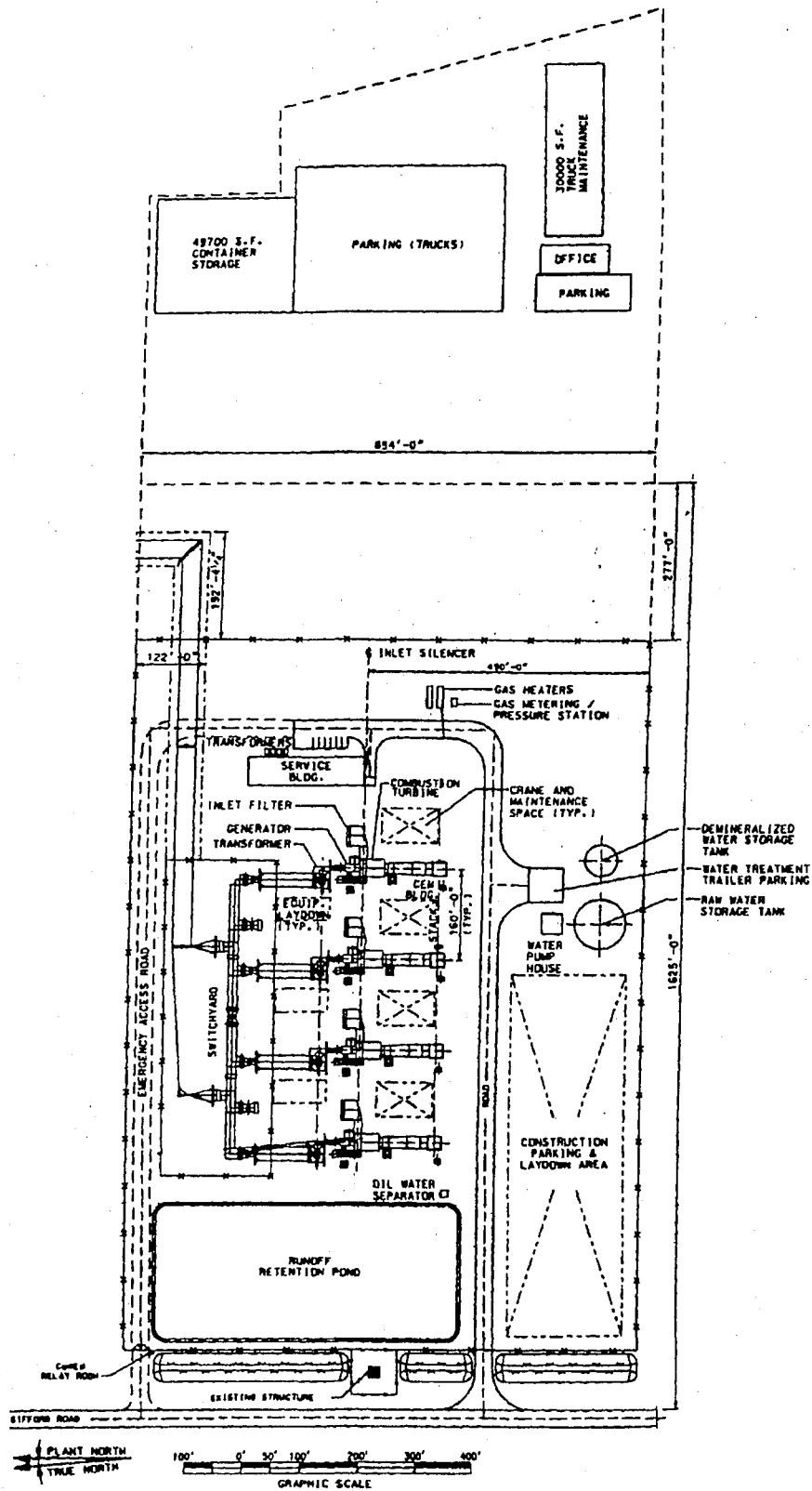
-  Elgin Municipal Boundary
-  Single Family Detached
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-  Multiple Family 2-5 Units
-  Multiple Family 6-10 Units
-  Multiple Family 11+ Units
-  Strip Shopping Center
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-  Corridor Service
-  Major Shopping Center
-  Office
-  Warehouse/Distribution
-  Light Industrial
-  Heavy Industrial
-  Church/Religious Facility
-  Educational
-  Open Space
-  Parks & Recreation
-  Institutional
-  Government Buildings
-  Vacant Land
-  Agricultural
-  Railroad/Utility
-  Water

400 0 400 600 Feet

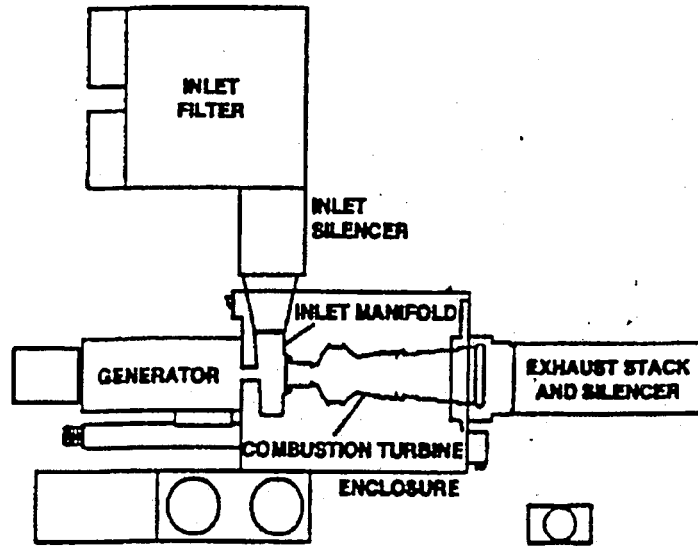
# City of Elgin



# DIAGRAM OF ELGIN FACILITY LAYOUT

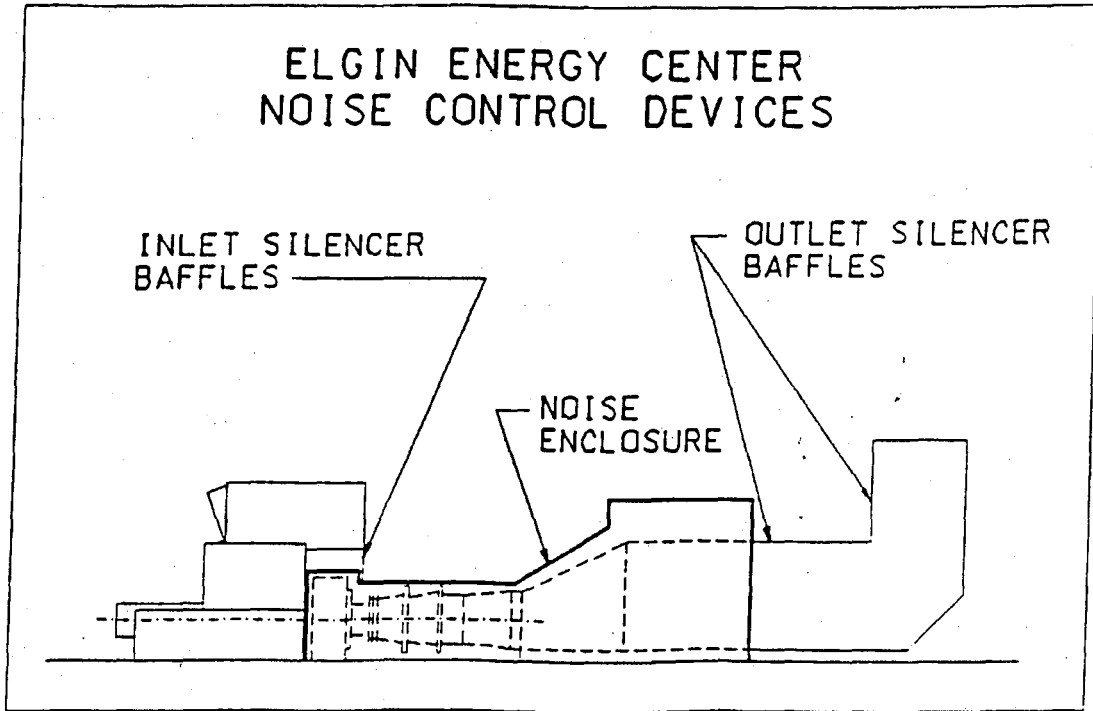


# SIMPLE CYCLE COMBUSTION TURBINE



CH1\4061444.1

**DIAGRAM OF ELGIN FACILITY  
NOISE CONTROL DEVICES**

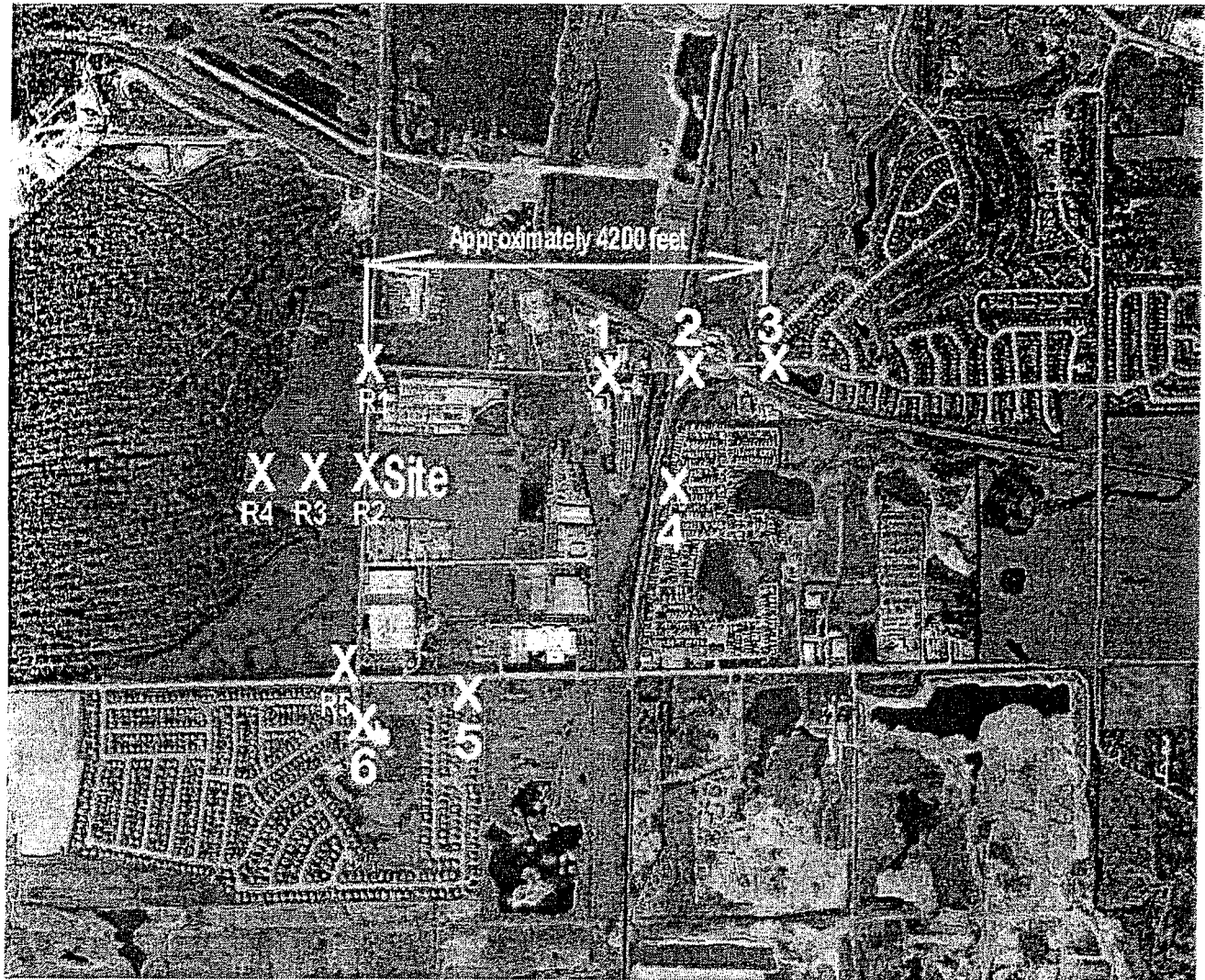




## ESTIMATED COSTS OF NOISE ABATEMENT MEASURES

Description	Additional Exhaust Stack Silencers (Low Frequency Noise Reduction) (31.5 - 63 Hz)	New Redesigned Stack (Low Frequency Noise Reduction) (31.5 - 63 Hz)	Active Noise Control System (Low Frequency Noise Reduction) (31.5 - 63 Hz)	Additional Inlet Silencers (High Frequency Noise Reduction) (1000 - 8000 Hz)	Additional Inlet Ducting Enclosure (High Frequency Noise Reduction) (1000 - 8000 Hz)	Secondary Generator Enclosure (Mid Frequency Noise Reduction) (125 - 500 Hz)	Barrier Wall on the West Side of Each Unit (Mid and High Frequency Noise Reduction) (125 - 8000 Hz)
Material	\$500,000	\$1,500,000	\$500,000	\$50,000	\$100,000	\$100,000	\$300,000
Labor	\$500,000	\$1,500,000	\$500,000	\$50,000	\$100,000	\$100,000	\$300,000
Sub-total	\$1,000,000	\$3,000,000	\$1,000,000	\$100,000	\$200,000	\$200,000	\$600,000
Engineering (5%)	\$50,000	\$150,000	\$50,000	\$5,000	\$10,000	\$10,000	\$30,000
Project Management (10%)	\$100,000	\$300,000	\$100,000	\$10,000	\$20,000	\$20,000	\$60,000
AFUDC (10%)	\$100,000	\$300,000	\$100,000	\$10,000	\$20,000	\$20,000	\$60,000
Overhead (6%)	\$66,000	\$198,000	\$66,000	\$6,600	\$13,200	\$13,200	\$39,600
Contingency (15%)	\$150,000	\$450,000	\$150,000	\$15,000	\$30,000	\$30,000	\$90,000
Sub-total	\$466,000	\$1,398,000	\$466,000	\$46,600	\$93,200	\$93,200	\$279,600
Total Cost Per Unit	\$1,466,000	\$4,398,000	\$1,466,000	\$146,600	\$293,200	\$293,200	\$879,600
<b>TOTAL COST ALL 4 UNITS</b>	<b>\$6,000,000</b>	<b>\$18,000,000</b>	<b>\$6,000,000</b>	<b>\$600,000</b>	<b>\$1,200,000</b>	<b>\$1,200,000</b>	<b>\$3,600,000</b>

## MAP OF AMBIENT SOUND MEASUREMENT LOCATIONS



1. Patio and Ponds Landscaping on Spaulding Road
2. Single Home, Spaulding Road
3. Amber Grove Subdivision, Spaulding Road
4. Spring Lakes Mobile Homes, James Street
5. Westridge Subdivision, Rushmore Drive
6. Nature Ridge School and Westridge Subdivision, West Bartlett Road and Westridge Boulevard

The Realen property to the west of the site is currently vacant and undeveloped. The Sound Measurement Locations on this property are: R1, R2, R3, R4 and R5.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: )  
 )  
PROPOSED SITE SPECIFIC REGULATION ) R04-  
APPLICABLE TO AMEREN ENERGY )  
GENERATING COMPANY, ELGIN, ILLINOIS )  
AMENDING 35 Ill. Adm. Code 901 )

APPEARANCE

Now comes Marili McFawn of the law firm of Schiff Hardin & Waite and hereby enters her appearance on behalf of Petitioner, Ameren Energy Generating Company, in this proceeding.

Respectfully submitted,



Marili McFawn  
Marili McFawn  
Attorney for Ameren Energy  
Generating Company

Dated: *October 28, 2003*

Marili McFawn  
Schiff Hardin & Waite  
6600 Sears Tower  
Chicago, Illinois 60606  
312-258-5519

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: )  
)  
PROPOSED SITE SPECIFIC REGULATION ) R04-  
APPLICABLE TO AMEREN ENERGY )  
GENERATING COMPANY, ELGIN, ILLINOIS )  
AMENDING 35 Ill. Adm. Code 901. )

MOTION TO WAIVE REQUIREMENT TO SUBMIT 200 SIGNATURES

Now comes Ameren Energy Generating Company, by and through its attorneys, Schiff Hardin & Waite and requests that the Illinois Pollution Control Board ("Board") waive the requirement under 35 Ill. Admin. Code 102.202(f) to submit 200 signatures with its Petition for Site Specific Regulation. In support hereof, Petitioner states:

1. Ameren Energy Generating Company owns a power generation facility in Elgin, Illinois for which it seeks site specific regulations for noise emission limitations from that Class C land to Class A and Class B receiving properties as governed under 35 Ill. Adm. Code Part 901.

2. The Board has waived signature requirements for site specific rulemaking petitions in the past, including recently In the matter of: Petition of Central Illinois Light Company for a Site Specific Air Rule: 35 Ill. Adm. Code 214.141, R02-21, and In the Matter of: Petition of the City of Effingham, Blue Beacon International Inc. and Truckomat Corporation for a Site Specific for a Site Specific Water Pollution Regulation: 35 Ill. Admin. Code 304.105, R03-11.

3. Ameren Energy Generating Company is a publicly held company that employs 2,530 and provides electrical power to one million customers in the State of Illinois. Granting this motion is in the public interest of those customers and others served by Ameren Energy Generating Company.

Wherefore, Ameren Energy Generating Company through its attorneys respectfully requests that the Board waive the requirement to submit 200 signatures in support of this Petition for site specific regulation.

Respectfully submitted,  
Ameren Energy Generating Company

By: *Marili McFawn*  
Marili McFawn

Dated: October 28, 2003

Marili McFawn  
Schiff Hardin & Waite  
6600 Sears Tower  
Chicago, Illinois 60606  
312-258-5519

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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AMENDING 35 Ill. Adm. Code 901 )

CERTIFICATE OF SERVICE

I, Marili McFawn, the undersigned, hereby certify that I have served the attached Petition for a Site Specific Regulation Applicable to Ameren Energy Generating Company, the Entry Of Appearance of Marili McFawn in this matter on behalf of Ameren Energy Generating Company, a Motion for Expedited Consideration, and a Motion to Waive Requirement to Submit a 200 Signatures by filing the same in person with the Clerk of the Illinois Pollution Control Board, 100 W. Randolph, Suite 11-500, Chicago, Illinois 60601 on October 28, 2003 and on those listed below by depositing said documents in U.S Mail on October 28, 2003:

Division Chief of Environmental Enforcements  
Office of Attorney General  
100 West Randolph Street, 12<sup>th</sup> Floor  
Chicago, Illinois 60601

Office of Legal Services  
Chief, Legal Division  
Illinois Department of Natural Resources  
524 South Second Street  
Springfield, Illinois 62701

Division of Legal Counsel  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276



Marili McFawn  
Attorney for Ameren Energy  
Generating Company