

## Noise Control: A Proactive Approach at the Polaris Amphitheater

It's no surprise that the number of noise complaints has risen with the recent growth in amphitheater construction. Throughout the country, communities are adopting tougher noise control ordinances requiring amphitheaters to either conform or be fined. But amphitheater management can remove the burden of proving conformance by adopting a successful sound monitoring program that monitors and produces instantaneous updates on sound levels at concerts.

Polaris Amphitheater in Columbus, OH, is one of the premier venues in the United States. Constructed in 1994, its first season was met with great excitement by concert goers and the acts that performed there. However, management of the facility soon became inundated with complaints from nearby neighbors about noise. Polaris falls under the jurisdiction of the City of Columbus noise ordinance that limits noise to 65 dB LeqA60 before 10 p.m. and to 60 dB LeqA60 after 10 p.m. In layman's terms, this means that the average sound level over a 60-minute period cannot exceed 65 dB A-Weighted and 60 dB A-Weighted after 10 p.m. In layman's terms, this means that the average sound level over a 60-minute period cannot exceed 65 dB A-Weighted and 60 dB A-Weighted after 10 p.m. Polaris is surrounded on three sides by the City of Westerville, which has adopted a tougher noise ordinance that uses a 15-minute averaging time. The reality of this particular noise control ordinance is that people mowing their lawns and the heavy traffic areas surrounding Polaris are in violation of these limits as well.

Nonetheless, in any successful business you must reach harmony within the workplace and the community surrounding your place of business. It is the goal of Polaris to balance the quality of the show with the quality of the community. The issue of compliance and community acceptance is complicated further when there are two municipalities involved. The noise control ordinances of Columbus are considerably more common and attainable. The legal ground for Polaris is in their favor, but the goal is to gain acceptance by both communities. Since its opening, Polaris has continuously been concerned about complaints and has taken steps to remedy the situation. Some of these have

included constructing additional sound barriers, purposely not booking loud acts on school nights and imposing an 11 p.m. curfew on the venue for performances. All of the preventive measures taken have made an impact and have been very costly. In 1996, Polaris started a new program that would lower sound levels before it became a problem. A proactive approach to noise control began to evolve and has become very effective. The installation of additional lawn speakers has reduced sound levels by providing even sound coverage to all areas of the lawn. More dramatic is the addition of a sound monitoring system.

Polaris looked at the sound monitoring systems that were available and determined that a new approach was in order. Polaris consulted Signalysis, Inc., a software development firm in Cincinnati, to research the requirements and offer a solution. The result of this research was SLAM. An acronym for Sound Level Automated Monitoring, SLAM is designed to monitor sound levels of concerts and produce instantaneous updates on sound levels displays. Sound *monitoring* is not a sound *control* system. It cannot limit the sound and, therefore, it is at the discretion of the mix engineer and production manager to respond to the sound level indicators. Production managers know that when they attempt to reduce the volume, the concert has a magical way of getting louder. The goal was to produce a system that would get to the source of the problem—the levels produced at the mix. A key part of this process was to create a product that would gain acceptance from sound engineers. To do this, SLAM incorporated the following:

- *The use of Bruel & Kjaer sound level meters and microphones.* Bruel & Kjaer is a household name in the sound engineering industry, where their microphones and frequency response analyzers are used extensively.
- *The installation of permanently mounted meters and microphones.* This adds consistency and eliminates risk of human error. The performers do not feel that their performance is in the hands of an inexperienced seasonal employee.

- *The availability of sound level information during sound check.* The sound engineer is introduced to the system before sound check and can then monitor and review the levels and graphs during and after sound check. Using this information before the show starts has been a big step in the direction of keeping the performance sound levels acceptable.
- *The provision of several different Leq readings, all live and at your fingertips.* This single feature has given Polaris the ability to report to the City of Columbus using the legal ordinances that they must follow; and to Westerville, using the ordinances Polaris is self-imposing.
- *Making sound monitoring “live”—just like the show.* Problems can be seen before they occur and levels are reported back to the mix engineer. Everyone is then aware of the problems approaching and can correct them before fines have been levied.

Polaris then follows up the investment in SLAM with a positive education and enforcement philosophy. The sound requirements and information regarding SLAM are included as part of Polaris’ advanced literature on shows. The morning of a show, the production manager demonstrates SLAM and answers questions from the sound engineer. SLAM is turned on and monitoring begins before PA check and continues on until the completion of load out. At the completion of sound check, the SLAM data are reviewed with sound engineers and adjustments can be made at that time. This open sharing of information early in the day is a real confidence builder with sound engineers. Headlining acts have found SLAM extremely useful in controlling the levels of opening acts, thereby leaving plenty of margin to put on a dynamic show without violating any ordinances.

Polaris monitors sound levels at the mix and at the property line. Using SLAM’s live multi-trace display, it is apparent when sound emitting from the venue is affecting the community (see Fig. 1.) The fact that the noise ordinances are fixed levels could be a problem without this graph. The data from the sound level meter measure all noise at the property

line. If these were the only data presented to the city, they would show Polaris in violation 90 percent of the time. However, with the correlation between mix and property line, it is evident when the noise from the concert is violating the noise ordinances at the property line.

Adopting this proactive approach to sound control has given Polaris the ability to curtail the complaints of neighbors and earn respect from the artists that perform there. As the 1997 concert season approaches, Polaris will fine tune this new approach to sound control. Their desire is to be the premier venue that is a home to the artist as well as at home in the community.