Doctor Atomic in the Desert:

Sound for the Santa Fe Revival

John Adams' opera, *Doctor Atomic*, about the scientist J. Robert Oppenheimer and the creation of the atomic bomb, received an unusually apt revival this summer at Santa Fe Opera, in a production directed by Peter Sellars, who also wrote the libretto. It was seen mere miles away from where the events it depicts actually took place, at Los Alamos National Lab. Mark Grey, who has designed the opera's sound for other productions, including those at San Francisco Opera and Metropolitan Opera, was on hand again; he notes that the choice of venue "compounded the intensity" of the experience. It also posed a different set of challenges, since Santa Fe Opera performs outdoors, and the company doesn't typically use sound reinforcement or sound design.

Grey says he visited Santa Fe in December "to see what they had in terms of sound gear. They were purchasing a new Meyer Sound system. They have CAL column speakers: one CAL 64 per side, beaming to the balcony, and one CAL 32 per side, aimed at the floor, and 900-LFC subs. They also have a downfill center, which is a couple of UPJs, and some front fills that hangs off the moat that sits between the audience and stage. I used this system, except for the front fills; for them, I used four M1Ds placed up against the orchestra pit walls. I used the front fills as inverted center clusters and drove them pretty hot in relation to the PA; it pulls the image downstage and center, helping with the articulation. The opera also brought in some special effects subs from QSC for the detonation of the

Photos: Ken Howard

atom bomb; we stacked two of them and put them in a hallway that goes from the front of house, under the seating, almost to the pit. They put out a low-frequency signal, down to 40Hz, just pushing air," which added to the rumble of the explosion. Foldback was provided by Meyer UPMs, located in left and right positions upstage and downstage.

The production featured a number of surround soundscapes. "In a theatre with walls, you're not pushing them as much," Grey says. "The hall does a lot of the work for you. Here, I had to rethink the surround distribution. We started with the side surrounds, putting them a little closer to the audience. It was a little too much, so we moved them offstage about 10', which is pretty drastic in a space like that, because, all of a sudden, you're out in the elements. The system had two UPJs per side on a truss system that the shop built, which was rolled out for each performance. The rear surrounds featured Meyer UP4-XPs on the orchestra level and, in the balcony, an in-house cabinet made by Renkus-Heinz."

The principals were miked with DPA d:screet 4061 omidirectional units, partnered with Lectrosonics SSM micro transmitters and Lectrosonics Venue2 receivers. Grey says, "The female principals had 4061s hidden in their hairlines; their male counterparts had 4061s on short ear-clips. All Lectrosonic packs were sewn into the costumes. The principals were double-miked; the chorus was not. Eight select chorus members had 4061s woven into their collars; this gave Peter great freedom to stage the scenes. It was a luxury to have Lectrosonics gear. This system keeps down the weight; especially if someone is wearing, say, a slim evening dress, the mics are highly concealable.'

Controlling the sound was a Soundcraft by Harman Vi2000 console. "Typically, we roll with DiGiCo," Grey says. "We tapped out every possible output on the 2000, but it was enough to easily get us through the production. One of the console's saving graces is its BSS dynamic compressors. That was nice, because, with a DiGiCo, we typically use something like a Waves C6 [multiband compressor] plug-in."

Grey works with singers who haven't appeared in sound-reinforced productions, using headphones at first, then "slowly creeping the sound system in over the course of a few days. Once we get the orchestra in, I'll bring interested parties, such as administrators or cast, back to the mixing console and show them what it sounds like in relation to the orchestra. It gets them involved with the process." He adds, "The audience comes in expecting acoustic opera. The challenge is to keep the transparency in the quasi-acoustic image, making it feel natural." In any case, even a thunderstorm on opening night didn't prevent the show from going on.