

Big Sky Acoustics, LLC

PROJECT PROFILE: **RAILCAR SHAKER ENCLOSURE**



PROJECT: R.M. HESKETT STATION
Mandan, SD

Neighbors complained of the noise from the Station outdoor railcar shaker. When engineers considered an enclosure, noise control was also included in the design. Big Sky Acoustics analyzed the existing shaker noise levels and the effectiveness of various design options for the enclosure.

BSA's SERVICES AND SOLUTIONS:

- Measured the existing railcar shaker equipment noise levels, both on-site and in residential areas, and compared the results to the City noise ordinance.
- Provided acoustical design of the enclosure to reduce the noise levels by at least 10 dBA at the nearby residences. Because lignite dust is flammable, all the selected acoustical materials within the enclosure had to be smooth and able to withstand high-pressure washing.
- Because the initially-planned metal structure would not effectively reduce off-site noise levels, BSA provided acoustical options to increase the mass of the walls and roof, including concrete and acoustical spray-on cement materials.
- To reduce reverberant noise levels within the enclosure, BSA recommended adding sound-absorbing materials to improve the effectiveness of the enclosure. Various baffle and banner configurations and products were provided for evaluation by the project engineers.
- Determined wall, ceiling and window material options to reduce noise levels inside the internal control room, either through on-site construction or using a pre-fabricated structure.



BSA calculated that the acoustical enclosure will reduce the shaker noise by 11 dBA at nearby residences, which will appear half as loud as the existing outdoor shaker equipment noise.