

## *NIOSH Alert: Preventing Occupational Exposures to Lead and Noise at Indoor Firing Ranges*

### NIOSH Response to External Peer Reviewers comments

The Alert was reviewed by 9 external reviewers from academia, government, industry, and professional organizations. No major structural changes to the Alert were required to address the external reviewers' comments. Most of the reviewers suggested editorial and content modifications to the Alert to improve its clarity and accuracy. The major recommendations and associated modifications are summarized below:

- Expand the OSHA standard on Lead to include information regarding biological monitoring and medical surveillance. The authors included additional information on recent scientific studies that suggest more stringent monitoring and medical surveillance recommendations than required by the OSHA regulations for reference purposes.
- Expand on the details provided on several of the case reports. The authors explained the limited availability of case studies on exposure to firing ranges and added additional information to the existing cases to describe some of the recommendations and solutions provided to reduce exposures.
- Improve the section on ammunition substitution to include information on frangible bullets. The authors added additional information on alternative types of bullets to the Alert.
- Improve the engineering controls recommendations to include information on new state of the art backdrop systems and the use of electronic simulation. The authors added information on the new systems to the Alert.
- Include information about work practices in the hierarchy of controls recommendations section. The authors modified the Administrative Controls section to include discussions on work practices that the users of firing ranges can implement to protect the safety and health of workers at the ranges.
- Expand on exposure and medical health monitoring by including additional sections from the OSHA 1910.1025 to provide more details on employee monitoring and medical surveillance. The authors added detailed suggestions from the OSHA standard to the Alert as recommended by the reviewer.
- One reviewer felt that the Alert did not address the issue of cost and economic feasibility of the recommendations provided in this Alert, especially for smaller firing ranges. The authors added comments to discuss that the Alert provides a range of recommendations and solutions that can be incrementally adopted by range users and operators based on cost and resources available.