Shooting ranges play an important role for everyone that appreciates the shooting sports, hunter safety programs, and firearms education. They also enjoy a rich, proud tradition of fostering Michigan's outdoor recreational heritage.

Although lead has long been the preferred material for shot and bullets, lead and lead compounds can be toxic to humans and wildlife. This is of special concern to shooting ranges where spent shot and bullets may weather and erode resulting in soil and water contamination. This situation can be properly managed through the use of Best Management Practices (BMP's) for ranges.

MICHIGAN DEPARTMENT OF
ENVIRONMENTAL QUALITY
ENVIRONMENTAL ASSISTANCE DIVISION
PO BOX 30457
LANSING MI 48909-7957

www.michigan.gov/deq

Environmental Assistance Center
1-800-662-9278

June 2001

John Engler, Governor • Russell J. Harding, Director
Michigan Department of Environmental Quality

For Help with Range Design and Lead Shot Management:

National Shooting Sports Foundation (NSSF)
Provides technical assistance and publications on a broad list of range management issues, including lead shot management.
(203) 426-1320
http://www.rangeinfo.org

National Rifle Association (NRA)
Offers technical assistance on the design of new ranges to address safety, noise, and environmental concerns.
(703) 267-1000
http://www.nra.org

United States Environmental Protection Agency (U.S. EPA)
Published *Best Management Practices for Lead at Outdoor Shooting Ranges, 2001*, on lead shot issues and management alternatives.
http://epa.gov/region2/waste/leadshot

Environmental Assistance Center
Has general information on environmental regulations and best management practices applicable to shooting range.
(800) 662-9278
www.deq.state.mi.us/ead/tasect/eac.html

Environmental Permit Coordinator
Provides information on Environmental Permits:
(517) 335-4235

Environmental Response Division
Provides information about environmental remediation and "Due Care" requirements
(517) 373-9837
www.deq.state.mi.us/erd

Waste Management Division
Has information about waste management requirements.
(517) 373-2730
www.deq.state.mi.us/wmd

SHOOTING RANGE STEWARDSHIP

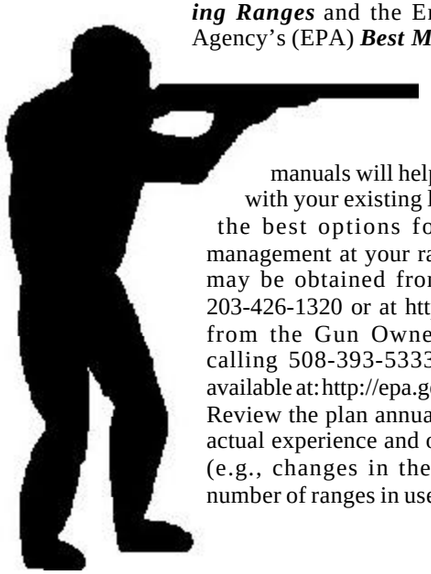
Managing Lead at Your Shooting Range

Environmental Do's and Don'ts for Shooting Range Management

DO pay attention to this issue. The sooner your club acts to properly manage lead shot and lead bullets, the better. Managing lead today will protect public health and the environment at and surrounding your range, and demonstrate your club's commitment to responsible range management. Clubs that do not act to manage lead shot and lead bullets risk spending more money later to address lead-related problems.

DO assign one or more club members to the task of lead shot management. The best way to ensure that your club develops a plan of action for managing lead shot and lead bullets is to assign the responsibility of learning about the issues and management options to members who are interested and willing to take on this task.

DO develop an environmental stewardship plan for your range. The plan represents the written snap shot or baseline of existing conditions as well as a "road map" for implementing and measuring environmental improvements at shooting ranges. See the National Shooting Sports Foundation's (NSSF) ***Environmental Aspects of Construction and Management of Outdoor Shooting Ranges*** and the Environmental Protection Agency's (EPA) ***Best Management Practices for Lead at Outdoor Shooting Ranges*** for guidance on how to develop a plan. Both manuals will help you to identify problems with your existing lead shot management and the best options for improving lead shot management at your ranges. The NSSF manual may be obtained from the NSSF (by calling 203-426-1320 or at http://www.rangeinfo.org) or from the Gun Owners' Action League (by calling 508-393-5333). The EPA manual is available at: http://epa.gov/region2/waste/leadshot. Review the plan annually and adjust it based on actual experience and other relevant information (e.g., changes in the amount of shooting or number of ranges in use, range renovations, etc.).



DON'T shoot lead shot over or into open water or wetlands. Lead is toxic to fish and other aquatic life and can be lethal to birds, such as ducks and geese that ingest lead pellets while feeding. Lead can enter the food chain, poisoning wildlife that feed on animals that have been exposed to lead. If your club currently shoots into open water or wetlands, it must either reorient the range to prevent the shot from entering the water or wetlands, or use non-toxic shot (such as steel, bismuth-tin, tungsten polymer, or other approved non-toxic shot).

DO construct and maintain rifle and pistol range berms to prevent lead migration, and facilitate the recovery and recycling of spent bullets. Lead bullets must be managed to prevent lead migration. Berms should be constructed of material that effectively captures bullets and covered by a roof, called an "eyebrow," to prevent precipitation from eroding the berm and increasing lead mobility. "Eyebrows" also help to contain ricochets.

DON'T shoot lead shot onto property that is not owned by your range. Even if your neighbor permits your club to shoot on his or her land, this practice is unwise. Your club cannot control current and future activity on the neighboring property and therefore, cannot prevent potential human exposure to the lead. While your neighbor's property may be currently unoccupied, in the event that it is sold or built upon, people could be exposed to lead when the land use changes. Your club will have responsibility for cleaning up the lead.

DO periodically remove and recycle the lead shot from your range. Familiarize yourself with the options for lead management and then consult with the Department of Environmental Quality prior to project start-up. Doing so may help safeguard your project and may keep you from making costly mistakes.

Lead trap loads can travel 770 feet, with most shot landing between 375 and 600 feet from the shooter. The fall zone for a single trap field covers about 4 acres. Each additional trap field adds about 1 ¾ acres to the fall zone (assuming the trap houses are 100 feet apart).

DO maintain your range in a manner that facilitates lead shot recovery. Recovery and recycling of lead shot is made easier if your range is relatively flat and free of obstacles such as large rocks, brush, and small trees. Recovery equipment can work around large trees. Large trees also help to keep the shot from traveling further into wooded areas where it can be difficult to recover. In maintaining your range, and prior to lead recovery, clear fields of large rocks, brush, and small trees. After completing the initial recovery of the lead shot, regrade hilly terrain to facilitate the use of excavating equipment for future lead shot recovery operations. Consult an expert on what measures make sense for the terrain at your range and to avoid actions that increase the fall zone area or surface water run-off from the range.

DO prevent surface water run-off from the range from draining directly into nearby streams, ponds, or wetlands. If your range is currently subject to flooding or surface water runs off the range into nearby streams, ponds, or wetlands, you may need to implement drainage control measures to prevent lead from entering surface waters or sediments.

DO include lead shot management in the operating budget of your club. Properly managing lead shot is part of the cost of operating your ranges. Once your club has determined how often it should be recovering and recycling lead shot (e.g., once every 3, 5, or 10 years), you need to budget for it. The club will receive money for the recycled lead shot, but depending on the amount of lead shot recovered and the relative effort necessary to remove it from the range, the amount received for the lead shot may not fully cover the recovery costs.

DO use biodegradable targets. Many clubs have had good experience using the non-toxic biodegradable targets currently on the market. These targets are comparable in price and do not break any more readily than conventional targets.

DO rake up spent targets and plastic wads on a routine basis. They may be collected and disposed of as solid waste.