

Environmental Stewardship Plan

**Genesee Conservation League, Inc.
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I. INTRODUCTION

The Genesee Conservation League, Inc., hereafter referred to as the GCL, was created and is dedicated to promote conservation; facilitate the environmental friendly, low impact use of all public and private lands and waters and encourage safe, high standards of sportsmanship. As a result, the GCL is dedicated to operating a range that minimizes lead contamination. The members of the GCL, as stewards of the environment, have familiarized themselves with the EPA "Best Management Practices for Lead at Outdoor Shooting Ranges", the National Shooting Sports Foundation's manual, and other available guidance manuals for environmental management at outdoor shooting ranges. This Environmental Stewardship Plan ("ESP") has been voluntarily prepared by the members of the GCL. It is the GCL's intent that by developing and implementing this ESP, potential lead contamination can be minimized and lead can be managed at the GCL in an environmentally sound manner.

Environmental Committee:

The GCL environmental committee is a continuing, sitting committee. It reviews environmental conditions of the range, the status of ESP implementation, and the need for updates and/or revisions. The committee consists of not less the three (3) member. The President of the GCL automatically serves as an ex-officio member of the Committee. Additional members of the committee are elected every year by the Board of Directors. Presently, it consist of the following members:

Member's Name: Donald S. Rimai, Ph.D

Member's Name: Wayne Cichetti

Member's Name: James Carswell

The GCL is a private club. Its shooting facilities are open only to members and their guests. The outdoor ranges are open Monday through Saturday from 9:00 AM until sunset and Sunday from 10:00 AM until sunset.

II. SITE ASSESSMENT

The GCL is located at 1570 Old Penfield Road, Rochester, NY. The GCL was originally founded by a group of conservationists in 1925 and was formally incorporated as a not-for-profit corporation and named the Genesee Conservation League, Inc. in 1934. It has been at its present location since 1948.

The facility is located on approximately 34 acres in the town of Penfield, NY. Numerous indoor and outdoor facilities are maintained on the site, including conference rooms which are used by the New York State Department of Environmental Conservation and the Monroe County Department of Transportation for training and educational courses. Its outdoor ranges include an 11-position 200-yard rifle range, a 50-position 50-yard outdoor pistol range, and a 50-yard outdoor “action-pistol” range where drawing from a holster and engaging multiple targets is permitted only by certified shooters. There are also two separate archery ranges. The trap range is currently inactive. Presently, the GCL has a total of over 1,100 members. A topographic map of the facility is presented in Appendix A. Figure 1 shows the view of the rifle range taken from the firing line on the rifle range. Figure 2 shows the pistol range taken from the firing line on the pistol range.

The rifle and pistol ranges all terminate at the foot of wooded and heavily vegetated hills, the eastern crest of which are considerably higher than the shooting stations. These hills serve as the impact berms. The ground is comprised predominantly of sand. The present pH of the soil on the various ranges is between 6.5 and 6.9, as discussed more fully in the lead management plan set forth in Appendix B. At this pH soluble lead ions do not form and therefore, are not transported by runoff into ground water. As further discussed in Appendix B, the GCL is structured so that all lead impacts the berm.

Hipp Brook (also known as Hipp-Ross Creek) runs through the GCL and crosses the rifle range at approximately 120 yards from the firing line. The level of the brook is approximately 10 feet below the surface of the rifle range. Recent survey results show that the elevation of the ground at the firing line on the rifle range is approximately one foot higher than the ground at the foot of the berm, thereby creating a natural path for runoff to be channeled away from Hipp Brook. Moreover, the heavily vegetated range and berm hills effectively absorb water. Accordingly, the amount of water running from the berm over approximately 80 yards to Hipp Brook is negligible.

There are no other water ways crossing any of the ranges.

III. CONTROL AND CONTAIN/PREVENT LEAD MIGRATION

Lead contamination at the GCL is controlled in a two-prong approach. The first approach is to control the migration of lead. The second part involves the reclamation of lead. This section will discuss the control of migration of the lead. Section IV discusses the reclamation program at GCL.

As discussed in Appendix B, lead migration at the GCL is addressed by maintaining thick foliage, including grass, shrubs and trees, on the rifle and pistol range berms and grass on the ground leading up to each berm. The acidity of the soil is measured on a periodic basis, with the last set of measurements taken at appropriate locations on each of the ranges in May, 2004. At that time it was found that the pH varied between 6.5 and 6.9, which are within the specifications given by the EPA to prevent the formation of soluble lead ions. The GCL at that time made

plans to contract with a professional grounds maintenance company to spread lime from the base of each berm toward the firing line a distance of 30 yards and to further raise and maintain the pH to slightly above 7.0, which would put it in the middle of the range specified by the EPA.

In addition to monitoring and maintaining the soil pH to within the appropriate limits, as specified by the EPA, the GCL maintains the vegetative growth to absorb ground water and any soluble lead ions that may form. In addition, the cut grass and other vegetation, such as shrubs and tree branches, are allowed to lay where they fall. This technique is specifically cited in the EPA Best Land Management as a suitable means for minimizing interactions between lead and water.

A key component of the lead management techniques, as practiced at the GCL is to make sure that lead impacts the appropriate berm and is unable to migrate from that berm. On the rifle range, the GCL provides 6 foot high target posts to facilitate lead impaction against the berm. The activities and ranges at the GCL are set up so that minimal amounts of lead are allowed to fall short of the appropriate berm. Moreover, the stability of the berm is important to containing lead. Accordingly, the berms are heavily covered with grass, shrubs and trees.

No mining or reclamation of lead from the berms is allowed by GCL members or other individuals acting without authorization of the board. This rule is in place to minimize risk to members and individuals on GCL property and to avoid the disruption of the berms, which are quite steep and high. It is obvious that disruption the stability of the berms could promote the migration of lead. These techniques as practiced by the GCL are within the guidelines put forth by the EPA.

IV. RECLAIM AND RECYCLE LEAD (AND OTHER SHOOTING DEBRIS)

Lead and brass are recycled by Lyell Metal, 1515 Scottsville Road, Rochester, NY 14623 (585) 436-0713, on an as-needed basis. Shooters are responsible for collecting their casings and shotgun hulls (the latter arising principally from sighting in slug guns prior to deer season) and removing all debris, including targets from the range. Barrels are available at the GCL for the recycling of brass casings. There is a formal clean-up day at the GCL one day each spring, with other maintenance and cleaning done on an as-needed basis.

As previously noted, the unauthorized and unsupervised removal of lead from the backstop is forbidden by club members since this could destabilize the backstops and facilitate the migration of lead from its presently confined regions. In addition, having unauthorized club members digging in the berms could jeopardize their own safety and the integrity of the berms.

The GCL is presently evaluating several approaches to reclamation. These include exploring whether supervised work crews could sift portions of the berm on a periodic basis or whether such activities should be left to commercial materials handling companies. The GCL is also evaluating whether club members should record the number of rounds they fire. Finally, the

GCL now samples the ranges on a periodic basis to determine how frequently reclamation will be needed under EPA standards.

Further details of GCL best land management practices for lead is given in Appendix B of this report.

V. DOCUMENTATION

Shooters at each outdoor range are required to sign in and out at each range. Completed sign-in sheets are kept by the GCL. All shooters and all ranges are periodically checked by GCL personnel.

Dates of pH measurements, the locations of those measurements, and the results are also recorded. Professional landscape management companies have been retained to apply lime and the dates and quantities are recorded. Further details are given in Appendix B.

Dates when brass and lead are collected by Lyell Metal are recorded, as well as the amount of metal collected. Proceeds from the reclamation of the metal goes to support the Youth Shooting Program at the GCL.

Figure 1

The rifle range as seen from the firing line.



Figure 2: The pistol range, as seen from the firing line.



Appendix A

Topographic map of the GCL

Appendix B

TO: Board Members of the Genesee Conservation League

FROM: Don Rimai, Ph.D., Jim Carswell, Jim Toner, and Wayne Cichetti

SUBJECT: Best Management Practices for Lead at Outdoor Shooting Ranges

DATE: June 7, 2004

We have reviewed EPA-902-B-01-001, entitled *Best Management Practices for Lead at Outdoor Shooting Ranges*, published by the United States Environmental Protection Agency (EPA). Upon careful analysis of the ongoing practices of the Genesee Conservation League (hereafter referred to as the GCL) for lead management, we are happy to report that the GCL is and has been in full compliance with the guidelines and principles for lead management, as expressed in that publication.

There are presently four outdoor shooting ranges, (a 200-yard outdoor rifle range, two adjacent 50-yard outdoor pistol ranges, an outdoor action pistol range) and two small outdoor areas that are used for competition pistol matches. The trap range is presently inactive. Each range is terminated by a high berm that is fully vegetated. Hipp Brook crosses the rifle range at a distance of approximately 120 yards from the firing line, or approximately 80 yards from the berm. There are no creeks or other bodies of water that traverse or are in close proximity to any of the other ranges.

As we read it, the main concern expressed in the EPA manual is the possibility of lead getting into ground water by going into solution, by physical transport, as caused by erosion, and by falling directly into water such as creeks, streams, lakes, etc. This manual suggests to several methods of treatment to minimize or eliminate these contamination sources. These methods include maintaining the soil pH between 6.5 and 8.5 to minimize the formation of soluble lead ions that can be transported into ground water, streams and other bodies of water, maintaining vegetation on the ranges to minimize soil erosion that can result in the physical transport of lead into ground water, maintaining mulch beds that limit the amount of water that reaches lead, etc.

The GCL range rules facilitate the impaction of bullets against the appropriate berm. For example, the GCL provides 6 foot high target posts on the rifle range to maximize berm impaction. When coupled with the roof, ceiling and shooting lane barricades at each shooting station, berm impact is maximized. Most bullets will impact the berm at 200 yards. The likelihood that a significant number of bullets will or could fall into Hipp Brook is minimal, as Hipp Brook is approximately 80 yards from the impact region. In addition, the ranges, being much shorter, virtually insure that all bullets will impact the berm. In addition, except for the rifle range, Hipp Brook runs behind any shooters on the GCL's outdoor pistol ranges. Accordingly, the amount of lead that would be found on the range in locations other than the berm is negligible.

An important aspect of lead management at the GCL is related to preserving the stability of the berms, especially that on the rifle range. These berms are quite high and steep and disruption could lead to lead migration. However, it is recognized that exploration of the recycling of lead on the outdoor ranges is an important component of lead management. The GCL bans any mining of lead that has not been authorized by the board by individuals as such mining might cause instabilities in the berm, thereby facilitating physical transport. In addition, such unauthorized work at the berms can be quite hazardous. All berms and ranges are fully vegetated, and tree branches, cut grass, etc. are allowed to lie where they fall, thereby creating mulched areas over the ranges.

The GCL owns a pH meter and monitors the soil pH on each range. Recent measurements showed pH levels, which were sampled at numerous locations on each berm, to be between 6.5 and 6.9. These values are within the range specified by the EPA. The GCL has retained a company to have appropriate portions of the range from the berm back 30 yards to the firing line treated with lime to raise the pH slightly so that it is closer to the middle of the range specified by the EPA. Soil pH will be monitored periodically and the soil treated with lime when and if needed.

It should be noted that the probability of lead being transported, either physically or chemically, from the berm on the rifle range over the 80-yards to the portion of Hipp Brook that runs across the rifle range is negligible, and for the reasons stated above, is virtually zero on the other ranges.

The report EPA-902-B-01-001 also suggests several other course of action that can be followed to manage lead if necessary. These include techniques such as applying phosphates to form insoluble lead salts, vacuuming the soil, recycling of lead, etc. Most of these techniques would be more suitable for ranges with a demonstrated need to actively prevent the spread of lead contamination. This is not relevant to the GCL, whose contour, vegetation, and funnelled shooting lanes maximizes lead containment. Moreover, recycling of lead is not presently recommended as such efforts can disrupt the berms and may actually undermine the present best management practices now in place.

The GCL is presently looking into options to reclaim lead from the berms. These options include having members dig into the berms in the vicinity of the impact areas to a depth of 6 – 8 inches, sift the soil, and return the soil and remove the lead found. Other options that are being explored include having such operations handled by commercial firms that specialize in that type of operation and sampling the soil in the berms on a periodic basis to determine if reclamation is needed at a particular time. We are also exploring having members record the number of rounds fired in GCL log books, which are kept at each range. This might also help us determine when reclamation is necessary.

In summary, the Genesee Conservation League, Inc., is, has been and will continue to operate in accordance with the principles and practices of best management for lead at its outdoor shooting ranges, and as recommended by the EPA.