

# **Ammunition and Energy Testing Procedure on Seddon Range**

**1 October 2017**

NRANZ Council has decided to raise ammunition testing and Muzzle Energy testing to a more visible level in NRANZ and Club competitions on Seddon Range. This has been instituted so that range personnel and competitors can be up brought up to speed for the Long Range World Championships in 2019. ICFRA requests that testing of ammunition ensuring conformity to shooting rules and range criteria is available during the LRWC. Also, NRANZ Shooting Rules require such testing.

Seddon Range has a maximum Muzzle Energy (ME) level of 4500 joules and a maximum muzzle velocity of 1000 metres/second. A table is provided below listing the maximum muzzle velocities for projectiles to reach the allowable ME.

## **Muzzle Energy (ME)**

**NRANZ expects all competitors to be aware of their ammunition ME.**

### **TR NRANZ Rules**

*T2.21. Ammunition may not be used which is forbidden under specific rules provided for in Range Regulations.....(This includes ME for Seddon Range)*

### **F/O – F/TR ICFRA Rules**

*F2.20. Ammunition.....must meet in all respects the limitations of any range regulations (e.g. calibre, velocity, muzzle energy etc).... (This includes ME for Seddon Range)*

In order to check for conformity, the NRANZ has acquired a LabRadar Chronograph to measure muzzle velocity. There is no need to attach anything to a rifle nor set up a chronograph on another part of the range. Testing has indicated that it can be placed approximately shoulder level and out of the vision of a competitor to record shots. The Chronograph is then armed to record and will display the velocity as each shot is fired. The testing is open and transparent and anyone can see the results while it is in operation.

In the event of the operator of the LabRadar recording a muzzle velocity indicating higher than the maximum allowed for the projectile in use, the CRO will be informed and the CRO may consider testing the competitors ammunition as outlined below.

Discretion will be exercised by the CRO in a competitor's first instance of their exceeding ME. In their first instance there will be no penalty. The competitor will be given the opportunity to acquire complying ammunition to complete their shoot within the remaining time available with no additional sighters. They shall use complying

ammunition for the rest of all remaining competitions under penalty of disqualification.

NRANZ Shooting Rule T19 outlines reasons for Disqualification that includes:

*T19.5.11. Using ammunition outside the ICFRA specification.*

**LabRadar:** <http://www.mylabradar.com/>

As a rule of thumb, competitors should ensure only 1 in 20 shots should exceed the maximum muzzle Velocity to ensure conformity. The mean velocity plus twice the standard deviation (SD) should not exceed the max velocity from the table. Use the mean and SD function of a chronograph or calculate the mean and SD. Eg. If the SD is 10 fps, 2 SD = 20 fps, the mean should be less than 2986 fps if 155 gn projectiles are used (Max 3106 fps). A sample size of at least 10 shots when calculating the mean and SD is recommended.

## **Ammunition**

NRANZ Shooting Rule:

*T8.13. The RO or another range official who has been delegated by the CRO is authorised to check that the ammunition used by a competitor is within the specification for the match. One round from those that the competitor is about to fire may be taken for subsequent examination. The competitor should not be disturbed once he has commenced firing. The host country is to provide a person with suitable expertise to ensure that checks are done to collected ammunition in the shortest possible time. After dismantling the round for checking, the unfired cartridge case and bullet must be returned to the competitor.*

An area has been set aside with a suitable press and balance and will be used to test the ammunition during the 2017 Nationals.

The projectile and case shall conform to ICFRA specifications under penalty of disqualification.

## **Rifle Weight**

NRANZ now has a balance and a set of test weights with which to measure rifle weight. This may be available prior to the commencement of Nationals or at an advertised time and place. See the Wailing Wall for times and place. Random checks during championships may be carried out on the request of the CRO.

Rule F2:                      F/O: 10 kg                      F/TR: 8.25 kg

See Rule F19.4 for "Disallowance of scores" which includes:

*F19.4.4 Use of a rifle that does not comply with the requirements set out in these rules.*

It will be assumed that all competitors have read NRANZ Shooting Rules and ICFRA Shooting Rules.

NRANZ Rules Here:

<http://nranz.org.nz/assets/Documents/shooting-rules-4-2010-Edition.pdf>

ICFRA TR Rules Here:

[http://www.icfra.co.uk/TR\\_Technical\\_rules\\_2016.pdf](http://www.icfra.co.uk/TR_Technical_rules_2016.pdf)

ICFRA F Class Rules Here:

[http://www.icfra.co.uk/FC\\_Rules\\_2014%20Final.pdf](http://www.icfra.co.uk/FC_Rules_2014%20Final.pdf)

**Maximum Muzzle Velocity for Projectile weights.**

| Projectile Weight (gn) | Max Velocity m/s | Max Velocity f/s | Muzzle Energy Joules | Muzzle Energy Ft/lb |
|------------------------|------------------|------------------|----------------------|---------------------|
| 80                     | 998              | 3274             | 2581                 | 1903                |
| 90                     | 998              | 3274             | 2903                 | 2141                |
| 105                    | 998              | 3274             | 3387                 | 2498                |
| 130                    | 998              | 3274             | 4193                 | 3092                |
| 140                    | 996              | 3268             | 4500                 | 3318                |
| 150                    | 962              | 3156             | 4500                 | 3318                |
| 155                    | 946              | 3104             | 4500                 | 3318                |
| 155.5                  | 945              | 3100             | 4500                 | 3318                |
| 160                    | 931              | 3054             | 4500                 | 3318                |
| 170                    | 904              | 2966             | 4500                 | 3318                |
| 180                    | 878              | 2881             | 4500                 | 3318                |
| 185                    | 866              | 2841             | 4500                 | 3318                |
| 190                    | 855              | 2805             | 4500                 | 3318                |
| 200                    | 833              | 2733             | 4500                 | 3318                |
| 210                    | 813              | 2667             | 4500                 | 3318                |
| 215                    | 794              | 2606             | 4500                 | 3318                |
| 220                    | 776              | 2545             | 4500                 | 3318                |
| 230                    | 757              | 2485             | 4500                 | 3318                |
| 240                    | 739              | 2424             | 4500                 | 3318                |
| 250                    | 720              | 2363             | 4500                 | 3318                |

Thank you  
NRANZ Council