

Full-bore- Ice melting in the butts

Small-bore- I know I can, I know I can

The



April 2017

Buffalo Chips

MANITOBA PROVINCIAL RIFLE ASSOCIATION

Air Rifle 22 Long Rifle High Power Rifle

Like always, if you have any questions, scores, tips or advice, comments, or have something that you would like to have published in the For Sale / Wanted section, email me at mprachips@gmail.com



March, it's raining, freezing, repeat But then the sun came out.

All of you itching to get out and throw some lead long range might be in luck. March went out like a lamb and hopefully you will get your chance to lay down with the wood ticks real soon.

Dugald gun show is coming up at the end of April and we will have tables representing the club. If you are interested in helping out contact Perry Marsh at mars409657@gmail.com.

The next air rifle match will be on Saturday, April 8th at our Shooting Performance Center at 711 Leola St. On the Sunday a 22LR match will take place at the Winnipeg Revolver and Pistol Club, contact Paul Lemire at pilot11@shaw.ca if interested.

The outdoor 22Lr season starts June 10th and 11th. Additional practice on June 24th and 25th with the Provincial 22 Match happening the weekend of July 8th and 9th. We use the Portage La Prairie Wildlife range north of town. Google maps shows it at this location,

<https://www.google.ca/maps/place/50%C2%B008'38.9%22N+98%C2%B012'57.2%22W/@50.1439891,-98.2144809,791m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d50.144143!4d-98.215898>

The M.P.R.A Annual General Meeting, early June at our Shooting Sports Performance Center located at 711 Leola St in Transcona.

You can only control what happens at the firing line. What happens at the other end of the range is a consequence of what happens at the firing line. You can influence the consequences, the outcomes, the results but the only thing you can control is your own performance at your end of the range.

Linda K. Miller and Keith Cunningham, Secrets of Mental Marksmanship

With the full-bore people coming out of a long winter slumber, lets start with an article on wind mirage. This is only a snip-it as it is best viewed on the web at,

<http://bulletin accurateshooter.com/2017/02/mirage-is-your-friend-great-article-on-reading-mirage/>

Mirage Is Your Friend — Great Article on Reading Mirage

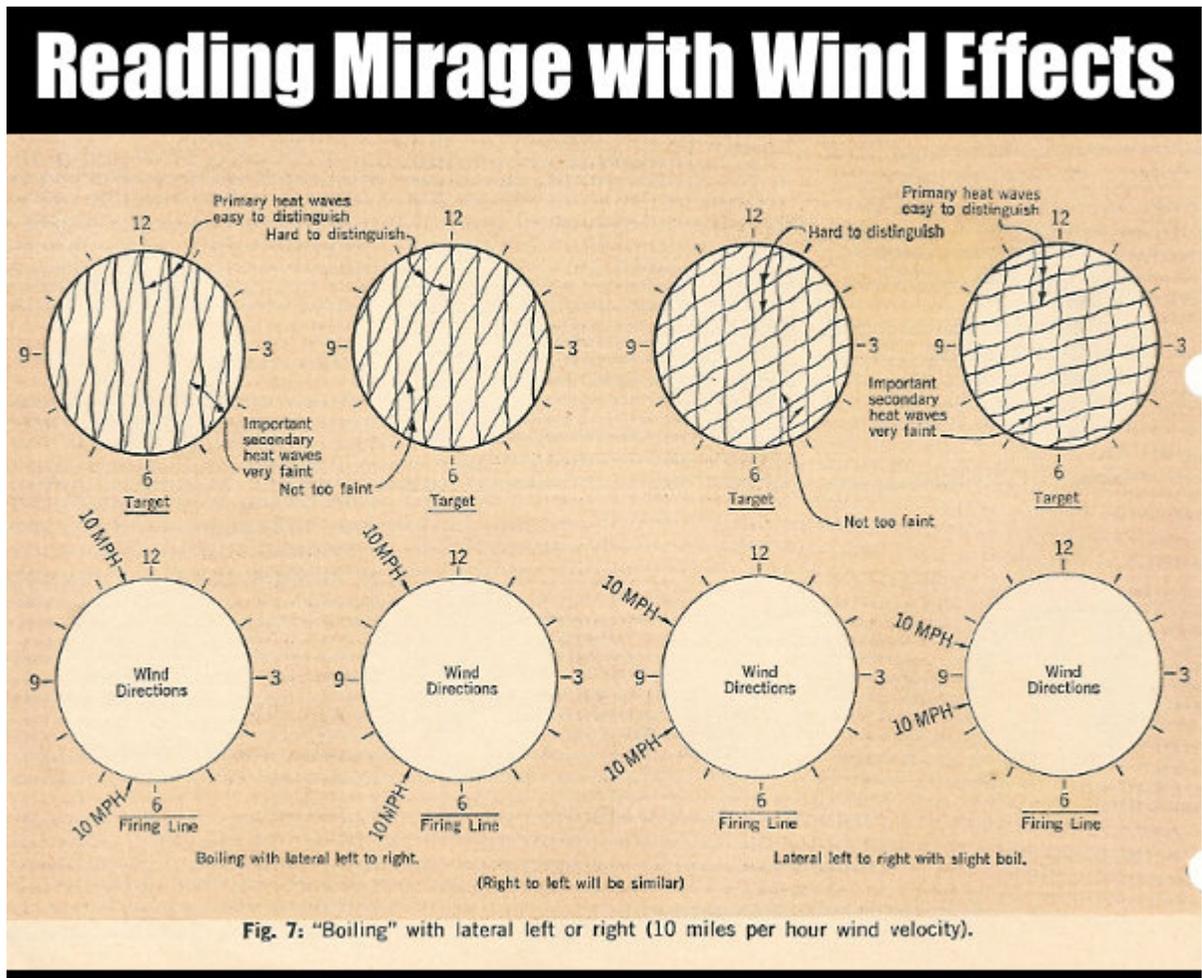


Diagram from SouthTexasShooting.org.



There is an excellent [article about Mirage](#) on the [South Texas Marksmanship Training Center](#) (STMTC) website. This article explains what causes mirage and how mirage can move the perceived aiming point on your target. Most importantly, the article explains, in considerable detail, how you can “read” mirage to discern wind speeds and wind directions.

Mirage Is Your Friend

While hot days with lots of mirage can be frustrating, mirage can reveal how the wind is flowing (and changing). If you learn how to recognize and read mirage patterns, you can use that information to shoot higher scores. That’s why many leading long-range shooters tell us: “Mirage is your friend.” As the STMTC article explains: “A mirage condition is not a handicap, since it offers a very accurate method of perceiving small wind changes[.]”

[**CLICK HERE to Read Complete Mirage Article**](#)

Mirage Illustrated with Diagrams

With simple but effective graphic illustrations, this is one of the best explanations of mirage (and mirage reading) we have found on the internet. This is a “must-read” for any serious competitive shooter. Here is a *brief sample* from the article, along with an illustration. NOTE: the full article is **six times longer** and has **8 diagrams**.

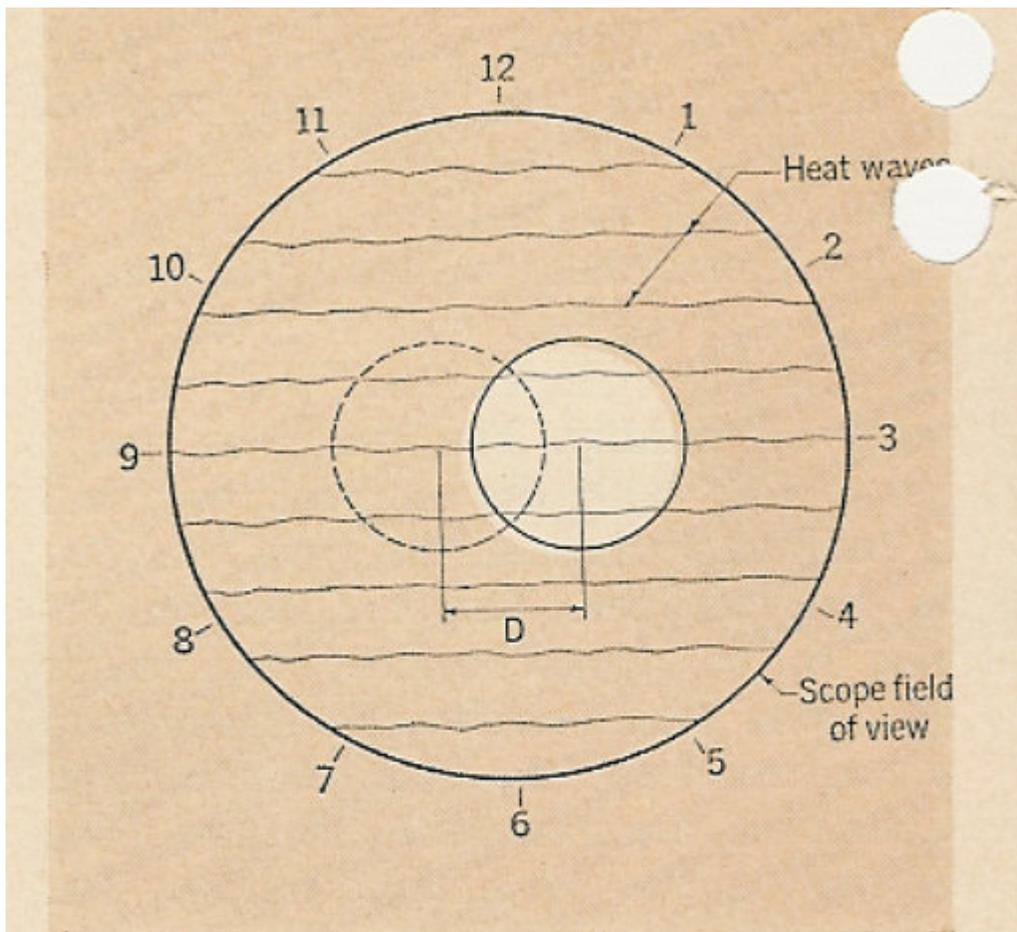
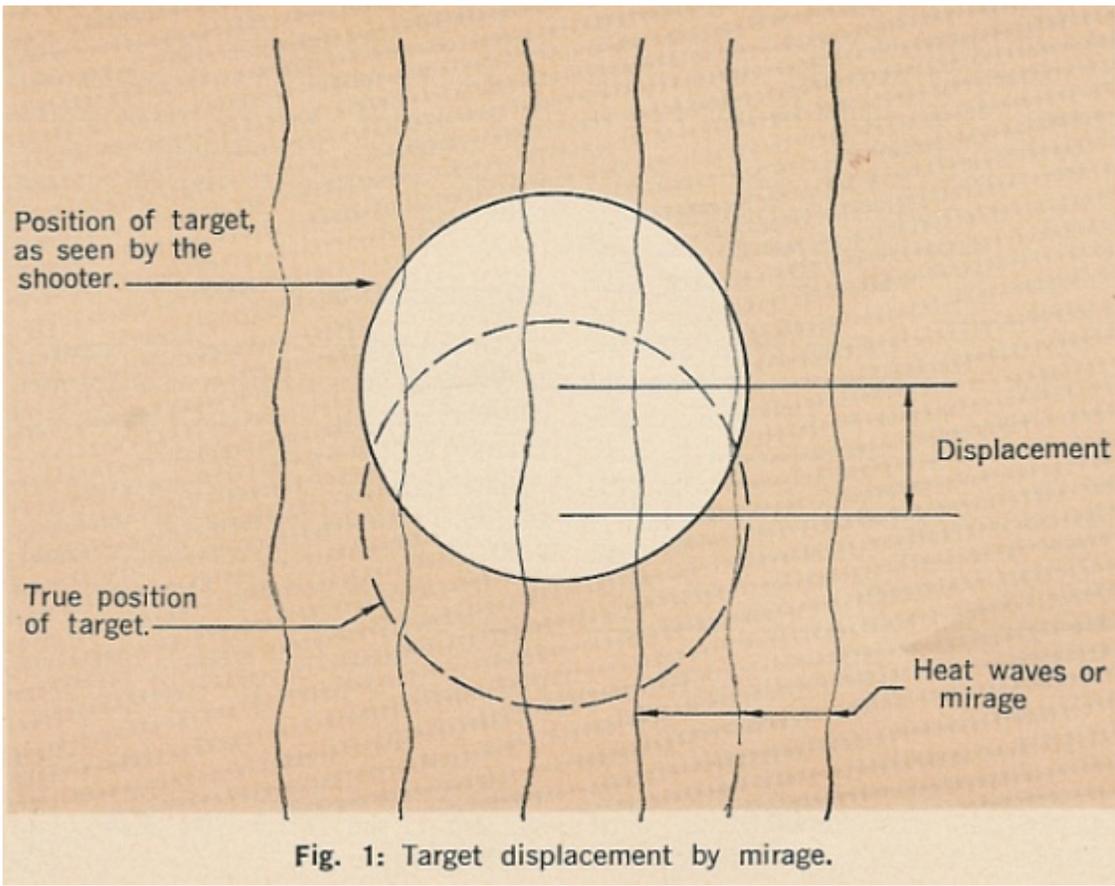


Fig. 6: Mirage classification "Fast". Target displacement "D" is horizontal.

The term "mirage" as used by the shooter does not refer to a true mirage, but to heat waves and the refraction of light as it is bent passing through air layers of different density. Light which passes obliquely from one wind medium to another it undergoes an abrupt change in direction, whenever its velocity in the second medium is different from the velocity in the first wind medium; the shooter will see a "mirage".

The density of air, and therefore its refraction, varies with its temperature. A condition of cool air overlaying warm air next to the ground is the cause of heat waves or "mirage". The warm air, having a lower index of refraction, is mixed with the cooler air above by convection, irregularly bending the light transmitting the target image to the shooter's eye. Figure 1 shows (greatly exaggerated) the vertical displacement of the target image by heat waves.



Heat waves are easily seen with the unaided eye on a hot, bright day and can be seen with spotting scope on all but the coldest days. To observe heat waves, *the scope should be focused on a point about midway to the target.* This will cause the target to appear slightly out of focus, but since the high power rifle shooter generally does not try to spot bullet holes, the lack in target clarity is more than compensated by clarity of the heat waves.

Match Scores 2016-2017 22LR

	Dec 4/2016		Jan-17		17-Feb		17-Mar		First	Second	Third
Sporter Rifle	Total	X	Total	x	Total	x	Total	x			
Don Mitchell	594	36	594	27	595	31					
Chris Brown	542	11	555	9			535	3			
Cayden Brown	569	14	572	18			564	16			
Michael Knipping	593	35	592	30			592	37			
Katarina Knipping	595	28			593	32	590	29			
Tanis Hares	572	18									
Debbie Hoddinott	588	21	589	29	576	15	572	20			
Rob Szoradi	556	6	572	17	583	17	575	20			
Lukas Knipping							573	19			
Match Rifle											
Murray Sloane	577		570		564		567				
Kat Knipping			557								
Brandi Soloway					541						
Don Mitchell							552				

An article that might you if shooting tactical matches or hunting in the western part of Canada or the U.S.A.

Arnold Palmer was being interviewed one time about how lucky he had been lately with his putting. He replied, "Funny thing about that. The more I practice, the luckier I get." Arnold was focusing on the things he could control, working hard and smart, and he just kept getting luckier.

*Linda K. Miller and Keith Cunningham,
Secrets of Mental Marksmanship*

Shooting Uphill and Downhill
By
Major John L. Plaster, USAR (ret)

Of all the ways a precision rifleman must compensate when firing – such as for distance, for wind and for target movement – the most confounding and confusing is compensating for shooting uphill or downhill. That's because it's logical -- even instinctive -- to lead a moving target, to aim into a crosswind and to hold high when shooting beyond your zero distance. But shooting up or down? Many shooters find the whole concept contradictory – the opposite of what they'd visualize in their mind's eye.

Let's start with an explanation of what's happening.

Say you're tossing a softball underhand at a milk carton 15 yards away. You naturally understand that you must toss it a bit high so the resulting arc allows it to descend and hit the milk carton. That's pretty understandable. However, what if the carton is still 15 yards away by ground distance, but now it's two stories up, on a cliff? The same arc above your line-of-sight that allowed your softball to hit the carton at ground level will now cause it to pass over the milk carton – the ground distance is still 15 yards, but if you use the same arc vis-a-vis the carton, you'll miss it – *get it?* It's simply that zeroing your rifle over flat ground creates one arc, while shooting up or down requires a slightly different arc. The arc of a projectile crossing flat ground to a target will not put that projectile exactly on target when you're aiming significantly uphill or downhill at that same distance. The effect of this error increases with distance and steepness of angle to a maximum of 60 degrees. Counter-intuitively, this error applies to shooting both uphill and downhill. Whether shooting an up *or* down slant, you must **hold low** to hit the target.

The Basic Rules

This can seem pretty confusing but there's the good news: You don't have to understand the theory or my explanation – just faithfully apply the proper compensation and you'll be fine. Here are the basics for up/down compensation:

1. At close range (100 yards or less) so little compensation is required that it's fine to just aim dead-on, no matter the steepness of angle.
2. Up and down shooting both require compensation, with the same amount needed for 45 degrees *up* as 45 degrees *down*, 30 degrees *up* as 30 degrees *down*, etc.
3. You always compensate by aiming LOW. Keep this in mind by visualizing a limbo dancer – **YOU MUST AIM LOW** -- *Low, Low, Low*.
4. It's easy to over-estimate the sharpness of angle – be as exact as possible.
5. Your zero distance is not an issue – the amount of up or down compensation is determined solely by the up/down angle and distance to your target.
6. The amount of required compensation increases significantly with distance and steepness of angle to a maximum of 60 degrees up or down.

Now, let's look at some ways to calculate the required compensation.

The Precision Solution

First, we're going to look at the most precise way to calculate the required up/down compensation, and later, a simpler way. Our starting point is to find "Bullet Drop" for the cartridge you're firing. This is the ballistic measurement of how many inches a bullet falls when the rifle is fired with its barrel perfectly parallel with the earth. Many riflemen do not have access to this data, although cartridge manufacturers have it, and it can be found on-line, as well as in any quality Exterior Ballistics program, such as Sierra's Infinity Program. Let's assume that you have Bullet Drop data – here's what to do with it.

To find up/down compensation, take the Bullet Drop data (which is stated in hundreds of yards) and multiple it by the factors in the accompanying chart, based upon the steepness of angle to your target. For example, your target is 400 yards away, uphill 45 degrees, and you're firing a .223 Remington, 69-gr. Match round. You already have the data that your Bullet Drop is 36.3 inches at 400 yards. Therefore, you multiply the 36.3 Bullet Drop inches by .293 and find you must hold low 10.63 inches for a perfect hit. It would be a tedious, slow process to calculate this before each shot in a field setting, so a smart rifleman calculates all the up/down compensation for his cartridge at 100-yard increments, for 30 degrees, 45 degrees and 60 degrees, puts it on a card and carries it with him. Over time, he may even memorize it.

UP / DOWN COMPENSATION FACTORS:

5 Degrees: Drop Inches x .004
10 Degrees: Drop Inches x .015
15 Degrees: Drop Inches x .034
20 Degrees: Drop Inches x .060
25 Degrees: Drop Inches x .094
30 Degrees: Drop Inches x .134
35 Degrees: Drop Inches x .181
40 Degrees: Drop Inches x .235
45 Degrees: Drop Inches x .293
50 Degrees: Drop Inches x .357
55 Degrees: Drop Inches x .426
60 Degrees: Drop Inches x .500

A less precise – but very fast – alternative is to use a "Quick-Fix" System:

I cannot take credit for inventing this brilliant means of up/down compensation since I picked it up from the FBI. However, their formula needed some tweaking so it cannot be called the FBI Technique, either. I've named it the Quick-Fix because you can calculate it all in your head and adjust your scope, or know how much to hold low, about as quickly as you read this sentence. It's a compromise on precision, but I think it more than makes up for it in speed and simplicity.

Here's how it works: You see a target at 500 yards that's 30 degrees up or down. Shoot it the same as if the target is on flat ground, at 90 percent of that distance. This means, treat it as a target at 450 yards – whether you adjust an elevation knob or Bullet Drop Compensator for 450 yards, or just use the proper holdover for 450 yards, you'll hit very close to true.

The first Quick-Fix is: **Engage any 30 degree target as if it were 90 percent of its actual distance.** That's easy enough to remember and calculate in your head.

When employed with .308 Cal. 168 gr. Match ammo, this 30 degree Quick Fix has a maximum error of 4 inches at 600 yards, with an average error of less than 2 inches at ranges less than 600 yards. That's a great tradeoff of speed for precision. But earlier, didn't I emphasize that Up / Down compensation requires holding low? Absolutely. With Quick-Fix you'll still be shooting low because you'll be pretending the target is closer than its actual distance, and thus compensating by aiming low. The other Quick-Fix is for engaging targets that are 45 degrees up or down. In this case, you shoot as if the target is on flat ground, at 70 percent of that distance. This means treat that 500-yard target as if it were on flat ground and fire as if were 450 yards away.

Thus the second Quick-Fix is: **Engage any 45 degree target as if it were 70 percent of its actual distance.**

Out to 600 yards, firing .308 Winchester 168 gr. Match ammo, using 70 percent of the distance, the maximum error is 4 inches, with an average error of less than 3 inches. Not a bad tradeoff of precision for how quickly this can be done. Well, then, what about shooting at 60 degrees, where the uphill/downhill effect is greatest and requires the most compensation? Bullet drop variances are too great at 60 degree angles for a simple "Quick-Fix" rule-of-thumb – but I'm not all that concerned. Ask yourself, where would you fire at an angle *steeper* than 45 degrees? Carefully look halfway from the ground to vertical – straight up – and consider how truly steep is 45 degrees. When have you ever needed to take a shot at a target more than 45 degrees up or down? Most likely that would have been a critter in a tree – but that treed animal would be less than 100 yards anyhow, and not even require compensation. Still, if it concerns you, you can take the extra step of finding your cartridge's Bullet Drop and use the "Up / Down Compensation Factors" listed above, and then actually calculate the 60 degree compensation.

Happy shooting!

Of all the complimentary physical skills that marksmen require, the one that contributes the most to the subconscious skills is aerobic fitness. Aerobic fitness is all about being able to deliver oxygen to the blood, and oxygen to the blood results in clear vision, clear thinking, and controlled performance. The marksman must learn to apply the breathing techniques that will support his shooting performance: respiratory pause, "gulp of air," forced breathing, and combat (or four-square) breathing.

Linda K. Miller and Keith Cunningham, Secrets of Mental Marksmanship

**PGW DEFENCE
TECHNOLOGIES INC.**



**2017 WESTERN
CANADA F- CLASS
CHAMPIONSHIP**
(DCRA SANCTIONED)



30 JUNE-2 JULY 2017



**ST CHARLES RIFLE
RANGE WINNIPEG, MB**
(W / KIND PERMISSION OF CF-17
WING, WINNIPEG)



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REGISTER BEFORE 15 MAY 2017 AND SAVE \$50 ON YOUR ADULT ENTRY FEE
REDUCED ENTRY FEE FOR UNDER 19 YR JUNIOR SHOOTERS



COURSE OF FIRE

2017 WCFCC INDIVIDUAL

2017 WCFCC TEAM

THURSDAY-29 JUNE: INDIVIDUAL REGISTRATION AND PRACTICE @ 800 YDS

FRIDAY-30 JUNE: 2+15 @ 800 yds

2+15 @ 900 yds

2+15 @ 1000 yds

2+15 @ 1000 yds

SATURDAY-1 JULY: 2+15 @ 800 yds

2+15 @ 900 yds

2+15 @ 1000 yds

2+15 @ 1000 yds

SUNDAY-2 JULY: 2+15 @ 900 yds

2+15 @ 1000 yds

2+15 @ 1000 yds

MATCH FEATURES

MAXIMUM ENTRANTS: – 42

INDIVIDUAL DCRA FULL OR ASSOCIATE MEMBERSHIP REQUIRED

ICFRA F-CLASS TARGET FACES

ALL RIFLES WILL BE WEIGHED AND TRIGGERS MUST BE "SAFE"

CERTIFICATE OF AMMUNITION SAFETY REQUIRED

MEDALS, PLAQUES AND TROPHIES

FOR INDIVIDUAL AND TEAM AGGREGATE WINNERS

COMMEMORATIVE T-SHIRTS

PRIZE DRAWS INCLUDING DONATED SPONSOR MERCHANDISE +

GRAND PRIZES OF PGW RIFLE & ACTION

PAID TARGET MARKING

FRIDAY EVENING B-B-Q

Registration Form



PGW Defence Technologies Inc. 2017 Western Canada F-Class Championship June 29 to July 2, 2017

(Please print & keep it legible)

Name: _____

Address: _____

City: _____ Province/State: _____ Postal/Zip Code: _____

Telephone No.: _____ Email address: _____

Provincial Rifle Association: _____ Rifle Classification: F-O: F-TR: Shirt Size: Small

All competitors must be a current member of their respective Provincial Rifle Association (PRA) and the DCRA (Associate, Service or Full member). Proof of valid PRA and DCRA memberships will be required at time of rifle inspection.

Description	QTY	Price	Total
Match Fee (Includes one BBQ ticket)		\$350.00	
Early Match Fee registration if submitted before May 1 st		\$300.00	
Under 25 Years Old Match fee		\$150.00	
DCRA Membership (Required. Associate Membership Minimum)		\$55.00	
DCRA Under 25 Years Membership (Required. Associate Membership Min.)		\$35.00	
Extra BBQ Tickets		\$20.00	
Total Match Fees			

Do not send cash. Please make your payment (cheque, money order or bank draft) payable to Darrell Grant. Put Western F-Class Championship in the memo, and send to:

Darrell Grant
PO Box 326
Balmoral
Manitoba R0C 0H0
Ref. Western Canada F-Class Championship

Completed registration forms can be emailed and payment made by electronic money transfer (EMT) to Darrell Grant at darrell.grant25@gmail.com





**THE DOMINION OF CANADA RIFLE
ASSOCIATION
L'ASSOCIATION DE TIR DOMINION
DU CANADA**

COMPETITOR'S CERTIFICATE OF AMMUNITION SAFETY

To all Competitors. The DCRA has for some time been concerned with some of the F Class hand loaded ammunition. We have been advised, because we shoot on a military range, to insist that all competitors complete and sign the attached declaration and present it to the MPRA on arrival at St Charles Range. Failure to produce the declaration will disqualify the competitor from entering the match. For those that don't know St Charles range, we have a very restricted danger area and cannot afford take any chances. With regard to muzzle velocity, for those that do know their muzzle velocity, a chronograph will be on the range and random checks may be carried out and results run through our ballistics program to ensure that all ammunition will fall within the range danger area when fired at a launch angle of not greater than 2.5 degrees. The DCRA have also advised us to show all competitors the following.

"All competitors must ensure that the ammunition they use is safe according to acceptable standards. This means that the loads used must not generate pressures that might put the safety of the competitor or his fellow shooters in jeopardy. Warning signs such as stiff bolt opening, difficult extraction of fired rounds or significantly flattened or popped primers must not be ignored. It is hardly necessary to mention that any form of accident on a DND range is likely to cause us all the loss of our shooting privileges for an extended period. All DCRA Rules on ammunition (generally in Chapter 11 of the Rule Book, see DCRA web site) must be scrupulously followed."

SECTION 'A' (TO BE COMPLETED BY ALL COMPETITORS)

I, _____, will be competing in the Western Canada F Class Championships at St. Charles Range, Winnipeg

F/Open

F/TR

SECTION 'B' (TO BE COMPLETED BY ALL COMPETITORS)

I have fired this ammunition in the rifle(s) I will be using at the WCFCC at St Charles Range and certify that I have determined that it is safe to use in my rifle(s) based on readily available recommendations provided by bullet, case and powder manufacturers and that it complies with Rules 11.21 (for all F Class) and 11.21 (for all F-CLASS).

Date

Signature:

Witness

SECTION 'C' (TO BE COMPLETED BY ALL F-CLASS COMPETITORS)

The ammunition I will use is described below:

Maker: Commercial: _____

Handloaded: By Self By Other _____

Print Name

<u>Load</u>	<u>Caliber</u>	<u>Bullet Weight (grains)</u>	<u>Ballistic Coefficient (G1 or G7)</u>	<u>Data Source for BC</u>	<u>Maximum Velocity (fps at approx. 10ft from muzzle)</u>
1					
2					
3					
4					

This form is to be completed prior to registration and handed in when picking up squadding tickets.

Classes of Rifle: Two separate rifle classes are recognized under the rules of this match, F-Open (F-O) and F-Restricted (F-TR). In general, they are:

- **F -O:** may be of any caliber up to and including 8mm and the overall weight must not exceed 10kg including all attachments (such as, but not limited to, its sights and bipod, if any). This is shot from a bipod or pedestal rest.

- **F-TR:** may be .223 Remington or .308 Winchester or their commercial metrification equivalents only. The overall weight must not exceed 8.25kg including all attachments (such as, but not limited to, its sights and bipod). Pedestal rests are not permitted.

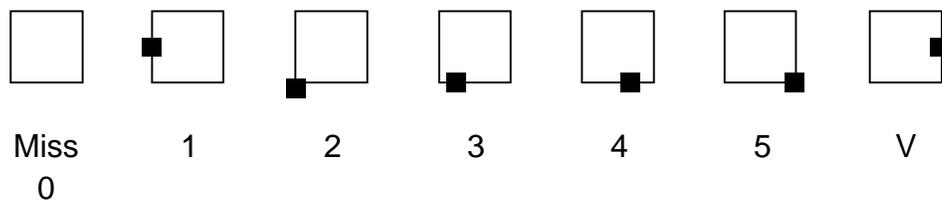
Governing Rules: This match will be conducted with DCRA Rules for the Conduct of Fullbore Rifle Competitions. Please see www.dkra.ca. The one exception to the DCRA Rules is the use of ICFRA long rang F-Class targets and scoring.

Targets: Targets used in this match will be ICFRA LRFC target. NRA F-Class target dimensions are as follows:

ICFRA Long Range F-Class Target Scoring							
Score Value	V	5	4	3	2	1	
Ring Sizes	5"	10"	20"	30"	44"	ROT	

Please note that the ICFRA target is 72" x 72" square. It is recommended that you obtain plotting sheets for the ICFRA targets. New centers will be stapled per relay, new target per day.

Target Signaling: When the target is hit, a spotting indicator will indicate the location of the bullet hole(s). A second indicator on the outer edge of the target will indicate the score or value of the shot. The diagram below shows the location and values of the score indicator.



A target without a bullet hole is indicated as miss and receives a score of Zero.