Terminal Bullet Performance

This topic can be found at: https://forums.accuratereloading.com/eve/forums/a/tpc/f/4711043/m/2861098911

michael458

16 January 2011, 01:42

Terminal Bullet Performance Yes Peter and Hugh--Will get back to the Hollow Bases for a good and proper study! I promise. I will incorporate Sam to give me a hand as well.

Now, did some shooting today, some really neat results with the 480 BBW #13 Solids and matching NonCons. Along with the 450/420 versions.

First, share some B&M Pressure data--.457 480 CEB BBW #13 Solid with 75/AA 2520 2207 fps at 59724 PSI--in a 20 inch barrel--in 18 inches 2165 fps. The matching .457 #13 NonCon with 75/AA 2520 gives me 2221 fps and 57498 PSI in a 20 inch gun, and 2186 fps in a 18 inch gun. More than enough to do what you need to with the little 458 B&M.

Now, did another interesting little pressure trace also--450 CEB BBW #13 Solid vs 450 Barnes Banded Solid. Both with 77/AA 2520. 450 CEB #13 2247 fps at 56948 PSI---450 Barnes Banded 2245 fps at 58927 PSI. Now of particular note is this--The 450 #13 had a ES of 11 fps and 1319 PSI---the 450 Barnes Banded looked awful ES of 38 fps and nearly 8000 PSI. Ugly curves, and numbers with the Barnes! I suppose that's the difference between Big Factory bullets and custom bullets! ????? I will be doing North Forks next week--Expect excellent results from those as well!

Another matter that I was particularly interested in were two things, accuracy with the .457s in a .458 barrel--POI (Points of Impact) with the 480 Solid, 450 NonCon, 450 Solid, and 420 NonCon at 50 yds.

Also take note of the Nitro Express Bands and the Standard or what I have also called the B&M bands.



Accuracy was better than I could shoot--I shot 5 rds each of .457 480 #13 Solids and .457 450 #13 NonCons--8 of them were in a 1/2 inch group all in a hole at 50 yds--I pulled one 1/2 inch left, pulled a second to 1/2 high. Accuracy is fine with these in .458 guns. I have some loaded in 458 Lott to try also.

Shooting the 450 #13 Solid I fired 4 rds of that, it was 1/4 inch higher than the 480/450s, and the 420 NonCon was 3/4 inch higher than the 480/450s and 450 Solid. For all practical DG ranges, same POI at 50.

М

http://www.b-mriflesandcartridges.com/default.html

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List! Live Outside The Box of "Conventional Wisdom"

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michael458

16 January 2011, 01:44



What is there to say about this. Great performance!

Michael

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michael458 Now take note--this is good, nothing wrong with this performance at all--but it's not any better than the 420 NonCon at all--about even.

16 January 2011, 01:46

Now one did catch on something in the mix, got a little confused and slightly off course for some reason? Still penetration far beyond any conventional of any sort.



Buffalo don't have much of a chance I figure! Michael The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List! Live Outside The Box of "Conventional Wisdom"

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michael458

16 January 2011, 01:55 Now, last but not least for this weekend is I thought it prudent that we update the Solid Test Sheets for .510 caliber, with the new 570 CEB BBW#13 Brass Solid added. I could not figure out how to get it on one sheet to post, so it is two.

510 C-III-												
STU Caliber	Solids &	FMJ Tests			Test Rifle Ruger	M77 510 W	ells 24" 1	15 Twist Muzzle	Barrel-Unle Impact	ss Otherwi Impact	se Noted	Straight
Bullet	Diameter	Meplat	% Meplat	Length	Bearing Surface	% Bearing	SD	Velocity	Velocity	Distance	Twist Rate	
600 Wood FMJ	0.509	0	0	1.394	0.608	44.00%	0.33	2230	2197	22 yds	1:15	5 22
570 Wood FMJ	0.509	0	0	1.329	0.477	36.00%	0.313	2219	2187	22 yds	1:15	5 20
570 Barnes Banded	0.508	0.331	65.00%	1.414	0.463	33.00%	0.313	2216	2149	22 yds	1:15	5 7 C 7 C
570 BBW #13 CEB Copper	0.509	0.35	70.00%	0	0	0	0.313	2355	2313	22 yds	1:15	5 65
570 BBW #13 CEB Brass	0.51	0.342	67.00%	1.447	0.292	20.00%	0.313	2091	2030	22 yds	1:15	5 56
570 BBW #13 CEB	0.51	0.342	67.00%	1.447	0.292	20.00%	0.313	2323	2304	22 yds	1:15	6 6
Brass	()		2								~ 1	
Tested in Sa	m's Double	rifle in 50	0 Nitro									
570 Horn DGS	0.509		55.00%	1.261	0.451	36.00%	0.313	1880	1819	22 yds	1:15	5 5 8
570 Horn DGS	0.509	0.28	55.00%	1.261	0.451	36.00%	0.313	2200	2135	22 yds	1:15	5 <u>4</u> 1 54
570 BBW #13 CEB Copper	0.509		70.00%	0	0	0	0.313	2071	2032	22 yds	1:15	5 65
570 Kynoch	0.509	RN	RN	0	0	0	0.313	2064	0	22 yds	1:15	5 20
548 Mod Barnes	0.508	0.269	53.00%	1.4135	0.461	33.00%	0.31	2255	2220	22 yds	1:15	2 1
535 Wood FMJ	0.509	0	0	1.264	0.477	38.00%	0.294	2151	2194	22 yds	1:15	5 1.8
535 S&H	0.5095	0.385	75.00%	1.404	0.13	9.00%	0.294	2273	2204	22 yds	1:15	5 0
Ruger #1 5 535 S&H	0 Alaskan 0.5095		Twist Barrel 75.00%		0.13	9.00%	0.294	1855	1799	22 yds	1:15	i 43
535 S&H	0.5095		75.00%							22 yds	1:15	
510 HB RN	0.509			1.329		36.00%				22 yds	1:15	
Hollow Base 570 Woodleig	h Round No	se										30
					nh	\sim +			10	1	!-	
	()		IJ		рп	\odot	\mathbf{O}	Щ	ж	K		
			2									

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michael458

16 January 2011, 01:58

And a new Updated 458 Solid Test sheets as well--again X2

458 Caliber	Solid or	FMJ Tests										
Bullet	Diameter	Meplat	% Meplat	Length	Bearing Surface	% Bearing	SD	Muzzle Velocity	Impact Velocity	Impact Distance	Twist Rate	Straight Penetration
550WoodFM	0.458	0	0	0	0	0	0.374	0	2146	22 yds	1:14	28
500Woo FM	0.458	0	0	1.389	0.48	35.00%	0.341	2100		22 yds 22 yds	1:14	
500 Barnes Banded	0.456	0.3	66.00%	1.519	0.444	29.00%	0.341	1815	1780	22 yds 22 yds	1:14	62+ 62+
											of the box!	
								1489		22 yds		35-43 52-53
								2213		22 yds	1:14	
500 Nosler	0.457		60.00%							22 yds	1:14	
500 Super Penetrator	0.456	0.28	61.00%	1.5765	0.246	15.00%	0.341	0	2160	22 yds	1:14	30
500 Rhino	0.456	0.28	61.00%	1.572	0.706	45.00%	0.341	0	2198	22 yds	1:14	5.8
500 Horn	0.457	0.25	55.00%	1.3745	0.506	37.00%	0.341			22 yds	1:14	60 +
DGS								X2Dead 2253		22 yds	1:14	5 1
500 Horn	0.457	0.25	55.00%	1.3745	0.506	37.00%	0.341			22 yds	1:14	67
DGS	0.437	0.25	55.00%	1.5745	0.306	37.00%	0.341	X2Dead		zz yus	1.14	6 5
480Hornady	0.4565	0.246	54.00%	1.332	0.586	44.00%	0.327			20 yds	1:14	
DGS								2281 X2-Lost St	tability at 3	22 yds 88 and 43		38-43
480 BBW CEB #13	0.457	0.306	67.00%	1.514	0.29	19.00%	0.327	2207	2176	22 yds	1:14	63
Brass												
475 JDJ	0.457	0.302	66.00%	1.469	0.216	15.00%	0.323	0	2140	20 yds	1:14	62

450 Barnes	0.456	0.3	66.00%	1.371	0.363	26.00%	0.306	2227		22 yds	1:14	5 (
Banded							000000000	Average of	Many Test	s 458 B&M		
450 North	0.457	0.314	69.00%	1.362	0.42	31.00%	0.306	0	2212	17 ft	1:14	53
Fork								0		22 yds	1:14	5 6
								2266		22 yds	1:14	5 6
450 Woodleig	h											
Hydro	0.458	0	70.00%	0	0	0	0.306	2274	2192	22 yds	1:14	47
450 BBW #13	0.458		66.00%				0.306	2209	2173	22 yds	1:14	6 2
450 CEB	0.458		67.00%	1.417	0.29	20.00%	0.306	2248	2212	22 yds	1:14	62
BBW #13 Brass	[[]											
400 Wood Hydro	0.457	0.317	69.00%	1.234	0.4	32.00%	0.272	0	2312	17 ft	1:14	5 0
400 Barnes	0.457	0.268	58.00%	1.076	0.603	56.00%	0.272	2017	1877	48 yds	1:20	2.8
Buster								2051	1914	48 yds	1:20	23
								1828	1698	48 yds	1:18	28
								2051	1902	48 vds	1:14	33
								2043		48 yds	1:14	34
330 Barnes Banded	0.456	0.3	66.00%	1.021	0.236	23.00%	0.225	2138	1937	48 yds	1:20	4 1
								2331	2281	22 yds	1:14	50
								2215	2132	22 yds	1:14	52

And that's it for the weekend guys! That's all I have right now. Start up again next week!

I will most likely be adding new data and such to the B&M site tomorrow as well.

Michael

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michael458

quote:	
Originally posted by 450NE: Michael and Sam,	
	ou can't rush perfection)!!! Woops! they are just too purty to shoot - oh well, I guess I can stick re $#13$'s so I have some to look at (not roll in) and shoot the rest.
Mike	

Well now 450NE, I suppose we must see how they do in your rifles now! Hmmm, they are doing pretty fair in the 458 B&M so far! Don't worry, if I shoot all the rest I have in stock, then we will get some more made! HEH.

Oh and one more note for those waiting on .620 (Doc) and those waiting on .585s (Don & McKay)---Dan is going to start running brass and copper, and NonCons on 1/24--I should have them in hand and on the way out by Thursday of that week or so. He is going to be at Shot only next week--I don't want these run without him in attendance. Also, I am not too concerned anymore about POIs--all you guys need to let me know if there are any issues with POIs in your rifles between solids/NonCons. I am also not too concerned about the .585 and .620 NonCons-- new broach will have the blades the same thickness as the ones now on the "Minor Big Bores" HEH.....So they are going to work, I have zero doubt about it, well maybe 1% doubt!

Michael

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Dave Bush

Michael, thanks for posting the updated .458 solid test above. Very imformative! Now, if I could just get you shooting a Blaser R93 😂

16 January 2011, 02:25

16 January 2011, 03:08

16 January 2011, 02:06

Dave DRSS Chapuis 9.3X74 Chapuis "Jungle" .375 FL Krieghoff 500/.416 NE Krieghoff 500 NE

"Git as close as y can laddie an then git ten yards closer"

"If the biggest, baddest animals on the planet are on the menu, and you'd rather pay a taxidermist than a mortician, consider the 500 NE as the last word in life insurance." Hornady Handbook of Cartridge Reloading (8th Edition).

Macifej

auote:

Originally posted by michael458:

Now, last but not least for this weekend is I thought it prudent that we update the Solid Test Sheets for .510 caliber, with the new 570 CEB BBW#13 Brass Solid added. I could not figure out how to get it on one sheet to post, so it is two.

Meplat meas	irements ta	aken by ink	stamping	the meplat	on paper.							
.510 Caliber	Solids &	FMJ Tests			Test Rifle Ruger	M77 510 W	ells 24" 1				e Noted	C
Bullet	Diameter	Meplat	% Meplat	Length	Bearing Surface	% Bearing	SD	Muzzle Velocity	Impact Velocity	Impact Distance	Twist Rate	Straight Penetration
500 Wood MJ	0.509	0	0	1.394	0.608	44.00%	0.33	2230	2197	22 yds	1:15	22
70 Wood MJ	0.509	0	0	1.329	0.477	36.00%	0.313	2219	2187	22 yds	1:15	20
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570 BBW ≉13 CEB Copper	0.509	0.35	70.00%	0	0	0	0.313	2355	2313	22 yds	1:15	6 5
570 BBW ≄13 CEB 3rass	0.51	0.342	67.00%	1.447	0.292	20.00%	0.313	2091	2030	22 yds	1:15	5 6
570 BBW ¥13 CEB 3rass	0.51	0.342	67.00%	1.447	0.292	20.00%	0.313	2323		22 yds	1:15	6 6
<mark>Fested in Sa</mark> 570 Horn DGS	m's Double 0.509		0 Nitro 55.00%	1.261	0.451	36.00%	0.313	1880	1819	22 yds	1:15	5 8
570 Horn DGS	0.509	0.28	55.00%	1.261	0.451	36.00%	0.313	2200	2135	22 yds	1:15	4 1 5 4
570 BBW #13 CEB Copper	0.509		70.00%	0	0	0	0.313	2071	2032	22 yds	1:15	65
570 Kynoch	0.509	RN	RN	0	0	0	0.313	2064	0	22 yds	1:15	20
548 Mod Barnes	0.508	0.269	53.00%	1.4135	0.461	33.00%	0.31	2255	2220	22 yds	1:15	2 1
535 Wood FMJ	0.509	0	0	1.264	0.477	38.00%	0.294	2151	2194	22 yds	1:15	18
535 S&H	0.5095	0.385	75.00%	1.404	0.13	9.00%	0.294	2273	2204	22 yds	1:15	5 0
Ruger #1 50 535 S&H	Alaskan 0.5095				0.13	9.00%	0.294	1855	1799	22 yds	1:15	43
535 S&H	0.5095	0.385	75.00%	1.404	0.13	9.00%	0.294	1992	1931	22 yds	1:15	4 6
510 HB RN Hollow Base 570 Woodleig	0.509 h Round No		0	1.329	0.477	36.00%	0.28	2130	2080	22 yds	1:15	16
	((C			ph	ot	ol	01	JC	ke	et	
			2									

More speed Doc M! These bullets are moving very slooooow! The 535's should be leaving the tube at 2500+ FPS. Our original .505 inch for Gibbs at 615 grains clocked 2600+ ...

michael458

quote: Originally posted by Dave Bush: Michael, thanks for posting the updated .458 solid test above. Very imformative! Now, if I could just get you shooting a Blaser R93 🤤

16 January 2011, 03:55

Dave

Very welcome and glad it is useful to you! Man, a blaser 93, I don't even know what that is? HEH---I think you must make a plan to try some of those .474 #13s as well!

MacJ

Yeah, I am sure I could step it up a notch or two in the 510 Wells if I wanted. Basically I just use that thing as a .510 test platform, and have very little real interest in it. First it's not a Winchester, second it is WAY TOO BIG, 11 lbs, 24 in barrel, about 5-6 feet long, ugly, won't feed, and kicks like a mule because of poor design. So I would never consider taking it to the field, so I have not worried much about developing it. Get what I need out of it to test with, then put it away until the next test. Was thinking of getting it mounted on a frame with some wheels to move it around, maybe just make a cannon out of it or something. HEH HEH!!!!

Michael

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someoldguy

Thanks for the tests, Michael.

First a couple of big-game-hunting-newb questions.

Since the .458 B&M with the 480 grain solid penetrates to 63 inches, would it not be suitable for dangerous game? (Of course, assuming proper shot placement.)

What type of game would the 450-grain NonCon be best suitable for? Based on what I've learned here, I would think it's not suitable for dangerous game.

Now for those who might be interested in what my momentum density program had to say about predicting the penetration.

quote:

Cartridge name: ? .458 B&M/ 480 CEB BBW#13 Solid ... Predicted penetration in Michael's medium: 62 to 75 ins. 83 max.

Actual: 63 inches

quote:

Cartridge name: ? .458 B&M/ 450 CEB BBW#13 NonCon

Predicted penetration in Michael's medium:

29 to 35 ins. 39 max.

Actual: 31 inches Lost stability 27 ins., 1.5 ins off course

So I suppose the formula also passed these two tests.

Now, please understand that the reason I've been using this formula is to help support Michael's tests. I suppose you could call this my contribution, even though I'm no math/physics whiz by any means. I'm just a student, and not a very good one really. But as I've said, I'm using a quick and easy, but accepted method for estimating penetration, the momentum density. The constants I derived empirically. The shortcomings should be obvious, but I do think that the narrow range of the constants involved (18 to 24) helps bolster the fact that there is some mathematical validity to Michael's testing.

This is all I'm trying to do. I'm not showing off because I have nothing to show off! 😀

Glenn

Macifej

16 January 2011, 08:19

	quote:
	Originally posted by Dave Bush: Michael, thanks for posting the updated .458 solid test above. Very imformative! Now, if I could just get you shooting a Blaser R93 🤤
Dave	
Very	welcome and glad it is useful to you! Man, a blaser 93, I don't even know what that is? HEHI think you must make a plan to try some of those .474 #13s as
Dave Very well! MacJ	welcome and glad it is useful to you! Man, a blaser 93, I don't even know what that is? HEHI think you must make a plan to try some of those .474 #13s as

16 January 2011, 10:27

quote:

Since the .458 B&M with the 480 grain solid penetrates to 63 inches, would it not be suitable for dangerous game? (Of course, assuming proper shot placement.)

Definately a DG bullet; primary target game is elephant.

quote:

What type of game would the 450-grain NonCon be best suitable for? Based on what I've learned here, I would think it's not suitable for dangerous game.

It is a DG bullet; primary target game is Asian or Cape buffalo. The shearing petals do cause great damage and the remaining shank penetration exceeds that of premimum bonded bullets.

Jim 🖓

"Life's hard; it's harder if you're stupid" John Wayne

capoward

quoto

quote: Originally posted by michael458: quote: Originally posted by hughman: Hi Michael, I may have missed something, but what happened to the idea of hollow-based bullets? The last I heard, it appeared that the hollow based bullets gave equal penetration as their solid counterparts. Like a lot of people, I don't get a big kick out of kick! If we can get similar performance with a lighter bullet, we will have less recoil and for many folks, more accurate shooting as a result. Hugh Hey Hugh Well the Hollow Base bullets have not gone away, and I have some work slated to do with them, but I keep putting them on the back burner I suppose! Stay with me, and give me a burnp here in a week or two again if I have not go to to them, and I will get to work on it. I agree, there is something there to investigate no doubt about it. I might have our man Sam go to work with his bastard file on some of the Hollow Base CEBs we have now and see what we can come up with on those. We have a good stock to work with right now. Just lazy and have neglected them. HEH Michael		posted by peterdk:
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bullets gave equal penetration as their solid counterparts. Like a lot of people, I don't get a big kick out of kick! If we can get similar performance with a lighter bullet, we will have less recoil and for many folks, more accurate shooting as a result. Hugh Hey Hugh Well the Hollow Base bullets have not gone away, and I have some work slated to do with them, but I keep putting them on the back burner I suppose! Stay with me, and give me a burnp here in a week or two again if I have not got to them, and I will get to work on it. I agree, there is something there to investigate no doubt about it. I might have our man Sam go to work with his bastard file on some of the Hollow Base CEBs we have now and see what we can come up with on those. We have a good stock to work with right now. Just lazy and have neglected them. HEH		
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	Micl	hael
MP and BUMP again, mate i am still puzzled about this, and really need to know.	MP and	I RUMP again mate i am still nuzzled about this, and really need to know
st	<i>s</i> c	

Hugh & Peter,

Sam's original HB bullets gave slightly less maximum penetration than the relating FN solid when loaded to the FN solid's velocity and gave equal penetration to the relating FN solid when loaded to the relating HP' velocity.

The delay in the HB testing is not Michael's fault, it was mine. My intent was to velocity match a new 460gr .500 caliber CEB BBW #13 HB Brass Solid bullet to the proven 460gr .500 caliber CEB BBW #13 HB Brass Solid bullet for use against buffalo out to 150yds. I figured to use two HPs up top (one in the tube and one-1st round out of the magazine) for up close and personal 1st and 2shots followed by two HB bullets (2nd and 3rd rounds out of the magazine) for "Texas heart shots" should the need arise. So I spec'd the 460gr .500 HP hole diameter and depth.

Once the 460gr .500 CEB BBW #13 HB Brass Solid bullets arrived Michael tested them with a compressed ball powder loading successfully used with the 460gr .500 CEB BBW #13 HP Brass Solid bullet. Unfortunately this compressed ball powder loading resulted in pressure spikes higher above the pressure levels encountered with the HP bullet rather than producing a slight reduction in pressure in the 50 B&M. A retest with a non-compressed extruded powder loading worked fine giving less pressure with the same or slightly higher velocity than the corresponding 460gr #13 HP bullets. Michael still needs to retest the current HB bullets with compressed loads of extruded powder in the 50 B&M to determine if the pressure spikes will raise their ugly head again.

But all is not lost. Subsequent to the initial ball powder test, I've had email correspondence with both Michael and Sam in an attempt to develop a proper ratio of the HB' hole diameter and depth to the bullet shank diameter in an attempt to eliminate all powder issues with the HB bullets. I do believe that Sam will come up with the proper ratio of bullet shank diameter to the HB' hole diameter and depth that will prove successful with all powders in the 50 B&M. And once this ratio profile has been proven it can then be utilized for HB bullets in other calibers as needed.

I apologize for the delay that my haste caused with the HB bullets. Also, many thanks to Michael and Sam in their efforts to overcome my hasty design decision.



quote:

More speed Doc M! These bullets are moving very slooooow! The 535's should be leaving the tube at 2500+ FPS. Our original .505 inch for Gibbs at 615 grains clocked 2600+ ...

Yes, the 505 Gibbs thinks like a 416 Rigby and in a modern bolt-action would just love to strut its stuff. It will want a little colored tip, too.

The main thing separating me from a 505 is about \$4000-5000 disposable income. But should one ever end up in my hands I would look for ways to put a high BC bullet in it. It would handle that eland at 300-400 yards nicely. It should probably feel like firing 1 and 1/2 Rigby at the same time so it should be managable. Though I might want to put on a Bushnell 6500 1.25-8 with 6" eye relief down to 4.5" at 8 power.

"A well-rounded hunting battery might include: 500 AccRel Nyati, 416 Rigby or 416 Ruger, 375Ruger or 338WM, 308 or 270, 243, 223" --Conserving creation, hunting the harvest.

Conserving creation, nunting the narvest.	
someoldguy	16 January 2011, 13:03
quote:	
quote:	

What type of game would the 450-grain NonCon be best suitable for? Based on what I've learned here, I would think it's not suitable for dangerous game.

It is a DG bullet; primary target game is Asian or Cape buffalo. The shearing petals do cause great damage and the remaining shank penetration exceeds that of premimum bonded bullets.

Aha, okay! Cape/Asian Buffalo. Yes, I don't think you exactly see those in a petting zoo. 🗒 I may have misread or not understood properly. It may have been elephant that I was thinking required penetration. Good info, Jim. Thanks.

Glenn

michael458

Glenn

16 January 2011, 17:59

Oh yes, the new NonCons are the very essence of what I think may be about the perfect bullet for "dangerous Game". Of course this remains to be seen after much more field experience.

I consider the new BBW #13 HPs as they are now, just about the perfect buffalo first shot. So far we have seen tremendous trauma inflicted, both in test medium and on animals taken thus far. Penetration is superb, so there are no issues there either.

One thing to keep in mind, especially going to the field with a NEW bullet. We must compare penetration of the new bullets, with what we know to have been a good bullet in the past, test and field. Penetration is everything--if the penetration is there, then there is little chance of a catastrophic failure. Without the penetration then we might be taking a chance.

Now fortunately we have a lot to compare to with the test medium, with all the well known buffalo bullets from Swift, barnes, and woodleigh, among others. If the new bullet compares, or exceeds the penetration of these bullets, then part of the job is completed. We can go to the field and know that if nothing else, penetration will save the day should the bullet not behave as we would expect. This is true not only on buffalo, but any other species as well.

The same thing can be compared with moose, elk, all the large antelopes, lion or bear. Take a known performer, make the comparisons!

I put together a few of the many bullets we have tested for terminals in different calibers. This is an example of 458 caliber, others are on the B&M site in pdf form that can be downloaded for all to view on some of the Expanding and NonCon bullets we have tested.

458 Caliber 1	erminal Perf	ormance of	Expanding Co	nventional ar	nd Non-Convention	al Bullet
	Muzzle	Impact	Impact	Retained	Straight	
Bullet	Velocity	Distance	Velocity	Weight	Penetration	
260 SSK/Lehigh	NA	17 Feet	2760	NA	19	
Brass NonCon						
300 Barnes TSX	2513	2 2	NA	300	1 6	
305 SSK/Lehigh Brass NonCon	2560	2 2	2452	207	2.0	
305 SSK	NA	17 Feet	2725	207	2.4	
305 SSK	1305	4 8	1216	207	1 6	
320 SSK/Lehigh Copper NonCon	2490		NA	NA	cket	
	Z			ACAC	CARGO AL	
325 Hornady F	NA	17 Feet	2462	190		
325 Hornady F 325 Hornady F	NA NA	17 Feet 17 Feet	2302			
325 North Fork Cup Point	2842	22	2731	NA	2 6	
325 North Fork 325 North Fork	2672 2219	2 2 2 2		325 325		
350 North Fork Cup Point	2780	2 2	2670	NA	2 8	
350 North Fork	2489	2 2	2410	350	2.4	
350 North Fork	2170	2 2	2086	350	2 3	
350 Swift A	2448	5 0	NA	335	1 6	
350 Barnes TSX	2458	2.2	2402	350	18	

350 North Fork	2360	50	NA	346	17
Bonded Core					
350 North Fork	2464	2 2	NA	335	18
350 Speer	2343	2 2	2269	NA	1 5
400 Swift A	2351	2 1	2294	396	1 5
400 Woodleigh	2147	2 2		400	1 3
400 Woodleigh	2225	22	2185	400	11
400 Hawk	2308	2 2	2218	329	1 3
420 CEB BBW #13 Brass NP	2259	2 2	2195	327	2 9
428 SSK/Lehigh Brass HP	2223	2 2	NA	NA	2 4
450 Swift A	2156	0 50			Kot
450 North Fork	2225	2 2	2178	430	2 4
Bonded Core					
450 North Fork	2117	2 2	2058	430	19
480 Hornady DGX	2117	2 1	NA	400	19
500 Woodleigh	2240	2 5	NA	487	2 1
500 Swift A	2260	2 5	NA	494	2 4
	2246	2 2	2211	465	19
500 Nosler	0.0000000000000000000000000000000000000				
500 Nosler Partition					

As you can see the NonCons penetrate far more than any of the conventional premiums. Penetration is there. So that is really not a concern. Now, how much trauma inflicted to animal tissue is what we will be looking at this hunting season. I plan on testing in the field the North Fork Expanding Cup Points and the CEB BBW#13 HPs in brass. Of course all followed up with North Fork Solids and BBW #13 Solids. Hopefully on as many buffalo as I can get on quota, and then followed by lot's of plains game as well. On the smaller plains game, say wildebeast, this will also give us a reasonable idea of how the standard BBW #13 HPs and NOrth Fork Cup Points work on lion and bear as well.

Many of the participants and others on this thread will be doing the same this season. We are going to gather quite a bit of experience and reports on this performance. I am looking very much forward to it. I can go with a very reasonable degree of confidence, just based off the test work, and the penetration, and the few animals that have been taken thus far.

Michael

ALF

RIP

http://www.b-mriflesandcartridges.com/default.html

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16 January 2011, 20:03

16 January 2011, 20:47

quote:

Originally posted by ALF:

Regarding the wounding effect of fragments from fragmenting bullets:

There is much made here about the apparrent and percieved contribution of bullet fragments to the wound process.

specifically use the word apparent because intuitively it would appear from observation that the fragments generated in the target do a lot of damage.

The observation in ballisitc gelatine is that a huge cavity is formed at the point where the bullet fragments, and here is where intuition has to be kept in check.

Always keep in mind that the hole left behind in the galatine block is not a representation of the hole left in muscle or organ. Gelatine ballistic simulation is not valid for description of the expected wound in the tissue, it is only valid as far as it simulates projectile behaviour, ie the break up behaviour of the bullet caused by drag force by virtue of the simulants density similitude.

As such the hole in the gelatine is a underestimated representation of the Temporary channel. Ie a Reprsentation of the magnitude of drag at that point

Now to get back to the fragments.

Consider for a second.

The intact bullet posesses at impact a certain specific Impact kinetic energy value (Ei)

As it penetrates it lose energy to the target which manifests itself in gelatine as the hole seen after the bullets pasage. The size of the hole in gelatine a representation of drag. Lots of drag big hole, little drag small hole, no drag no hole!

When the bullet fragements the process requires energy but there is also at that point a massive increase in energy transferred to the target (huge drag effect) (huge stretch effect , each of the fragments takes with it part of the bullets original energy (mass and velocity) and the shank left behind is left with the balance of the energy.

If the Shank keeps on penetrating, it looses energy as it goes until it stops.

No new energy is created, these bullets are termed Passive kinetic energy penetrators.

Now if your shank drives deep after shedding petals it means by definition that it had to retain a lot of energy and thus the petals each have little energy. Each petal has less velocity, less mass and very poor Sectional density. Their penetration ability is poor when compared to the intact bullet.

What is the implication of this.

First and foremost the target by virtue of it mechanical structure requires projectiles with certain amount of energy before penetration will occur. (Threshold energy for penetration) So if the fragments have little energy they do not penetrate or penetrate very little,

If we look at ballistics geltaine after a bullet fragments we see that fragments are found in the gelatine, a short distance away from the original path of the bullet but these fragments lie completely imbedded and surrounded by gelatine.

So what do we make of this. If we get back to intepretation of how the simulation works we now see there is no cavitty around the fragment and thus there was no or very little energy deposit to the gelatine by the fragment, it did not have enough energy to displace the gelatine.

This is why when looking at the effects of fragments in the wounding process their contribution is not that they directly damage to the target but rather through late effect such as 1. Nidus for infection. 2. Sources of metal ion deposition 3. Projectile embolization. 4. Local foreign body irritation etc.

As to the percieved stability of the ramaining shank in a visco elastic target..... there is evidence to show the remaining shank flips in target after shedding of petals (keep in mind wetpack is not a visco-elastic target) One of the commercial ballistics simulant manufacturers have shown this to constant for all the commercial monometal exapnding bullets tested in their particular medium. (this is not surprising based on the physics of stability of projectiles in motion)

465H&H

ALF.

Glad to see you back. You make us think!

465H&H

RIP

Alf:

(quote Alf)

"This is why when looking at the effects of fragments in the wounding process their contribution is not that they directly damage to the target but rather through late effect such as 1. Nidus for infection. 2. Sources of metal ion deposition 3. Projectile embolization. 4. Local foreign body irritation etc."(unquote Alf)

Really now, what is the purpose of talking about nidus of infection, etc.? I tried some S&H NonCons on the Tanzania 2010 Safari of our gracious host.

That would be the .395/310-grain S&H 'VeloHexploder' brass hollowpoint bullet at near 2700 fps impact velocity. On 4 heart shot animals, there was ample evidence of secondary missiles going off into the lungs in a six-pointed "death star."

Lung tissue does not take much energy to shred, with sharp edged brass fragments. Think of an arrowhead?

As for the flip of the bullet: I agree, that happens more often than not in game animals.

Not one S&H NonCon was recovered. The base of the bullet goes forward like an FN solid after the flip.

Even though there is a big energy dump with the tumble, enough is retained for exit out the other side. This would be on plains game under half ton weight.

Even on two other critters poorly shot:

I saw evidence of severe wounding, bleeding, and even spillage of chewed vegetation on the ground in the blood trail. Wart hog.

A baboon poorly shot in the guts was dead right there, went nowhere, bled out promptly.

Agree, according to my anecdotes, this happens in game animals shot with NonCon fragmentation grenades, :

(quote Alf)

"As to the percieved stability of the ramaining shank in a visco elastic target..... there is evidence to show the remaining shank flips in target after shedding of petals (keep in mind wetpack is not a visco-elastic target) One of the commercial ballistics simulant manufacturers have shown this to constant for all the commercial monometal exapnding bullets tested in their particular medium. (this is not surprising based on the physics of stability of projectiles in motion)"(unquote Alf)

Doc M

What size lab coat do you wear?

Jav

The reason your .510/535-grain S&H brass FN did not get used on cape buffalo with the 500 Mbogo:

That 75% diameter meplat would not feed reliably in my rifle, which handles everything else with ease. Maybe some more work on the feed ramp of the rifle will fix it.

I just did not have time to sort it all out before the trip. I shall. Yes 2500 fps with that bullet is the goal.

75% meplat is too big. 67% meplats feed better and penetrate better, and are all that is needed for shoulder stabilization of solid, IMHO ... but I sure hope Alf does not make me prove it scientifically.

Lucky I got some .395 Tatanka shooting done with your bullet, since I only got the .395 Tatanka brass 2 weeks before the trip,	
and had some neck thickness incompatibility between the brass, dies, and rifle chamber another major detail that did not get sorted out yet after all these years 🐧	°®°

Cross L 16 January 2011, 23:07 I get it now:

ALF is the accronim for Animal Liberation Front-hes trying to drive us crazy so we cant hunt by "proving" that bullets cant do anything in the real world.

SSR	
ALF	17 January 2011, 00:03
450NE	17 January 2011, 00:09
Michael,	
The day of reckoning - and I reckon the Heym 450 is very happy, as am I, with the #13 480's and the 450 HP's! Time to create some serious nidus of infection!	

michael458

Alf

17 January 2011, 01:45

auote:

When we look at the behaviour of conventional bullets and they break up , we say the bullet failed, not so?

But why do we call it a failure?

From a wound ballistics perspective it is failure because the individual fragments of the original bullets do not have sufficeint velocity or sectional density to furhter penetrate the target. Its ok if the break up occcurs in a vital area, but its a problem if the break up occurs before getting to a vital area.

This is 100% spot on--You are correct. As you notice even YOU use the word "CONVENTIONAL".

The very essence of the term "NonCon"---Or "Non Conventional". As you already know, with NonCons when they break up because they are designed to do just that--PENETRATION INCREASES---Not Decreases-therefore ripping, tearing, and destroying tissue that otherwise would not be touched. Along with 6 secondary missiles that rip, tear, and penetrate organ tissue.

There is no theory concerning this--it is happening in the field. I used Copper NonCons in Australia on 13 Australian Buffalo---all dropped to the shot, tremendous trauma transfer. So far 2 buffalo have dropped to 330 brass NonCons in 416 caliber, and to demonstrate penetration of the 6 remaining petals from a brass noncon on deer, 5 of the six exit the broadside deer 12 inches from the center wound cavity. No, I am sure the petals will not exit buffalo, but they will penetrate enough to rip and tear organ tissue, while the remaining bullet continues to penetrate. Fact--Not fiction. And, more will be in the field this year by many to continue the test work.

16 January 2011, 20:59

16 January 2011, 21:11

You simply must get "Outside the Box" Alf!

Oh--Energy does not kill animals--Bullets do. So throw kinetic energy out the door.

NonCons are not designed for elephants---solids are.

Go here I think this will explain it better for you.

http://www.b-mriflesandcartrid...ntional-Bullets.html

Μ

http://www.b-mriflesandcartridges.com/default.html

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michael458

quote:

Originally posted by 450NE:

Michael,

The day of reckoning - and I reckon the Heym 450 is very happy, as am I, with the #13 480's and the 450 HP's! Time to create some serious nidus of infection!

450NE

Are you saying you have been out and doing some shooting????

М

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michael458 RIF I looked on my lab coat and it's a L!

I think you must be up to something?

М

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michael458

quote:
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SP

RIP

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17 January 2011, 02:56

17 January 2011, 04:14

Originally posted by 450NE:

Michael,

quote:

The day of reckoning - and I reckon the Heym 450 is very happy, as am I, with the #13 480's and the 450 HP's! Time to create some serious nidus of infection!

17 January 2011, 01:47

17 January 2011, 01:52

17 January 2011, 01:46



I am an M.D. with a chemical engineering pre-med background who scored 99th percentile on the science section of the old-style MEDCAT, way back when

I have been studying wound ballistics too and have no need of your sources, they are the same as mine.

Of course a 140-grain or lighter 7mm HV at 3700 fps could stretch the elastic limit, of some tissues and organs, that might be encountered in a warthog. The brass NonCon petals do a dandy job of slicing and dicing through the chest of a zebra too, even at slower impact speeds,

even when the entering bullet encounters heavy shoulder muscle going in, and the base of the bullet seems to continue on in a straight line through the heart and out the offside rib cage,

even if it might have flipped and dumped even more energy while tumbling through the heart.

The remnant of the NonCon is a large solid penetrator, maybe 80% weight retention by design, maybe 20% "petal power" by design. Not a failure, a success.

Field results speak louder and more intelligently than any book learning.

Another deer shot with a NonCon anecdote: In 2008 I shot a doe with the same load I took to Africa, .395 Tatanka with 310-grain VeloHexploder, brass hollowpoint. I vacuum sealed and froze the meat for the freezer.

Two years later when finishing her filets, tender and delicious, I bit into a brass petal that was buried in the tenderloin.

Woven cellulose and water gives a pretty good hint at field results too, it would seem. There may be a little wad of wet paper pushed ahead of the bullets, but so what? There is some temporary cavitation, and not all the paper encountered by the bullet can possibly be pushed ahead as confetti! Doc M could measure the weight of the confetti on a few exiting shots, if it will make you happy.

ALF	17 January 2011, 05:06
michael458	17 January 2011, 05:18
Regarding some reports from the field on buffalo vs NonCons. Seems some don't care to read the thread, yet run off at the mouth.	

Posted Dec 23, 2010 8:37 AM Hide Post

Hey Sam

auote:

Thanks again for loading the .416 Remington Mag rounds for me with the Non-Con bullets. As you know, I used them a few weeks ago on two cape buffalo I shot in Zimbabwe. The 330 grain bullets performed remarkably well. These cape buffalo were my 12th and 13th that I've taken and I have to say I have never seen buffalo go down so quickly. Both animals were shot from approximately 70-80 yards with classic behind the shoulder shots and both buffalo were down within 20 feet. I recovered the bullets from both animals and they performed as you thought they would. The vitals of both buffalo were absolutely shredded. You'll see from one photo that the heart from the big bull looked like a grenade had exploded in it. The bullets traveled through bone and tissue and were embedded under the hide on the opposite shoulder. I have killed buffalo with a .375 H&H, .416 Remington Mag, .450 Dakota. .450 Nitro Express, and a .577 Nitro Express with a variety of bullets and loads. Nothing I have used to date has performed like these bullets have. No dangerous follow up through thick jess bush was required which greatly pleased the PH, Trackers, Game Scout and Client! As always, no bullet construction will make up for poorly placed shots, however, I have witnessed the devastating efficiency of these bullets with proper shot placement and plan to use them in the future for all my dangerous game hunts. Thanks again.

Your friend

Doug

This was what my friend Doug had to say about Non-con bullets.

Sam

-	unto	
u	uote	=.

Posted Dec 15, 2010 8:15 AM Hide Post Shot a big doe yesterday with a 50 B&M using the new deep hole BBW#13 425 grain Non con made by CEB. Bullet entered deers chest frontally at 5 yards and the 2 arge petals were found between the hams. I could not find base of bullet but it did not exit. Looked like it should have been somewhere close to the hams from the damage. This bullet is a grenade! Deer dropped in its tracks. Bullet looks just like the one Michael tested!

Sam

auote:

My friend Doug shot 2 buffalo with his 416 Rem Mag with 330 SSK Non -con's and said they smoked both with one shot. Neither buff went more than a few feet after being hit. Base of bullets were in hide on far side of shoulders. Heart of one buff was in shreads.

The only animals to fall to a 50 B&M was a baboon at 230 vards with a 350 Non-con and a Warthog at 50 vards with the same bullet. Both hit the dirt stone dead. None of the North Forks got shot at game.

auote:

Posted Nov 02, 2010 7:47 AM Hide Post

I posted the other day about shooting a deer with a 416 Rem Mag with a SSK 330 non con bullet. The trauma this bullet did inside was massive. Yesterday I got the chance to shoot another deer but this time with a 50 B&M and the 350 grain non con brass hollow point. The deer was about 100 yards away and quartering to me. Bullet hit right on the back edge of the shoulder and exited near the back of the ribs. This deer jumped straight up in the air and flopped about 10 yds away. No it didn't jump that far but it wasn't able to run. When I skinned it I saw several holes from the petals in a big circle around the exit hole. Now I did not see this on the other deer I shot but knew the petals had blown. This deer had 5 of the six petals exit in a circle maybe 10 to 12 inches in diameter. This bullet did just what Michael's tests shows it would do. I telling you this brass non con bullet is the meanest wildest bullet I have ever shot. Got to get some made for all the big doubles!!!!!

Magic Bullet? Well I don't know about that, but it sure does look good so far. Some of these, combined with my experience with the coppers, that work a bit different, but same concept, experiences of RIP and others--I may have another Swift, Hornady, WOodleigh, Nosler, Speer, sell off--I can't see a purpose for those anymore.

HEH HEH!!!!!!!!

Michael

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17 January 2011, 05:24

michael458

Now, moving forward.

I originally thought about doing a 500 gr CEB BBW #13.458 Solid/NonCon combo, but as good as the 480 is I really don't see much purpose in that. I have some 480s loaded now in 458 Lott that I will work with some this week.



I thought I would also give you a close up of the NE bands and standard bands.



М

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RIP

Alf, I heard that when it came time to hand out the residencies, they took the bottom 10% of the class of medical school, and those graduates that could bench press their own weight or more went into orthopedics, and those graduates who benched less went into obstetrics and gynecology.

Please don't trouble yourself too much with trying to get your mind around all of Doc M's research, it will soon be humanly impossible for anyone to handle all that !!!. SHUMOR, Alf, humor.

BTW, the .375/300-grain Walterhog is indeed a NonCon, by the definition of nonconventional shedding of petals happily accepted, and not seen as a failure, as well as the nonconventionally high velocity also happily accepted for added performance, as an aid to petal shedding and long range precision.

Yep, Saeed has got the hole in the nose of that copper NonCon perfected!

Doc M.

Your size L black lab coat is being embroidered

Doc M, MIB

and will soon be on the way to Myrtle Institute of Ballistics.

someoldguy

auote:

17 January 2011, 05:38

17 January 2011, 05:28

Many of the participants and others on this thread will be doing the same this season. We are going to gather quite a bit of experience and reports on this performance. I am looking very much forward to it. I can go with a very reasonable degree of confidence, just based off the test work, and the penetration, and the few animals that have been taken thus far.

Yes, I understand. I'm slowly beginning to realize the tests really are sufficient in themselves and they don't need any theoretical support with formulas, "ciphering", and other armchair analyses. About the only thing they might need is corroboration. Because what is truly important is how well these tests apply to usage in the field. And by many accounts which are presented here, there is a lot of correlation. Because in many cases the performance of these bullets in the field, against dangerous game, is a matter of life and death and you need substantially more than OGW's, TKO's, and other formulas which don't really tell you much of anything--and could even prove to be dangerous! But it's my faith that your tests are probably the most important thing that has been done towards understanding terminal ballistics that's been done by practically anyone! And it's all for free, thanks to your great generosity and your passion.

So nobody really needs any of my ciphering. That's over now. What you're asking for is corroborating tests from others, which I'm not capable of providing. I truly wish I could, but I frankly just don't have the health or the means. However, I'll always have the interest. And if I can think of something halfway practical that you might be able to use, even in a small way like the marking of the meplats, I won't hesitate to tell you.

Thanks again for the wonderful work!

Glenn

michael458

Well this is the heart of a buffalo with the 416 330 brass NonCon through it.

17 January 2011, 05:38



Alf you are reaching a bit it appears. Never do you see anywhere that I compare the medium DIRECT to animal tissue. Comparison between bullets, yes---Reasonable Medium that can be CORRELATED to animal tissue, yes---tit for tat--No.

Now, what you are comparing in the witness card photo is a 460 gr brass NonCon-.500 caliber at over 2600 fps as I recall, far more than the small bore bullet you are comparing the heart shot too. There are differences as we move up in caliber, and bullet design.

Michael

http://www.b-mriflesandcartridges.com/default.html

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List! Live Outside The Box of "Conventional Wisdom"

I do Not Own Any Part of Any Bullet Company, I am not in the Employ Of Any Bullet Company. I do not represent, own stock, nor do I receive any proceeds, or monies from ANY BULLET COMPANY. I am not in the bullet business, and have no Bullets to sell to you, nor anyone else. ALF

17 January 2011, 05:51

michael458

quote:

RIP

17 January 2011, 05:54

BTW, the .375/300-grain Walterhog is indeed a NonCon, by the definition of nonconventional shedding of petals happily accepted, and not seen as a failure, as well as the nonconventionally high velocity also happily accepted for added performance, as an aid to petal shedding and long range precision.

Yep, Saeed has got the hole in the nose of that copper NonCon perfected!

Doc M,

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Indeed, the Saaed bullet is a NonCon. Being copper, and probably a deeper cavity it's mode of operation is different than that of the brass HPs that shear away from center. These tend to shear and petals/blades remain within the wound channel--devastating as well. These are of the type I used in Australia on the buffalo, it was amazing. Massive trauma inflicted, and buffalo dropped to the shot. In fact in taking the hit, most all within 50 yds, many at 25 or less, you could actually see like a ripple effect as the animal took the bullet--very visual trauma.

Honestly, I really am not sure which method of operation is best?? Shear and move away from center, or shear and remain in wound cavity? I lean towards shear and move away from center, but I will also admit that it might be my strong desire to use these, and understand them more in the field, than from any real reasons? So far both are looking really good, and in the end, it may not really make much difference between the two modes of operation. A deep gut feeling I have tells me that either, or both methods of operation is better than conventional any way you cut it. Once I get a year in with these brass ones I will have a better idea. I can say this with at least 99% confidence, I will be using NonCons from here out.

OH MAN---New Black Lab Coat--Embroidered as well! THAT IS TOO MUCH--You really shouldn't---But I can't wait none the less! Many thanks My Friend!!!!!!! I promise to wear it with great pride and to always strive to live up to what it represents!

http://www.b-mriflesandcartridges.com/default.html

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michael458

quote:

17 January 2011, 05:58

17 January 2011, 06:06

17 January 2011, 06:16

Originally posted by ALF: Michael for that, I'm impressed You go from 375 non con to 416 non con and the hole gets yeah big and then you go from 416 to 500 cal and the hole is so big you can see through the buffalo ! That my friend is way impressive !

"m convinced, So in November i'm off to Africa and Hopefully if all goes well I too will make these impressive holes in a Ele or two.

I tell you one thing I am thankfull that when I was in Angola the terrs cubans and FAPLA did not have these bullets, imagine having to put a patch on someone with the hole the size of a fist through them

Alf

Well I can tell you this, being a thin skinned critter like you and I are--You damn right we are glad the Commies don't have any of these, cause I don't think you would need to worry about a patch.

Well, just let me know what caliber CEB BBW #13 Solids you need and I will make sure you have some for your elephant. So far they are doing a jam up job on elephant as well!

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М

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WOW! You guys have done so much in the few days I've been offline its going to take me a week to catch up. Great stuff!

Sam

srose

michael458

Glenn

Ciphering and Formulas are not bad, and in fact in many ways can help a lot to understand what we have.

However, in regards to that, your "faith" in the tests, and what they represent means more to me than you can imagine. Your support and ideas are very important, and much needed. I have much going on, there is no doubt I do not think of everything, and I forget much. Support, assistance, and reminders from you, and the rest of the team are very valuable, and tend to keep us on course, as who knows what direction I could go of on next!

I too wish you could be in the field gathering field data, I am very sure it would be detailed and properly documented. I am a terrible field guy, always moving too fast to the next buffalo to do the best terminal studies.

Hang in there and just do what you do, and that will be great, and many thanks!

Michael

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