

Brass Fetcher Ballistic Testing

12 gauge Federal Power-Shok 2 ¾" #4 buckshot (Load # F127 4B)

Bare gelatin

	Shot 1	Shot 2	Shot 3
Calibration depth (Inches, corrected to 590 ft/sec impact velocity) (Ideal gelatin block penetration depth = 3.4")	3.6	3.5	3.4
Impact velocity (Measured at 7ft) (ft/sec)	1243	1262	1254
Median Penetration Depth (inch)	13.3	12.5	13.1

Notes :

Weapon – New England Firearms 12 gauge *Pardner*; 24.0" barrel length, Skeet I choke

Distance – 10.0 feet, muzzle to impact face

Shot 1

Block Calibration Velocity (ft/sec)	Block Calibration Depth (inch)	Block Calibration Temperature (Degrees Fahrenheit)	Block Core Temperature (Degrees Fahrenheit)
581	3.5	40.2	41.4

Commentary :

This gelatin block calibrated slightly less 'tough' than an ideal block, but this slight variation shouldn't influence the final penetration depth to any measurable extent.

Impact Velocity (ft/sec)	Deepest Penetration Depth (inch)	Maximum Crack Diameter (inch)	Maximum Crack Diameter Location (inch)
1243	15.8	6.2	5.5

Cavitation Depth (inch)	Pellets Recovered Independent of the primary cavity (quantity)	Pellet Combined Surface Area Independent of the primary cavity (square inch)
10.4	23	1.006

Commentary :

At the distance from the gelatin block that this cartridge was fired, 10.0 feet, and with the choke tube that was used on the test shotgun, a good dispersion of the shot pellets through the block was observed. If each shot pellet creates its own penetration track (instead of having two or more pellets penetrate together, front-to-back), the shot shells potential for incapacitation is maximized.

This particular shot had 23 of the 27 pellets fired, cutting independent tracks in the gelatin block ... an efficiency of 85.2% at 10 feet distance.

The wounding effectiveness of buckshot is almost entirely dependant upon the diameters of the holes created by the penetrating pellets – the more holes produced by the shot, the better. But there are tradeoffs in this regard – you still need to have the pellets penetrate deeply enough to reach the vital organs. And to do this, you need a lot of weight in the smallest pellet diameter possible. Buckshot is the only reliable choice for shot size in the combat shotgun.

Test site conditions – 60 degrees Fahrenheit, 45% relative humidity

Time out of refrigeration prior to shot impact – 3 minutes

Pellet average diameter – 0.236"

Pellet recovered weight (median over entire load) – 19.9gr

3 pellets exited the rear of the block

1 pellet co-occupied a wound track and was not counted in the penetration depths

Pellet number	Individual pellet penetration depths (inch)
1	13.2
2	11.8
3	10.8
4	12.0
5	12.5
6	12.9
7	12.3
8	14.4
9	14.1
10	14.9
11	14.0
12	12.1
13	14.7
14	15.1
15	15.0
16	15.2
17	14.7
18	14.4
19	12.4
20	13.8
21	13.0
22	12.5
23	13.3

Figure 1. Side view of **Shot 1** gelatin block

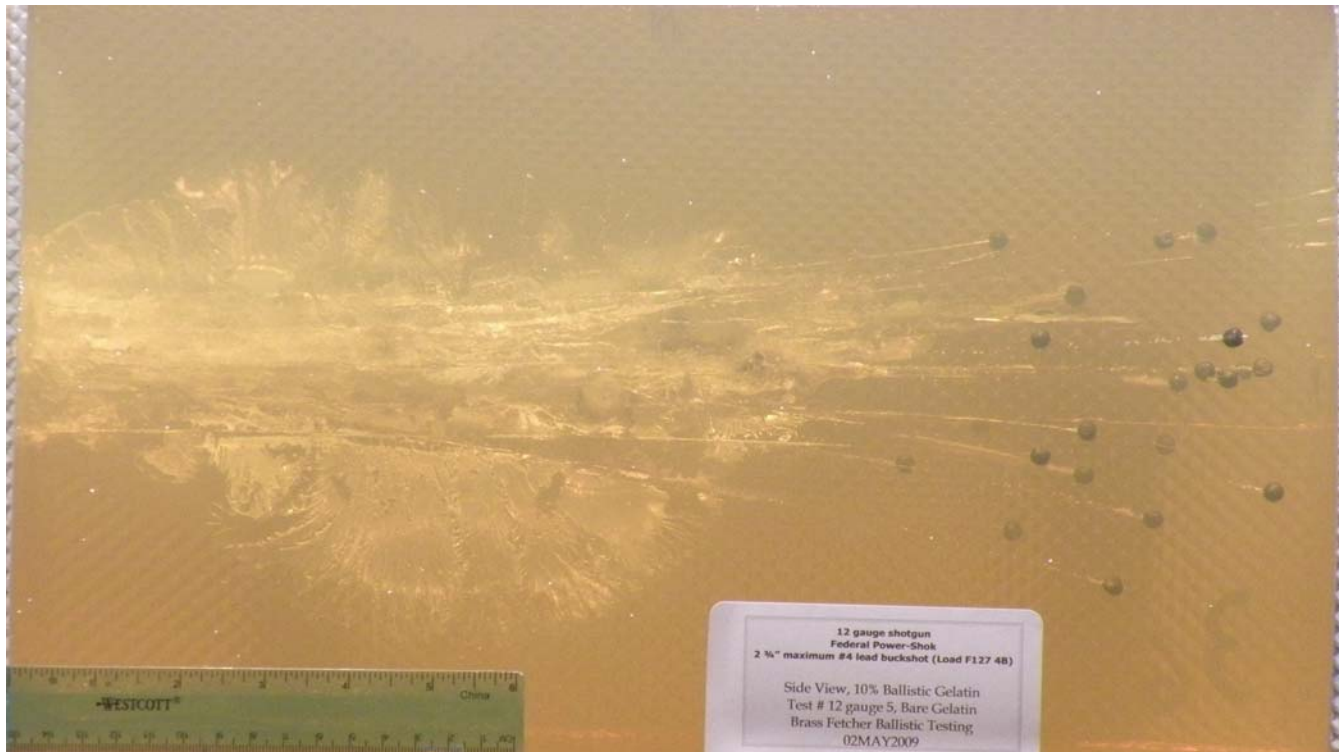


Figure 2. Top view of **Shot 1** gelatin block

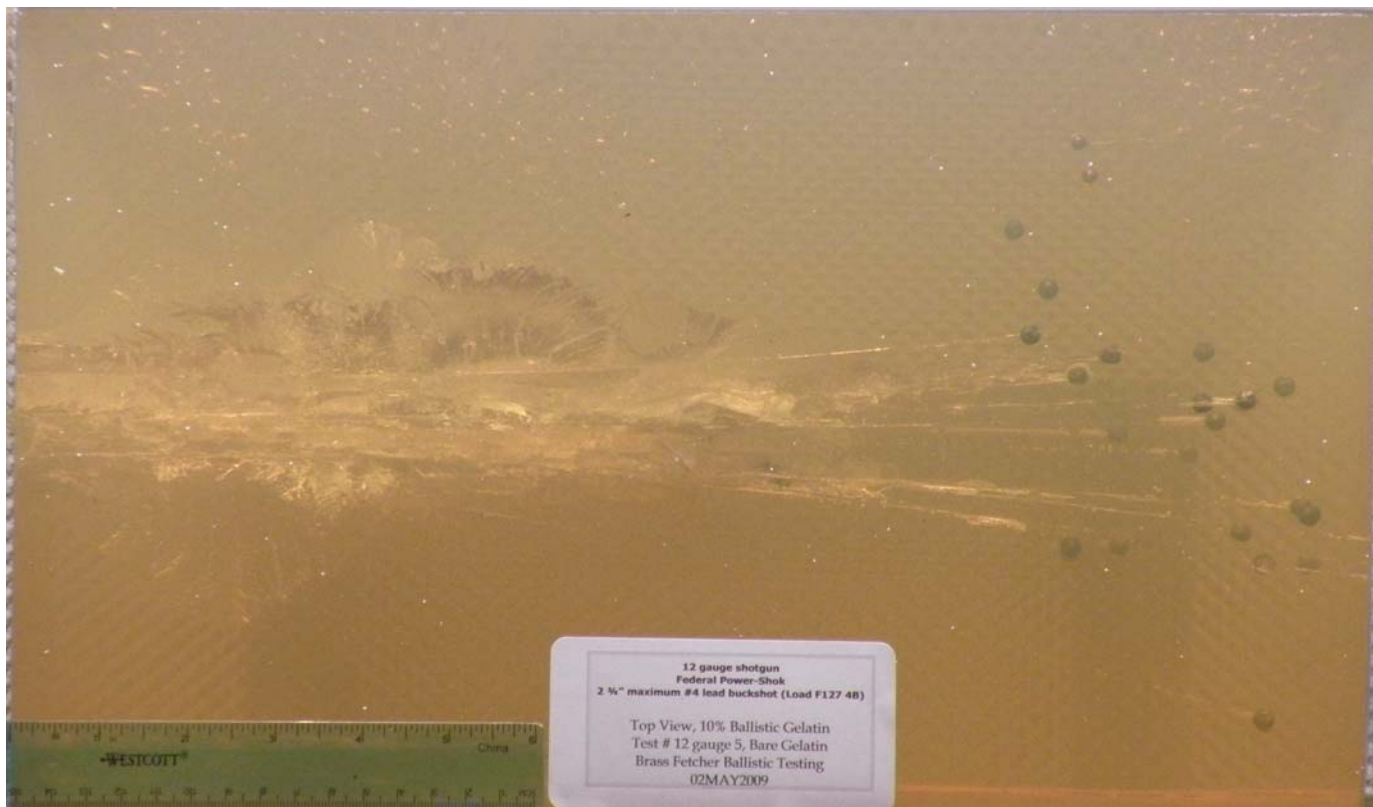
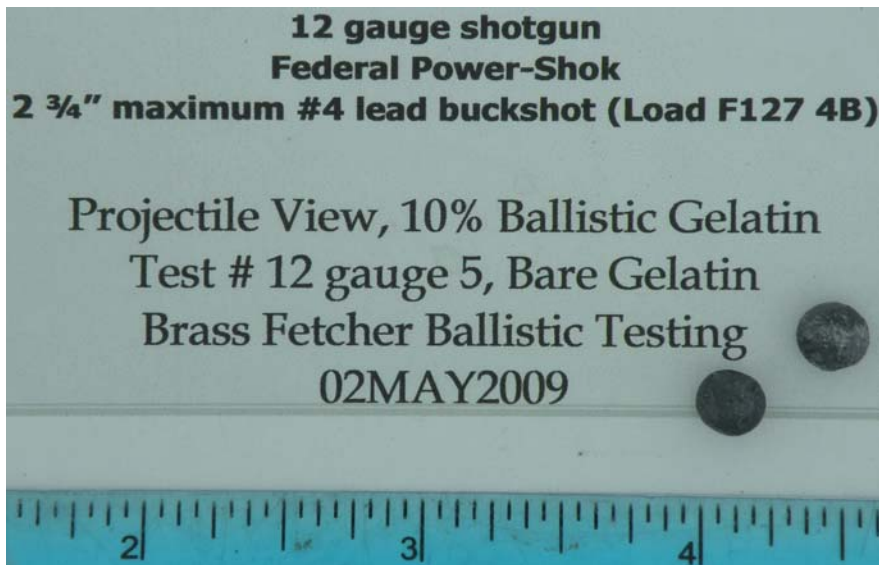


Figure 3. Projectile view of **Shot 1** recovered shot pellets



Shot 2

Block Calibration Velocity (ft/sec)	Block Calibration Depth (inch)	Block Calibration Temperature (Degrees Fahrenheit)	Block Core Temperature (Degrees Fahrenheit)
592	3.5	38.7	39.4

Impact Velocity (ft/sec)	Deepest Penetration Depth (inch)	Maximum Crack Diameter (inch)	Maximum Crack Diameter Location (inch)
1262	15.5	6.4	7.1

Cavitation Depth (inch)	Pellets Recovered Independent of the primary cavity (quantity)	Pellet Combined Surface Area Independent of the primary cavity (square inch)
10.9	25	1.094

Commentary :

This particular shot had 25 of the 27 pellets fired, cutting independent tracks in the gelatin block ... an efficiency of 92.6% at 10 feet distance.

Test site conditions – 60 degrees Fahrenheit, 45% relative humidity

Time out of refrigeration prior to shot impact – 3 minutes

Pellet average diameter – 0.236"

Pellet recovered weight (median over entire load) – 19.8gr

1 pellet exited the rear of the block

1 pellet co-occupied a wound track and was not counted in the penetration depths

Pellet number	Individual pellet penetration depths (inch)
1	15.0
2	15.0
3	14.3
4	13.4
5	13.3
6	13.7
7	12.8
8	12.5
9	11.0
10	12.5
11	12.4
12	11.4
13	11.0
14	11.7
15	13.9
16	8.8
17	11.8
18	12.0
19	11.0
20	11.5
21	12.1
22	13.1
23	14.3
24	14.7
25	14.7

Figure 4. Side view of **Shot 2** gelatin block

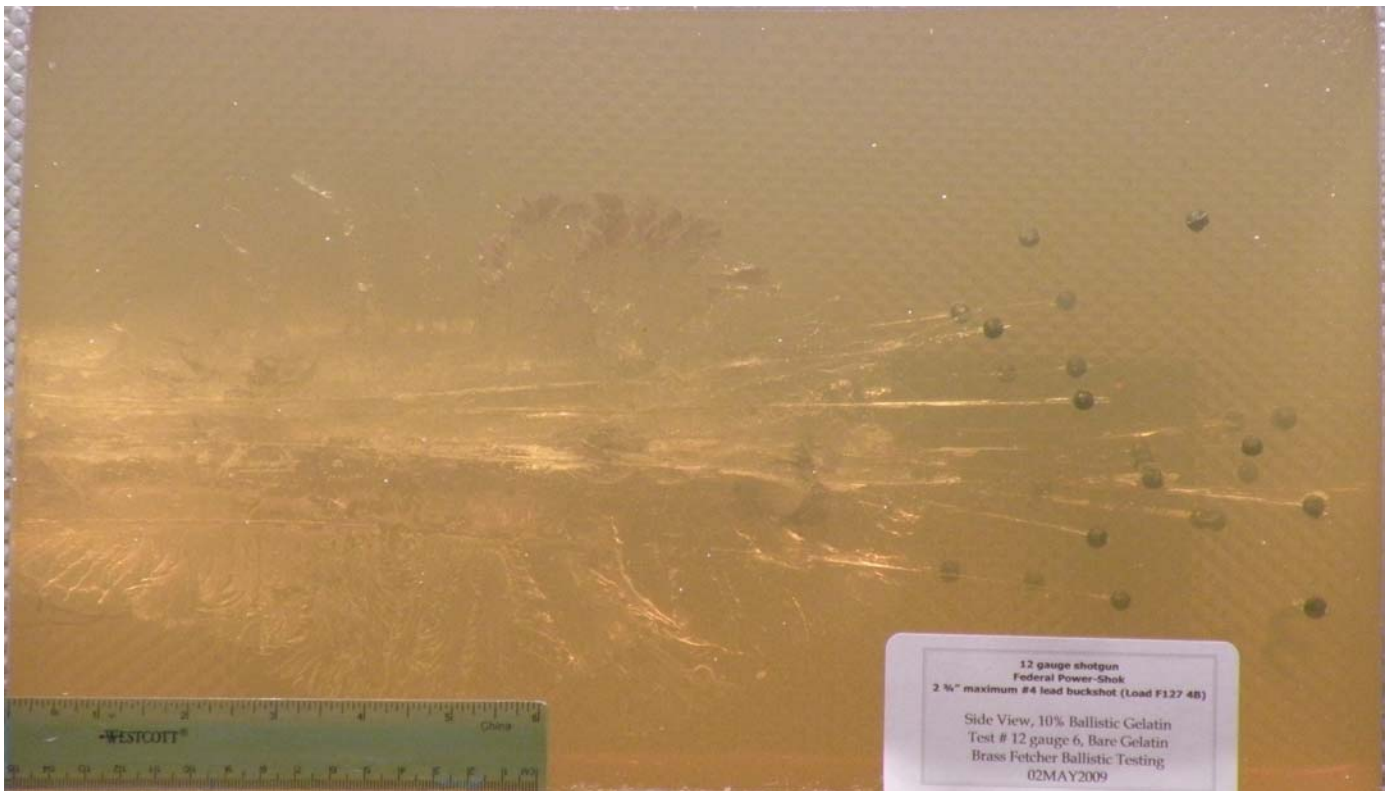


Figure 5. Top view of **Shot 2** gelatin block

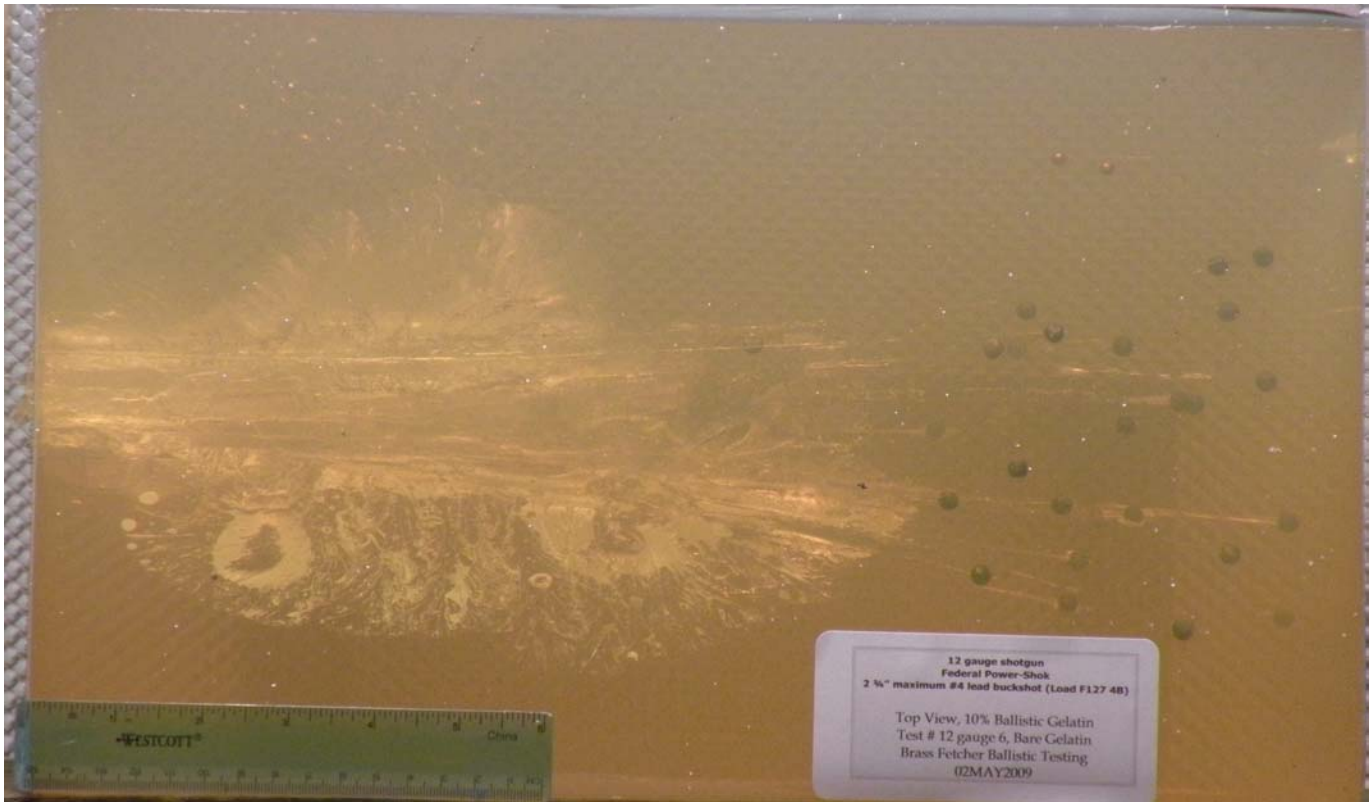
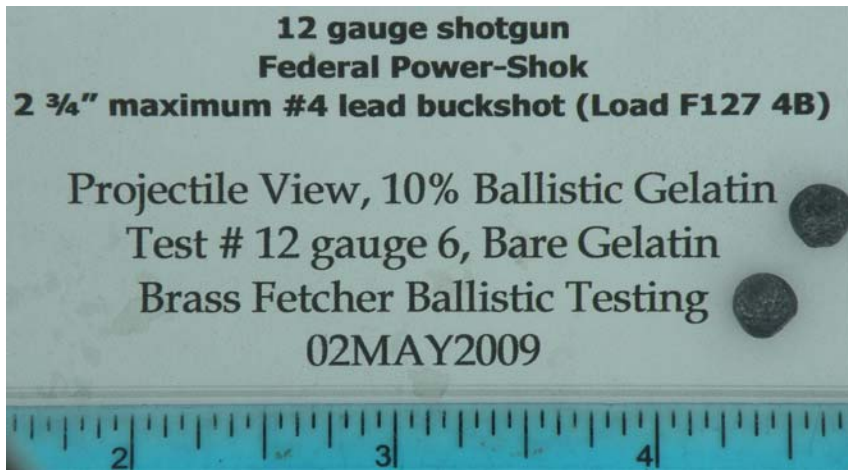


Figure 6. Projectile view of **Shot 2** recovered shot pellets



Shot 3

Block Calibration Velocity (ft/sec)	Block Calibration Depth (inch)	Block Calibration Temperature (Degrees Fahrenheit)	Block Core Temperature (Degrees Fahrenheit)
574	3.3	37.0	38.1

Commentary :

This gelatin block was in near-perfect calibration. Shot information from this particular shot should be viewed as having the highest reliability of the three shots from this set.

Impact Velocity (ft/sec)	Deepest Penetration Depth (inch)	Maximum Crack Diameter (inch)	Maximum Crack Diameter Location (inch)
1254	15.6	6.3	4.6

Cavitation Depth (inch)	Pellets Recovered Independent of the primary cavity (quantity)	Pellet Combined Surface Area Independent of the primary cavity (square inch)
10.2	18	0.787

Commentary :

This particular shot had 18 of the 27 pellets fired, cutting independent tracks in the gelatin block ... an efficiency of 66.7% at 10 feet distance.

Test site conditions – 60 degrees Fahrenheit, 45% relative humidity

Time out of refrigeration prior to shot impact – 3 minutes

Pellet average diameter – 0.236"

Pellet recovered weight (median over entire load) – 19.8gr

3 pellets exited the rear of the block

6 pellets co-occupied a wound track and were not counted in the penetration depths

Pellet number	Individual pellet penetration depths (inch)
1	13.0
2	12.1
3	11.0
4	14.3
5	15.3
6	12.1
7	13.9
8	14.8
9	14.8
10	12.2
11	12.0
12	14.2
13	14.1
14	13.3
15	12.0
16	11.8
17	13.1
18	13.1

Figure 7. Side view of **Shot 3** gelatin block



Figure 8. Top view of **Shot 3** gelatin block

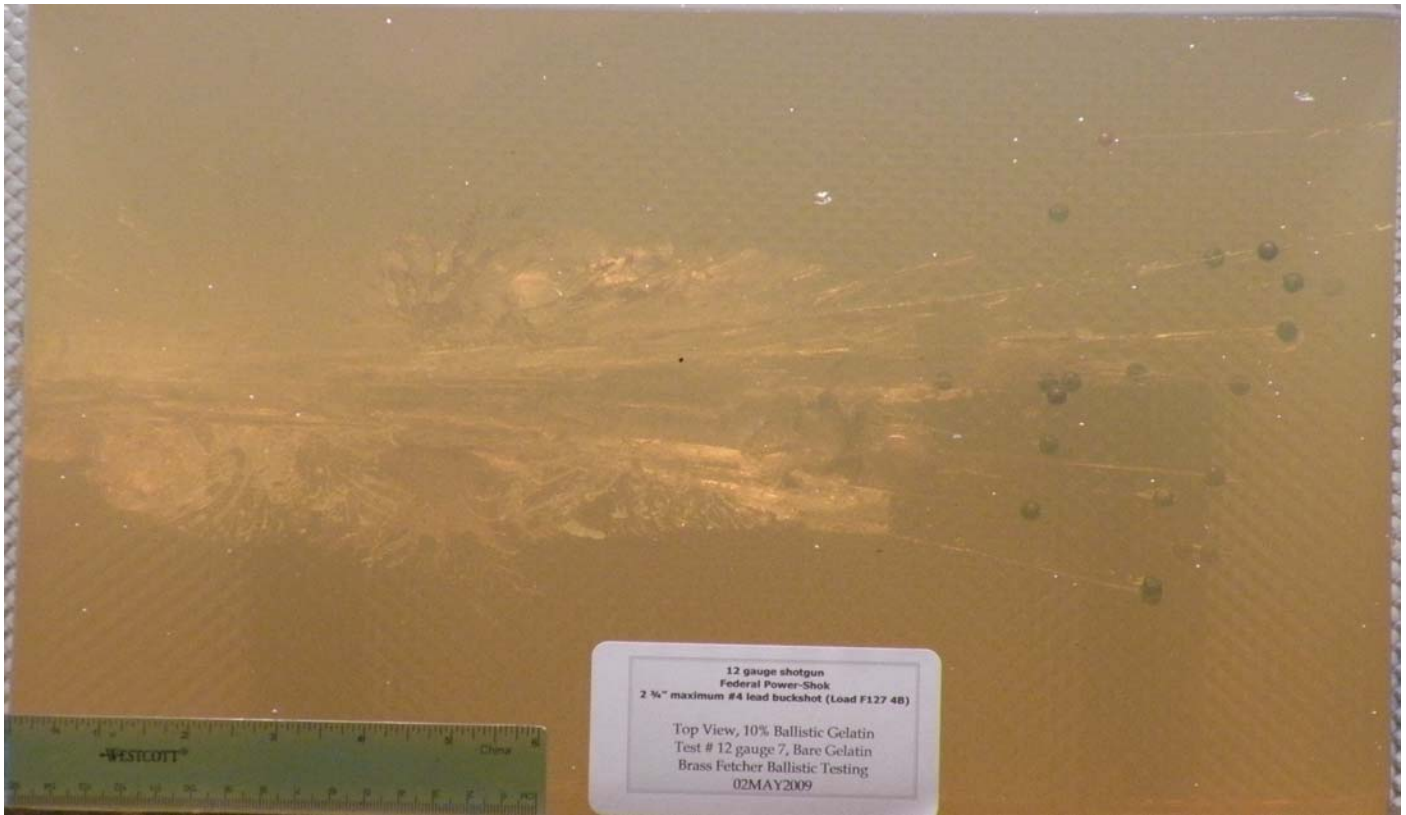


Figure 9. Projectile view of **Shot 3** recovered shot pellets

