



Light Fighter Lethality Technology

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Frank Dindl
U.S. Army TACOM-ARDEC
AMSTA-AR-CCL-A; Bldg 7
Picatinny Arsenal, NJ 07806-5000
(973) 724-6761
<fdindl@pica.army.mil>

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Lucian Sadowski
U.S. Army TACOM-ARDEC
AMSTA-AR-CCL-A; Bldg 7
Picatinny Arsenal, NJ 07806-5000
(973) 724-2555
<sadowski@pica.army.mil>

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Briefing Outline:

- Future Warrior Concepts
- STO Performance Objectives
- LFL Notional Concept Description
- Concept Illustrations
- Advantages
- Program Schedule
- Summary



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NATICK
is developing
the Soldier System



ARDEC
is developing
the Lethality
System



Science and Technology Objective (STO) IV.K.21

FY00

Establish initial weapon system architecture and preliminary error budget for a dual-munition pod firing micro-sized, course correcting seeker projectiles;

System weight will be less than 10 pounds (T), 5 pounds (G)

FY01

Verify through constructive simulation individual system and force-on-force empirical performance

Conceptualize preliminary individual system designs

FY03

Demonstrate critical sub-system seeker projectile technologies to permit single munition weight less than .5 pounds (T), .25 pounds (G), and inertial guidance/course correction for a Probability of incapacitation greater than 50% at 500 meters.



PERFORMANCE METRICS:

	<u>Threshold</u>	<u>Goal</u>
Individual System Weight		
- Less Than	10 lbs	5 lbs
Probability of Incapacitation		
- Greater Than 0.5 @	300 M	500 M
Ammunition Weight		
- Less Than	0.5 lbs	0.25 lbs



Seeker Sensor Course Correcting Projectile Concept:

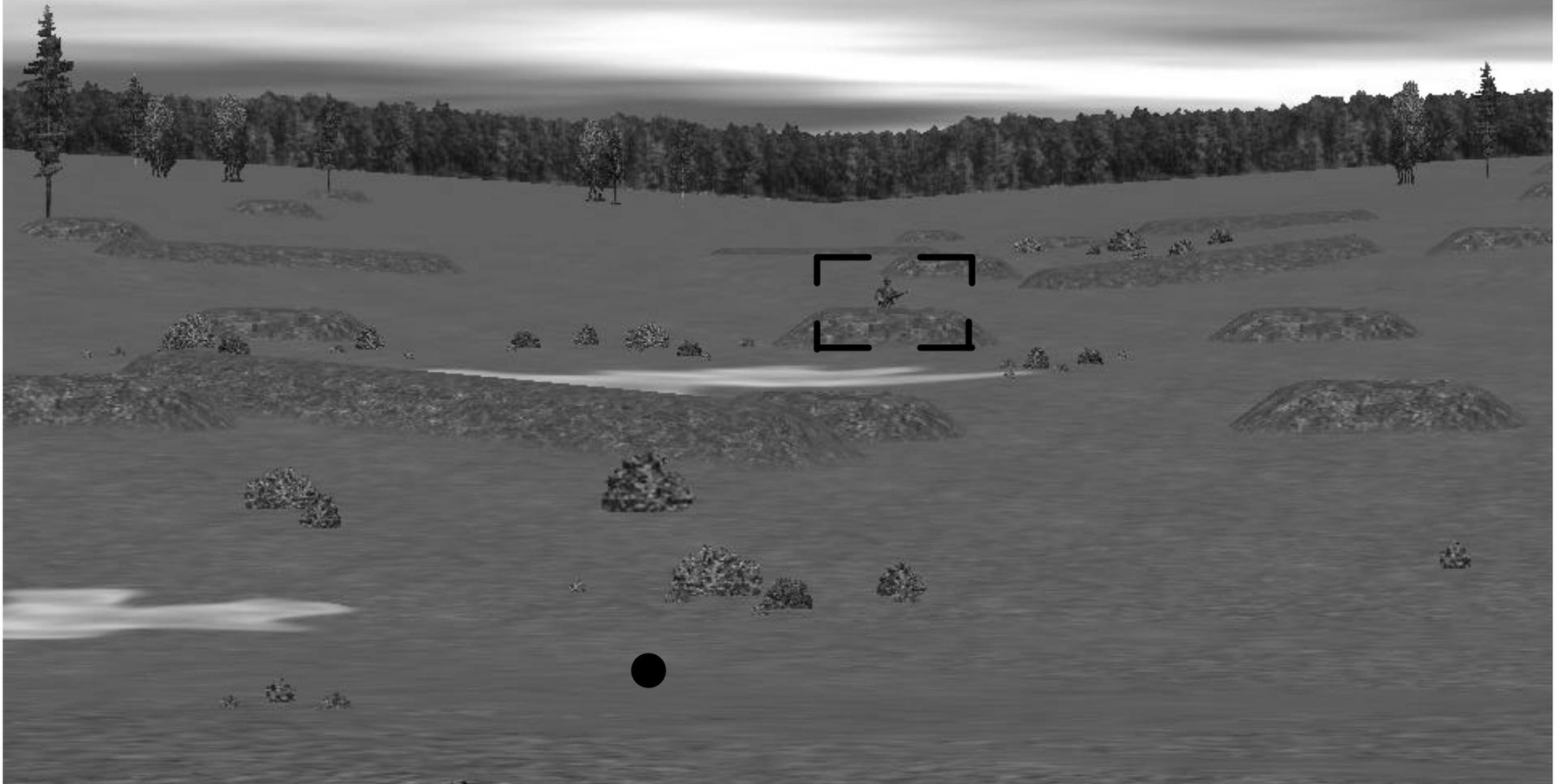
- Concept based on Infrared Seeker identifying and tracking target
- Course corrections generated based on Seeker input
- Maneuver Mechanism effects course corrections

Target Engagement Scenario with Smart Seeker Projectile:

- Target highlighted in the soldier's high resolution visor display
- Sensors on weapon provide aiming information to the Fire Control
- Soldier brings weapon to bear by placing the ballistic reticle on the target
- Soldier gives command to fire/pulls trigger
- Projectile launched
- Seeker activates during flight, identifies and tracks target
- Maneuver mechanism activates as necessary to intercept target
- Projectile airbursts at target intercept

2 seconds prior to firing:

- Target highlighted by Fire Control
- Soldier decides to engage target

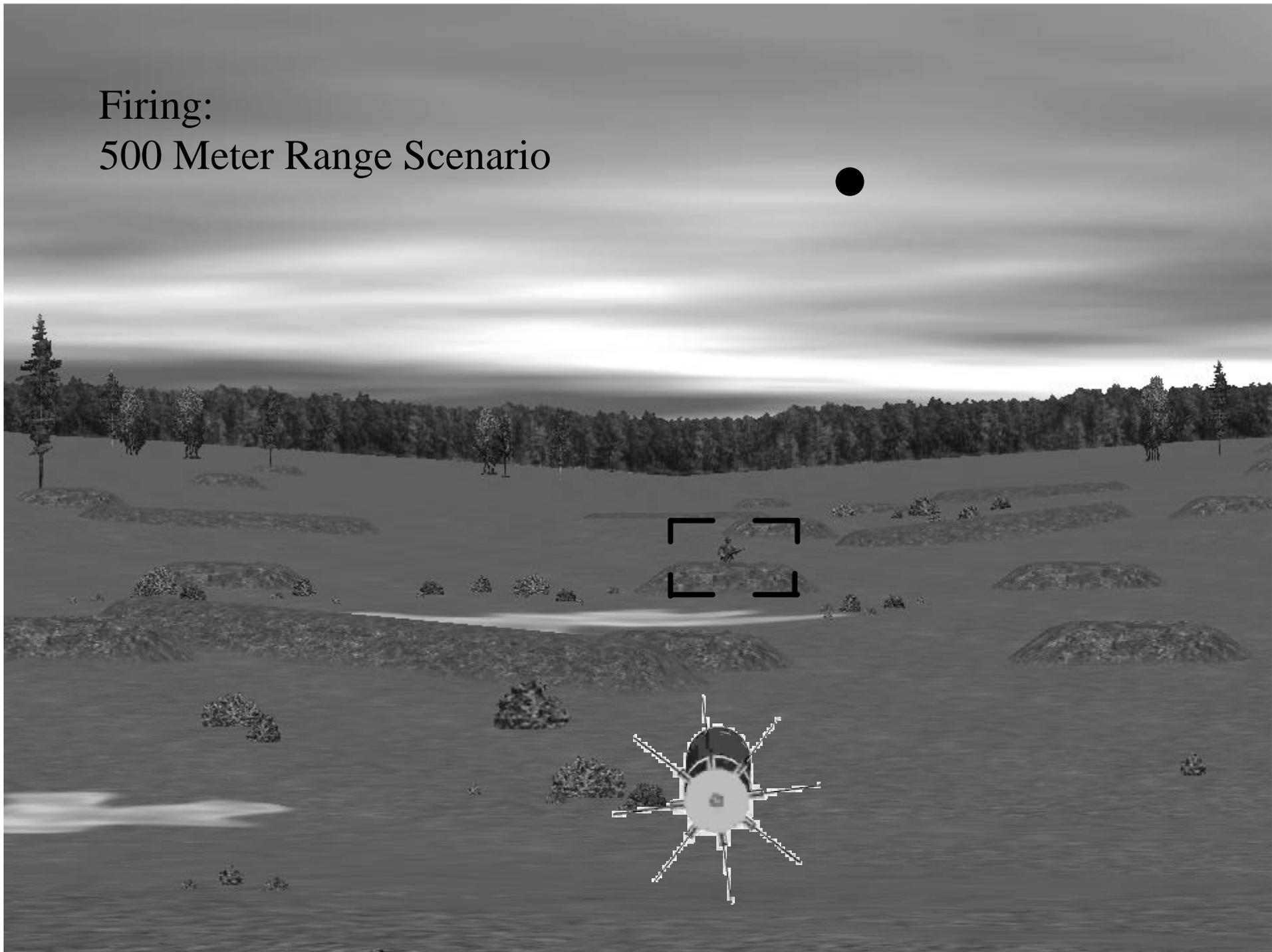


1 second prior to firing:

- Ballistic reticle placed on target



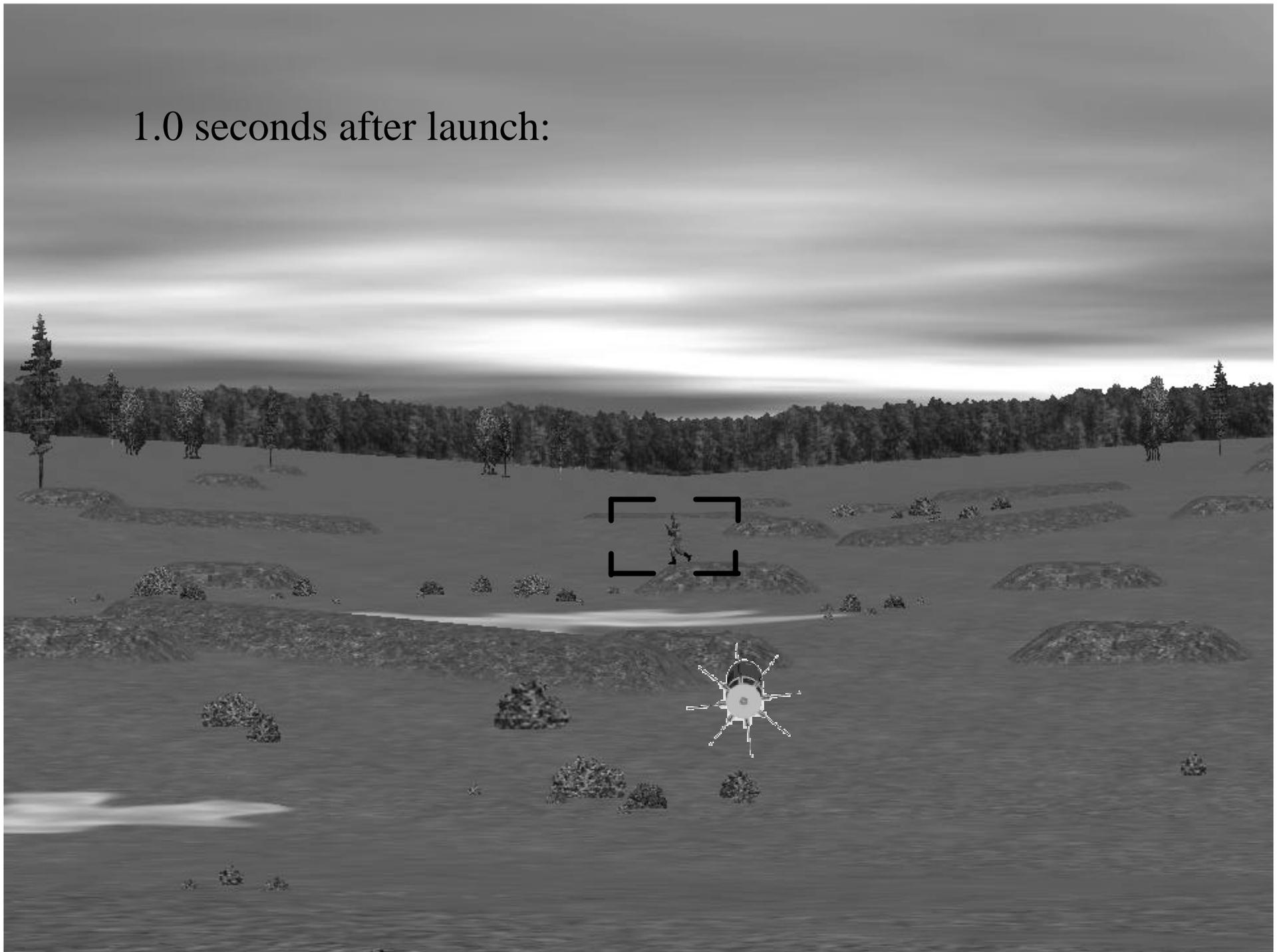
Firing:
500 Meter Range Scenario



.5 seconds after projectile launch:
Target starts running



1.0 seconds after launch:



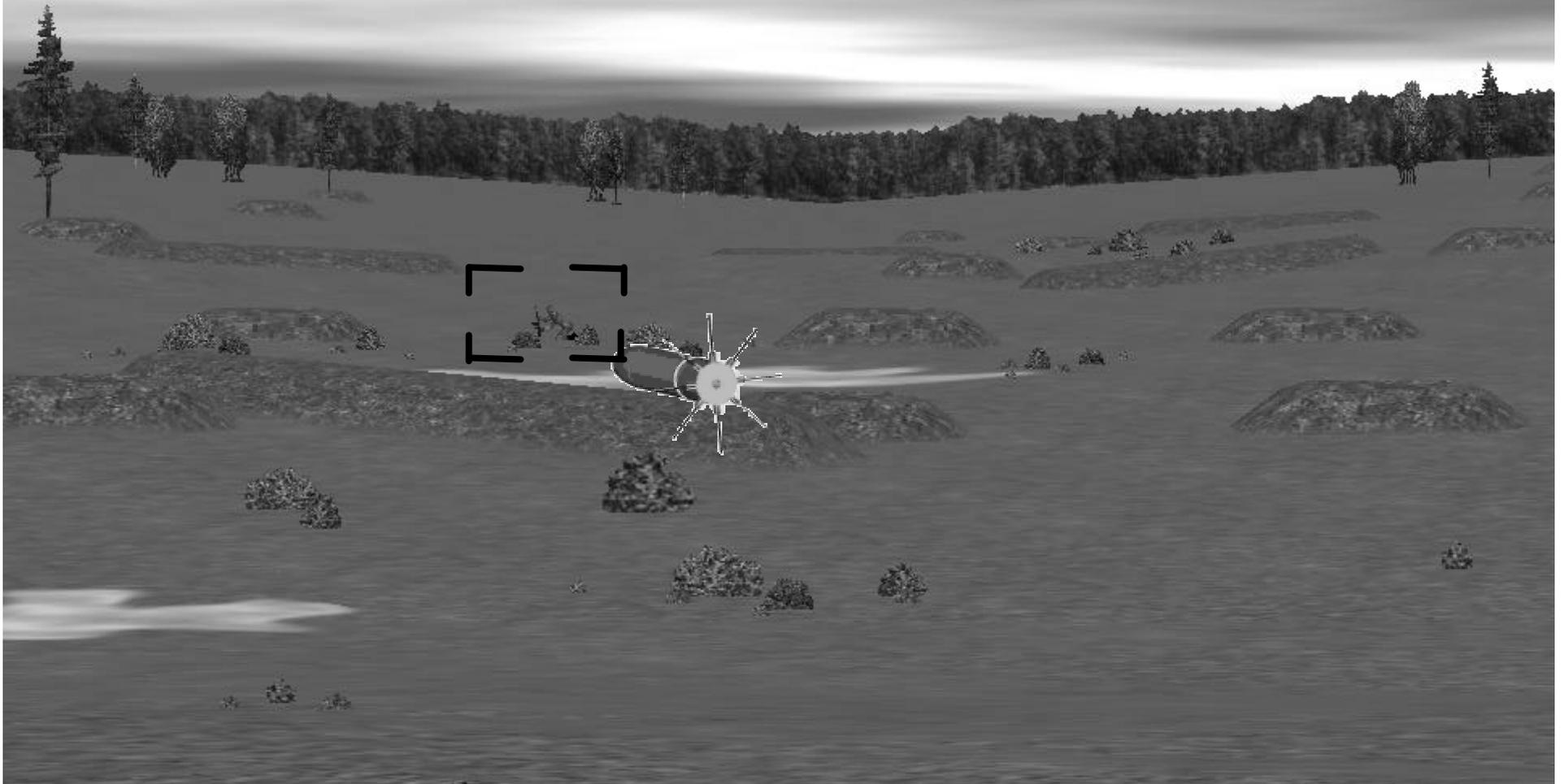
2.0 seconds after launch:

- Seeker turns on, starts looking for the target

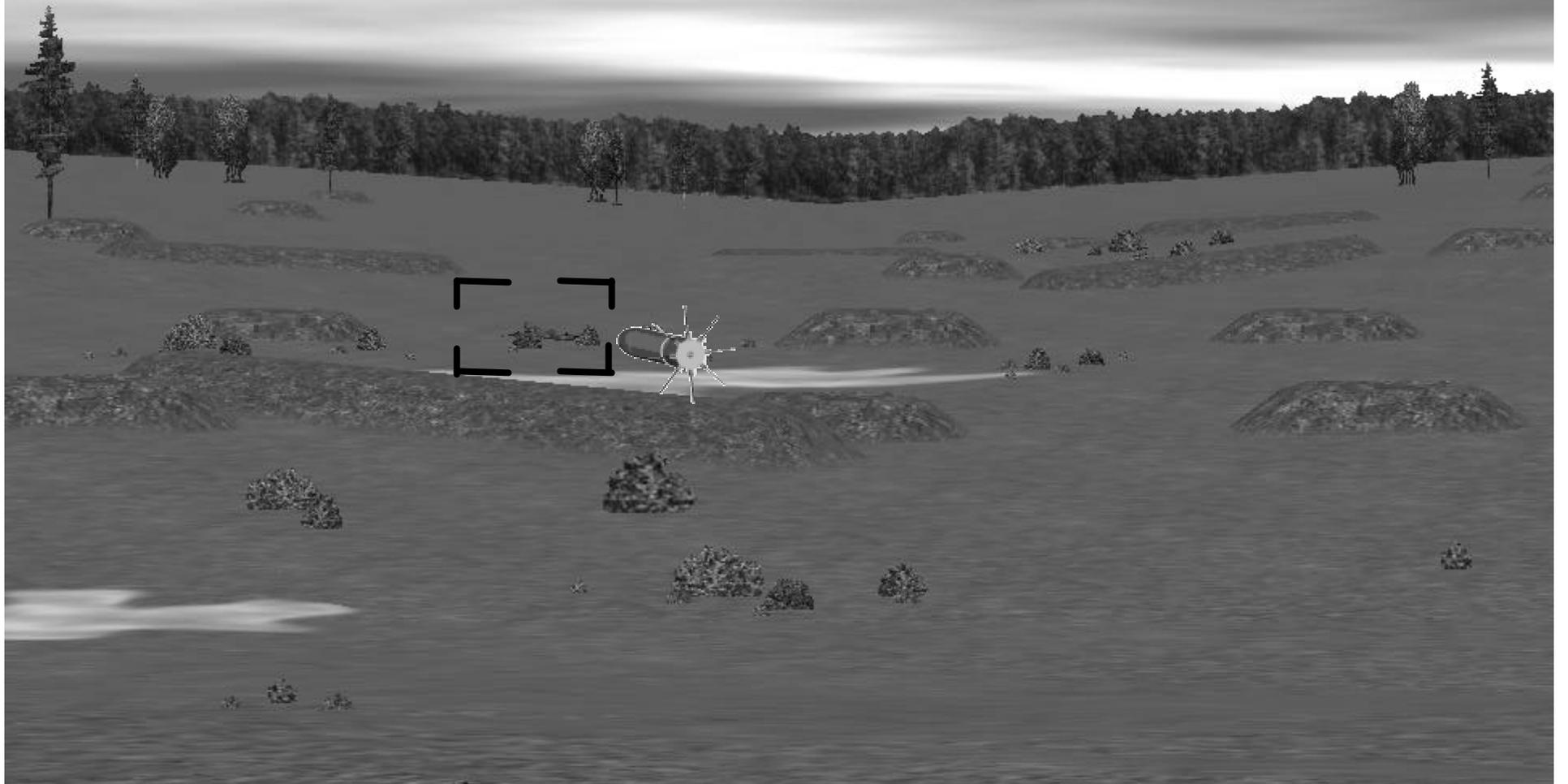


2.5 seconds after projectile launch:

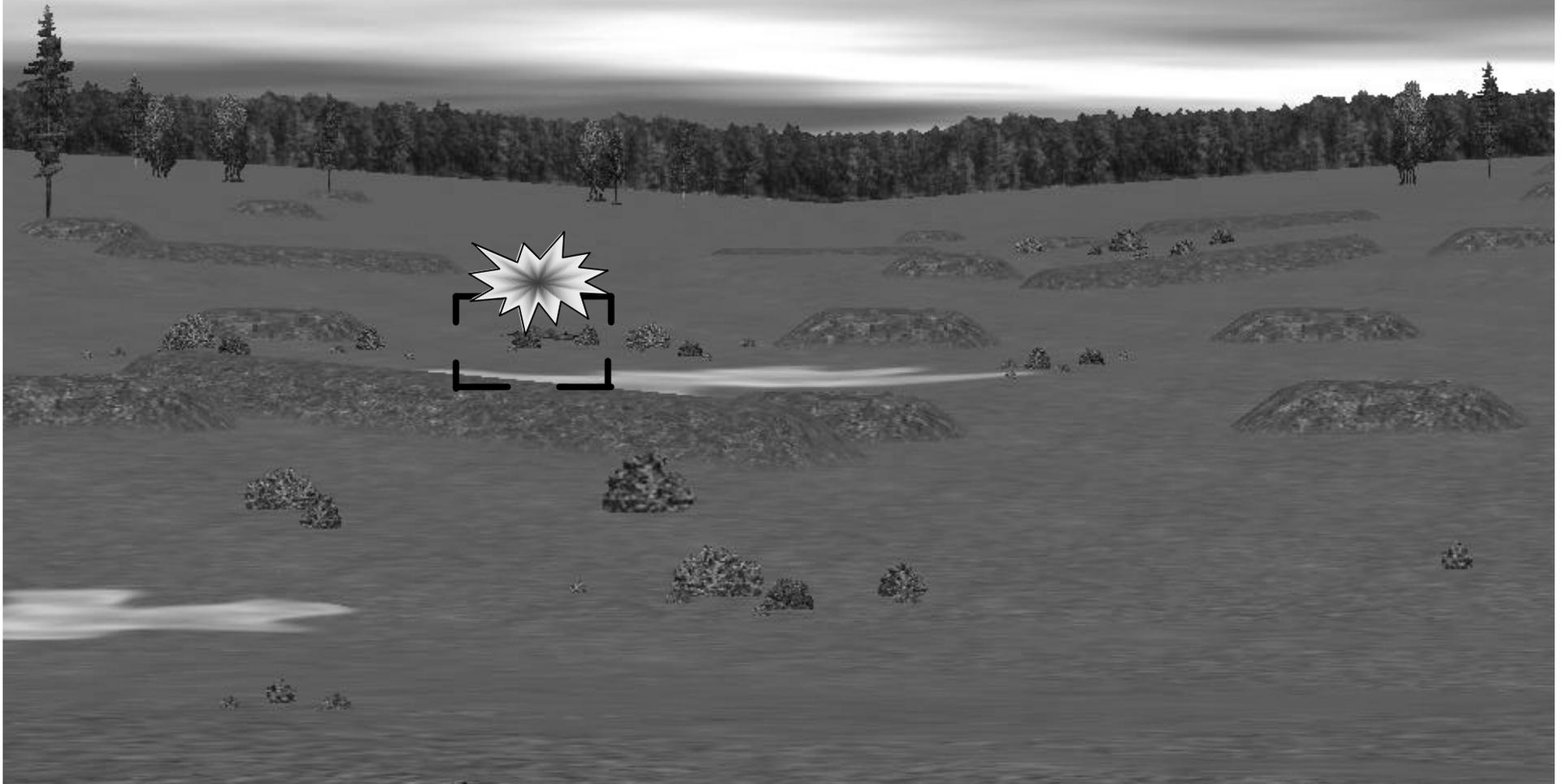
- Projectile on course to intercept target
- Continues to track target and generate course corrections



3.0 seconds after launch



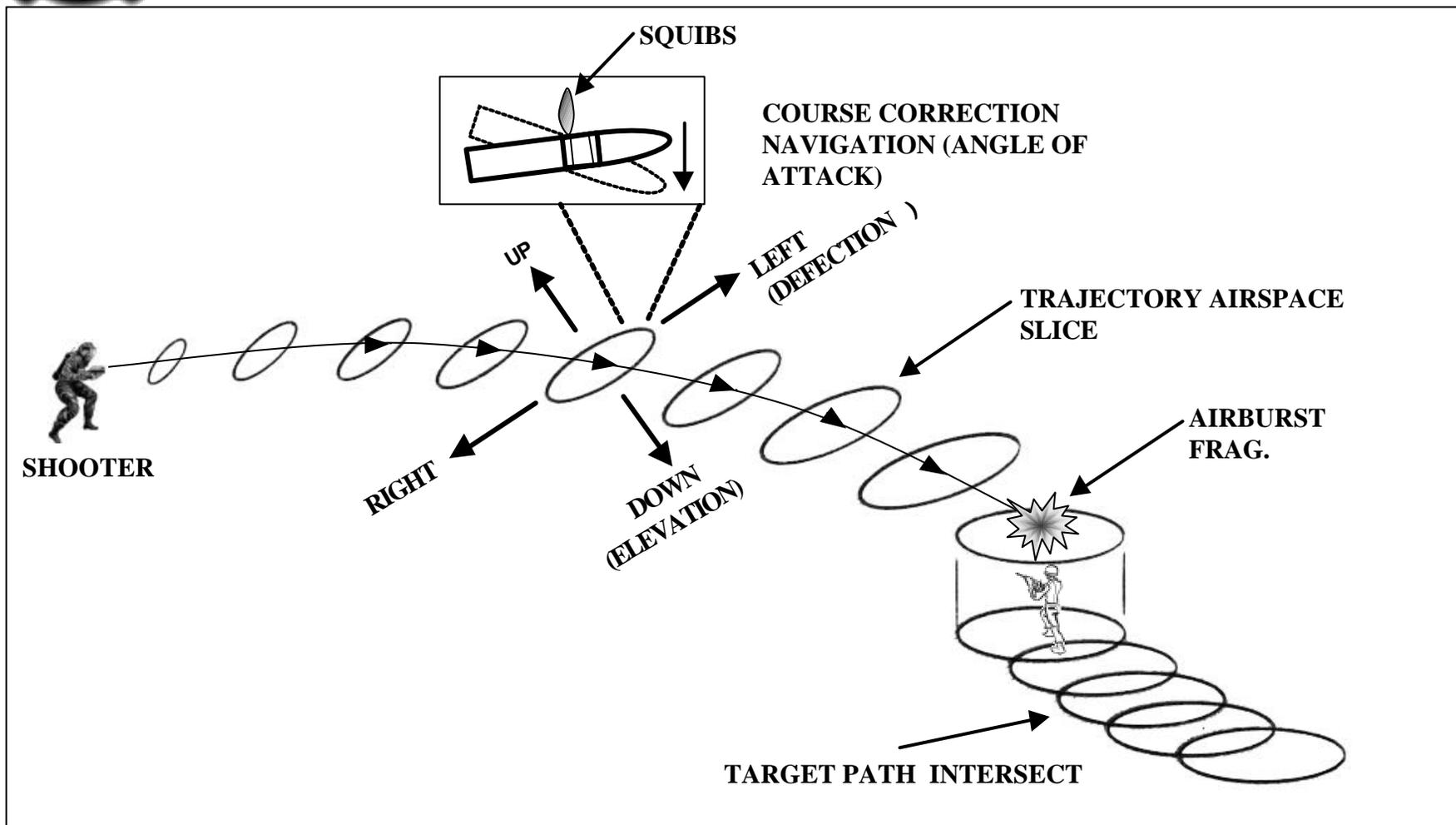
3.9 seconds after launch target intercepts target with high explosive airburst





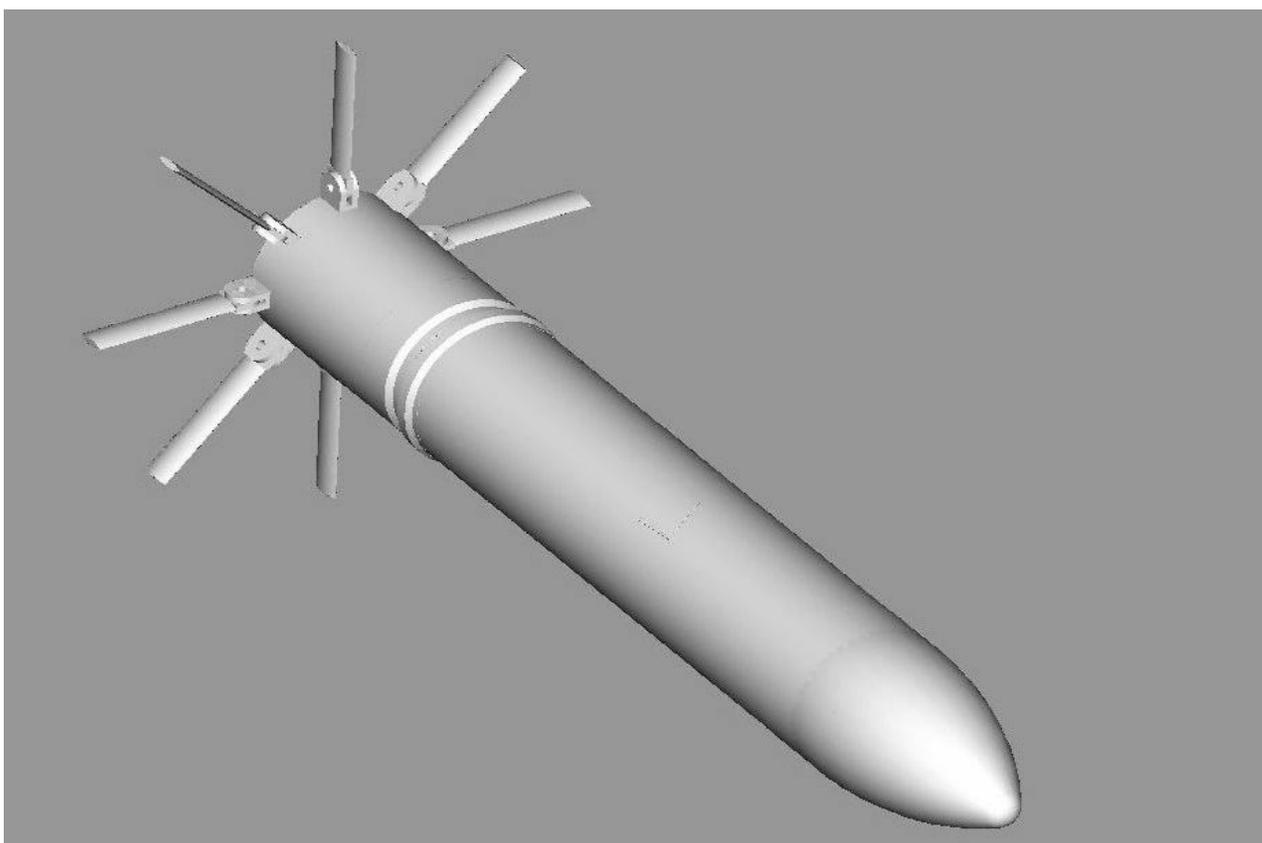
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LFL Seeker Projectile Concept



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Preliminary Seeker Projectile Physical Characteristics:

- Caliber: 25mm
- Length: 150mm/6 inches
- Weight: .51 pounds
- Muzzle Velocity: 192 fps
- Time of Flight to 500 meters: ~4 seconds



ADVANTAGES:

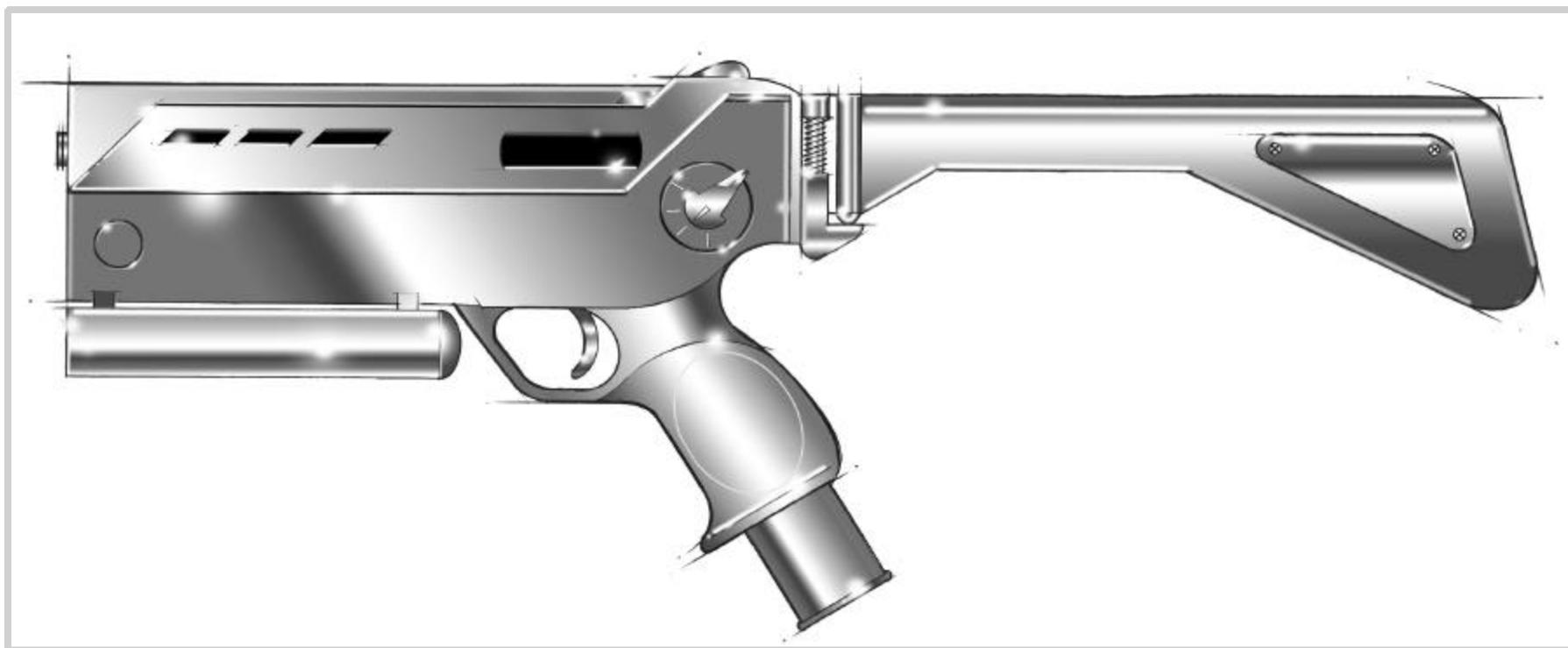
- Simple to operate
- Autonomous
- Seeker compensates for target movement after projectile launch
- Course correction capability dramatically increases probability of hit and lethality
- Launcher can be simple, lightweight, and inexpensive
- Technology insertable into legacy systems
- Leverages current technology investments



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Weapon Concept



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SUMMARY:

- JSSAP sponsored initial investigations indicate autonomous projectile is feasible
- Significant increase in lethality and dramatic reduction in system weight
- Smart projectiles will provide the next quantum leap in small caliber armament technology and will continue to provide soldiers with overwhelming lethality for battlefield dominance