



## **APPENDIX B**

### **POINT MUGU SEA RANGE OPERATIONS DATA**

***B.1 - SAFETY HAZARD PATTERNS***

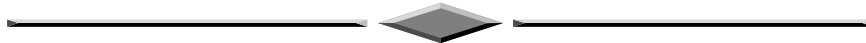
***B.2 - MISSILE FIRINGS BY TYPE***

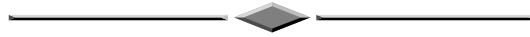
***B.3 - SEA RANGE TARGETS***

***B.4 - SORTIE DENSITY DATA***

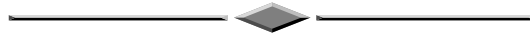
***B.5 - MISSILE IMPACT DENSITY DATA***

***B.6 - OPERATIONS PROJECTIONS FOR PROPOSED  
ACTION***

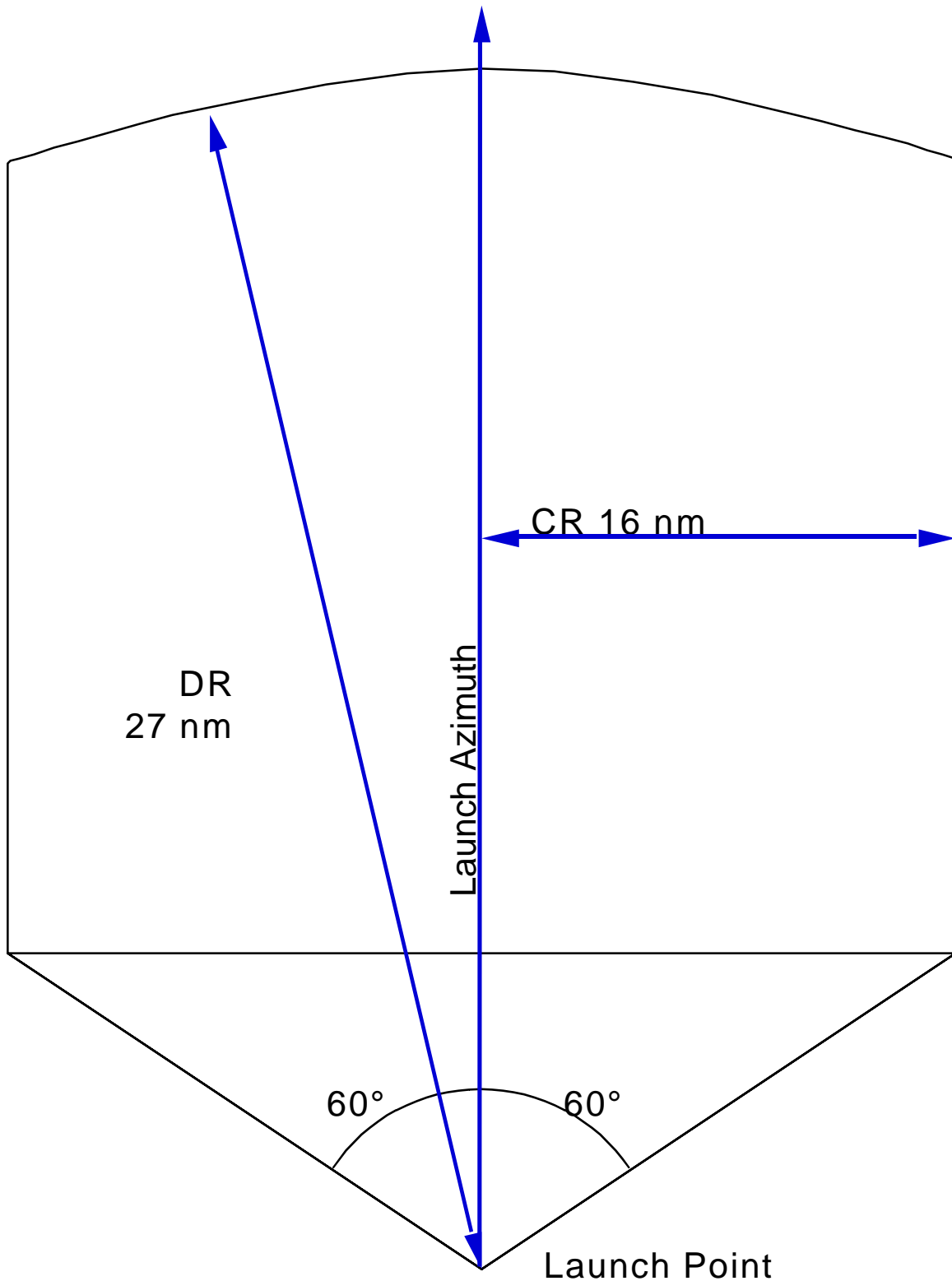




***B.1 - SAFETY HAZARD PATTERNS***



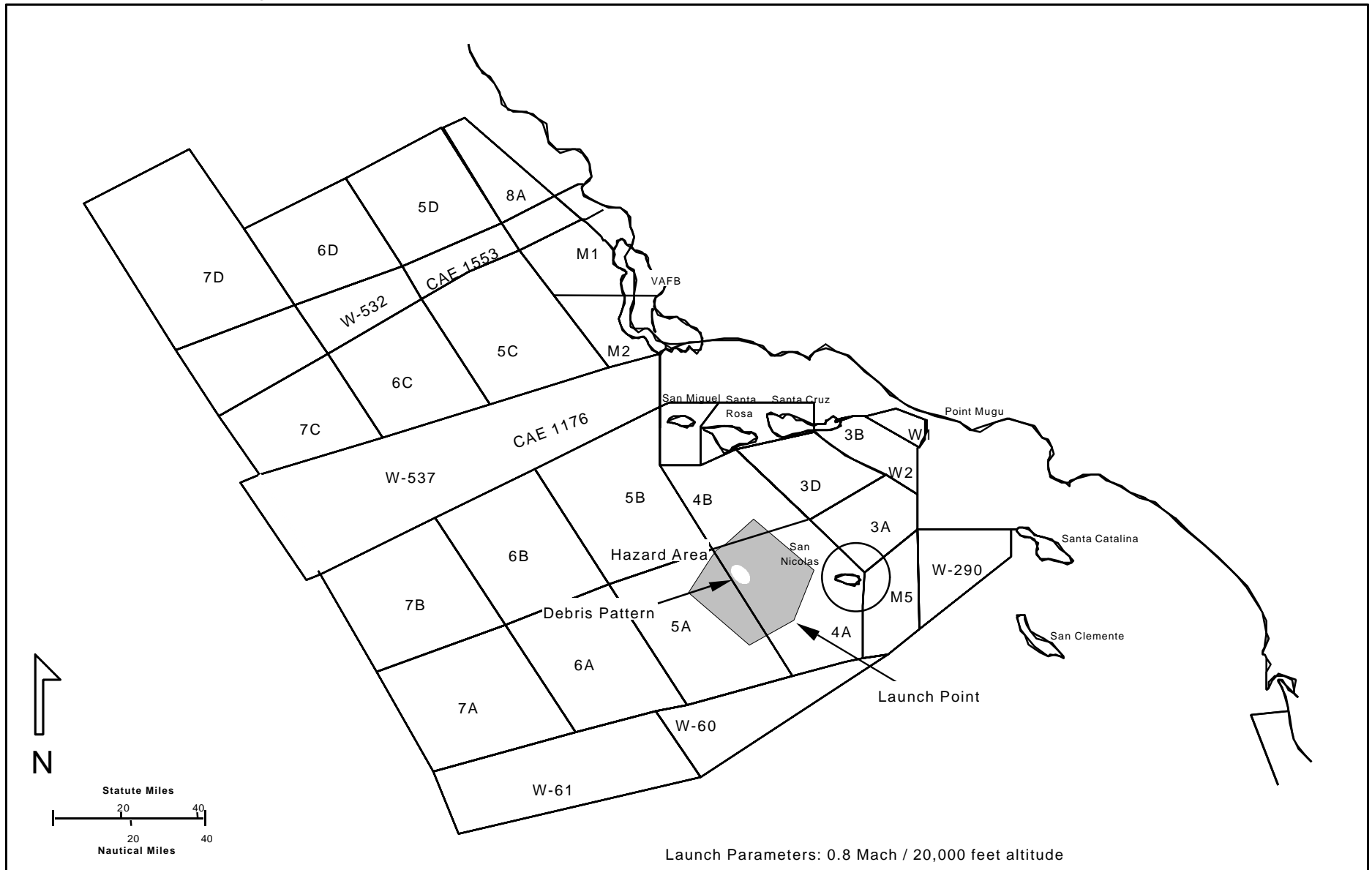
# AIM-7 Sparrow Missile Hazard Pattern



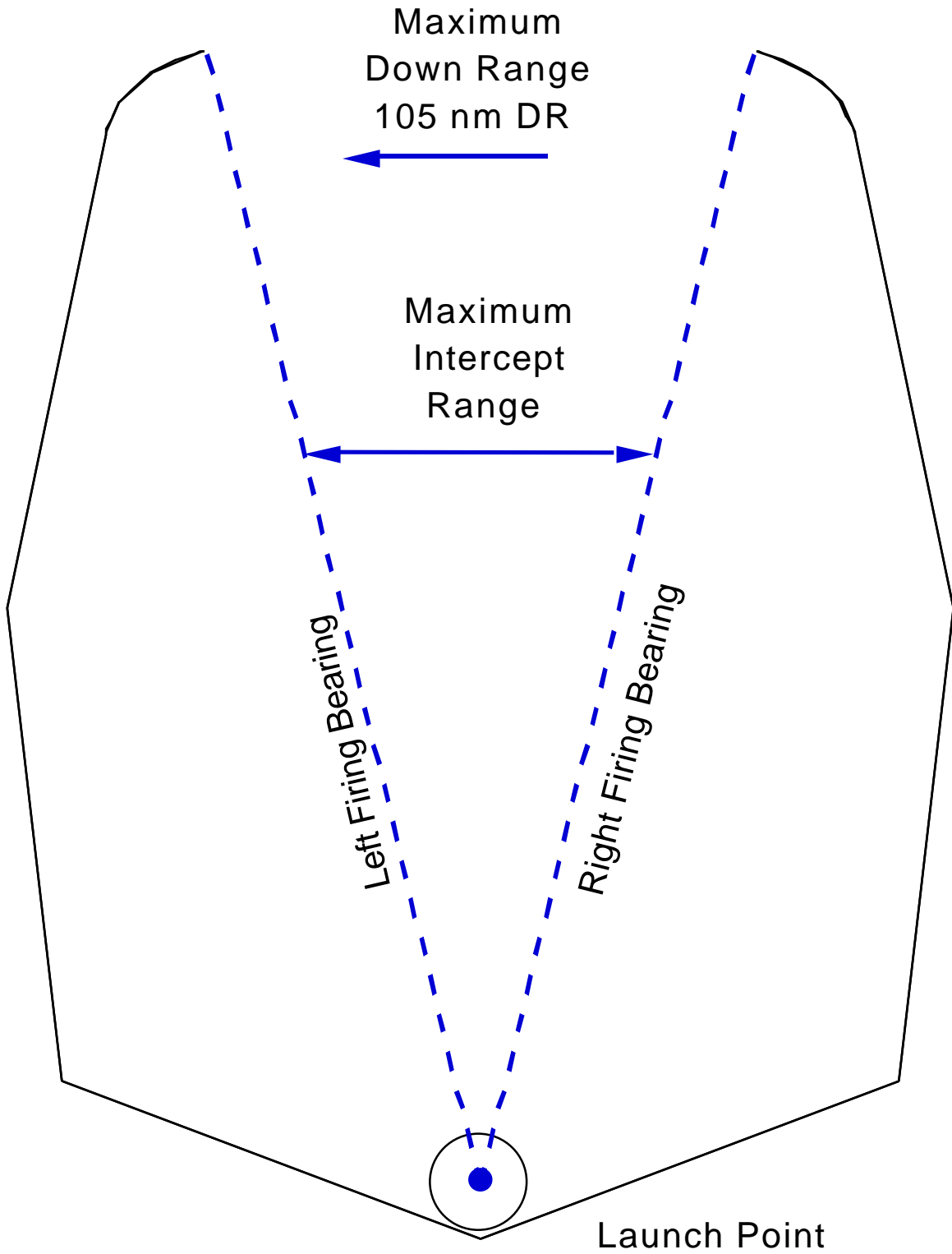
Launch Parameters : 0.8 Mach, 20,000 feet Altitude

DR = Down Range – nautical miles  
CR = Cross Range – nautical miles

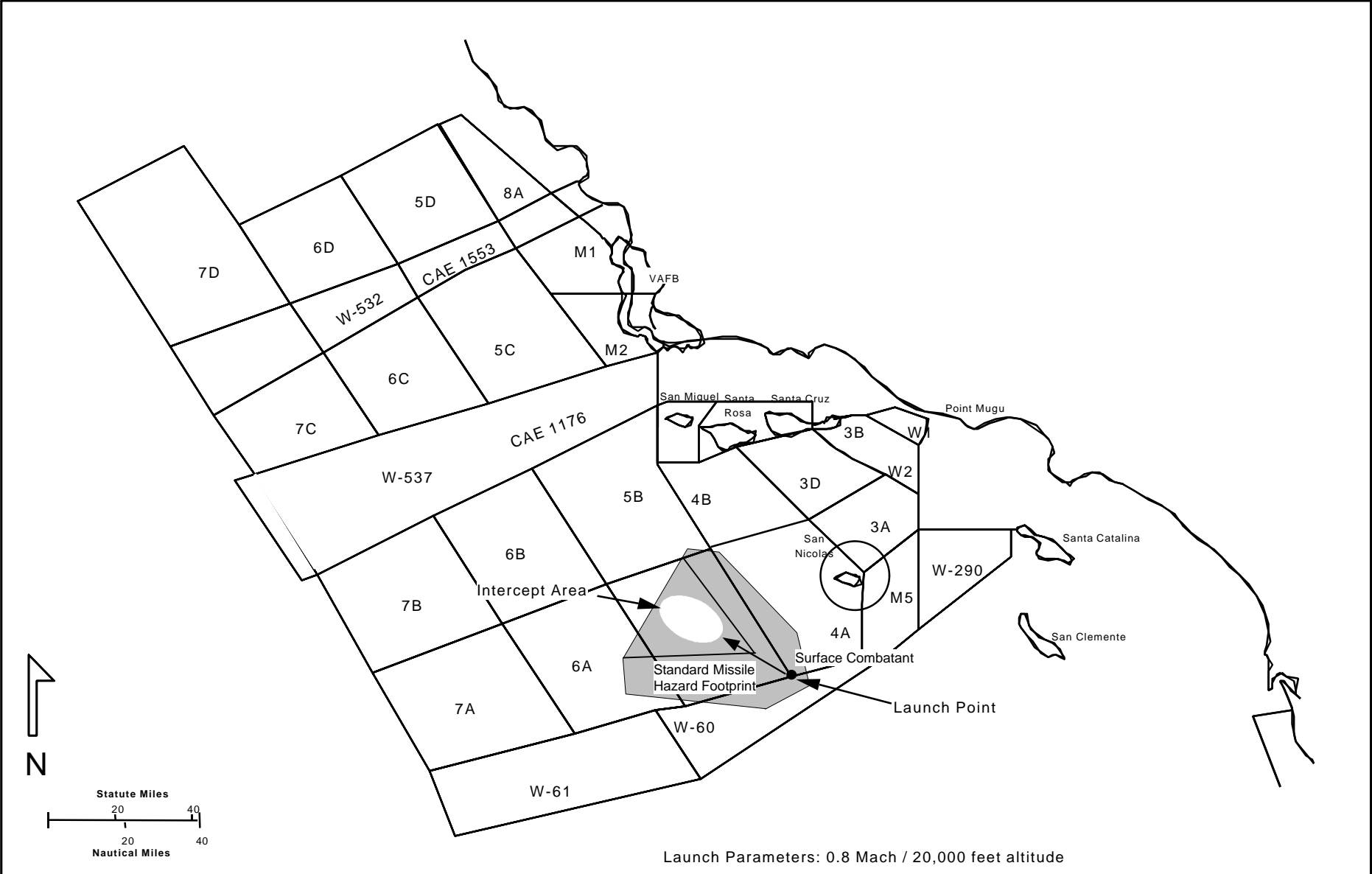
# AIM-7 Typical Sparrow Missile Hazard Area and Debris Pattern



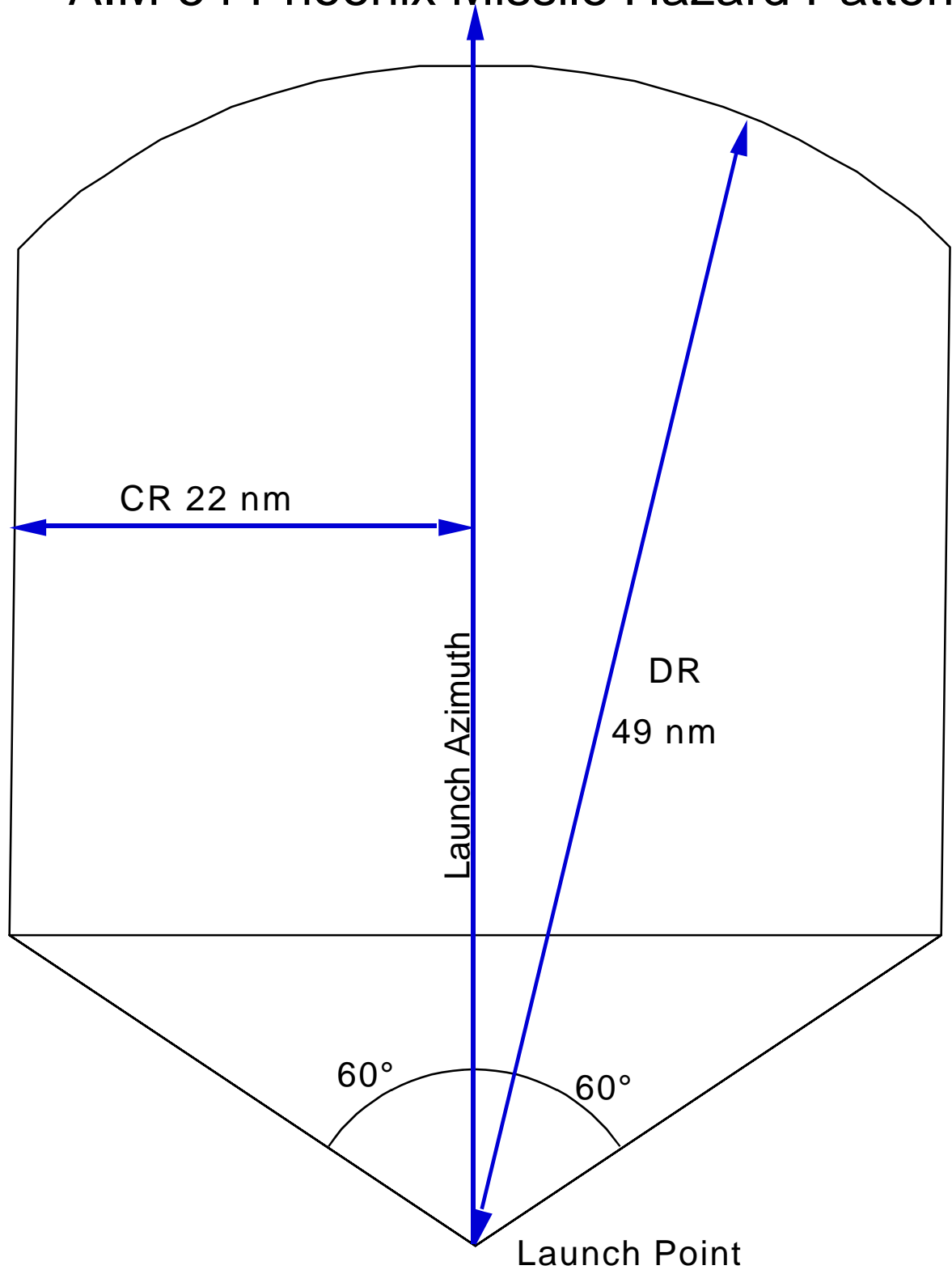
# Standard Missile Hazard Pattern



# Standard Missile Hazard Debris Pattern



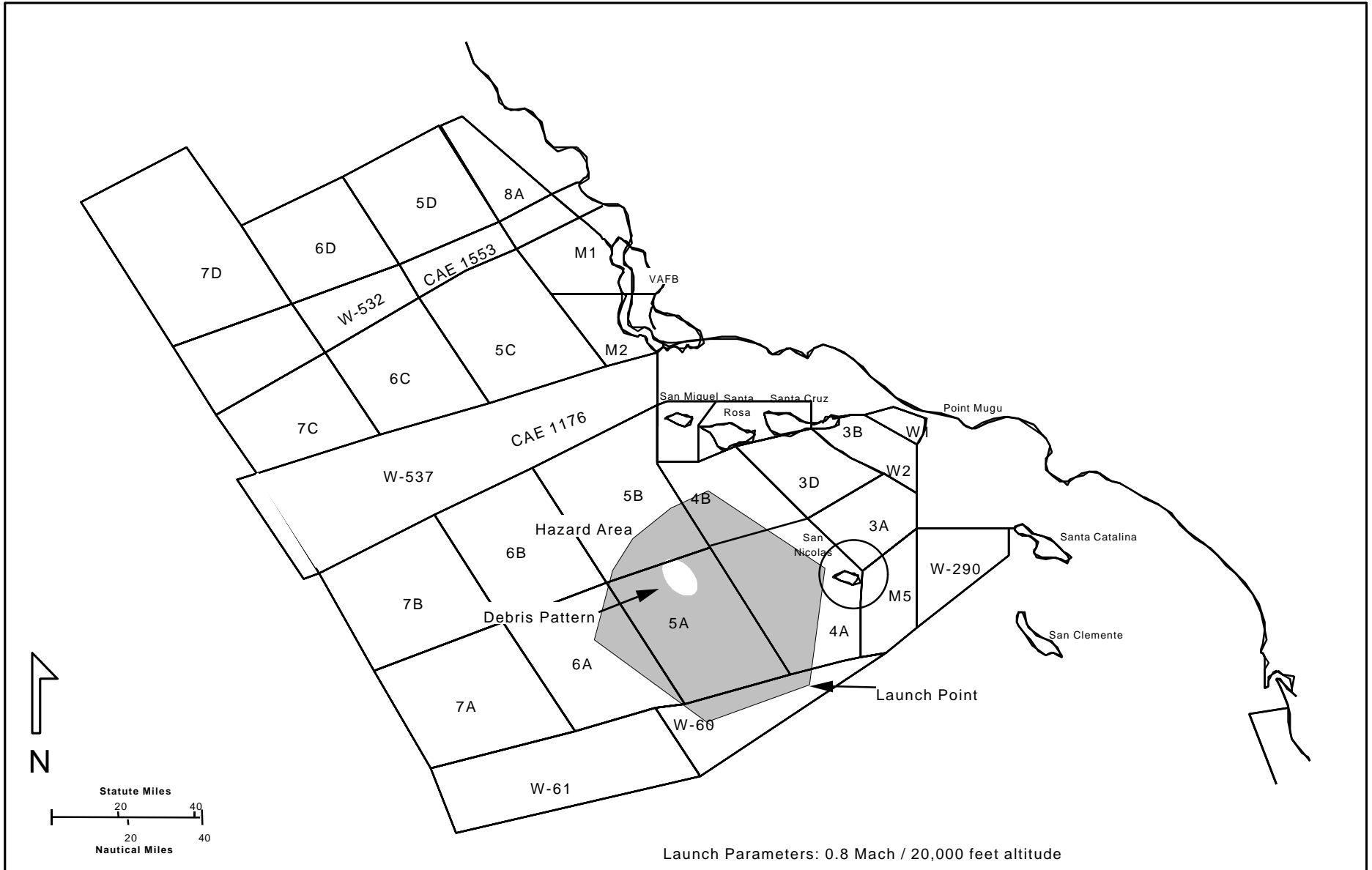
# AIM-54 Phoenix Missile Hazard Pattern



Launch Parameters : 0.8 Mach, 20,000 feet Altitude

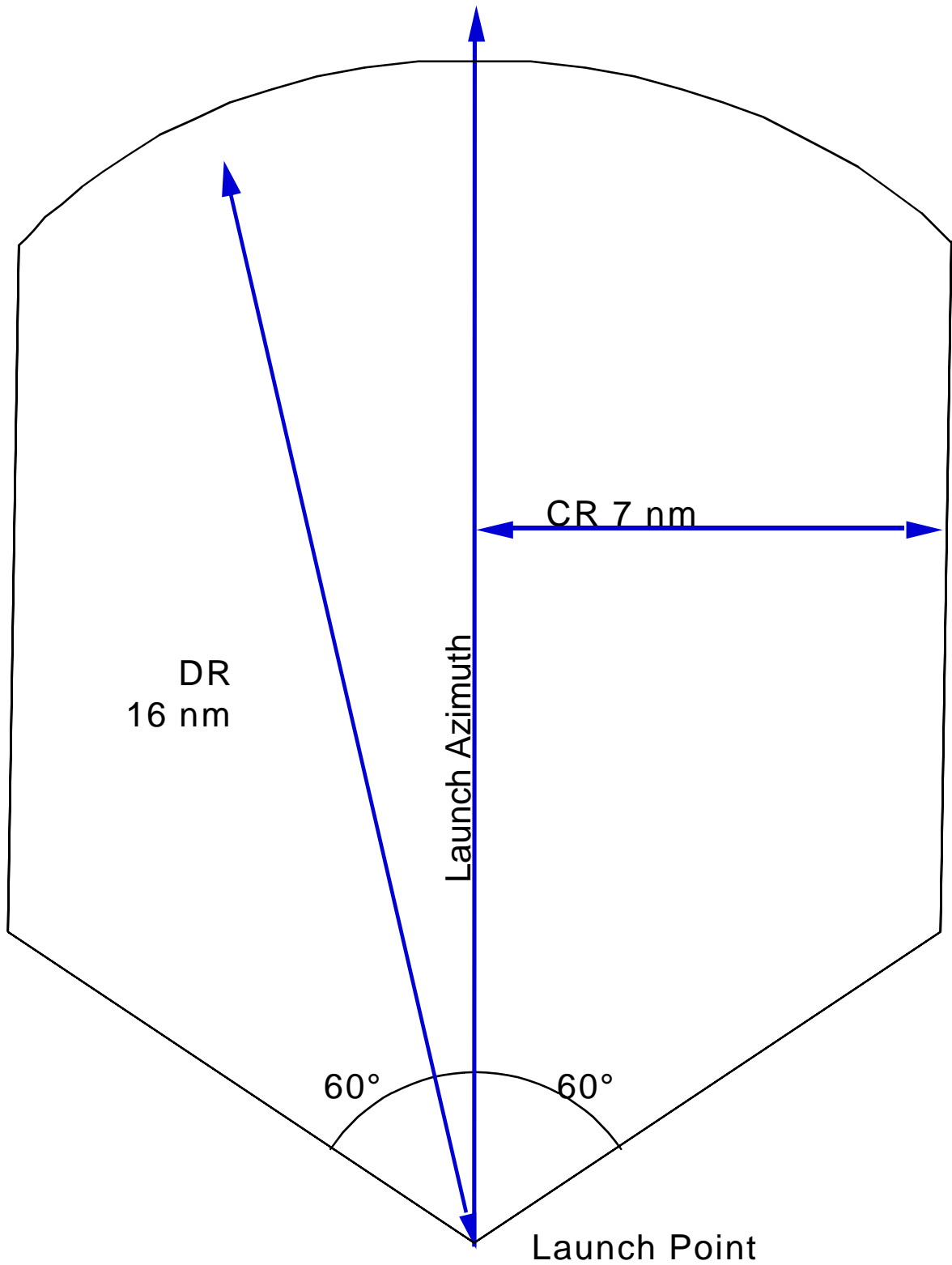
DR = Down Range – nautical miles  
CR = Cross Range – nautical miles

# AIM-54 Typical Phoenix Missile Hazard Area and Debris Pattern





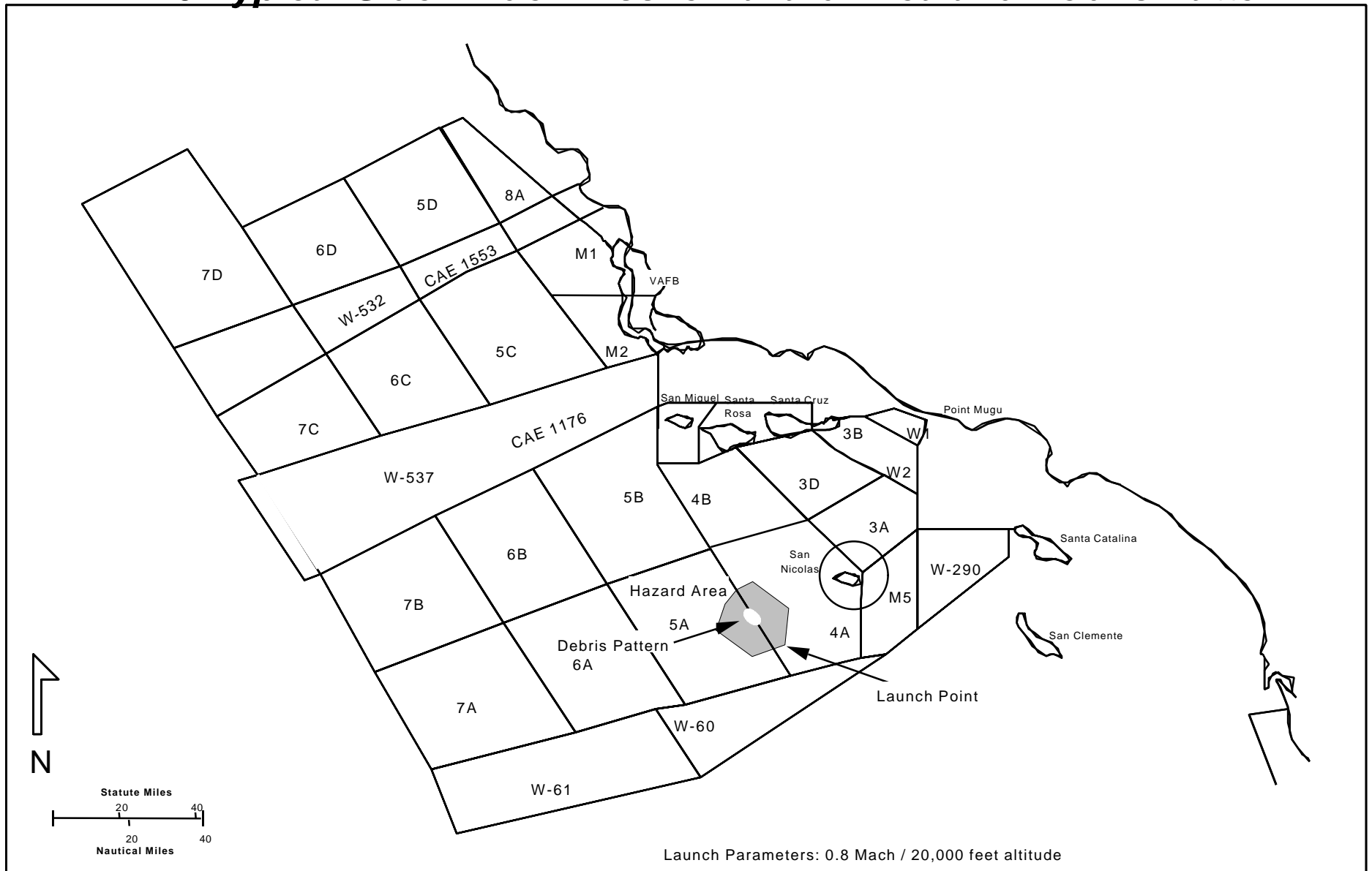
# AIM-9 Sidewinder Missile Hazard Pattern

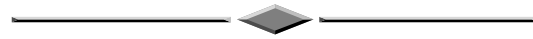


Launch Parameters : 0.8 Mach, 20,000 feet Altitude

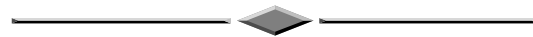
DR = Down Range – nautical miles  
CR = Cross Range – nautical miles

# AIM-9 Typical Sidewinder Missile Hazard Area and Debris Pattern





## ***B.2 - MISSILE FIRINGS BY TYPE***



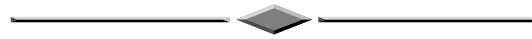
## Sea Range Missile Activity FY 95

Type of Missile	Fiscal Year 1995
Sparrow	82
Standard Missile	56
Sidewinder	46
Phoenix	30
Sea Sparrow	7
Harpoon	12
AMRAAM	10
Tomahawk	1
Trident	0
SSM	7
HARM	6
SLAM	5
Stinger	19
Maverick	1
Shrike	0
SRAM	0
Excalibur	0
HAWK	4
NASAMS	0
Lite	0
JSOW	4
Taurus	1
RAM	0
WAS	0
NATACMS	1
Wx Probes	0
Classified	10
Other	39
Air Force Missiles from VAFB	10
<b>Total</b>	<b>351</b>

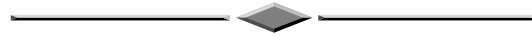
## Targets and Their Capabilities

Target Type	Simulation	Vehicle Type	Target Speed	Operating Altitude	Typical Time of Flight/Operation	Nominal Range	Recovery Capable/Mode	Power Source	Launching Capability/Procedures	Target Operating Profiles	RADAR	IR	EMITTER	ECM	IRCM	SCORING	TRACKING	SMOKE	STROBE	TACAN	BEACON
AQM-37C	Supersonic A/C	Missile TGT	0.7 - 4.0 M	1K-100K FT	1-6 Min		No	LIQ	A-4, A-6, F-4	VARIOUS	Y					Y	Y				Y
BQM-34 A/S	Subsonic A/C	Missile TGT	0.9 M	10 - 50K FT	12-120 Min		Parachute	TURBOJET	Land, Ship, DC-130	VARIOUS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BQM-74 C/E	Subsonic A/C	Missile TGT	.85 M	30 - 40K FT	30-105 Min		Parachute	TURBOJET	Land, Ship, A-4, A-6E, DC-	VARIOUS	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
MQM-8G/ER (VANDAL)	Supersonic A/C, ASCM, Skimmer	Missile TGT	2.15 M	20 - 50 FT	2 Min	40 NM	No	RAMJET	Land: TALOS Launcher	SEASKIMMER	Y		Y	Y		Y	Y				Y
MQM-8G	Supersonic A/C, ASCM	Missile TGT	1.6-2.8 M	300 - 70 K FT		75 - 200 NM	No	RAMJET	Land: TALOS Launcher	VARIOUS	Y		Y			Y	Y				Y
MQM-8X	Supersonic A/C, ASCM	Missile TGT	2.1 - 2.7 M	5 - 70 K FT	4-6 Min	58 - 200 NM	No	RAMJET	Land: TALOS Launcher	VARIOUS	Y			Y		Y	Y				Y
QF-4	Supersonic A/C	Missile TGT	2.0 M	0 - 57 K FT	30-60 Min		Runway	TURBOJET	Runway, NOLO or Manned	VARIOUS	Y	Y	Y	Y	Y	Y	Y				Y
BATS	Ground Rocket, Hi-Perf A/C	Redeye TGT, Stinger TGT	510 KTS	8 K FT	47 Sec	23 K FT	No	ROCKET	Land	POP-UP	Y	Y				Y					
TDU-32 A/B & B/B	Gunnery Training TGT	Towed Aerial Banner	250 KTS	Up to 35 K FT			Yes	NONE	Runway-Towed		Y										
TDU-34 B/A	Subsonic A/C	Gun/Missile Training	0.9 M	Up to 35 K FT			Yes	NONE	Runway-Towed		Y	Y	Y	Y		Y					
QST-33 SEPTAR	Small Boat (18' )	Gun/Missile TGT	5-40 KTS	Surface	4-6 Hrs	120 NM	Yes	1 GAS ENG	Driven Manually from Port	PT BOAT	Y			Y		Y	Y		Y		Y
QST-35 SEPTAR	PT Boat w/ Missiles (56' )	Gun/Missile TGT	8-34 KTS	Surface	4-18 Hrs	234 NM	Yes	5 GAS ENG	Driven Manually from Port	PT BOAT	Y	Y	Y	Y		Y	Y		Y		Y
TRIMARAN	Surface TGT	Towed TGT for Gunnery	15-30 KTS	Surface	Indefinite		Yes/Towed	NONE	Towed by Surface Craft		Y										
WILLIAMS SLED TOW	Surface TGT	Towed TGT for Gunnery	10 KTS	Surface	Indefinite		Yes/Towed	NONE	Towed by Surface Craft		Y		Y								
SHIP HULK	Ship of War (Ex-Destroyer)	Gun/Missile TGT	Adrift/Moored	Surface	Indefinite		Yes/Towed	Portable Elec. Power	Towed to Operating Area	SURFACE COMBATANT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FAST MK 42	Large Radar Reflector	Gun/Missile TGT	Moored	Surface	Indefinite		Yes/Ship	NONE	Ship		Y										
QLT-1	Mobile Land Vehicle	Gun/Missile Land TGT	0-55 MPH	Surface	4 Hrs	300 NM	Yes	VW GAS ENG	Land, Remote Control	VARIOUS	Y						Y		Y		Y
MOBILE SHIP TARGET IMPROVED SURFACE TOW TARGET (STT) SELF DEFENSE TEST SHIP (SDTS)	Various Surface Combatants	Missile TGT	12 KTS	Surface	24 Hrs	250 NM	Yes/Towed	2 671 Diesels	Towed to Operating Area	VARIOUS	Y	TBD	Y	Y		Y					
	Surface TGT	Gunnery TGT	8-34 KTS	Surface	418 Hrs	234 NM	Yes/Towed	NONE	Towed by QST-35	VARIOUS	Y	TAIL-ORED	Y								
	Surfact Combatants	Missile TGT		Surface	30 Days		Yes	2 Diesel 1200 HP OUT Drives	Driven Manually from Port		Y	Y	Y	Y	Y	Y	Y				

Source: U.S. Army, Navy, Air Force and Ballistic Missile Defense Organization Compendium of Target Systems, August 1994.



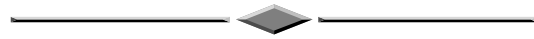
### ***B.3 - SEA RANGE TARGETS***



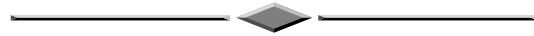
## Sea Range Air Target Activity FY 1995

Type of Target	Fiscal Year 1995		
	Launched	Lost	Recovered
BQM-74	141	60	81
AQM-37	29	29	0
BQM-34	22	3	19
BQM-37	5	0	5
MQM-8	9	9	0
QF-86	0	0	0
TDU-34	1	1	0
QF-4	24	10	14
QUH-1	7	0	7
BQM-126	0	0	0
AQM-127	0	0	0
AQM-81	0	0	0
TDU-25	0	0	0
TDU-32	0	0	0
<b>Annual Total</b>	<b>238</b>	<b>112</b>	<b>126</b>

Source: NAWCWPNS Target Inventory Control Section

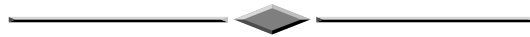


#### ***B.4 - SORTIE DENSITY DATA***

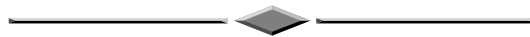








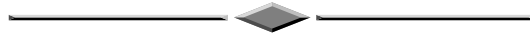
***B.5 - MISSILE IMPACT DENSITY DATA***



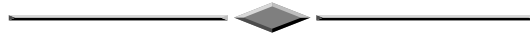
### MISSILE LAUNCH AND IMPACT LOCATIONS- FY95

Missile Type	Missiles	Sea Range Area Distribution (by Number and Percent)															Remarks	
		3A	3D	4A	4B	5A	5B	5C	6A	6B	6C	7A	7B	7C	M5	C117 6		SN 1
<b>Sparrow</b>	82			9	12	12	16		18	12		2	1					
Typical Areas 5A,B/6A,B	%			11	15	15	19		22	15		2	1					
<b>Standard</b>	56			6	3	7	12		12	10		2	2		2			
Typical Areas 4A,B/ 5A,B/6A,B	%			10	5	13	21		22	17		4	4		4			
<b>Sidewinder/AIM-9M</b>	46			5	15	5	15		3	3								
Typical Areas 4A,B/5A,B	%			11	33	11	33		6	6								
<b>Phoenix</b>	30					2	2	2	2	2	3	3	3	1	10			
Typical Areas 5A,B/6A,B,7A,B	%					7	7	7	7	7	10	10	10	3	32			
<b>Stinger</b>	19	9	8												2			
Typical Areas 3A,D	%	47	42												11			
<b>Harpoon</b>	12			6		6												
Typical Areas 4A,5A	%			50		50												
<b>AMRAAM</b>	10								4	4					2			
Typical Areas 6A,B	%								40	40					20			
<b>Classified</b>	10					5	5											
Typical Areas 5A,B	%					50	50											
<b>SSM</b>	7			2	2	2												
Typical Areas 4A,B/5A,B	%			33	33	33												
<b>HARM</b>	6			3		3												
Typical Areas 4A,5A	%			50		50												
<b>Sea Sparrow</b>	7	2	2	2														
Typical Areas 3A,D/4A	%	33	33	33														
<b>SLAM</b>	5															5		
Typical Areas SNI	%															100		
<b>Hawk</b>	4			4														
Typical Areas 4A	%			100														
<b>JSOW</b>	4																	
Typical Areas SCI	%																4 Off Range	
<b>Maverick</b>	1					1												
Typical Areas 4A	%					100												
<b>NATACMS</b>	1																	
Typical Areas SCI	%																1 Off Range	
<b>Taurus</b>	1			1														
Typical Areas 4A	%			100													1 Off Range	
<b>Tomahawk</b>	1																	
Typical Areas China Lake	%																1 Off Range	
<b>Total Missile Impacts</b>	<b>301</b>	<b>11</b>	<b>10</b>	<b>38</b>	<b>33</b>	<b>42</b>	<b>50</b>	<b>2</b>	<b>39</b>	<b>31</b>	<b>3</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>14</b>	<b>5</b>	<b>6 Off Range</b>

Source: NAWCWPNS Summary of Operations FY95



***B.6 - OPERATIONS PROJECTIONS FOR PROPOSED ACTION***



## FLEETEX Sorties

Mission	FLEETEX Participants
<b>Project Aircraft</b>	
E-2C	3
S-3B	5
F/A-18	14
F-14	14
A-6	2
EA-6	2
AH-1	4
SH-60B	2
AV-8B	2
<b>Project Ships</b>	
USS Nimitz Battle Group	6
<b>Ordnance</b>	
AIM-7	9
AIM-9	11
AIM-54	3
Standard	4
Stinger	3
ATM-84D	4
<b>Targets</b>	
BQM-74	21
BQM-34	1
QST-35	4
AQM-37	3
MQM-8	3
BATS	1
<b>Range Support Aircraft</b>	
NP-3D	2
DC-130	5
QF-4	2
<b>Range Support Boats</b>	
Aviation Rescue Boats	12
<b>Typical Areas</b>	Entire Sea Range
<b>Typical Altitudes</b>	Surface to Unlimited
<b>Total Aircraft/Test</b>	57
<b>Total Ships and Boats/Test</b>	6
<b>Total Ordnance/test</b>	34
<b>Total Targets/Test</b>	33
<b>Test Rate (per Year)</b>	1
<b>Total Articles/year</b>	130

Source: NAWCWPNS Personnel June 1996

## Littoral Warfare

Training Operation	SEAL Team Beach Landings	SEAL Team Land Raid
<b>Objective</b>	Clandestine Insertion	Secure land Objective
<b>Units Involved</b>	One SEAL Platoon w/observers and safety personnel (16-20 Individuals)	One SEAL Platoon w/observers, evaluators, and safety personnel (~30 Individuals)
<b>Project Aircraft</b> Helicopter CH-46, CH-53	None	2
<b>Project Boats</b>		
Combat Rubber Raiding Craft	1	2
Reinforced Inflatable Boats	2	2
Patrol boats	2	2
SEAL Delivery Vehicle	1	
<b>Support Ships<sup>1</sup></b>	(DDG, DD, FFG, SSN)	(DDG, DD, FFG, SSN)
<b>Aerial Targets</b>	None	None
<b>Range Support Aircraft</b>	None	None
<b>Typical Areas</b>	SNI/M3/M5	SNI Airfield, Comm Center, other simulated objective areas
<b>Typical Altitudes</b>	Subsurface to 2,000 feet	Subsurface to 2,000 feet
<b>Total Aircraft per event</b>	None	2
<b>Total Ships and Boats/Event</b>	8	8
<b>Total Ordnance/Event</b>	Blanks (No live Ordnance > 10,000 rounds)	Blanks (No live Ordnance > 10,000 rounds) and simulated Demolition Charges
<b>Total Aerial Targets/Event</b>	None	None
<b>Event Rate/Year</b>	2	2
<b>Total Articles/Year</b>	16	20

Source: NAVSPECWARGRUONE

<sup>1</sup> Assumes littoral warfare training is conducted as part of a FLEETEX.

## Representative Theater Missile Defense Participants

	Boost Phase Intercept	Lower Tier	Upper Tier	Nearshore Intercept
<b>Project Aircraft/Ships</b>				
AEGIS Cruiser <sup>1</sup>		1	1	1
F-15	1			
F/A-18	2			1
F-16	2			
BOEING 747	1			
<b>Test Missile/Laser</b>				
Standard Missile or Ram				1
SM-2 Missile/LEAP			1	1
PATRIOT Battery		1		
THAAD			1	
Airborne Laser	1			
<b>Targets</b>	1	1	1	
ARIES				
HERA				
ALTAIR				
BLACK BRANT				
BQM-74				1
<b>Support Ships</b>				
Destroyers <sup>1</sup>		1	1	1
<b>Range Support Aircraft</b>				
P-3	2	2	2	1
E-2	1	1	1	
E-3	1	1	1	
DC-130		1		1
Target Recovery Helicopter				1
<b>Range Support Boats</b>				
Aviation Rescue Boats	3	3	3	3
Target Recovery Boats	2	3	3	2
<b>Air Vehicles/Test</b>	11	7	7	5
<b>Surface Vehicles/Test</b>	5	8	8	7
<b>Total Vehicles/test</b>	16	15	15	12
<b>Event Rate</b>	3/year	3/year	3/year	8/year
<b>Total Vehicles/year</b>	48	45	45	96

<sup>1</sup> If a vessel is used as the launch platform, either a cruiser or destroyer could fire the test missiles.

Source: NAWCWPNS, Randy Jeffries 6/4/96