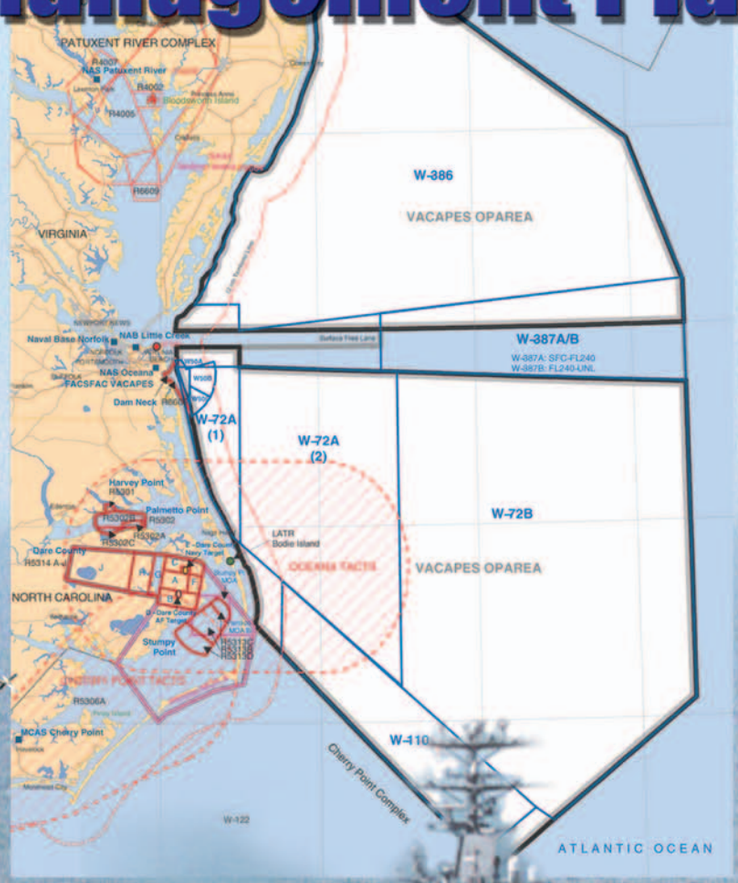
75 Percent Draft Submittal

Virginia Capes Range Complex Management Plan



Department of the Navy

September 2004

Contract No. N62470-02-D-3054 DO 001/003

Virginia Capes (VACAPES) Range Complex Management Plan (RCMP) Volume II

75% Draft Submittal

Prepared for:

U.S. FLEET FORCES COMMAND
Norfolk, VA

and

Naval Facilities Engineering Command, Atlantic
Norfolk, VA

Contract No. N62470-02-D-3054

SEPTEMBER 2004

This page intentionally left blank

EXECUTIVE SUMMARY

The Executive Summary will be completed at the 100%

Goals

Mission

Current Operations

Environmental, Natural Resources, and Land Use Management

Encroachment and Sustainment Challenges

Strategic Planning

Required Capabilities Assessment

Project Recommendations

Organization and Processes

Community Outreach

Investment Strategy

This page intentionally left blank

TABLE OF CONTENTS

Page

CHAPTER 1 INTRODUCTION 1-1

1.1 Virginia Capes Range Complex Management Plan Goals 1-1
1.2 Geographic Area of the Virginia Capes Range Complex and Atlantic Test Range 1-2
1.3 Definition and Implementation of Range Sustainability 1-3
1.4 Document Organization for the RCMP 1-3
1.5 Updating Schedule 1-4

CHAPTER 2 VACAPES RANGE COMPLEX AND ATLANTIC TEST RANGE DESCRIPTIONS 2-1

2.1 Military Mission 2-1
2.1.1 VACAPES Range Complex Mission 2-1
2.1.2 Atlantic Test Range Mission 2-1
2.2 Range Inventory and Ownership 2-2
2.2.1 VACAPES Range Complex 2-2
2.2.2 Atlantic Test Range (Patuxent River) 2-3
2.3 Complex-Wide Description 2-4
2.3.1 Regional Setting 2-5
2.3.1.1 VACAPES Range Complex Setting 2-5
2.3.1.2 Atlantic Test Range Setting 2-6
2.3.2 Training Area Summary 2-6
2.3.2.1 Airspace, Maneuver Space, and Low-Level Routes 2-6
2.3.2.1.1 VACAPES Range Complex 2-6
2.3.2.1.2 Atlantic Test Range 2-11
2.3.2.2 Instrumented Areas 2-11
2.3.2.2.1 VACAPES Range Complex 2-11
2.3.2.2.2 Atlantic Test Range 2-12
2.3.2.3 Offshore Areas Overview 2-12
2.3.2.3.1 VACAPES Range Complex 2-12
2.3.2.3.2 Atlantic Test Range 2-12
2.3.2.4 Nearshore Areas Overview 2-13
2.3.2.4.1 VACAPES Range Complex 2-13
2.3.2.4.2 Atlantic Test Range 2-13
2.3.2.5 Onshore Areas Overview 2-13
2.3.2.5.1 VACAPES Range Complex 2-13
2.3.2.5.2 Atlantic Test Range 2-13
2.4 VACAPES Range Complex 2-13
2.4.1 Organizational Relationships 2-13
2.4.1.1 Major Claimant 2-13
2.4.1.2 Host 2-13
2.4.1.3 Tenants 2-13
2.4.1.4 Frequent and Intermittent Users 2-14

2.4.2 Range Management Structure 2-14
2.4.2.1 Controlling Authority 2-14
2.4.2.2 Scheduling Authority 2-14
2.4.2.3 Scheduling Procedures 2-14
2.4.2.3.1 VACAPES OPAREA, Special Use Airspace and Ranges 2-14
2.4.2.3.2 NAB Little Creek 2-16
2.4.2.3.3 Camp Pendleton 2-16
2.4.2.3.4 Naval Support Activity Norfolk - Northwest Annex 2-16
2.4.2.3.5 Naval Weapons Station Yorktown and Cheatham Annex 2-16
2.4.2.3.6 Fentress Auxiliary Landing Field 2-16
2.4.2.3.7 Fort Eustis 2-16
2.4.2.3.8 Fort Story 2-16
2.4.2.3.9 Fort AP Hill 2-16
2.4.2.3.10 Fort Pickett 2-17
2.4.2.3.11 Instrumentation Systems 2-17
2.4.2.4 Staffing 2-17
2.4.3 Range Management Procedures 2-18
2.4.3.1 Range Control Procedures 2-18
2.4.3.1.1 Airspace Controlling Procedures 2-18
2.4.3.1.2 Surface and Subsurface Controlling Procedures 2-18
2.4.3.2 Range Safety Procedures 2-19
2.4.3.3 Range Inspection Procedures 2-20
2.4.3.4 Coordination Procedures 2-21
2.4.3.5 Links to Other Ranges 2-22
2.4.4 VACAPES Range Complex Assets 2-22
2.4.4.1 Range Area Descriptions 2-22
2.4.4.1.1 VACAPES Surface Operating Area 2-22
2.4.4.1.2 VACAPES Submarine Operating Area (SUBOA) 2-22
2.4.4.1.3 Offshore Special Use Airspace 2-25
2.4.4.1.4 Overland Special Use Airspace 2-30
2.4.4.1.5 Targets and Ground Ranges 2-34
2.4.4.1.6 Other Range and Training Facilities 2-35
2.4.4.1.7 Fort Eustis 2-40
2.4.4.1.8 James River Reserve Fleet 2-40
2.4.4.1.9 Facilities 2-47
2.4.4.2 Surveillance, Scoring, and Feedback Systems 2-48
2.4.4.2.1 Surveillance 2-48
2.4.4.2.2 Scoring and Feedback 2-49
2.4.4.2.3 LATR 2-50
2.4.4.3 Communications 2-51
2.4.4.4 Targets and Target Arrays 2-52

2.4.4.4.1 VACAPES OPAREA and Warning Areas 2-52
2.4.4.4.2 Palmetto Point Range.....2-52
2.4.4.4.3 Stumpy Point Range 2-53
2.4.4.4.4 Navy Dare County Range 2-53
2.4.4.4.5 Other Infrastructure.....2-55
2.4.5 Opposition Forces – Multidimensional Threat Representation 2-56
2.4.5.1 VACAPES OPAREA and Warning Areas 2-56
2.4.5.2 Navy Dare County Range 2-56
2.5 Atlantic Test Range.....2-57
2.5.1 Organizational Relationships 2-57
2.5.1.1 Major Claimant 2-57
2.5.1.2 Host.....2-57
2.5.1.3 Tenants.....2-57
2.5.1.4 Frequent and Intermittent Users 2-57
2.5.2 Range Management Structure.....2-57
2.5.2.1 Controlling Authority 2-57
2.5.2.2 Scheduling Authority.....2-57
2.5.2.3 Scheduling Procedures.....2-58
2.5.2.4 Staffing 2-58
2.5.3 Range Management Procedures.....2-59
2.5.3.1 Range Control Procedures 2-59
2.5.3.1.1 Airspace Controlling Procedures 2-59
2.5.3.1.2 Surface Controlling Procedures 2-60
2.5.3.2 Range Safety Procedures 2-60
2.5.3.3 Range Inspection Procedures.....2-61
2.5.3.3.1 Hooper Target 2-61
2.5.3.3.2 Hannibal Target 2-62
2.5.3.3.3 Tangier Target.....2-62
2.5.3.3.4 Bloodsworth Island 2-63
2.5.3.4 Coordination Procedures 2-63
2.5.3.5 Links to Other Ranges 2-64
2.5.4 Atlantic Test Range Assets 2-64
2.5.4.1 Range Area Descriptions 2-64
2.5.4.1.1 Overland Special Use Airspace 2-64
2.5.4.1.2 Targets and Ground Ranges.....2-67
2.5.4.1.3 Other Range and Training Facilities 2-68
2.5.4.2 Surveillance, Scoring, and Feedback Systems.....2-69
2.5.4.2.1 Surveillance 2-69
2.5.4.2.2 Scoring 2-70
2.5.4.2.3 Feedback 2-70
2.5.4.3 Communications 2-71
2.5.4.3.1 Hooper Target 2-71
2.5.4.3.2 Hannibal Target 2-71
2.5.4.3.3 Tangier Targets 2-71
2.5.4.3.4 Bloodsworth Island 2-71
2.5.4.4 Other Infrastructure 2-72
2.5.4.5 Opposition Forces – Multi-Dimensional Threat Representation .2-72

CHAPTER 3 CURRENT RANGE COMPLEX OPERATIONS 3-1

3.1 Introduction to Range Complex Operations 3-1
3.1.1 Method for Determining Training Operations included in the RCMP 3-1
3.1.2 Operations Included in the VACAPES RCMP.....3-1
3.1.3 Major Range Events Included in the VACAPES RCMP 3-3
3.2 Operations Descriptions.....3-3
3.2.1 VACAPES Range Complex 3-4
3.2.1.1 Insertion/Extraction (NTA 1.1.2.4).....3-4
3.2.1.2 Airborne Mine Countermeasures (AMCM) (NTA 1.3.1).....3-4
3.2.1.3 Mine Neutralization (NTA 1.3.1) 3-5
3.2.1.4 Naval Special Warfare Operations (NTA 1.5.6).....3-6
3.2.1.5 Air-to-Surface Gunnery Exercise (GUNEX) (NTA 3.2.1.1).....3-6
3.2.1.6 Air-to-Surface Missile Exercise (ASMEX) (NTA 3.2.1.1) 3-6
3.2.1.7 Bombing Exercise (Sea) (NTA 3.2.1.1) 3-6
3.2.1.8 Surface-to-Surface Gunnery Exercise (GUNEX) (NTA 3.2.1.1) ..3-7
3.2.1.9 Antisubmarine Warfare (ASW) Tracking Exercise/Torpedo Exercise (TRACKEX/TORPEX) (NTA 3.2.1.2).....3-7
3.2.1.10 Air Combat Maneuvers (ACM) (NTA 3.2.3).....3-9
3.2.1.11 Air-to-Air Gunnery Exercise (GUNEX (A-A)) (NTA 3.2.3).....3-9
3.2.1.12 Air-to-Air Missile Exercise (AAMEX) (NTA 3.2.3) 3-9
3.2.1.13 High-Speed Anti-Radiation Missile Exercise (HARMEX) (NTA 3.2.4) 3-10
3.2.1.14 Electronic Combat (EC) Operations (NTA 3.2.5) 3-10
3.2.1.15 Air-to-Ground Gunnery Exercise (NTA 3.2.6) 3-10
3.2.1.16 Bombing Exercise (Land) (NTA 3.2.6).....3-11
3.2.1.17 Surface-to-Air Gunnery Exercise (GUNEX) (NTA 3.2.7).....3-11
3.2.1.18 Surface-to-Air Missile Exercise (MISSILEX) (NTA 3.2.7).....3-11
3.2.1.19 Laser Targeting (NTA 3.2.8) 3-12
3.2.1.20 Chaff (NTA 3.2.9) 3-12
3.2.1.21 Shipboard Electronic Systems Evaluation Facility (SESEF).....3-12
3.2.1.22 Research Development Test and Evaluation (RDT&E) 3-13
3.2.2 Atlantic Test Ranges (ATR) 3-14
3.2.2.1 Mining Exercise (NTA 1.4.1).....3-14
3.2.2.2 Surface-to-Surface Gunnery Exercise (NTA 3.2.1.1).....3-15
3.2.2.3 Electronic Combat Operations (NTA 3.2.5).....3-15
3.2.3 NSW Operations in Other Service or Commercially Owned Areas.....3-16
3.2.3.1 Insertion/Extraction (NTA 1.1.2.4).....3-16
3.2.3.2 Breaching (NTA 1.3.2).....3-16
3.2.3.3 Land Demolitions (NTA 1.4.4).....3-17
3.2.3.4 Military Operations in Urban Terrain (MOUT) (NTA 1.5.5).....3-17
3.2.3.5 Naval Special Warfare (NSW) Operations (NTA 1.5.6) 3-17
3.2.3.6 Direct Action (NTA 1.5.6).....3-18
3.2.3.7 Surface-to-Surface Gunnery Exercise (GUNEX) (NTA 3.2.1.1) 3-18
3.2.3.8 Close Air Support (CAS) (NTA 3.2.8).....3-19
3.2.3.9 Marksmanship (NTA 3.2.8).....3-19
3.2.4 Major Range Events.....3-19
3.3 Operations Summary 3-19
3.3.1 VACAPES Range Complex Operations Summary 3-21

3.3.2 Atlantic Test Range Operations Summary 3-23
3.3.3 NSW Operations in Other Service or Commercially Owned Areas Operation Summary 3-24

CHAPTER 4 ENVIRONMENTAL, NATURAL RESOURCES, AND LAND USE MANAGEMENT 4-1

4.1 Operations and Environmental Stewardship 4-1
4.2 Environmental Laws 4-2
4.2.1 Air Quality 4-2
4.2.2 Water Quality 4-4
4.2.3 Hazardous Waste 4-5
4.2.4 Petroleum, Oils, and Lubricants (POL) Management 4-7
4.2.5 Coastal Zone Management 4-8
4.2.5.1 Maryland Coastal Management Plan 4-8
4.2.5.2 Virginia Coastal Resources Management Program 4-8
4.2.5.3 North Carolina State Coastal Management Plan 4-10
4.3 Environmental Compliance 4-14
4.3.1 Environmental Compliance for Operations “At Sea” 4-14
4.3.2 Environmental Compliance for Operations on Land Areas 4-15
4.4 Environmental Management 4-20
4.4.1 Integrated Natural Resource Management Plans (INRMPS) 4-20
4.4.2 Integrated Cultural Resources Management Plans (ICRMPs) 4-25
4.5 Environmental Planning 4-27
4.5.1 NEPA and EO 12114 4-27
4.5.2 Coastal Zone Management Act (CZMA) 4-28
4.5.3 Previous and Ongoing Environmental Planning within the Range Complex 4-28
4.5.3.1 Previous Environmental Planning 4-28
4.5.3.1.1 VACAPES OPAREA 4-28
4.5.3.1.2 NAB Little Creek 4-32
4.5.3.1.3 Atlantic Test Range (Patuxent River) 4-34
4.5.3.1.4 Aberdeen Test Center 4-35
4.5.3.1.5 Fort AP Hill 4-37
4.5.3.1.6 Fort Eustis 4-39
4.5.3.1.7 Fort Pickett 4-39
4.5.3.1.8 Fort Story 4-40
4.5.3.1.9 Blackwater USA 4-41
4.5.3.1.10 James River Inactive Ship Fleet 4-41
4.5.3.2 Ongoing Environmental Planning Efforts 4-41
4.5.3.2.1 VACAPES OPAREA 4-41
4.5.3.2.2 NAS Oceana, Dam Neck Annex 4-42
4.5.3.2.3 Atlantic Test Range (Patuxent River) 4-42
4.5.4 Scope of Future Environmental Planning Efforts in the Range Complex 4-42
4.6 Land Use Planning Affecting the Range Complex 4-44
4.6.1 Air Installations Compatible Use Zones (AICUZ) 4-44
4.6.2 Range Air Installation Compatible Use Zones (RAICUZ) 4-45
4.6.3 Regional Shore Installation Management Program (RSIP) 4-45
4.6.4 Real Estate Use and Agreements 4-45

CHAPTER 5 ENCROACHMENT AND SUSTAINMENT CHALLENGES 5-1

5.1 Encroachment Analysis and Methodology 5-1
5.2 Navy VACAPES Range Complex Operational Ranges 5-2
5.2.1 VACAPES OPAREA/W-50/W-386/W-387/W-72/W-110 5-3
5.2.1.1 Factors Relating to Frequency Encroachment 5-5
5.2.1.2 Factors Relating to Maritime Sustainability 5-5
5.2.1.3 Factors Relating to Airspace Restrictions.....5-5
5.2.2 Oceana Tactical Aircrew Training System (TACTS).....5-6
5.2.3 Navy Dare County Range/R-5314 5-6
5.2.3.1 Factors Relating to Wetlands 5-6
5.2.4 Dam Neck Range/R-6606 5-6
5.2.5 Palmetto Point Range/R-5302.....5-7
5.2.6 Stumpy Point Range/R-5313 5-7
5.2.7 Hatteras Air Traffic Control Assigned Airspace (ATCAA) 5-7
5.2.8 Pamlico Military Operating Area (MOA).....5-7
5.3 Atlantic Test Range.....5-7
5.3.1 Bloodsworth Island/R-4002 5-7
5.3.2 Hooper Target/R-4005 5-8
5.3.3 Hannibal Target/R-4005 5-8
5.3.4 Tangier Island Target/R-6609.....5-8
5.3.5 R-4006 5-8
5.3.6 R-4007A.....5-8
5.3.7 R-4008 5-8
5.4 Naval Special Warfare (NSW) Ranges.....5-8
5.4.1 Naval Amphibious Base (NAB) Little Creek 5-8
5.4.2 TRASUPPCEN Hampton Roads 5-8
5.4.3 Camp Pendleton.....5-9
5.4.4 VACAPES OPAREA/W-50 5-9
5.4.5 Naval Auxiliary Landing Field (NALF) Fentress.....5-9
5.4.6 Blackwater Lodge 5-9
5.4.7 Naval Support Activity Norfolk, Northwest Annex 5-9
5.4.8 Naval Weapons Station Yorktown and Cheatham Annex 5-9
5.4.9 Bloodsworth Island 5-9
5.4.10 Hannibal Target 5-10
5.4.11 Aberdeen Proving Ground 5-10
5.4.11.1 Factors Relating to Endangered Species/Critical Habitat.....5-10
5.4.11.2 Factors Relating to UXO and Munitions 5-10
5.4.12 Fort Story 5-10
5.4.13 Fort AP Hill 5-11
5.4.14 Fort Pickett.....5-11
5.4.15 Fort Eustis 5-11
5.4.16 James River Inactive Fleet 5-11
5.5 Encroachment Summary 5-11

CHAPTER 6 RANGE COMPLEX STRATEGIC PLANNING 6-1

6.1 Strategic Vision and Mission 6-1
6.1.1 Strategic Vision 6-1
6.1.2 Strategic Mission 6-1
6.1.3 Management Objectives 6-1
6.1.3.1 Sustainability 6-1
6.1.3.2 Modernization 6-2
6.1.3.3 Consolidated Range Communications and Scheduling 6-2
6.1.3.4 Data Management 6-2
6.1.4 Mission Needs for the VACAPES Range Complex and Atlantic Test Range ... 6-2
6.1.5 Roles and Missions 6-3
6.1.5.1 Roles and Missions of the VACAPES Training Complex 6-3
6.1.5.2 Roles and Missions of the Atlantic Test Range 6-4
6.2 Attributes of the Range Complex 6-5
6.2.1 VACAPES Range Complex Attributes 6-5
6.2.2 Atlantic Test Range Attributes 6-6
6.3 Future Operations and Planning 6-7
6.3.1 Future Range Operations 6-7
6.3.1.1 New Platforms 6-7
6.3.1.1.1 Littoral Combat Ship. 6-7
6.3.1.1.2 Mine Countermeasures Unmanned Underwater Vehicles (UUV). 6-8
6.3.1.1.3 Joint Strike Fighter (JSF). 6-8
6.3.1.1.4 EA-18G Growler 6-9
6.3.1.2 New Weapons Systems 6-9
6.3.1.2.1 Unmanned Combat Air Vehicle Systems. 6-9
6.3.1.2.2 Extended Range Guided Munition (ERGM). .. 6-10
6.3.1.2.3 Advanced Gun System (AGS). 6-10
6.3.1.2.4 Organic Mine Countermeasures Systems. 6-10
6.3.1.3 NSW Operations in Areas Outside of the VACAPES Range Complex and Atlantic Test Range 6-10
6.3.2 Future Range Operations in a Joint Context 6-12
6.3.3 Factors Influencing Future Requirements 6-13
6.3.3.1 Range Sustainability: Urbanization 6-13
6.3.3.2 Modernization 6-13
6.3.3.2.1 New Military Platforms. 6-13
6.3.3.2.2 New Weapons Systems. 6-13
6.3.3.2.3 New Instrumentation Technology 6-14
6.3.3.2.4 Improved Target Replication. 6-14
6.3.3.2.5 Live-Virtual-Constructive (LVC) Training. 6-14
6.3.3.3 Concept of Operations 6-14
6.3.3.3.1 Doctrine. 6-14
6.3.3.3.2 Force Structure. 6-14
6.3.3.3.3 Homebasing. 6-14
6.3.3.3.4 Training Strategy. 6-14

CHAPTER 7 RANGE COMPLEX CAPABILITIES ASSESSMENT 7-1

7.1 Range Required Capabilities Document (RCD) 7-1
7.2 Capabilities Assessment Process 7-1
7.3 Required Capabilities for the VACAPES Range Complex 7-2
7.3.1 VACAPES Range Complex Operating Areas 7-2
7.3.2 Atlantic Test Range (Patuxent River) Operating Areas 7-2
7.4 RCD GAP Analysis - VACAPES Range Complex 7-2
7.4.1 VACAPES OPAREAS 7-2
7.4.1.1 Capabilities Common to All Range Functions 7-2
7.4.1.1.1 Scheduling System 7-2
7.4.1.1.2 Communications System 7-3
7.4.1.1.3 MET System 7-3
7.4.1.2 VACAPES Range Capabilities in support of Anti-Air Warfare 7-3
7.4.1.2.1 Airspace 7-3
7.4.1.2.2 Sea Space 7-4
7.4.1.2.3 Land Area 7-4
7.4.1.2.4 Target System 7-4
7.4.1.2.5 Instrumentation System 7-4
7.4.1.2.6 OPFOR System 7-5
7.4.1.3 VACAPES Range Complex Capabilities in Support of Amphibious Warfare 7-5
7.4.1.3.1 Airspace 7-5
7.4.1.3.2 Sea Space 7-5
7.4.1.3.3 Undersea Space 7-5
7.4.1.3.4 Land Area 7-6
7.4.1.3.5 Target System 7-6
7.4.1.3.6 Instrumentation System 7-6
7.4.1.3.7 OPFOR System 7-6
7.4.1.4 VACAPES Range Complex Capabilities in Support of Anti-Surface Warfare 7-7
7.4.1.4.1 Airspace 7-7
7.4.1.4.2 Sea Space 7-7
7.4.1.4.3 Undersea Space 7-7
7.4.1.4.4 Target System 7-7
7.4.1.4.5 Instrumentation System 7-8
7.4.1.4.6 OPFOR System 7-8
7.4.1.5 VACAPES Range Complex Capabilities in Support of Anti-Submarine Warfare 7-8
7.4.1.5.1 Airspace 7-8
7.4.1.5.2 Sea Space 7-8
7.4.1.5.3 Undersea Space 7-9
7.4.1.5.4 Target System 7-9
7.4.1.5.5 Instrumentation System 7-9
7.4.1.5.6 OPFOR System 7-9
7.4.1.6 VACAPES Range Complex Capabilities in Support of Mine Warfare 7-10

7.4.1.6.1 Airspace 7-10
7.4.1.6.2 Sea Space 7-10
7.4.1.6.3 Undersea Space 7-10
7.4.1.6.4 Target System 7-10
7.4.1.6.5 Instrumentation System 7-11
7.4.1.6.6 OPFOR System 7-11
7.4.1.7 VACAPES Range Complex Capabilities in Support of Strike Warfare 7-12
7.4.1.7.1 Airspace 7-12
7.4.1.7.2 Sea Space 7-12
7.4.1.7.3 Undersea Space 7-12
7.4.1.7.4 Land Area 7-13
7.4.1.7.5 Target System 7-13
7.4.1.7.6 Instrumentation System 7-13
7.4.1.7.7 OPFOR System 7-14
7.4.1.8 VACAPES Range Complex Capabilities in Support of Electronic Combat 7-14
7.4.1.8.1 Airspace 7-14
7.4.1.8.2 Sea Space 7-14
7.4.1.8.3 Undersea Space 7-14
7.4.1.8.4 Land Area 7-15
7.4.1.8.5 Target System 7-15
7.4.1.8.6 Instrumentation System 7-15
7.4.1.8.7 OPFOR System 7-15
7.4.2 VACAPES Range Complex Capabilities in Support of Naval Special Warfare (NSW) 7-15
7.4.2.1 Airspace 7-15
7.4.2.2 Sea Space 7-16
7.4.2.3 Undersea Space 7-16
7.4.2.4 Land Area 7-16
7.4.2.5 Communications System 7-17
7.4.2.6 Target System 7-17
7.4.2.7 Instrumentation System 7-18
7.4.2.8 OPFOR System 7-18
7.4.3 Atlantic Test Range Complex 7-18
7.4.3.1 Capabilities Common to All Range Functions 7-18
7.4.3.1.1 Scheduling System 7-18
7.4.3.1.2 Communications System 7-19
7.4.3.1.3 MET System 7-19
7.4.3.2 Atlantic Test Range Capabilities in Support of Anti-Air Warfare 7-19
7.4.3.2.1 Airspace 7-19
7.4.3.2.2 Sea Space 7-19
7.4.3.2.3 Land Area 7-20
7.4.3.2.4 Target System 7-20
7.4.3.2.5 Instrumentation System 7-20
7.4.3.2.6 OPFOR System 7-20
7.4.3.3 Atlantic Test Range Range Capabilities in Support of Mine Warfare 7-21

7.4.3.3.1 Airspace 7-21
7.4.3.3.2 Sea Space 7-21
7.4.3.3.3 Undersea Space 7-21
7.4.3.3.4 Target System 7-21
7.4.3.3.5 Instrumentation System 7-22
7.4.3.3.6 OPFOR System 7-22
7.4.3.4 Test Range Capabilities in support of Strike Warfare 7-22
7.4.3.4.1 Airspace 7-22
7.4.3.4.2 Sea Space 7-23
7.4.3.4.3 Undersea Space 7-23
7.4.3.4.4 Land Area 7-23
7.4.3.4.5 Target System 7-23
7.4.3.4.6 Instrumentation System 7-24
7.4.3.4.7 OPFOR System 7-24
7.4.3.5 Atlantic Test Range Capabilities in Support of Electronic Combat 7-25
7.4.3.5.1 Airspace 7-25
7.4.3.5.2 Sea Space 7-25
7.4.3.5.3 Undersea Space 7-25
7.4.3.5.4 Land Area 7-25
7.4.3.5.5 Target System 7-25
7.4.3.5.6 Instrumentation System 7-26
7.4.3.5.7 OPFOR System 7-26
7.4.4 Atlantic Test Range Capabilities in support of Naval Special Warfare (NSW) 7-26
7.4.4.1 Airspace 7-26
7.4.4.2 Sea Space 7-27
7.4.4.3 Undersea Space 7-27
7.4.4.4 Land Area 7-27
7.4.4.5 Communications System 7-27
7.4.4.6 Target System 7-28
7.4.4.7 Instrumentation System 7-28
7.4.4.8 OPFOR System 7-29
7.5 RCD GAP Analysis Shortfall Summary 7-29

CHAPTER 8 PROJECT RECOMMENDATIONS 8-1

CHAPTER 9 ORGANIZATION AND PROCESSES 9-1

9.1 Sustainability Principles to Support Readiness Training and Testing 9-1
9.1.1 Implementing Strategic Planning 9-1
9.1.2 Formal Organizational Structures and Processes 9-2
9.1.3 Developing Clearly Defined Test and Training Range Requirements 9-4
9.1.4 Clearly Identifying Encroachment Impacts 9-4
9.1.5 Establishing an Interdisciplinary Approach to Sustainable Range Management 9-4
9.1.6 Developing Solutions to Encroachment 9-5
9.1.7 Using Best Practices in Range Design and Use 9-5
9.1.8 Employing Use Metrics 9-5

9.1.9 Managing Natural and Cultural Resources Externally and Internally 9-5
9.1.10 Providing Community and Stakeholder Involvement.....9-6
9.2 Range Sustainability Management 9-6
9.2.1 Navy Enhanced Readiness Team (ERT).....9-6
9.2.2 Range Planning Team (RPT).....9-7
9.3 Range Infrastructure Management.....9-8
9.3.1 Recurring Maintenance.....9-9
9.3.2 Emerging Maintenance.....9-9
9.3.3 Range Refurbishment 9-9
9.3.4 Forestry Management 9-10
9.3.5 Devegetation 9-10
9.3.6 Wildfires 9-10
9.3.7 Explosive Ordnance Disposal (EOD) 9-11
9.3.8 Integration of Maintenance Activities 9-11
9.4 Data Collection and Data Management 9-11
9.4.1 Operational Data 9-12
9.4.2 Encroachment Data.....9-13
9.4.3 Range Data.....9-14
9.4.4 Installation Data.....9-15
9.4.5 GIS Data 9-15

CHAPTER 10 OUTREACH.....10-1

10.1 Introduction.....10-1
10.2 Community Profile 10-1
10.2.1 Range 10-1
10.2.2 Elected Officials for the States of Maryland, Virginia, and North Carolina.....10-2
10.3 History of Outreach and Involvement.....10-2
10.3.1 Overview.....10-2
10.3.2 Outreach and Involvement at Individual Installations 10-4
10.3.2.1 Atlantic Test Range 10-4
10.3.2.2 Navy Dare County Range.....10-5
10.4 Outreach Objectives and Messages 10-6
10.4.1 Strategy, Tactics, and Current Status.....10-7
10.4.1.1 Elected Officials 10-7
10.4.1.1.1 U.S. Senate and Congressional Representatives. 10-7
10.4.1.1.2 State Representatives, Such As the Governor and Legislatures 10-8
10.4.1.1.3 Counties of Dorchester, St. Mary's, Northumberland, and Somerset, and Cities of Norfolk, Virginia Beach, Manteo. 10-8
10.4.1.2 REGULATORY AGENCIES 10-8
10.4.1.2.1 NOAA and NMFS. 10-8
10.4.1.2.2 FAA. 10-9
10.4.1.2.3 Other Federal and State Regulatory Agencies. 10-9
10.4.1.3 Community/Civic Stakeholders.....10-9
10.4.1.4 NGOs and Environmental Groups.....10-11
10.4.2 Media for Communicating Outreach Messages.....10-11

10.5 Points of Contact 10-12
10.6 Schedule of Activities and Metrics 10-13
10.7 Supplemental Information 10-15
10.7.1 List of Key Stakeholders 10-15
10.7.1.1 Elected Officials 10-15
10.7.1.2 Government or Environmental Related Meetings/Conferences 10-15
10.7.1.3 Regulatory Groups 10-16
10.7.1.4 Businesses, Community Groups, and NGOs 10-16
10.7.1.5 Environmental Groups 10-17
10.7.1.6 Local Media 10-18
10.7.1.7 Religious Leaders 10-18
10.7.1.8 Navy, Military, or Veterans Organizations 10-18

CHAPTER 11 INVESTMENT PLAN 11-1

APPENDICES

APPENDIX A - TERMINOLOGY

APPENDIX B - ENCROACHMENT MATRICES

APPENDIX C - RCD GAP ANALYSIS MATRICES

APPENDIX D - PERSONNEL DIRECTORY

APPENDIX E - BIBLIOGRAPHY

APPENDIX F - COMPONENT RANGE PROJECTS – INVESTMENT PLAN

APPENDIX G - RANGE COMPLEX MANAGER'S EXERCISE PREPARATION CHECKLIST

LIST OF FIGURES

No. **Title** **Page**

Figure 2-1. VACAPES Range Complex Inventory and Ownership 2-3
Figure 2-2. Atlantic Test Range Inventory and Ownership [a/] 2-4
Figure 2-3. Regional Setting of the VACAPES Range Complex 2-5
Figure 2-4. Virginia Capes (VACAPES) Range Complex 2-7
Figure 2-5. Atlantic Test Range 2-9
Figure 2-6. VACAPES Range Complex Navy Special Warfare Range Locations 2-10
Figure 2-7. Regional Setting of the Atlantic Test Range 2-11
Figure 2-8. VACAPES Range Complex Instrumentation 2-12
Figure 2-9. Naval and Military Forces Supported by VACAPES Range Complex 2-14
Figure 2-10. Range Scheduling Activities 2-15
Figure 2-11. Virginia Capes (VACAPES) OPAREA 2-23
Figure 2-12. Offshore Special Use Airspace within the VACAPES Range Complex 2-25
Figure 2-13. Warning Areas 50, 72, and 110 2-26
Figure 2-14. Warning Areas 386 and 387 2-29
Figure 2-15. Oceana TACTS Range and Special Use Airspace 2-31
Figure 2-16. Overland Special Use Airspace within the VACAPES Range Complex 2-32
Figure 2-17. Buildings and Facilities at Fort AP Hill 2-42
Figure 2-18. Target Services and Capabilities 2-52
Figure 2-19. Naval and Military Forces Supported by the Atlantic Test Range 2-58
Figure 2-20. Range Scheduling Activities 2-58
Figure 2-21. Atlantic Test Range Clearance and Inspection 2-61
Figure 2-22. Overland Special Use Airspace within the Atlantic Test Range 2-64
Figure 3-1: Training Operations in the VACAPES RCMP 3-2
Figure 3-2. VACAPES Range Complex Operations in FY03 (Part 1) 3-20
Figure 3-2. VACAPES Range Complex Operations in FY03 (Continued) 3-21
Figure 3-3. VACAPES Range Complex Air Operations Summary in FY03 3-21
Figure 3-4. VACAPES OPAREA User Types in FY03 3-22
Figure 3-5. VACAPES OPAREA User Types in FY03 (Continued) 3-23
Figure 3-6. Atlantic Test Range User Types in FY03 3-23
Figure 3-7. Atlantic Test Range Ordnance Types and Quantity in FY03 3-24
Figure 3-8. NSW Operations by Location in FY03 3-25
Figure 3-9. NSW Operations at Fort Story in FY03 3-25
Figure 3-10. NSW Operations in Other Areas by Participant Types in FY03 3-26
Figure 3-11. Ordnance Types and Quantities used in NSW Operations in Other Areas in FY03 3-26
Figure 3-12. Ordnance Types and Quantities used in NSW Operations in Other Areas in FY03 3-27
Figure 4-1. Environmental Points of Contact for VACAPES Range Complex Operations-Related Environmental Issues 4-1
Figure 4-2. Environmental Compliance and Natural/Cultural Resources Documents 4-27
Figure 4-3. Active Mitigation Measure for Training and Maneuvering Operations 4-38
Figure 4-4. Active Mitigating Measures for Range and Impact Area Operations 4-39
Figure 4-5. Environmental Planning Documents 4-43
Figure 4-6. Environmental Coverage for Current Range Complex Operations 4-44
Figure 4-7. Land Use Documents and Agreements 4-48

Figure 5-1. High-Level Summary of Moderate and Severe Encroachment Impacts in the VACAPES Range Complex 5-11
Figure 5-2. High-Level Summary of Moderate and Severe Encroachment Impacts in the ATR 5-12
Figure 5-3. High-Level Summary of Moderate and Severe Encroachment Impacts in the NSW Training Ranges 5-12
Figure 5-4. Encroachment Impacts within the 12 Encroachment Issues for the VACAPES Range Complex 5-13
Figure 5-5. Encroachment Impacts within the 12 Encroachment Issues for the Atlantic Test Range 5-14
Figure 5-6. Encroachment Impacts within the 12 Encroachment Issues for the NSW Training Ranges 5-15
Figure 5-7. Training Impacts for the VACAPES Range Complex 5-16
Figure 5-8. Training Impacts for the Atlantic Test Range 5-17
Figure 5-9. Training Impacts for the NSW Training Ranges 5-18
Figure 5-10. Training Impacts by Type for the VACAPES Range Complex 5-19
Figure 5-11. Training Impacts by Type for the Atlantic Test Range 5-20
Figure 5-12. Training Impacts by Type for the NSW Training Ranges 5-21
Figure 6-1. Navy Prioritized Roles and Missions for the VACAPES Range Complex by Warfare Area 6-4
Figure 6-2. Navy Prioritized Roles and Missions for the Atlantic Test Range by Warfare Area 6-5
Figure 7-1. RCD Gap Analysis Shortfall Summary –VACAPES Range Complex (Part 1) 7-30
Figure 7-1. RCD Gap Analysis Shortfall Summary –VACAPES Range Complex (Part 2) 7-31
Figure 7-1. RCD Gap Analysis Shortfall Summary – Atlantic Test Range 7-32
Figure 9-1. VACAPES Range Complex Organizational Relationships and Funding Support 9-3
Figure 10-1. Suggested Outreach Materials 10-12
Figure 10-2. Suggested POCs for Stakeholder Communications 10-13
Figure 10-3. Activity-Based Quantitative Performance Measure 10-14
Figure 10-4. Results-Based Performance Measure 10-15

ACRONYMS AND ABBREVIATIONS

A-A	air-to-air
A-G	air-to-ground
A-S	air-to-surface
AAMEX	air-to-air missile exercise
AAW	anti-air warfare
ACC	Air Combat Command
ACM	air combat maneuvering
ACMI	Air Combat Maneuvering Instrumentation
ADCON	administrative control
ADDS	Advanced Display and Debriefing Subsystem
AEC	
AFB	Air Force Base
AFF	
AFWTF	Atlantic Fleet Weapons Training Facility
AGL	above ground level
AGS	Advanced Gun System
AIC	
AICUZ	Air Installation Compatible Use Zone
AIRLANT	
ALAST	Airborne Laser Accuracy Scoring Target
ALDS	Airborne Laser Mine Detection System
ALFS	
AM	amplitude modulation
AMCM	airborne mine countermeasures
AMCMEX	airborne mine countermeasures exercise
AMNS	Airborne Mine Neutralization System
AMRAAM	Advanced Medium-Range Air-to-Air Missile
AMW	amphibious warfare
AOE	
APH	
APZ	
AR	Atlantic Route –OR– Army Regulation
ARG	Amphibious ready group
ARGEX	
Army	United States Army
ARNG	Army National Guard
ARTCC	Air Route Traffic Control Center
ARTEP	
A-S	air to surface
ASAC	
ASCM	
ASMEX	air-to-surface missile exercise
ASTAC	
ASUW	anti-surface warfare
ASW	anti-submarine warfare
ASWEX	anti-submarine warfare exercises
ATC	air traffic control
ATCAA	Air Traffic Control Assigned Airspace
ATCF	Air Traffic Control Facility
ATCSCC	Air Traffic Control System Command Center
ATR	Atlantic Test Range
AUTEC	
BA	biological assessment
BASH	bird-aircraft strike hazard
BFG	
BFM	
BIS	
BDU	Bomb Dummy Unit
blk	
BMP	best management practice
BO	biological opinion
BOMBEX	air-to-ground gunnery, airborne surface attack exercises
BOS	
C2X	Composite Training Unit Exercise
C2W/EW	Command and Control Warfare/Electronic Warfare
C3	command and control communications
C4ISR	Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance
CAA	Clean Air Act
cal	caliber
CAP	

CAS	close air support
CCG4	Commander, Carrier Group Four
CFFC	Commander, Fleet Forces Command
CFR	Code of Federal Regulations
CG	
CINCLANTFLT	
CIWS	
CMP	Coastal Management Plan
CMWC	
CNRMA	Commander, Navy Region Mid-Atlantic
COMAR	Code of Maryland Regulations
COMFLTFORCOM	
COMFLTFORFLT	Commander, Fleet Forces Command
COMHELTACWING	
COMLANTFLT	Commander, Atlantic Fleet
COMNAVAIRLANT	Commander, Naval Air Forces Atlantic
COMNAVREG MID-LANT	
COMNAVSPECWARCOM	
COMNAVSPECWARGRU TWO	
COMNAVSPECWARGRU FOUR	
COMNAVSURFLANT	
COMPACFLT/	Commander, Pacific Fleet
COMPTUEX	Composite Training Unit Exercise
COMSECONDFLT	
COMSUBLANT	
CONUS	continental United States
CNAL	
CNI	Commander, Navy Installations
CNO	
CPL	
CPOA	Cherry Point OPAREA
CQB	Close Quarters Battle
CRMP	
CRRC	Chesapeake Regional Ranges Cooperative –OR–
CSG	combat rubber raiding craft
CTR	Chesapeake Test Range
CVRS	
CV(N) (same as CVN?)	
CZMA	Coastal Zone Management Act
CW	continuous wave
CWA	Clean Water Act
dBA	decibels on the A-weighted scale
DBRAC	Dare Bombing Range Advisory Council
DCBR	Dare County Bombing Range
DD	
DDG	
Demo	demolition
DENR	North Carolina Department of Environment and Natural Resources
DEQ	Virginia Department of Environmental Quality
DetCord	detonation cord
DLQ	deck landing qualifications
DME	
DNL	day-night average sound level
DOA	
DoD	United States Department of Defense
DoDD	Department of Defense Directive
DoN	Department of the Navy
DPTMS	
DPW	
DSHE	Directorate of Safety, Health, and Environment
DTE	
DWQ	North Carolina Division of Water Quality
EA	environmental assessment
EC	electronic combat
EEZ	Exclusive Economic Zone
EFH	essential fish habitat
EIS	environmental impact statement

EMATS	Enhanced Mid-Atlantic Tracking System
EMATT	expendable mobile ASW training target
EMD	
ERGM	extended range guided munition
EO	Executive Order
EOD	Explosive ordnance disposal
EPA	United States Environmental Protection Agency
ERETS	Machine Gun Transition and Machinegun Assault Course ///*check this*
ERP	
ERT	Enhanced Readiness Team
ESA	Endangered Species Act
ESG	
ESM	
ET	Eastern Time
EW	electronic warfare
EW	Electronic Warfare
EXTORP	exercise torpedo
FAA	Federal Aviation Administration
FACSFAC VACAPES	Fleet Area Control and Surveillance Facility, VACAPES
FAQ	frequently asked question
FCLP	field carrier landing practice
FCTC	
FFAR	folding fin aerial rocket
FFC	Fleet Forces Command
FFG	
FFVC	
FISC	Fleet and Industrial Supply Center
FL	flight level
FLECOMPRON SIX	
FLEETEX	Fleet exercise
FLTINFOWARCEN	
FM	frequency modulation
FOC	final operational capability
FONSI	finding of no significant impact
FRTP	Fleet Readiness Training Plan
Ft.	Fort
FTC	
FTCTCA	Fleet Combat Training Center Atlantic
FTX	field training exercises
FXP	Fleet Exercise Publications
FY	fiscal year
GAO	Government Accountability Office
GFE	
GHz	gigahertz
GIS	Ground Interrogation Station
GPS	global positioning system
GUNEX	gunnery exercises
HAA	High Activity Aircraft
HARMEX	high-speed anti-radiation missile exercise
HARP	historic and archeological resources protection
HE	high explosive
HEAT	
HEAT-TPT	
HF	
HMMWV	High-Mobility Multipurpose Wheeled Vehicle
HSMST	High Speed Maneuverable Surface Target
Hz	Hertz
IEER	Improved Extended Echo Ranging
IFF	Identification Friend or Foe
IFR	instrument flight rules
IHA	incidental harassment authorization
ILL	
ICRMP	integrated cultural resource management plan
INRMP	integrated natural resources management plan
INS	inertial navigation system
IOC	initial operational capability
IR	instrument (///what is the R for? Rating? Rated? Route?)
ISE	independent steaming exercise
ISR	intelligence, surveillance, and reconnaissance
ISSA	Interservice Support Agreement

ITAM	Integrated Training Area Management
JFCOM	Joint Forces Command
JNTC	Joint National Training Capability
JSF	Joint Strike Fighter
JTFEX	Joint Task Force Exercise
KIAS	knots indicated airspeed
km	kilometer
kW	kilowatt
LAA	Low Activity Aircraft
LANTFLT	
LARC	Landing Amphibious Rescue Craft
LATR	Large Area Tracking Range
LCAC	Landing Craft, Air Cushion
LCC	
LCDS	LATR Computer Debrief System
LCM	Landing Craft, Mechanized
LCS	Littoral Combat Ship
LDCS	LATR Debrief Communication System
LDTS	LATR Debrief Training System
LFA	Low Frequency Active
LGTR	
LHA	
LHD	
LINK	
LMRS	Long-Term Mine Reconnaissance System
LOA	letters of agreement –OR– letter of authorization
LPT	
LRWS	LATR ROCC Workstation Systems
LSD	
LTS	Laser Training Systems –OR– LATR Tracking System
LVC	live-virtual-constructive
MAEWR	Mid-Atlantic Electronic Warfare Range
MAG	
MAMS	
MARAD	Maritime Administration, U.S. Department of Transportation
MAROPS	Maritime Operations
MCAS	Marine Corps Air Station
MCM	mine countermeasures
MD	Maryland
MDE	Maryland Department of the Environment
MEDEVAC	
MEU	
MHz	megaHertz
MIDS	
MILCON	
MINEX	mine laying exercises
MISSILEX	missile exercises
MITT	Maritime Integrated Tailored Training
MIW	mine warfare
MLE	Mobile Laser Evaluator
mm	millimeter
MMPA	Marine Mammal Protection Act
MMR	Military Munitions Rule
MOA	Military Operating Area
MOUT	military operations in urban terrain
MPA	
MRA	marine resources assessment
MRTFB	
MSL	mean sea level
MTC	Maneuver Training Center
MTP	
NAAQS	National Ambient Air Quality Standards
NAB	Naval Amphibious Base
NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
NASA	National Atmospheric and Space Administration
NASMOD	
NAVAIR	Naval Air Systems Command
NAVPHIBASE	Naval Amphibious Base
NAVSEA	Naval Sea Systems Command
NAVSKED	
Navy	United States Navy
NAWCAD	Naval Air Warfare Center, Aircraft Division
NB	Naval Base

NBC	
NCAC	North Carolina Administrative Code
NCGS	North Carolina General Statute
NCO	non-commissioned officer
NDE	
NDWS	no drop weapons scoring
NEPA	National Environmental Policy Act
NESHAP	National emission standards for hazardous air pollutants
NGF	naval gunfire
NGO	non-governmental organizations
NHPA	National Historic Preservation Act
NM	nautical mile(s)
NM2	square nautical mile(s)
NMET	
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic Atmospheric Administration
NOTAM	Notices to Airmen
NOTMAR	Notices to Mariners
NOV	notice of violation
NPDES	National Pollutant Discharge Elimination System
NRDC	National Resources Defense Council
NRHP	National Register of Historic Places
NS	
NSA	
NSAN	
NSFS	naval surface fire support
NSW	Naval Special Warfare
NSWC	
NTA	Navy Tactical
NTTL	Navy Tactical Task List
NUWC	Naval Undersea Warfare Center
NWAS Det	Naval Warfare Assessment Station Detachment
NWS	Naval Weapons Station
O&M	operations and maintenance
OCE	officer conducting the exercise
OEA	
OIPT	overarching integrated product team
OLF	Outlying Field
OMCM	Organic Mine Countermeasures
OOTW	Operations Other Than War
OPAREA	operating area
OPCON	operational control
Op Eds	opinions and editorials
OPNAV	
OPNAVINST	
OPS Normal	operations normal report
OSD	
OTC	Officer in Tactical Command –OR– Ozone Transport Commission
P2	pollution prevention
PA	public address
PAO	
PAX	
PCDS	Personal Computer Debriefing System
PCT	
PERSTEMPO	Personnel Tempo
POC	point of contact
POL	petroleum, oils, and lubricants
POM	program objective memorandum
POTW	publicly-owned treatment works
PRF	
PTE	primary training elements
PTP	Pre-Deployment Training Program
PXOA	Patuxent River Operating Area
PXT	
R-	Restricted Area
R2R	Ranges to Readiness
RAB	restoration advisory board
RAICUZ	Range Air Installation Compatible Use Zone
RAMCIS	Rapid Airborne Mine Clearance System
RCD	Range Capabilities Document ///note: this also

	was defined as Required Capabilities Document. Need to make it correct throughout this document.
RCMP	Range complex management plan
RCRA	Resource Conservation and Recovery Act
RCUR	range complex utilization report
RDP	Range Development Plan
RDT&E	training and research, development, test, and evaluation
REXTORP	practice torpedo shape
RF	radio frequency
RFMIS	
RHIB	Rigid Hull Inflatable Boat
RMS	remote minehunting system –OR– range management system
ROA	
ROD	record of decision
RPDP	Real Property Development Plan
RPT	range planning team
RSEPA	Range Sustainability Environmental Program Assessment
RSIP	Regional Shore Infrastructure Plan
RSO	Regional Supply Office
RSZ	
RWR	
S-A	surface-to-air
S-S	surface-to-surface
SACEX	Supporting Arms Coordination Exercise
SAR	search-and-rescue
SATCOM	satellite communications
SATEC	Small Arms Testing and Evaluation Compound
SATHICOMM	Satellite High Communications
SAW	Squad Automatic Weapon
SBT	Special Boat Team
SEAC	Submarine Exercise Area Coordinator
SEAL	Sea, Air, Land
SEPTAR	seaborne powered target
SESEF	Shipboard Electronic Systems Evaluation Facility
SHPO	State historic preservation office
SIM	simulation
SIP	implementation plan
SIPRNET	
SLED	
SMCM	surface mine countermeasures
SME	Subject matter expert
SOC	Special Operations Craft
SOCEX	Special Operations Capable Exercise
SOP	standard operating procedure
SPCC	spill prevention, control, and countermeasure
SPECWAR	Special Warfar
SPECWARDEVG RU	Special Warfare and Development Group
SRAM	system replacement and modernization
SSN	
SSS	Strafe Scoring System
STOVL	short take-off and vertical landing
strafe	Strafe Scoring System
STW	strike warfare
SUA	Special Use Airspace
SUBOA	Submarine Operating Area
SUBOPAUTH	Submarine Operating Authority
SURFLANT	
SUW	surface warfare
SWAP	Severe Weather Avoidance Plan
SWATSLANT	Strike Weapons and Tactics School, Atlantic
SWTR	Shallow Water Training Range
SYSCOM	
T2	Training Transformation
TACAN	
TACTS	Tactical Air Combat Training System
TAP	Tactical Theater Assessment and Planning

TBT	tributyltin
TCFE	
TMDL	total maximum daily load
TNT	trinitrotoluene
TORPEX	torpedo exercise
TOW	
TP	
TPCSDS-T	
TPT/TRX	
TRACKEX	
TRACON	Terminal Radar Approach Control
TRASUPPCEN	Training Support Center, Hampton Roads
TRIMS	
TSDF	treatment, storage, and disposal facility
TSPI	time, space, and position information
TSV	Training Support Vessel
TRACON	
TYCOM	Type Commander
UAV	unmanned aerial vehicle
UCAV	unmanned combat air vehicle
UCV	unmanned ground vehicle
UHF	ultrahigh frequency
UMCM	undersea mine countermeasures
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USCG	United States Coast Guard
USCGC	United States Coast Guard cutter
USCGS	United States Coast Guard ship
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
USN	United States Navy
UST	underground storage tank
UTR	Underwater Tracking Range
UUV	unmanned underwater vehicle
UXO	unexploded ordnance
VA	Virginia –OR– ///need to define: see Section 2.5.3.1.1
VAC	Virginia Administrative Code
VACAPES	Virginia Capes
VANDALEX	
VASNR	Virginia Secretary of Natural Resources
VAST/IMPASS	Virtual At-Sea Training/Integrated Maritime Portable Acoustic Scoring and Simulator System
VBSS	visit, board , search and seizure
VCA	Virginia Code Annotated
VFR	visual flight rules
VHF	very high frequency
VORTAC	
VR	visual (///what is the R for? Rating? Rated? Route?)
W	Warning area
WFF	Wallops Island Flight Facility
WISS	Weapons Impact Scoring System
WMA	Maryland Water Management Administration
ZDC	
ZNY	

1

This page intentionally left blank

CHAPTER 1 INTRODUCTION

The Virginia Capes (VACAPES) Range Complex Management Plan (RCMP) is developed under the United States Navy's (Navy's) Tactical Training Theater Assessment and Planning (TAP) process. The purpose is to ensure that the VACAPES Range Complex and, for Fleet Operations only, the Atlantic Test Range (Patuxent River) are sustainable and capable of supporting Navy readiness training for the foreseeable future. This RCMP is issued by the Commander, Fleet Forces Command (CFFC).

In Volume I, the RCMP's multiple purposes were discussed and guidance was provided as a basis for range and/or installation commanders to develop detailed plans. The objective of the guidance is to clearly articulate a mission and a "commander's intent" without prescribing how the mission is to be accomplished.

This Volume II of the RCMP provides the empirical data and analysis concerning the specific range areas within Virginia Capes Range Complex, Fleet operations within the Atlantic Test Range, and Naval Special Warfare Operations within the complexes, collectively referred to as the VACAPES Range Complex. The information in Volume II includes:

- Inventory and description of the VACAPES Complex range areas and their capabilities;
- Analysis of specific operations conducted within the range complex;
- Analysis of current and ongoing environmental, natural resources, and land use management programs within the range complex;
- Analysis of encroachment and sustainment challenges impacting the range complex;
- An outline of the strategic vision for the VACAPES Range Complex in accordance with the Navy's Integrated Training and Test Ranges Strategic Study (U.S. Navy. 2004a);
- Gap analysis and project recommendations based on current and required range capabilities as outlined by the Range Capabilities Document (RCD) (U.S. Navy. 2004b);
- Discussion and analysis of range sustainability management processes and procedures for the VACAPES Range Complex, including prioritized investment projects for the complex and an outline of future community outreach processes.

1.1 VIRGINIA CAPES RANGE COMPLEX MANAGEMENT PLAN GOALS

The VACAPES RCMP is an integrated, operational planning document for sustaining, upgrading, modernizing, and transforming the range complex to support the naval training mission for the next 10 years. The RCMP contributes to sustaining the operational capabilities of the VACAPES Range Complex and addresses encroachment, non-compliance with environmental regulations, obsolescence of range

infrastructure, and management issues. The specific goals of the VACAPES RCMP include the following:

- Describe the attributes of the naval ranges, operating areas (OPAREAs)and Special Use Airspace (SUA).
- Quantify representative, routine, and recurrent training and RDT&E operations using fiscal year 2003 (FY03) as the baseline year.
- Inventory environmental, natural resources, and land use plans, studies, and permits and compile mitigation measures and management recommendations currently in force.
- Identify and analyze encroachment and sustainment challenges.
- Describe the strategic vision for the complex over the next 10 years.
- Identify and analyze shortfalls in required capabilities (requirements), based on training and testing needs.
- Provide recommendations for further environmental planning.
- Describe the management structures for the VACAPES Range Complex and outline responsibilities for the various elements of range sustainability.
- Identify the most significant community and regulatory stakeholders with regard to the VACAPES Range Complex and develop an approach to keep them informed and address their issues.
- Outline investment needs for maintenance, range improvement, and modernization, and discuss these in relation to current Navy investment initiatives.

1.2 GEOGRAPHIC AREA OF THE VIRGINIA CAPES RANGE COMPLEX AND ATLANTIC TEST RANGE

The VACAPES Complex ranges are an organized and designated set of specifically bounded geographic areas that encompass a landmass, body of water (above and below the surface), and airspace used to conduct operations, training, research and development, and test and evaluation of military hardware, personnel, tactics, munitions, explosives, and electronic combat systems. The range complex contains one OPAREA, which is surface and subsurface areas used for naval operations.

The VACAPES Complex ranges are located in Virginia, eastern North Carolina, eastern Maryland, and the adjacent inlands, coastal, and offshore waters. Naval Special Warfare Training analysis is conducted within the geographic boundary of the VACAPES Range Complex and at the following installations:

- Navy: Naval Amphibious Base Little Creek, Camp Pendleton, Naval Support Activity Northwest, Fentress Auxiliary Landing Field, and James River Inactive Ship Fleet.
- United States Army (Army): Fort Pickett, Fort Story, Fort Eustis, Fort AP Hill, and Aberdeen Proving Ground.
- Private: Blackwater USA

The VACAPES Range Complex includes 1,543 acres of land, 30,563 square nautical miles ($NM^{2)}$ of SUA, and 28,923 NM^2 of ocean within the OPAREA. The Atlantic Test Range includes 5,700 acres of land area, 1,890 NM^2 of SUA, and 330 NM^2 of ocean within danger zones.

The VACAPES Range Complex and Atlantic Test Range are of particular significance to the United States Department of Defense (DoD) because each of their ranges and operating areas are used for maintenance/unit, integrated and sustainment training of Naval forces in the Fleet Readiness Training Plan (FRTP).

1.3 DEFINITION AND IMPLEMENTATION OF RANGE SUSTAINABILITY

Range sustainability is the process of protecting the operational capability of training ranges from erosion due to encroachment, non-compliance with environmental regulation, obsolescence of range infrastructure, or the lack of maintenance and investment. This process involves preserving, conserving, and nurturing range resources for future use. This RCMP guides range sustainability by analyzing range use and requirements, mapping strategies for further study, and developing sustainment programs in three main areas:

- Operational data to support range management and alternatives development for a range complex environmental impact statement (EIS), environmental permit applications, and other environmental planning documentation, as necessary.
- Recommended investment products and management programs to aid range managers in maintaining and upgrading range operational capabilities and managing encroachment.
- Tailored operational and environmental data presentation to assist mission and environmental planners in exercise planning.

1.4 DOCUMENT ORGANIZATION FOR THE RCMP

In addition to this introduction, the RCMP is organized into three major sections:

- Range Complex Description and Operations (Chapters 2 through 5). This section characterizes and quantifies military training operations at the VACAPES Range Complex and Atlantic Test Range. It includes the analyses of ongoing environmental, natural resources, and land use management programs and defines the encroachment and sustainment challenges affecting the VACAPES Range Complex.
- Range Complex Sustainability Planning (Chapters 6 through 8). This section contains the strategic plan and identifies requirements for the range complex. It includes recommendations for future investment based on a capabilities assessment, or gap analysis, between the range requirements outlined in the RCD and current range complex capabilities.
- Range Complex Sustainability Management (Chapters 9 through 11). This section outlines Navy range sustainable management processes and organization, including community outreach. The RCMP recommends and ranks investment products to ensure sustainability of current and projected operations.

1.5 UPDATING SCHEDULE

The intent of FFC is to review and update Volume II every 5 years. This will ensure that planning and investment projects keep pace with changes in mission, units, technologies, range operations. and sustainability challenges.

CHAPTER 2 VACAPES RANGE COMPLEX AND ATLANTIC TEST RANGE DESCRIPTIONS

2.1 MILITARY MISSION

2.1.1 VACAPES Range Complex Mission

The primary mission of the VACAPES Range Complex is to support tactical training by the Navy and other military services within the DoD. It is one of the primary range complexes in which the U.S. Atlantic Fleet trains as part of its FRTP. The VACAPES Range Complex also supports test and evaluation activities, including missions that may originate at the Atlantic Test Range. For purposes of this plan, the VACAPES Range Complex also includes selected Navy and Army installations that support Naval Special Warfare (NSW) training.

Major Naval units supported by the VACAPES Range Complex operating area and SUA include those homeported at

- Naval Base (NB) Norfolk;
- Naval Amphibious Base (NAB) Little Creek; and
- Naval Air Station (NAS) Oceana, Virginia.

Ship, submarine, and aircraft crews from these bases conduct the majority of the maintenance/unit-level training phase of the FRTP in the offshore areas and airspace of the VACAPES Range Complex. Examples of the major training and test operations conducted in the VACAPES Range Complex include:

- Airborne Mine Countermeasures (AMCMEX)
- Air-to-Ground, Air-to-Surface, Surface-to-Air, and Surface-to-Surface Gunnery Exercises (GUNEX)
- Air-to-Surface Missile Exercises (ASMEX)
- Air-to-Air Missile Exercises (AAMEX)
- Surface-to-Air Missile Exercise (MISSILEX)
- High-Speed Anti-Radiation Missile Exercise (HARMEX)
- Bombing Exercises (BOMBEX)
- Anti-Submarine Warfare Tracking Exercises (ASW)
- Air Combat Maneuvers (ACM)
- Electronic Combat (EC)
- Insertion/Extraction
- Breaching
- Land Demolitions
- Military Operations in Urban Terrain (MOUT)
- Close Air Support (CAS)

2.1.2 Atlantic Test Range Mission

The primary mission of the Atlantic Test Range is to support RDT&E activities conducted by the Naval Air Warfare Center, Aircraft Division (NAWCAD) and originating from NAS Patuxent River, Maryland.

Secondarily, the Atlantic Test Range supports U.S. Atlantic Fleet training on a not-to-interfere basis.

The Atlantic Test Range's support of Atlantic Fleet units includes

- Activities such as aerial mine laying operations, Fleet Exercise (FLEETEX), missile exercises (with the launch of supersonic targets from the Wallops Island Flight Facility), electronic warfare, field carrier landing practice, reconnaissance flights, and combat search and rescue.
- NSW training using Hannibal Target, Bloodsworth Island, and Aberdeen Proving Ground. Aberdeen Proving Ground is included within this mission area because of the RDT&E mission of this Army location.

The scope of this range complex management plan is limited to the Atlantic Fleet's training operations in the Atlantic Test Range, since NAWCAD's RDT&E operations are the subject of a separate planning process.

2.2 RANGE INVENTORY AND OWNERSHIP

2.2.1 VACAPES Range Complex

Figure 2-1 lists each component of the VACAPES Range Complex considered in this RCMP, its scheduling and controlling agency and the source for operations and maintenance (O&M) funding at the component. As shown in Figure 2-2, the Fleet Area Control and Surveillance Facility, VACAPES (FACSFAC VACAPES) is the principal scheduling and controlling agency for most components of the range complex.

FACSFAC VACAPES has authority to coordinate services and operations, make area assignments, schedule land targets, ensure promulgation of firing notices, issue weekly target and OPAREA schedules, and prescribe necessary additional regulations governing matters within the VACAPES Range Complex. FACSFAC VACAPES reports to the Commander, Fleet Forces Command (COMFLTFORCOM) via the Commander, Naval Air Forces Atlantic (COMNAVAIRLANT).

As shown in Figure 2-1, 16 ranges considered in this RCMP are scheduled or controlled by agencies other than FACSFAC VACAPES. The 13 controlling and scheduling agencies for these ranges are included in the figure.

Range/OPAREA	Scheduling and Controlling Agency	O&M Funding Source
Offshore Operating Area (Surface and Subsurface)		
VACAPES Operating Area (OPAREA)	FACSFAC VACAPES	Navy
Offshore Special Use Airspace		
Warning Area 386	FACSFAC VACAPES	
Warning Area 387A-B	FACSFAC VACAPES	
Warning Area 72A-B	FACSFAC VACAPES	
Warning Area 110	FACSFAC VACAPES	
Warning Area 50A-C	FACSFAC VACAPES	
Oceana Tactical Air Combat Training System (TACTS) (within W-72)	Naval Warfare Assessment Station Detachment (NWAS Det) (SE51)	Navy
Overland Special Use Airspace		
Restricted Area 6606	FACSFAC VACAPES	
Restricted Area 5302A-C	FACSFAC VACAPES	
Restricted Area 5301	FACSFAC VACAPES	
Restricted Area 5314A-J	FACSFAC VACAPES	
Restricted Area 5313A-D	FACSFAC VACAPES	
Pamlico Military Operating Area (MOA)	FACSFAC VACAPES	
Hatteras Air Traffic Control Assigned Airspace (ATCAA)	FACSFAC VACAPES	
Targets and Ground Ranges		
Dam Neck Range	FACSFAC VACAPES	Navy
Palmetto Point Range	FACSFAC VACAPES	Navy
Navy Dare County Range	FACSFAC VACAPES	Navy
Stumpy Point Range	FACSFAC VACAPES	Navy
Other Range and Training Facilities		
Naval Weapons Station (NWS) Yorktown	NWS Yorktown	Navy
Naval Weapons Station Yorktown, Cheatham Annex	NWS Yorktown	Navy
Naval Amphibious Base Little Creek	NAB Little Creek	Navy
Training Support Center (TRASUPPCEN), Hampton Roads	TRASUPPCEN, Hampton Roads	Navy
Naval Auxiliary Landing Field Fentress	NAS Oceana	Navy
NSA Norfolk, Northwest Annex	NSAN Northwest	Navy
Fort AP Hill	Fort A.P. Hill	Army
Fort Eustis	Fort Story	Army
Fort Pickett	Fort Pickett	Army
Fort Story	Fort Story	Army
Camp Pendleton	Virginia Army National Guard	Virginia Army National Guard
Blackwater USA	Blackwater USA	Blackwater USA
National Reserve Defense Fleet, James River	Maritime Administration (MARAD), U.S. Department of Transportation	MARAD
Instrumentation Facilities		
Large Area Tracking Range (LATR)	NWAS Det (SE51)	Navy
Shipboard Electronic Systems Evaluation Facility (SESEF)	Norfolk SESEF Facility Manager Naval Undersea Warfare Center	Navy

a/ Range ownership is defined as the service providing O&M funding. If no O&M funding is provided, then it is the service with scheduling and controlling authority.
Source: U.S. Navy. 2001a

Figure 2-1. VACAPES Range Complex Inventory and Ownership

2.2.2 Atlantic Test Range (Patuxent River)

Figure 2-2 lists each component of the Atlantic Test Range, its scheduling and controlling agency, and source for O&M funding in support of Fleet training.

NAWCAD Range Operations Division is responsible for project liaison, airspace coordination and scheduling, test communications and frequency management support, and marine operations and target presentation support. The Airspace Management Branch provides aircraft control and traffic advisory for extensive airspace resources covering regions over the Chesapeake Bay and the Atlantic Ocean along the coastline of Delaware, Maryland, and Virginia. The branch also serves as liaison to FACSFAC VACAPES, the Federal Aviation Administration (FAA), and NAS Patuxent Air Operations.

Range/OPAREA	Scheduling/ Controlling Agency	O&M Funding Source
Overland Special Use Airspace		
Restricted Area 4008	NAWCAD	
Restricted Area 4007A	NAWCAD	
Restricted Area 4002	NAWCAD	
Restricted Area 4005	NAWCAD	
Restricted Area 4006	NAWCAD	
Restricted Area 6609	NAWCAD	
Targets and Ground Ranges		
Bloodsworth Island	NAWCAD	Navy
Hannibal Target	NAWCAD	Navy
Hooper Target	NAWCAD	Navy
Tangier Island Target	NAWCAD	Navy
Other Range and Training Facilities		
Aberdeen Proving Ground	Aberdeen Proving Ground	Army

a/ Range ownership is defined as the service providing O&M funding. If no O&M funding is provided, then it is the service with scheduling and controlling authority.

Source: U.S. Navy. 2002a

Figure 2-2. Atlantic Test Range Inventory and Ownership [a/]

2.3 COMPLEX-WIDE DESCRIPTION

The VACAPES Range Complex consists of the following components:

- Offshore operating area (surface and subsurface waters);
- Offshore SUA (warning areas);
- Overland SUA (restricted areas and military operating areas);
- Targets and ground ranges;
- Other range and training facilities (outlying landing fields, Army installations, and commercial ranges); and
- Instrumentation facilities.

These components encompass land, air, and sea areas that primarily are located close to Norfolk, Virginia, but also include portions of the eastern shores of Virginia, Maryland and North Carolina.

The Atlantic Test Range consists of the following components:

- Overland SUA (restricted areas and military operating areas);
- Targets and ground ranges; and
- Other range and training facilities (Army installations).

The SUA encompasses airspace over the waters of the Chesapeake Bay and the eastern shores of Maryland and Virginia. The targets and ground ranges are located within the Chesapeake Bay region.

2.3.1 Regional Setting

2.3.1.1 VACAPES Range Complex Setting

The regional setting of the VACAPES Range Complex is summarized in Figure 2-3. A map illustrating the range complex and the region is provided as Figure 2-4.

Feature	Summary
Area of Battlespace	• 1,543 acres of land area • 30,563 NM2 of special use airspace • 28,923 NM2 of ocean within the OPAREA
Major Users	• U.S. Second Fleet • Naval Air Force Atlantic • Naval Surface Force Atlantic • Naval Submarine Force Atlantic • Naval Special Warfare Command
Training Media	• Shallow ocean areas (less than 100 fathoms) • Deep ocean areas (greater than 100 fathoms) • Airspace over ocean • Airspace over land • Ground maneuver areas • Urban terrain • Beaches
Weather	• Temperate coastal climate with relatively mild winters, hot humid summers and rainfall throughout the year. • The mean temperature is 60 degrees Fahrenheit. January is the coldest month with an average low of 40 degrees. July is the warmest month with an average high of 87 degrees. • Annual precipitation is 45 inches and average relative humidity is 62 percent. • Prevailing winds are from the southwest in the summer; northeast in winter. Average wind speed is 10 miles per hour. • The complex is occasionally affected by tropical storms and hurricanes from June through November each year.
Other regional ranges	• Proximate to three other Navy range complexes. • South: Cherry Point/Camp Lejeune range complexes • North and northwest: – Atlantic City Range Complex – Atlantic Test Range

Source: U.S. Navy. 2001b.

Figure 2-3. Regional Setting of the VACAPES Range Complex

As shown on the map, the VACAPES Range Complex is bordered to the north, south, and northwest by other Navy range complexes.

- Directly to the north is the Atlantic City Range Complex, which consists of the Atlantic City OPAREA and Warning Area 107.

- To the south are the Cherry Point and Camp Lejeune range complexes, consisting of Warning Area 122, the Navy Cherry Point Range Complex, Marine Corps Air Station Cherry Point Range Complex, and Marine Corps Base Camp Lejeune Range Complex.
- The Atlantic Test Range is northwest of the VACAPES Range Complex.

The VACAPES Range Complex includes approximately 1,543 acres of land area for ranges, 30,563 square nautical miles (NM^2) of SUA and 28,923 NM^2 of ocean surface area within its OPAREA. The complex's OPAREA extends approximately 155 NM into the Atlantic Ocean.

2.3.1.2 Atlantic Test Range Setting

A map illustrating the Atlantic Test Range is provided as Figure 2-5. The setting of the Atlantic Test Range is summarized in Figure 2-7.

The Atlantic Test Range is northwest of the VACAPES Range Complex and southwest of the Atlantic City Range Complex. The complex includes approximately 5,700 acres of land area for ranges, 1,890 NM^2 of SUA and 330 NM^2 of ocean surface area within its danger zones.

A map illustrating the locations for Navy Special Warfare Ranges is provided as Figure 2-6.

2.3.2 Training Area Summary

2.3.2.1 Airspace, Maneuver Space, and Low-Level Routes

2.3.2.1.1 VACAPES Range Complex

The offshore and overland SUA associated with the VACAPES Range Complex covers 30,563 square nautical miles and includes the following SUA:

- Warning Area 50A-C;
- Warning Area 72A-B;
- Warning Area 110;
- Warning Area 386A-J;
- Warning Area 387A-B;
- Oceana TACTS Range;
- Restricted Area 5301;
- Restricted Area 5302A-C;
- Restricted Area 5313A-D;
- Restricted Area 5314A-J;
- Restricted Area 6606;
- Pamlico MOA A-B; and
- Hatteras ATCAA.

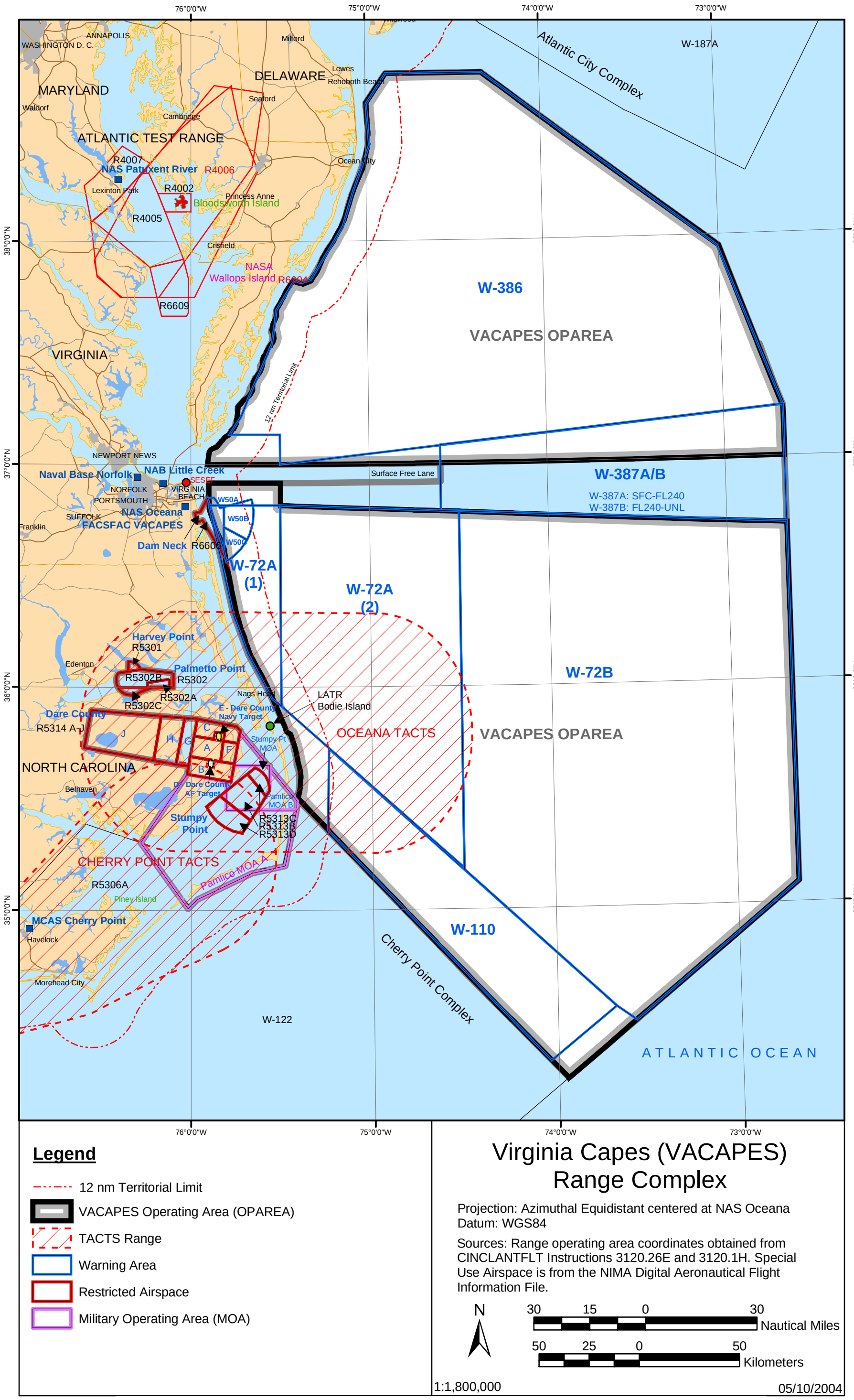


Figure 2-4. Virginia Capes (VACAPES) Range Complex

This page intentionally left blank

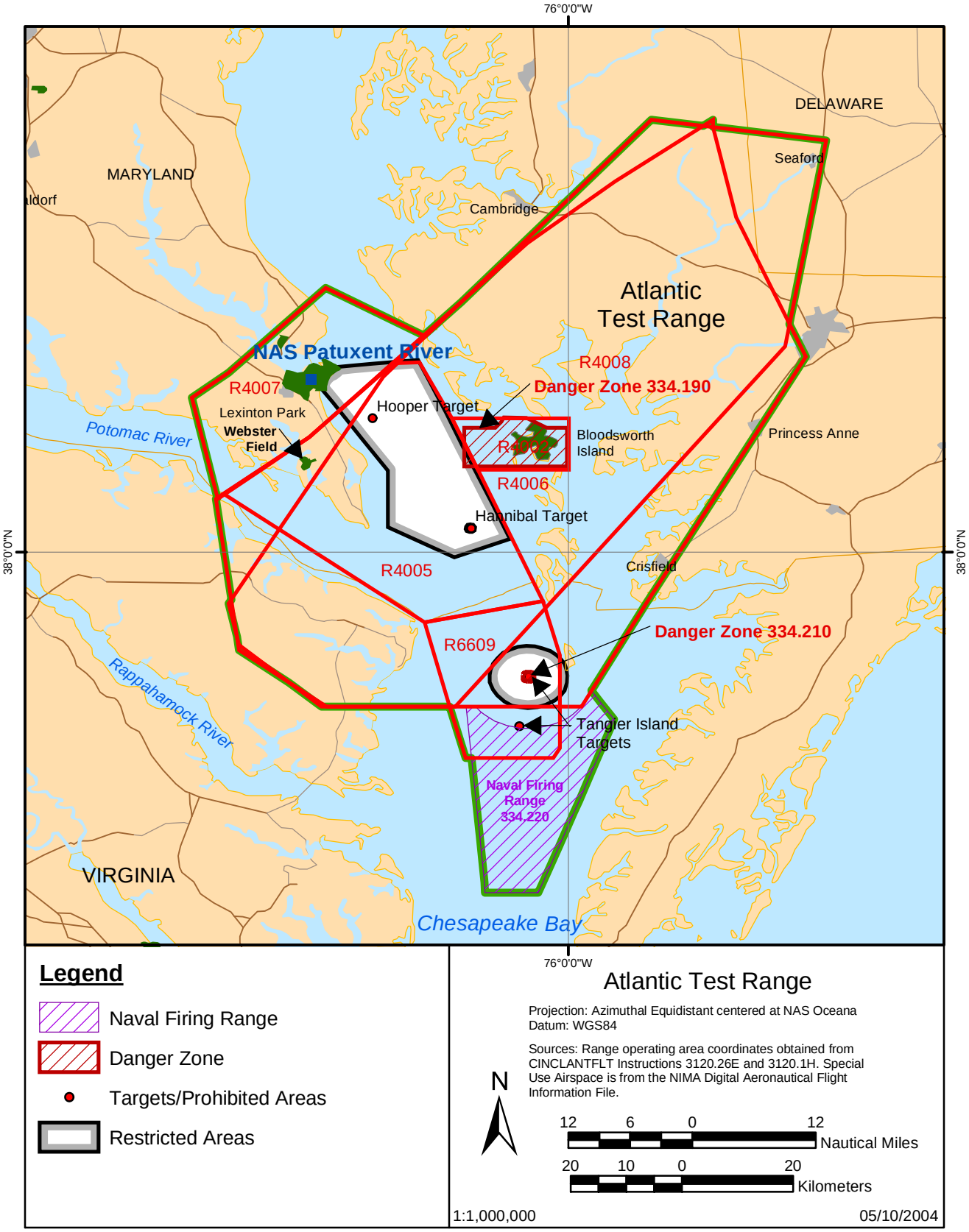
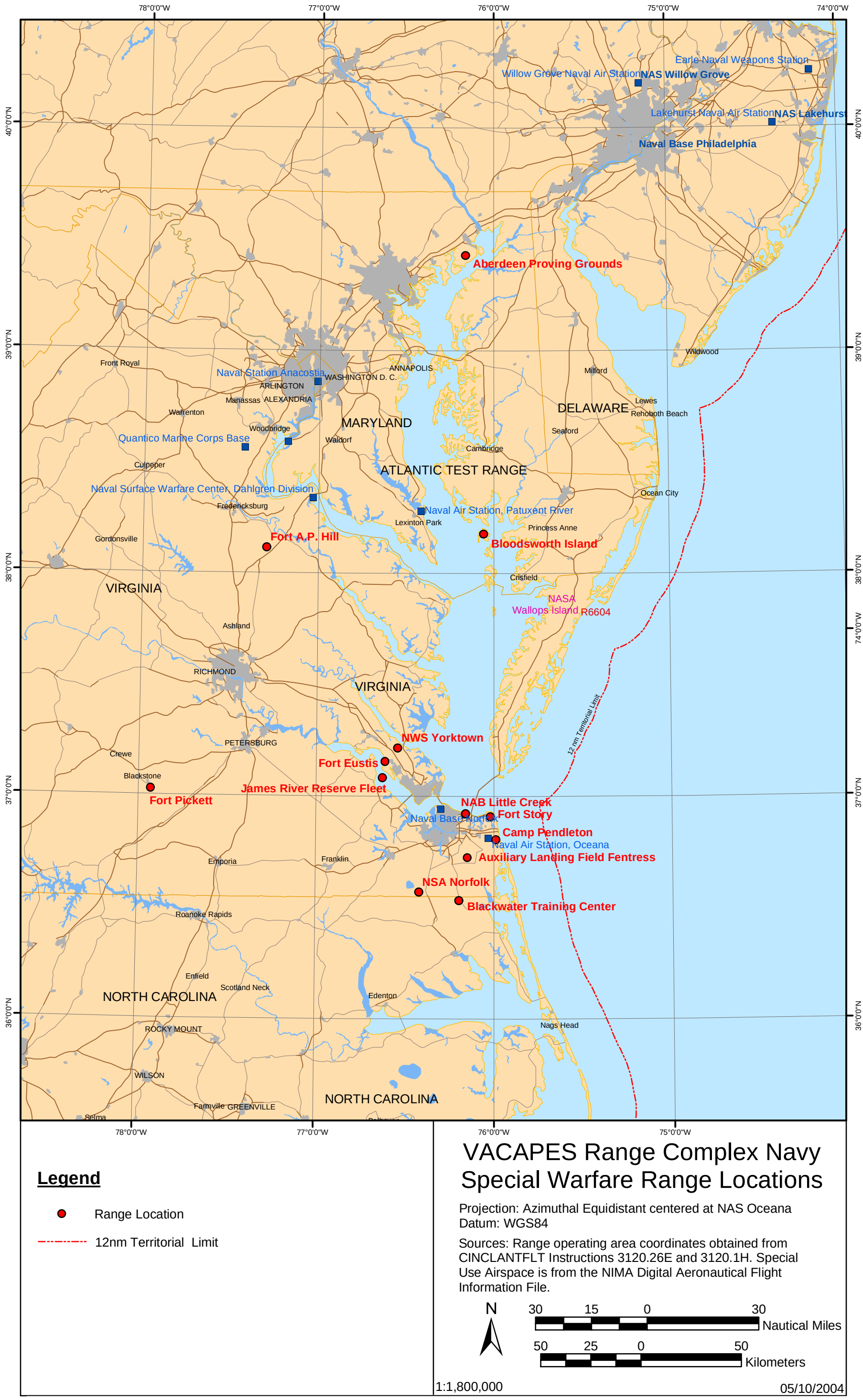


Figure 2-5. Atlantic Test Range



Legend

- Range Location
- 12nm Territorial Limit

VACAPES Range Complex Navy Special Warfare Range Locations

Projection: Azimuthal Equidistant centered at NAS Oceana
Datum: WGS84

Sources: Range operating area coordinates obtained from CINCLANTFLT Instructions 3120.26E and 3120.1H. Special Use Airspace is from the NIMA Digital Aeronautical Flight Information File.

N

30 15 0 30 Nautical Miles

50 25 0 50 Kilometers

1:1,800,000

05/10/2004

Figure 2-6. VACAPE Range Complex Navy Special Warfare Range Locations

Feature	Summary
Area of Battlespace	• 5,700 acres of land area • 1,890 NM2 of special use airspace • 330 NM2 of ocean within danger zones
Major Users	• Naval Air Systems Command • U.S. Second Fleet • Naval Air Force Atlantic • Naval Surface Force Atlantic • Naval Special Warfare Command
Training Media	• Shallow ocean areas (less than 100 fathoms) • Airspace over water • Airspace over land • Ground areas
Weather	• Temperate climate with cold winters, hot humid summers and rainfall throughout the year. • January is the coldest month with an average high of 45 degrees and a low of 25 degrees. • July is the warmest month with an average high of 88 degrees and a low of 65 degrees. • Annual precipitation is 44 inches with rainfall evenly distributed throughout the year. • Prevailing winds are from the south in the summer; northwest in winter. Average wind speed is 9 miles per hour. • The range is occasionally affected by tropical storms and hurricanes from June through November each year.
Other regional ranges	• Proximate to two other Navy range complexes • Northeast: Atlantic City Range Complex • South and east: VACAPES Range Complex

Source: U.S. Navy, 2001c.

Figure 2-7. Regional Setting of the Atlantic Test Range

In addition, FACSFAC VACAPES is responsible for scheduling 15 visual (VR) and instrument (IR) military training routes, including VR1753, VR1754, VR1755, VR1756, VR1757, VR1759, IR062, IR714, IR715, IR718, IR719, IR720, IR760, IR761, and IR762.

2.3.2.1.2 Atlantic Test Range

The airspace associated with the Atlantic Test Range comprises 1,890 NM^2. The Atlantic Test Range consists of the Chesapeake Bay Restricted Areas R-4002, R-4005, R-4006, R-4006N, R-4007, R-4008 and R-6609.

2.3.2.2 Instrumented Areas

2.3.2.2.1 VACAPES Range Complex

The Navy Ranges-to-Readiness Study (U.S. Navy. 2001d) documented the instrumentation and training systems supporting Fleet training ranges. The VACAPES Range Complex includes the following instrumented areas or facilities:

- Warning Area 72;
- Oceana TACTS Range (within W-72 airspace);
- Stumpy Point Range;

- Navy Dare County Range;
- Pamlico MOA;
- Hatteras ATCAA; and
- Shipboard Electronic Systems Evaluation Facility (SESEF).

Figure 2-8 summarizes the instrumentation systems in place at each component of the range complex.

Range	Instrumentation System					
	WISS a/	TACTS	Strafe	EC	UTR	LTS
Warning Area 72		X				
Oceana TACTS Range		X		X		
Stumpy Point Range	X					
Navy Dare County	X		X			X
Pamlico MOA		X				
Hatteras ATCAA		X				
SESEF						

a/ WISS – Weapons Impact Scoring System; TACTS – Tactical Air Combat Training System; Strafe – Strafe Scoring System; EC – Electronic Combat; UTR – Underwater Tracking Range; LTS – Laser Training Systems

Source: U.S. Navy, 2004c; U.S. Navy. 2000a; U.S. Navy. 2001d

Figure 2-8. VACAPES Range Complex Instrumentation

2.3.2.2.2 Atlantic Test Range

Range instrumentation within the complex includes cinetheodolites, radars, tracking lasers, and global positioning system (GPS) installations. This instrumentation is managed and operated by personnel from the Atlantic Ranges and Facilities Department.

2.3.2.3 Offshore Areas Overview

2.3.2.3.1 VACAPES Range Complex

The VACAPES OPAREA is an ocean surface and subsurface operating area (from the ocean surface to the ocean bottom). It covers 28,293 NM^2 of ocean area, and extends approximately 155 NM off the coast of Virginia and North Carolina.

2.3.2.3.2 Atlantic Test Range

No offshore OPAREA is associated with the Atlantic Test Range. Offshore operations directed by the Atlantic Test Range do take place in the VACAPES OPAREA, as coordinated with FACSFAC VACAPES.

2.3.2.4 Nearshore Areas Overview

2.3.2.4.1 VACAPES Range Complex

Nearshore areas included within the VACAPES Range Complex include the Palmetto Point Range, Stumpy Point Range, and beaches at NAB Little Creek and Fleet Combat Training Center Atlantic, Dam Neck.

2.3.2.4.2 Atlantic Test Range

Nearshore areas included within the Atlantic Test Range include Hannibal Target, Hooper Target, and Tangier Island Target.

2.3.2.5 Onshore Areas Overview

2.3.2.5.1 VACAPES Range Complex

Onshore areas included within the VACAPES Range Complex include the Navy Dare County Range, TRASUPPCEN Hampton Roads, and ranges and training areas located at NAB Little Creek, Camp Pendleton, Blackwater USA, Naval Support Activity Norfolk, Northwest Annex, Naval Weapons Station Yorktown and Cheatham Annex, Naval Auxiliary Landing Field Fentress, Fort Eustis, Fort Story, Fort A.P. Hill, and Fort Pickett.

2.3.2.5.2 Atlantic Test Range

Onshore areas included within the Atlantic Test Range include Bloodsworth Island and ranges and training areas located at Aberdeen Proving Ground.

2.4 VACAPES RANGE COMPLEX

2.4.1 Organizational Relationships

2.4.1.1 Major Claimant

FFC is the major claimant for the VACAPES OPAREA and warning areas.

2.4.1.2 Host

FFC is the host for the VACAPES OPAREA and warning areas. The administrative agent is Commander Naval Air Forces Atlantic (COMNAVAIRLANT).

2.4.1.3 Tenants

No tenant organizations have responsibility for the VACAPES OPAREA and warning areas. A detachment of the Naval Warfare Assessment Station, Corona, California operates the Oceana TACTS range and the

Large Area Tracking Range (LATR). The Norfolk SESEF is operated by the Naval Undersea Warfare Center, Newport, Rhode Island.

2.4.1.4 Frequent and Intermittent Users

Figure 2-9 summarizes the Naval and other military forces supported by the VACAPES Range Complex.

Units	
SECOND Fleet	Naval Special Warfare
Carrier Battle Groups	Naval Special Warfare Development Group
Carrier Group TWO	Naval Special Warfare Group TWO
Carrier Group FOUR	AIRLANT
Carrier Group EIGHT	Carrier Air Wings 1, 3, 7 and 8
Cruiser-Destroyer Group TWO	Helicopter Tactical Wing
Cruiser-Destroyer Group EIGHT	Airborne Early Warning Wing
SURFLANT	Fighter Wing
Destroyer Squadron 2	Strike Fighter Wing
Destroyer Squadron 18	SUBLANT
Destroyer Squadron 22	Submarine Squadrons 6 and 8
Destroyer Squadron 26	Non-Navy Users
Destroyer Squadron 28	Other Services
Amphibious Group TWO	Foreign Military Services
Amphibious Squadrons 2, 4, 6 and 8	
Naval Beach Group TWO	

Source: U.S. Navy. 2001b.

Figure 2-9. Naval and Military Forces Supported by VACAPES Range Complex

2.4.2 Range Management Structure

2.4.2.1 Controlling Authority

FACSFAC VACAPES is the principal controlling authority for the VACAPES Range Complex. FACSFAC VACAPES controls SUA, which consists of warning areas and restricted areas, military operating areas, air traffic control assigned airspace, and surface/subsurface operating areas.

2.4.2.2 Scheduling Authority

FACSFAC VACAPES is the scheduling authority for the VACAPES OPAREA, offshore warning areas, and overland SUA within the VACAPES Range Complex. Scheduling activities for specific components of the range complex are summarized in Figure 2-10.

2.4.2.3 Scheduling Procedures

2.4.2.3.1 VACAPES OPAREA, Special Use Airspace and Ranges

Detailed scheduling procedures for the VACAPES OPAREA, warning areas, restricted areas, and ranges are established by FACSFAC

Range Complex Component	Scheduling Activity
VACAPES OPAREA Offshore Special Use Airspace Overland Special Use Airspace	FACSFAC VACAPES DSN: 433-1222/1221; Comm: (757) 433-1222/1221 Fax: DSN: 433-2035; Comm: (757) 433-2035
Palmetto Point Range Stumpy Point Range Navy Dare County Range	FACSFAC VACAPES DSN: 433-1218; Comm: (757) 433-1218 Fax: DSN: 433-2035; Comm: (757) 433-2035
Oceana TACTS	Naval Warfare Assessment Station Detachment (NWAS Det) (SE51) NAS Oceana, Virginia Beach, VA 23460 DSN: 433-1907; Comm: (757) 433-1907 Fax: DSN: 433-1916; Comm: (757) 433-1916
Training Support Center, Hampton Roads	TRASUPPCEN Hampton Roads 1912 Regulus Avenue, Virginia Beach, Virginia 23461 DSN: 492-6234; Comm (757) 492-6234
NAB Little Creek	NAB Little Creek Norfolk, Virginia 23521 DSN: 253-4410; Comm (757) 462-4410
Camp Pendleton	Virginia Army National Guard, Range Office DSN: TBD-XXXX; 757-491-5104
Blackwater Training Center	Blackwater Training Center 850 Puddin Ridge Road, Moyock, NC 27958 Comm (252) 435-2488 Fax (252) 435-6388
Naval Support Activity Norfolk, Northwest Annex	Naval Support Activity Norfolk, Northwest Annex 1300 Northwest Boulevard, Chesapeake, Virginia 23322 DSN TBD-8038; Comm (757) 421-8038
NWS Yorktown	NWS Yorktown Yorktown, Virginia 23690 DSN: TBD-XXX-XXXX; Comm 757-887-4263
NWS Yorktown Cheatham Annex	NWS Yorktown Yorktown, Virginia 23690 DSN: TBD-XXXX; Comm 757-887-4263
NALF Fentress	NAS Oceana, Air Operations Department DSN: TBD-XXXX; Comm: (757) 433-2686
Fort Eustis	Directorate of Plans, Training, Mobilization, and Security Range Branch ATTN: ATZF-PT Ft Eustis, VA 23604-5259 DSN: TBD-XXXX; Comm: 757-878-4412
Fort Story	Fort Story Operations Officer Fort Story, VA 23604-5259 DSN: 438-7101 ext 231; Comm: 757-422-7101 ext 231
Fort A.P. Hill	Commander, Fort A. P. Hill, ATTN: ANAP-OP Bowling Green, VA 22427-5000 (804) 633-8333
Fort Pickett	Commander, ARNG-MTC Fort Pickett, ATTN: VAFP-TO Blackstone, VA 23824-9000. DSN 298-2105/8605, Comm (434) 292-2105/8605 email: rangepickett@fort-pickett.net.
LATR	Naval Warfare Assessment Station Detachment (NWAS Det) (SE51) NAS Oceana, Virginia Beach, VA 23460 DSN: 433-1223; Comm: (757) 433-1223 Fax: DSN: 433-3531; Comm: (757) 433-3531
SESEF	Norfolk SESEF Facility Manager, Naval Undersea Warfare Center Virginia Beach VA 23460 Comm: (757) 425-1094 DSN: 438-7624; Fax: (804) 425-1583

Source: Parsons, 2004; U.S. Navy, 2000a

Figure 2-10. Range Scheduling Activities

VACAPES and published in FACSFACVACAPES Instruction 3120.1J. *Manual of Utilization of Fleet Area Control and Surveillance Facility, Virginia Capes Operating Areas* (///provide citation). Users must be familiar with these instructions to ensure that required lead times and other planning requirements, such as timing for support services, are met.

The FACSFAC VACAPES Target Scheduler is responsible for scheduling the Navy Dare County Range, Stumpy Point Range and Palmetto Point Range. FACSFAC VACAPES Target Scheduler also is responsible for scheduling Hatteras ATCAA and Pamlico MOA A-B. Use of the Oceana TACTS Range is arranged through the Naval Warfare Assessment Station at NAS Oceana. Include AFECC Discussion.

2.4.2.3.2 NAB Little Creek

To be included in 100%

2.4.2.3.3 Camp Pendleton

No Contact at time of 75 percent submittal.

2.4.2.3.4 Naval Support Activity Norfolk - Northwest Annex

To be included in 100%

2.4.2.3.5 Naval Weapons Station Yorktown and Cheatham Annex

To be included in 100%

2.4.2.3.6 Fentress Auxiliary Landing Field

To be included in 100%

2.4.2.3.7 Fort Eustis

To be included in 100%

2.4.2.3.8 Fort Story

To be included in 100%

2.4.2.3.9 Fort AP Hill

AP Hill Regulation 350-2, Range Regulations (1 February 1996, as amended) provides detailed procedures for scheduling the use of the ranges and training facilities at Fort A. P. Hill. Units wishing to train at Fort A.P. Hill must complete a Request for Use of Facilities, which is included in Appendix E of A.P. Hill Regulation 350-2. The request must include details on the requesting unit, dates and times of arrival and departure, schedule of training activities (such as range, bivouac, aviation, airborne, and training aids), and required logistical support

(such as billeting, dining, arms room, maintenance, ammunition, and petroleum, oils, and lubricants (POL)).

2.4.2.3.10 Fort Pickett

Chapter 2, "Training Facilities and Scheduling Procedures" of Fort Pickett Regulation 350-1, *Training Policies and Procedures* (30 October 2001) provides detailed procedures for scheduling the use of the ranges and training facilities at Fort Army National Guard Maneuver Training Center and Fort Pickett. Units wishing to train at Fort Pickett must complete the Request for Training Support, which is included as Appendix A to Fort Pickett Regulation 350-1. The request must include unit data, training support center requirements, training facilities and/or ranges requested, target material and/or devices, signal and telecommunications support, administrative and morale support, and logistical needs, such as troop housing, lodging, vehicle wash rack, rations, latrines, fuel, and ammunition.

2.4.2.3.11 Instrumentation Systems

LATR services may be scheduled at the FACSFAC VACAPES weekly range scheduling meeting conducted on Wednesday at 0900 at the NAS Oceana TACTS (Building 310). The LATR is scheduled by event number, 2 weeks in advance. Surface units requiring LATR to support training during smaller exercises and operations must request LATR Ship Instrumentation Packages at least 5 working days prior to the underway period. Priorities for the use of the LATR by flying units are set by the fighter and strike fighter commanders.

The Norfolk SESEF site is operational 5 days a week from 0700 to 1600, excluding weekends and holidays. Pre-scheduling is requested to ensure availability of the range. Requests to schedule performance testing services must be submitted to the Norfolk SESEF facility manager.

2.4.2.4 Staffing

As of March 2004:

- The personnel staffing of FACSFAC VACAPES included nine officers, 138 enlisted naval personnel, and five civilians. This workforce supports multiple missions, including management of VACAPES Range Complex training areas that are assigned to FACSFAC VACAPES.
- The LATR team consisted of 10 civilians (eight contractors and two civilians).
- The Atlantic Fleet Exercise Coordination Center was staffed by five contractors.
- The Commercial Air Services group was staffed by three contractors.
- The FACSFAC scheduling software was supported by four contractors.

- Navy Dare County Range is staffed by nine full-time equivalent personnel.

2.4.3 Range Management Procedures

2.4.3.1 Range Control Procedures

2.4.3.1.1 Airspace Controlling Procedures

As a designated air traffic control (ATC) facility, FACSFAC VACAPES is required to provide air traffic separation consistent with FAA guidelines to ensure the safe, efficient, expeditious flow of air traffic. Radar surveillance and radio communications provide air traffic control separation between high-performance military aircraft and the high volume of commercial aircraft transiting the numerous jet routes along the Atlantic coast.

FACSFAC VACAPES may issue airspace clearances by Warning Area (i.e. W-72 or Warning Area/Special Operating Areas W-72A). However, because the need exists to precisely define smaller parcels of airspace, FACSFAC VACAPES has instituted a Special Operating Area Management concept.

Within the VACAPES OPAREA, airspace and surface clearances are always issued separately, except in W-72 where the surface and air grids are aligned. In other warning areas, airspace does not always encompass the same area as the assigned Surface Operating Areas. This situation exists in the following instances:

- Atlantic Route 8 (AR-8) and Atlantic Route 9 (AR-9), which partially overlay Surface Operating Areas, are not included in the airspace clearance issued when using the Surface Area Grid Reference System.
- Two or more warning areas may overlay a Surface Operating Area. The airspace clearance issued using the Surface Area Grid Reference System will include only the airspace overlying the surface grids within a specified warning area and not the entire surface grid.

Flight lead control procedures for Palmetto Point Range, Stumpy Point Range, and Navy Dare County Range are provided by NASOCEANAINST 3710.19A.

2.4.3.1.2 Surface and Subsurface Controlling Procedures

Clearance for a surface area does not include the airspace above or the subsurface below. Units are required to obtain clearance for all hazardous or exclusive operations within the OPAREA. Subsurface operations may be requested and conducted in all areas with 48 hours notice, except VACAPES OPAREA area 3B, which can be scheduled in real time.

The VACAPES OPAREA contains submarine transit lanes ECHO and WHISKEY which are used by submarines transiting submerged (i.e., 98 feet or lower). Submarines that enter the surface area (i.e., surface down to, but not including, 98 feet) should expect mutual usage of the area. Unless an exclusive surface area clearance has been obtained from FACSFAC VACAPES by the Submarine Exercise Area Coordinator (SEAC), surface units may be assigned operations in these areas. FACSFAC VACAPES grants concurrent surface and exclusive subsurface clearances to the SEAC for submarine operations.

In all waters where submarine operations are scheduled, surface units are directed to use one or more of the following: cavitation, sonar and/or active fathometer on maximum depth. This requirement may be waived by the Officer Conducting the Exercise (OCE) for surface participants when the Submarine Operating Authority (SUBOPAUTH) approves coordinated exercises involving submarines.

Range control procedures for other ranges and training facilities included in this RCMP are documented in the respective range manuals and instructions for each range.

2.4.3.2 Range Safety Procedures

All range safety precautions and regulations contained in COMLANTFLTINST 3120.26, Atlantic Fleet Operating Areas and Warning Areas, apply in the OPAREA. In addition, FACSFAC VACAPES imposes additional safety requirements, which may be waived by the FACSFAC VACAPES Commanding Officer as the situation dictates.

The following general rules apply to area clearances within FACSFAC VACAPES OPAREA:

- Dropping any ordnance, live or inert, or live fire is considered a hazardous event. All hazardous or exclusive operations and exercises conducted in the FACSFAC VACAPES OPAREA require clearance from FACSFAC VACAPES.
- The firing or dropping of ordnance must be scheduled with FACSFAC VACAPES. Firing exercises are not authorized without prior FACSFAC VACAPES approval.
- Small arms (munitions .50 caliber and under) qualifications on ships do not require FACSFAC VACAPES approval. The unit conducting small arms fire is responsible for clearing their area.
- Non-hazardous/concurrent air, surface and subsurface operations, such as independent steaming exercise (ISE) transits, navigation drills, deck landing qualifications (DLQ), and helicopter operations do not require a specific clearance/message request.
- Flare drops are considered a non-hazardous event but all airborne/surface units must contact FACSFAC VACAPES prior to dropping flares to prevent errant search-and-rescue reporting.

- Although not required, it is highly recommended that all aircraft schedule their events for concurrent air operations with FACSFAC VACAPES prior to entering the Warning Area. It is the responsibility of individual units and/or group Officer in Tactical Command (OTC)/Officer Conducting Exercise (OCE) to remain clear of HOT and exclusive areas.
- Clearance for a surface area does not include the airspace above or the subsurface below. Airspace assignment does not include the surface below. Specific subsurface clearance is required for any subsurface operation.

Range safety and flight lead/aircrew safety procedures for the Palmetto Point, Stumpy Point, and Navy Dare County bombing ranges are prescribed in NASOCEANAINST 3710.19A. This instruction includes safety procedures related to aircraft mishaps, privately-owned vehicle operation, personnel injuries, fires, off-range releases, and ordnance disposal. Emergency procedures for aircraft diversion, radio failure, runaway gun, crash/bailout and intrusion by authorized aircraft also are included.

Range safety procedures for other ranges and training facilities included in this RCMP are documented in the respective range manuals and instructions for each range.

2.4.3.3 Range Inspection Procedures

Within the VACAPES OPAREA and warning areas, all units conducting firing or other hazardous activity must comply with Section 8, Chapter 1 of CINCLANTFLTINST 3120.26 and all Fleet Exercise Publications (FXP). FACSFAC VACAPES promulgates Notices to Mariners as applicable.

OCEs may not authorize firing or jettisoning of aerial targets unless the area is confirmed to be clear of nonparticipating civilian and military units. Due to the density of pleasure and fishing craft in the vicinity of D-334.390 (36°46’00”N and 075°56’00”W), special vigilance must be exercised by the OCE and all firing exercise participants to ensure the range is clear.

NASOCEANAINST 3710.19A requires all pilots using the Navy Dare complex who are unfamiliar with a target to make a familiarization run to obtain a positive target identification. Flight leaders must require at least one familiarization run on unmanned targets (Palmetto Point and Stumpy Point, if they are operational) to ensure that the target is clear.

Navy Dare County Range is operational from 0700 to 2300 Monday through Thursday and 0700 to 1600 on Friday. The range is closed on Saturday. It can be made available on Sundays for special users such as carriers or Special Forces.

The range is visually inspected daily prior to opening. Each of the range's five gates is opened at 2300 to allow access to the adjacent Alligator River National Wildlife Refuge and closed at 0630 for range safety.

2.4.3.4 Coordination Procedures

FACSFAC VACAPES provides Fleet surveillance and functional area support services to include scheduling, monitoring, and controlling air, surface and subsurface traffic operating in Warning Area 105 (Narragansett Bay OPAREA southward to Warning Area 122 (Cherry Point OPAREA). In addition, its mission includes the following coordination activities and procedures:

- Coordinate DoD use of oceanic airspace east of the warning areas to the Azores and the Gulf of Mexico.
- Schedule inland aircraft target ranges and military training routes.
- Provide air intercept control services.
- Coordinate and provide range control for surface and airborne missile firing exercises.
- Provide coordination and equipment support for opposition forces and data collection teams involved with major Fleet exercises.
- Coordinate, schedule, and oversee associated commercial and military aircraft services support (Atlantic and Pacific Fleet requirements).
- Act as Regional Airspace Coordinator for Department of the Navy activities and the FAA.
- Provide full air traffic control services by direct interface with FAA and military/civil approach controls.
- Coordinate operations with U.S. Coast Guard Search and Rescue, anti-immigration interdiction defense operations, federal drug interdiction teams, and Northeast Air Defense Sector.

Close coordination between military and civilian air traffic control facilities enables effective, real-time shared use of the VACAPES Range Complex warning areas. Under this procedure, regardless of the schedule for the use of a military warning area, civilian aircraft may use warning area airspace, until a military aircraft is actually enroute to that area. FACSFAC VACAPES has the responsibility to ensure civilian air carrier transit of SUA does not conflict with ships, submarines, and fighter aircraft; naval gunnery exercises; electronic counter-measures; or and radio or satellite communications. Specific guidelines, procedures, and restrictions are outlined in FACSFACVACAPESINST 3120.1J.

Coordination on the use of the Navy Dare County Range is obtained by means of an indefinite Inter-Service Support Agreement (ISSA) between the 4th Fighter Wing, Seymour Johnson Air Force Base (AFB), which is the supplying activity and NAS Oceana. The ISSA describes those services to be provided by the Air Force and Navy in the areas of airfield operations, civilian personnel, communications services, common infrastructure, environmental cleanup, environmental compliance, explosive ordnance support, facility construction and major repair,

facility maintenance and minor repair, fire protection, budget, geodetic support, legal services, mortuary services, pubic affairs, security services, supply services, and weather services.

2.4.3.5 Links to Other Ranges

In addition to the VACAPES Operating Area, FACSFAC VACAPES has cognizance over the Narragansett Bay and Atlantic City Operating Areas to the north and the Cherry Point Operating Area to the south. It has similar cognizance over warning areas that are outside the VACAPES Range Complex, including W-105, W-106, and W-107 to the north and W-122 to the south.

Naval Special Warfare units stationed at NAB Little Creek train on a variety of Army installations within the VACAPES region. Although not traditionally thought of as part of the VACAPES Range Complex, the ranges at these installations (including Forts Eustis, Story, A.P. Hill, and Pickett) support a variety of training exercises that cannot be accomplished on NAB Little Creek or other Navy bases in the region.

2.4.4 VACAPES Range Complex Assets

2.4.4.1 Range Area Descriptions

2.4.4.1.1 VACAPES Surface Operating Area

As shown in Figure 2-11, the Surface OPAREA lies off the east coast of Delaware, Maryland, Virginia, and North Carolina under warning areas 50, 72, 110, and 387. The OPAREA is separated into 135 designated sub-areas that begin 3 nautical miles from the shoreline and extend varying distances seaward.

- Surface areas 1-6, 7A-B, and 8A-B are typically used for surface operations.
- Areas 3B, 7C-D, and 8C-D are Fleet gunnery areas.
- Area 6 is used primarily by Commander, Helicopter Tactical Wing (COMHELTACWING) for surface and airborne mine countermeasure operations.
- Areas 3B, 7C/D, and 8C/D support Fleet gunnery exercises.

2.4.4.1.2 VACAPES Submarine Operating Area (SUBOA)

Submarine operations are normally conducted in areas 15B, 15D, 16 through 19, 23 through 26, 29 through 32, 35 through 38, and 40 through 43. Commander, Submarine Force, U.S. Atlantic Fleet (COMSUBLANT) is the SEAC for the SUBOA within the VACAPES OPAREA

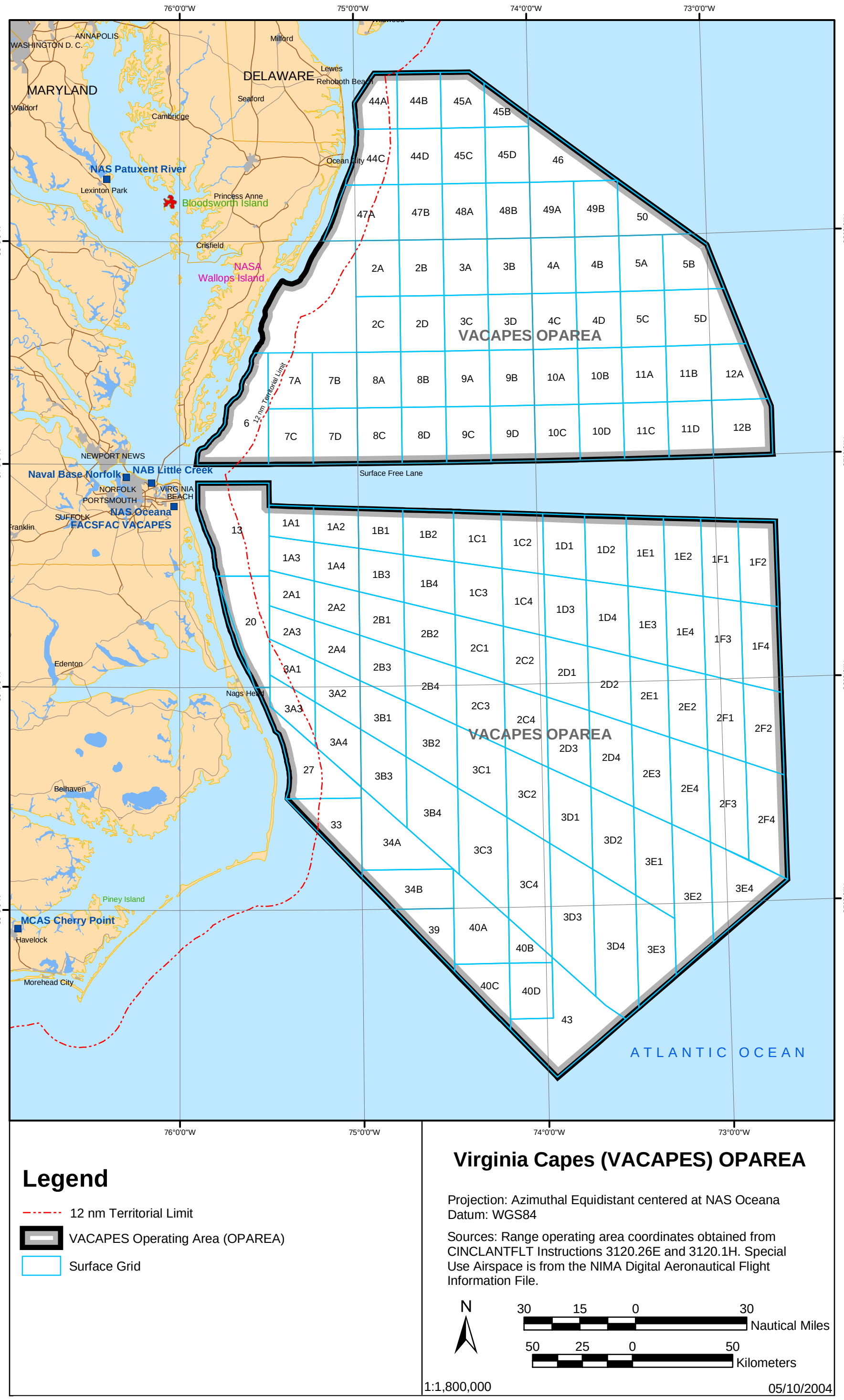


Figure 2-11. Virginia Capes (VACAPES OPAREA

This page intentionally left blank

2.4.4.1.3 Offshore Special Use Airspace

Offshore SUA within the VACAPES Range Complex is summarized in Figure 2-12 and described in the following paragraphs.

Airspace	Floor	Ceiling
Warning Area W-50A-C	Surface	FL750
Warning Area W-72A-B	Effective altitudes of W-72 are surface to unlimited for the areas east of 075º30'00"W (AIR 1A-2E) except for the Oceana TACTS Range when activated (AIR 2A/2B/3A/3B) which is 5,000 feet mean sea level (MSL) to unlimited.	
Warning Area W-110	Surface	FL230
Warning Area W-386A	Surface	FL230
Warning Area W-386B-J	Surface	Unlimited
Warning Area W-387A	Surface	Up to, but not including, flight level 240
Warning Area W-387 B	FL240	Unlimited
Oceana TACTS (within W-72)	5,000 feet	Unlimited
Source: U.S. Navy. 2001a.		

Figure 2-12. Offshore Special Use Airspace within the VACAPES Range Complex

2.4.4.1.3.1 Warning Area 50 (W-50A-C).

W-50 is SUA that overlies that portion of the open ocean beyond 3 miles from the coast of Dam Neck, Virginia (Surface Grid D-334.390). W-50 borders R-6606 to the east and is located approximately 8 NM east of the NAS Oceana TACAN. W-50 is divided into three subdivisions (A-C), each of which extends from the surface up to Flight Level (FL) 750. Figure 2-13 illustrates the location of W-50 airspace.

When W-50 is not being used for warning area activities, it is released to NAS Oceana Approach Control and FAA Washington Center on a real-time basis. NAS Oceana Approach Control retains FL230 and below when W-50 is not in use. FAA Washington Center retains FL240 and above when W-50 is not in use. All altitudes not being used by the military may be released to both agencies.

Activities conducted in Warning Area 50 include parachute drops, surface-to-surface and air-to-surface gunnery, RDT&E, MCM, Anti-Submarine Tactical Air Controller (ASTAC), and exclusive air operations.

Air-to-surface and surface-to-surface seaborne powered target (SEPTAR) exercises using inert ordnance are authorized. W-50 is also the transit airspace for the BQM-74E aerial targets on their way from R-6606 to the air-to-air missile firing area in the northeast portion of W-386.

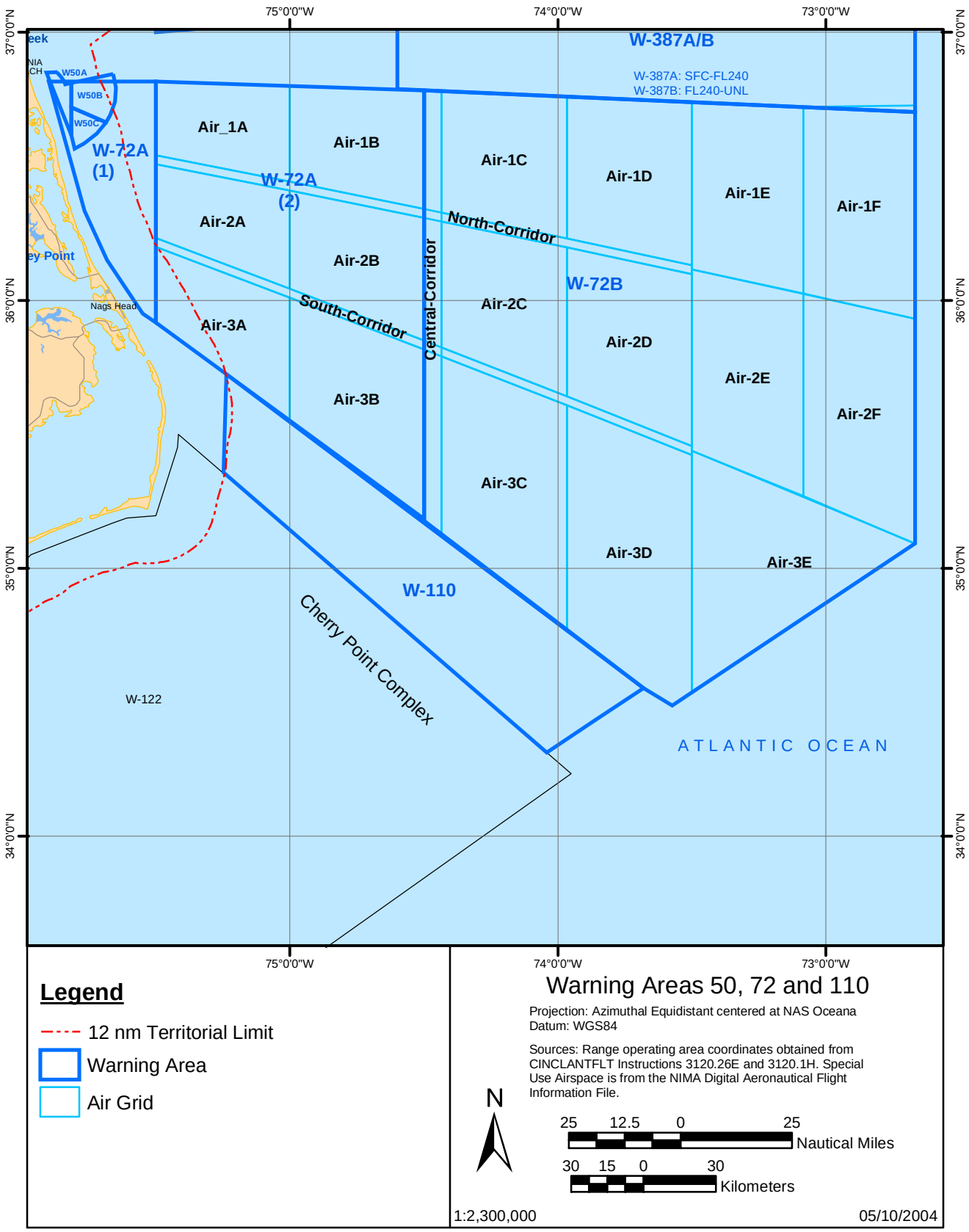


Figure 2-13. Warning Areas 50, 72, and 110

2.4.4.1.3.2 Warning Area 72 (W-72).

W-72 is SUA offshore over the open ocean. W-72 is adjacent to the coasts of Virginia and North Carolina and is located approximately 20 NM southeast of the NAS Oceana Tactical Air Navigation (TACAN).

FACSFAC VACAPES uses an air grid system to assign W-72 airspace. The grid includes areas AIR1A-F, AIR2A-F, and AIR3A-E. In addition, FACSFAC VACAPES has established three air corridors (north, central, and south) and four ingress/egress points (SCUPE, KNOTS, BIGEY, and CORIL). Figure 2-13 illustrates the location of W-72 airspace.

The effective altitudes of W-72 are surface to unlimited for the areas east of 075º30'00"W (AIR 1A-2E), except for the Oceana TACTS Range when activated (AIR 2A/2B/3A/3B) which is 5,000 feet mean sea level (MSL) to unlimited.

Airspace not in use for warning area activities is released to the FAA on a real-time basis. Any altitudes not being used by the military may be released to the FAA.

Air-to-air, air-to-surface, surface-to-surface, and surface-to-air missiles, guns, cannons, and bomb exercises using conventional ordnance are authorized.

Activities conducted in the area include surface-to-surface and surface-to-air gunnery, tactical air combat training, exclusive air operations, MISSILEX, Tracking Exercise (TRACKEX), electronic warfare, air recovery, surveillance, carrier flight operations, carrier fly off, anti-submarine air controller, balloon, chaff, photo, tactical air launch decoy, search and rescue, bombing exercises, law enforcement operations, and air-to-air refueling.

2.4.4.1.3.3 Warning Area 110 (W-110).

W-110 is SUA locate offshore over surface areas 27, 33, 34, 39, 40, and 43 of the VACAPES OPAREA. W-110, which is located off the coast of North Carolina, is located approximately 75 NM southeast of NAS Oceana TACAN. W-110 extends from the surface to FL230. Figure 2-13 illustrates the location of W-110 airspace.

FACSFAC VACAPES retains W-110 on a continuous basis and is the sole provider of control services in the area. This area is neither requested nor released to FAA Washington or New York Center. This area is subject to 15-minute deactivation by FACSFAC VACAPES to facilitate airway traffic at altitudes FL230 and below traveling on Atlantic Route 8.

Activities conducted in the area include carrier flight operations, search and rescue, law enforcement operations, and transition between warning areas.

2.4.4.1.3.4 Warning Area 386 (W-386A-K).

W-386 is SUA located offshore approximately 60 NM east of the NAS Patuxent River Very High Frequency Omni-Directional Range TACAN (VORTAC), Channel 1231. W-386 overlies surface areas 1 through 5, 7 through 12, and 44 through 50, excluding those portions of the sub-areas underlying Atlantic Route 9/W-387.

FACSFAC VACAPES has subdivided W-386 airspace into sub-areas AIR-A through AIR-K. In addition, FACSFAC VACAPES has established three test tracks (A, B, and C), two air corridors (VICTOR and LANGLEY) and six ingress/egress points (ATLIC, OUTES, DART, HEELS, TRAXX, and HORNT)

Airspaces W-386B through W-386K extend from the surface to unlimited altitude, while W-386A is surface to FL230. Figure 2-14 illustrates the location of Warning Area 386 airspace.

Airspace not in use for warning area activities is released to the FAA on a real-time basis. Any altitudes not being used by the military may be released to the FAA. East of VACAPES SWAP Area B/C, FACSFAC VACAPES releases FL240 and above and releases FL230 and below. Within VACAPES SWAP Area B/C, FACSFAC VACAPES releases 10,000 feet MSL and above and releases 9,000 feet MSL and below.

Air-to-air, air-to-surface, surface-to-air, and surface-to-surface missile, gunnery, and rocket exercises using conventional ordnance may be authorized in W-386.

Activities conducted in the area include air combat maneuvering, tactical air combat training, exclusive air operations, MISSILEX, TRACKEX, electronic warfare, air recovery, surveillance, super-sonic target operations, carrier flight operations, carrier fly off, balloon, chaff, photo, remotely-piloted vehicles, tactical air-launched decoy, surface-to-surface and surface-to-air gunnery, and air-to-air refueling.

2.4.4.1.3.5 Warning Area 387 (W-387A-B).

W-387 is offshore open-ocean airspace located approximately 75 NM east of the NAS Oceana TACAN. W-387 is divided into a low area, W-387A, which extends from the surface up to, but not including, FL240, and a high area, W-387B, from FL240 to unlimited. Figure 2-14 illustrates the location of W-387 airspace.

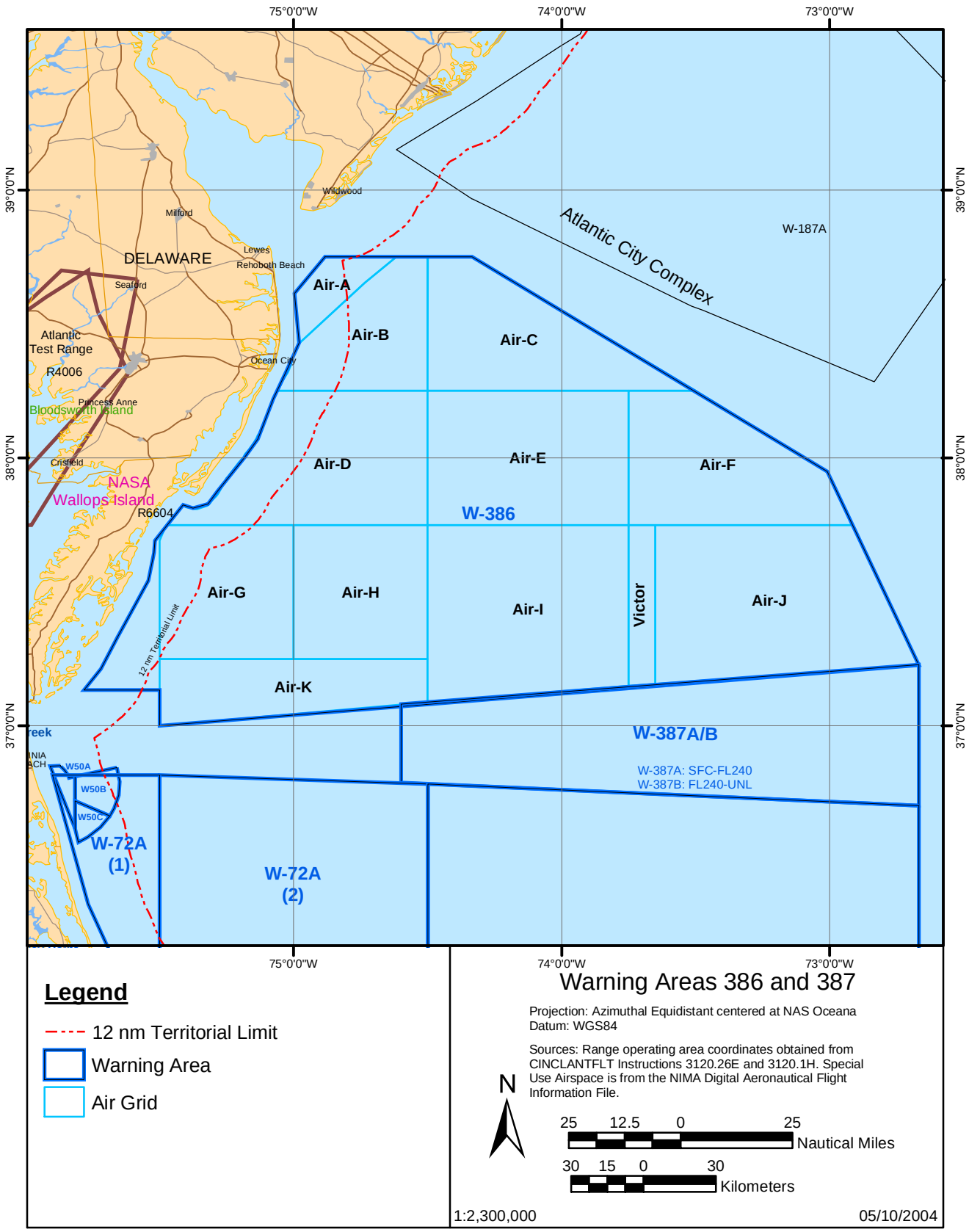


Figure 2-14. Warning Areas 386 and 387

FACSFAC VACAPES retains W-387 A/B on a continuous basis and is the sole provider of control services in the area. FACSFAC VACAPES also controls all inbound/outbound Atlantic Route 9 traffic. This area is neither requested nor released to FAA Washington Center.

Activities conducted in the area include carrier flight operations, carrier fly off, air-to-air refueling, airborne warning and control, search and rescue, law enforcement operations, and area transits. No ordnance is authorized.

2.4.4.1.3.6 Oceana Tactical Air Combat Training System (TACTS) Range.

The Oceana TACTS range is located in W-72 airspace (onshore, inshore, and offshore) and is centered approximately 60 NM southeast of the NAS Oceana TACAN. The Oceana TACTS airspace extends from 5,000 feet to unlimited altitude. The airspace is divided into north and south areas that can be used either for independent missions or combined for larger missions.

TACTS North (2A and 2B) and TACTS South (3A and 3B) are 32 and 45 NM, respectively from the NAS Oceana TACAN. The coverage of the TACTS range includes most of the Navy Dare County Range in R-5314 airspace and the Stumpy Point Range in R-5313 airspace. Figure 2-15 illustrates the location of the Oceana TACTS airspace.

The Oceana TACTS range provides aircrew training and performance evaluation in air combat maneuvering (ACM), air-to-air tactics, and no drop weapons scoring (NDWS).

2.4.4.1.4 Overland Special Use Airspace

Overland SUA within the VACAPES Range Complex is summarized in Figure 2-16 and described in the following paragraphs.

2.4.4.1.4.1 Restricted Area 5301.

R-5301 is SUA located over Albemarle Sound approximately 46 NM south-southeast of the NAS Oceana TACAN channel 113. R-5301 extends from the surface to 14,000 feet. Figure 2-15 illustrates the location of R-5301 airspace.

Activities conducted within the area include air operations, parachute drop operations, and equipment testing.

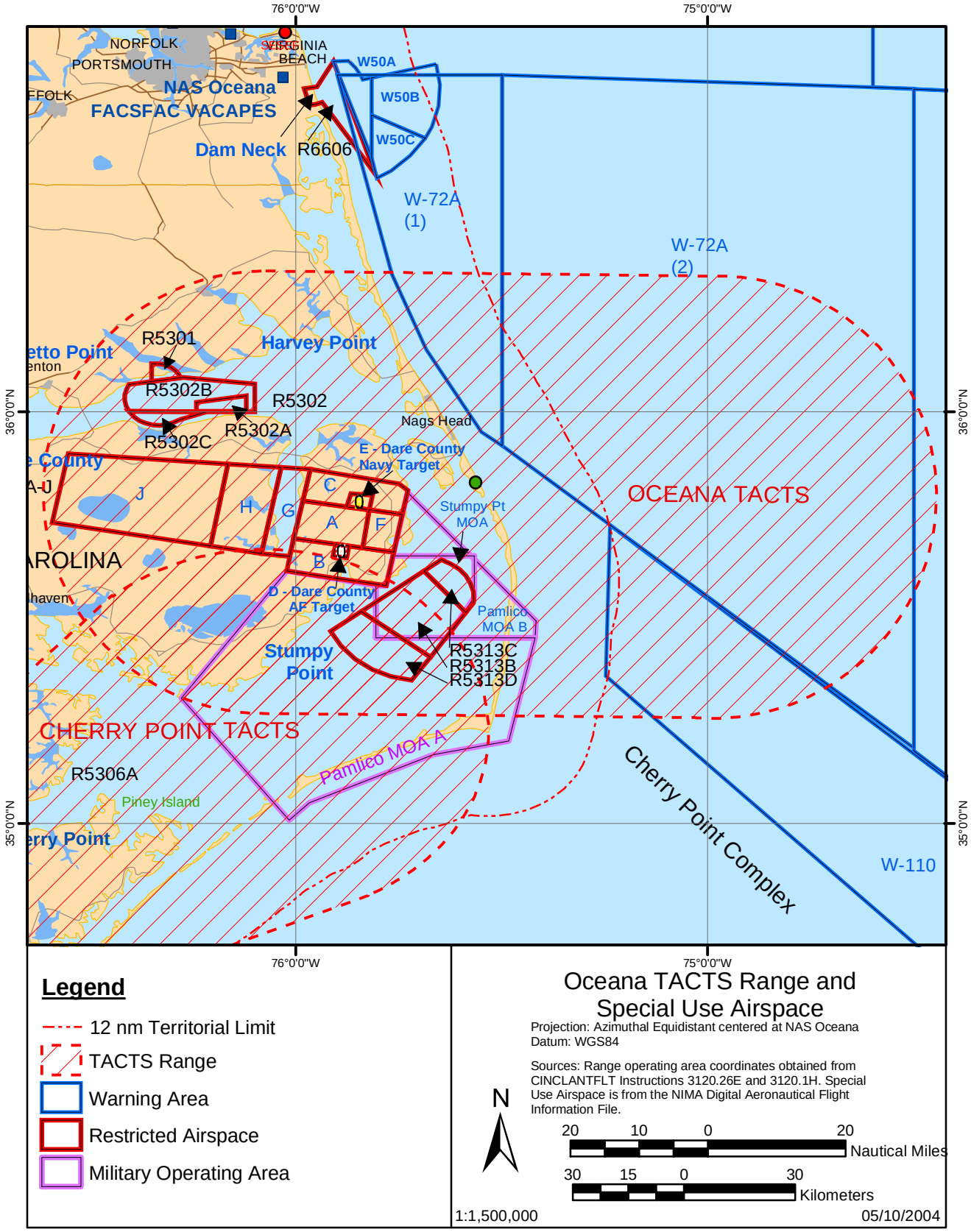


Figure 2-15. Oceana TACTS Range and Special Use Airspace

Airspace	Floor	Ceiling
Restricted Area 5301	Surface	14,000 feet
Restricted Area 5302A	Surface	14,000 feet
Restricted Area 5302B	100 feet AGL	14,000 feet
Restricted Area 5302C	100 feet AGL	3,000 feet
Restricted Area 5313A	Surface	18,000 feet
Restricted Area 5313B	100 feet AGL	13,000 feet
Restricted Area 5313C	100 feet AGL	13,000 feet
Restricted Area 5313D	500 feet AGL	13,000 feet
Restricted Area 5314A	Surface	FL205
Restricted Area 5314B	500 feet AGL	FL205
Restricted Area 5314C	500 feet AGL	FL205
Restricted Area 5314D	Surface	FL205
Restricted Area 5314E	Surface	FL205
Restricted Area 5314F	500 feet AGL	FL205
Restricted Area 5314G	200 feet AGL	15,000 feet
Restricted Area 5314H	500 feet AGL	10,000 feet
Restricted Area 5314J	1,000 feet AGL	6,000 feet
Restricted Area 6606	Surface	FL510
Pamlico MOA A-B	8,000 feet MSL	Up to, but not including, FL180
Hatteras ATCAA	FL240	FL600
Source: U.S. Navy. 2001a		

Figure 2-16. Overland Special Use Airspace within the VACAPES Range Complex

2.4.4.1.4.2 Restricted Area 5302A-C.

R-5302 is SUA associated with the Palmetto Point Range, which is located in Albemarle Sound approximately 48 NM south of the NAS Oceana TACAN channel 113. R-5302 is divided into three sub-areas.

- R-5302A extends from the surface to 14,000 feet.
- R-5302B extends from 100 feet above ground level (AGL) to 14,000 feet.
- R-5302C extends from 100 feet AGL to 3,000 feet. Figure 2-15 illustrates the location of R-5302 airspace.

2.4.4.1.4.3 Restricted Area 5313A-D.

R-5313 is SUA associated with the Stumpy Point Range, which is located inshore in Albemarle Sound approximately 75 NM northeast of the Marine Corps Air Station (MCAS) Cherry Point TACAN. R-5313 is divided into four sub-areas:

- R-5313A extends from the surface to 18,000 feet.

- R-5313B and R-5313C extend from 100 feet AGL to 13,000 feet.
- R-5313D extends from 500 feet AGL to 13,000 feet.

Figure 2-15 illustrates the location of R-5313 airspace.

2.4.4.1.4.4 Restricted Area 5314A-J.

R-5314 is SUA associated with the Navy Dare County Range, which is located onshore near Manteo, North Carolina, approximately 70 NM south of the NAS Oceana TACAN. R-5314 is divided into nine sub-areas. Airspace restrictions are as follows:

- R-5314A, D, and E, surface to FL205;
- R-5314 B, C, and F, 500 feet AGL to FL205;
- R-5314G, 200 feet AGL to 15,000 feet;
- R-5314H, 500 feet AGL to 10,000 feet; and
- R-5314J, 1,000 feet AGL to 6,000 feet.

Figure 2-15 illustrates the location of R-5314 airspace.

2.4.4.1.4.5 Restricted Area R-6606.

R-6606 is SUA associated with the Dam Neck Range, which is located approximately 5 NM east of the NAS Oceana TACAN between the coast of Dam Neck, Virginia and the 3 nautical mile territorial limit. It borders the western limit of W-50 from the surface to FL510. Figure 2-15 illustrates the location of R-6606 airspace.

Airspace not used for military activities is released to NAS Oceana Approach Control and FAA Washington Center on a real-time basis. NAS Oceana Approach Control retains FL230 and below when R-6606 is not in use. FAA Washington Center retains FL240 and above when R-6606 is not in use.

Activities conducted within the area included parachute drops, surface-to-surface and air-to-surface gunnery, RDT&E, drone transit and recovery, exclusive air operations, remotely-piloted vehicle operations, and anti-submarine tactical air control.

2.4.4.1.4.6 Pamlico Military Operating Area (Pamlico MOA).

The Pamlico MOA is SUA located over eastern North Carolina approximately 70 NM northeast of the MCAS Cherry Point TACAN. The airspace extends from 8,000 feet up to, but not including, FL180. Figure 2-15 illustrates the location of the Pamlico MOA.

Pamlico MOA A and B are used in conjunction with Hatteras B ATCAA. Aircraft conducting operations within the Pamlico A and B MOA can access the Hatteras B ATCAA through the Pamlico Shelf, which is delegated airspace that is released to FACSFAC VACAPES from FAA Washington Center. The boundaries of the Pamlico Shelf are

those of the Pamlico MOA A/B and a portion of the Navy Dare County Range. Effective altitudes are 15,000 feet to FL230.

The Pamlico MOA is used for air combat maneuvering, air intercept control, low altitude tactics, and air operations. No ordnance is authorized.

2.4.4.1.4.7 Hatteras Air Traffic Control Assigned Airspace (Hatteras ATCAA).

Hatteras ATCAA is SUA located over eastern North Carolina that covers the airspace from the north end of R-5314 to the northern boundary of R-5306A, and from the western boundary of R-5314 eastward to the outer banks of North Carolina. The airspace extends from FL240 to FL600.

Hatteras B ATCAA is used in conjunction with Pamlico MOA A/B. Although Hatteras B ATCAA has an upper limit of FL600, the majority of operations are conducted below FL290. Washington Air Route Traffic Control Center (ARTCC) may release up to FL450 for major Fleet exercises.

Activities conducted within the area include air combat maneuvering, air intercept control, and air operations.

2.4.4.1.5 Targets and Ground Ranges

Targets and ground ranges within the VACAPES Range Complex are described in the following paragraphs.

2.4.4.1.5.1 Palmetto Point Range.

Palmetto Point Range is located inshore in Albemarle Sound approximately 48 NM south of the NAS Oceana TACAN. Access is by surface vessel. Since the target was destroyed in the mid-1990s, the range has been unusable.

When Palmetto Point Range was in operation, air-to-ground exercises using inert ordnance up to and including 500-pound inert bombs and 5-inch Zuni rockets with inert or smoke heads were authorized. No strafing was authorized.

2.4.4.1.5.2 Stumpy Point Range.

The Stumpy Point Range is located inshore in Albemarle Sound approximately 75 NM northeast of the MCAS Cherry Point TACAN. Stumpy Point was a non-raked conventional and loft delivery range. The target was destroyed by use and the range was closed to bombing exercises from October 2002 to July 2003. In August 2003, the Navy replaced the target and the range was reopened; however, on September 17, 2003 the new target was destroyed by Hurricane Isabel. Since that

time, the range has been closed. An additional discussion of these events is provided under the "Targets and Target Arrays" subheading, below.

When Stumpy Point Range was in operation, air-to-ground exercises were authorized using inert ordnance. These included water/sand-filled bombs, practice bombs, flares, photo-flash, phosphorus, and training rockets up to and including 5-inch Zuni smoke rockets. Strafing was not permitted.

2.4.4.1.5.3 Navy Dare County Range.

The Navy Dare County Range is located onshore near Manteo, North Carolina, approximately 70 NM south of the NAS Oceana TACAN.

Air-to-ground exercises, including loft deliveries, may be authorized. Due to the fire hazard, live ordnance, flares, tracer ammunition, and pyrotechnics are prohibited. Authorized ordnance is restricted to inert ordnance and ordnance that uses marking charges only. Strafing is restricted to ball ammunition.

2.4.4.1.5.4 Dam Neck Range.

The Dam Neck Range is located approximately 5 NM east of the NAS Oceana TACAN.

Air-to-air exercises using live ordnance and air-to-surface exercises using MK-76 or MK-106 practice bombs and inert 2.75-inch folding fin aerial rocket (FFAR) are authorized. Dam Neck Range is the launch site for the BQM-74E aerial targets, which provide aircrew training in W-386 firing AIM-9, AIM-7, AIM 120, and AIM 54 air-to-air missiles.

2.4.4.1.6 Other Range and Training Facilities

2.4.4.1.6.1 Training Support Center, Hampton Roads.

TRASUPPCEN Hampton Roads is part of NAS Oceana which provides training in specified combat systems operation and maintenance. It also hosts several tenant commands that support training of individual service members and tactical team training.

Dam Neck is located on the Atlantic coast, 5 miles south of the Oceanfront at Virginia Beach.

2.4.4.1.6.2 Naval Amphibious Base Little Creek.

NAB Little Creek, the largest base of its kind in the world, is the major operating station for the amphibious forces of the United States Atlantic Fleet. NAB Little Creek consists of 2,120 acres of land located at the extreme northwest corner of Virginia Beach.

Anzio I training area is located between the Navy's East Coast facility for the support and maintenance of Landing Craft, Air Cushion (LCAC) and the Chesapeake Bay. Activities in this area are restricted to LCAC training and support.

The LCAC landing pad facility occupies approximately 95 acres, with about 1,800 feet of beach. The facility has the capacity to support more than 45 of these craft, though only two to three typically are used during a training operation. LCAC beach landing operations occur approximately five times per month.

Anzio II and III training areas include the beach and primary dunes north of Beach Road. The combined area of the ranges is about 28 acres with 2,935 feet of beach.

These beaches are the most intensively used training areas at NAB Little Creek and are scheduled for use on a daily basis. Training exercises include offshore and onshore activities such as diving, swimming, causeway pier operations, beach assaults, troop training, troop physical training, Landing Craft, Mechanized (LCM) operations, and Sea, Air, Land (SEAL) Delivery Vehicle Team operations.

Sicily I and II training areas consist of the beaches and dunes that lie between NAB Little Creek's Enlisted Beach and the ordnance demolition pit. The area is about 36 acres in size and has 1,830 feet of beach. Sicily I and II are used for the same types of training activities as Anzio II and III, but with less frequency. Training exercises may occur three to four times per month and are generally sea-based exercises.

The **Normandy Beach training area** is located immediately west of the NAB Little Creek's Officer's Beach and includes approximately 24 acres with 2,230 feet of beach, vegetated dunes, and the ordnance demolition pit. Small arms (blank ammunition), pyrotechnics, and training demolition materials (0.5 pound TNT or equivalent maximum charge) are authorized for use in training on this range. Because the eastern portion of Normandy Beach falls within the rifle range firing fan, it conflicts with training on the rifle range and is not regularly scheduled for training activities.

The **Alpha, Bravo, and Charlie ranges** are located to the south of Beach Road and are used in conjunction with training in the Anzio Beach area. The combined area of the ranges is 58.7 acres. Various types of training, including troop training and beach parties associated with beach assaults occur on a daily basis. In addition, these areas (and Charlie Range in particular) are used regularly for through traffic since they provide the primary access routes to Anzio Beach.

The **Outdoor Rifle Range** is located west of Officer's Beach on D Street. The range has firing lines at 25, 100, and 200 yards. Each line has 10 firing points. Live firing of weapons up to and including M-60

machine guns is authorized. Authorized ordnance includes 7.62 caliber, shotguns (all gauges), and M-60. From Memorial Day to Labor Day, the range is available for live firing on Monday and Tuesday from 0730 to 1530 and on Wednesday through Friday from 0730 to 1130. From Labor Day to Memorial Day, the range is available Monday through Friday from 0730 to 1530.

The **Outdoor Pistol Range** is located east of Officer's Beach on D Street. The range has firing lines at 15 and 25 yards. Each line has 10 firing points. In addition, a point combat pistol range is available for daytime use. This range uses silhouette targets and has firing points at the 3, 7, 15, and 25 yard lines. Live firing of pistols (.45 caliber and smaller) and shotguns (all calibers) is authorized. The outdoor pistol range has the same hours of operation as the outdoor rifle range.

The **Salerno Beach training area** consists of the beach and forested area behind the beach. The entire area is about 8 acres and is located to the east of the Officer's Beach. The area primarily serves as a backdrop for the pistol range and is not scheduled for other training purposes.

2.4.4.1.6.3 Camp Pendleton.

The Camp Pendleton State Military Reservation consists of 325 acres and more than 100 buildings. The operation and maintenance of the installation is funded primarily by the federal government through the National Guard Bureau.

The primary purpose of the State Military Reservation is the onsite training of the Virginia National Guard. National Guard units from other states also train at the site, as do components of the U.S. Armed Forces. State and local civilian agencies sometimes conduct training at the site when facilities are not otherwise in use by military organizations.

Facilities currently include a small arms range, helicopter landing strip, classrooms, barracks, dining halls, maintenance garages, training fields, and chapel. The Camp Pendleton small arms range is a 300-meter facility capable of handing side arms, shotguns, and 5.56 millimeter (mm) rifles. The range cannot be used between Memorial Day and Labor Day because of extensive civilian recreational use of adjacent areas.

2.4.4.1.6.4 Blackwater Training Center.

Blackwater Training Center is a privately-owned, tactical training facility located on approximately 6,000 acres of private land in Moyock, North Carolina. Blackwater Training Center's training assets include large and small shoot houses, urban training range, reactive steel range, computerized paper turner and mover range, carbine range, static and moving steel range, and known distance range.

The large **Live Fire Shoot House** is a 4,100-square-foot, multi-level, fully ballistic training facility. It has a changeable floor plan, 10 exterior entrances, and six different interior and exterior stairwell problems. The interior and exterior walls are AR500 steel and fully ballistic. There are 35 portable reactive AR500 steel bullet traps and high-powered rifle bullet traps are available under special circumstances. The interior is fully ventilated and has lighting controls for lighted and low-light training.

The large shoot house is rated for all pistol, sub-machine gun, and buckshot rounds, including 5.56 caliber frangible ammunition. It also supports breaching using live shotgun fire and explosives. All shotgun breaching ammunition must be approved by the Blackwater Training Center and explosives must be a 1.5-ounce TNT equivalent and authorized by the Blackwater Training Center.

The shoot house can be approached by land or water and can support helicopter operations with multiple fast rope areas. It also allows exterior targets to be fired upon in conjunction with tactical scenarios within the shoot house.

Blackwater Training Center has a second, smaller Live Fire Shoot House that has most of the capabilities of the larger shoot house. The small shoot house has eight portable reactive AR500 steel bullet traps and is only approachable by land.

The **Tactical Training Area Warm-up Range** is a 25-yard by 20-yard utility range. The range's targets include six portable 5-foot-tall static steel targets (12 by 12 inches); six portable 5-foot-tall static steel targets (12 by 18 inches); six portable steel pepper popper targets; 10 portable paper target stands with uprights; and two plate racks with six multi-shaped interchangeable plates.

The **Urban Training Range** offers 14,746 square feet of building space for simulation training. The range includes single- and multi-level buildings that create an urban training environment, and several of the buildings include changeable floor plans. An "R.U. Ready High School" mock-up allows simulation force-on-force training.

The range has a live-fire paved street facade with computerized targets. The computer applications consist of manual, custom programming, and random capability. There are six 12- by 18-inch steel plates with 5-foot uprights and portable stands. Various multi-level, long gun/sniper platforms overlook the 600-yard Unknown Distance Range.

The **Reactive Steel Range** has six individual stations with seven computerized reactive steel targets at ranges of 7 to 18 yards on each. The range is lighted for low-light application and offers an unlimited number of computerized target combinations. The computer applications consist of manual, custom programming, and random capability.

The **Computerized Paper Turner and Movers Range** is a 50-yard, small arms range with 20 firing points. Two independently controlled paper movers run behind the target line. The range is lighted for low-light application and offers an unlimited number of computerized target combinations. The computer applications consist of manual, custom programming, and random capability.

The **Carbine Range** is 100 yards by 75 yards with an 82-foot, adjustable-speed, steel, moving target with four pneumatic carbine plate racks with various interchangeable plates. Targets include 15 portable, static, steel, 12- x 18-inch, carbine targets with portable stands; a paper target line with 19 removable firing points; 10 portable paper target stands with uprights; and six 12- by 12-inch steel plates with 5-foot-tall uprights and bases. Barricades include one circle hole barricade, two upright barricades, one left and one right step-down barricade, and one big-wall barricade with a mouse hole. All of the barricades are rubberized.

The **Static and Moving Steel Range** is 50 yards by 50 yards with an 82-foot, adjustable-speed, steel, moving target with interchangeable plate sizes and a two-plate bracket. There are two static steel stations with six 12- by 18-inch targets and five 12- by 12-inch targets with 12 individual portable stands. Targets include a removable, 19 firing point, paper target line; six portable, steel, pepper popper targets; and ten portable paper target stands with uprights. There are two rubberized upright barricades and one center-hole barricade.

The **Known Distance Range** is 1,200 yards total distance with firing lines every 100 yards. It has 20 firing points and a military-style cantilever Butts Targets System. There also are 10 International Practical Shooting Confederation stands with rubber backing that can be used for sighting in at 25 and 50 yards (or meters).

2.4.4.1.6.5 Naval Support Activity Norfolk, Northwest Annex.

The Naval Support Activity Norfolk, Northwest Annex was established following the disestablishment of Naval Security Group Activity, Northwest on October 1, 2001. The base includes approximately 3,700 acres in rural southern Chesapeake, Virginia on the border of North Carolina, about 35 miles southwest of Virginia Beach. Ranges and training facilities available at the base include the 2-acre Naval Special Warfare Training Area.

2.4.4.1.6.6 Naval Weapons Station Yorktown.

Ranges and training facilities available at the base include the Open Burn/Open Detention site and small arms range.

///Verify Maneuver Training Area

2.4.4.1.6.7 Naval Weapons Station Yorktown, Cheatham Annex.

Naval Weapons Station Yorktown, Cheatham Annex is home to the Fleet and Industrial Supply Center (FISC), Norfolk Detachment, Cheatham Annex and Regional Supply Office (RSO) for the Peninsula. Naval Weapons Station Yorktown, Cheatham Annex is located in Williamsburg, Virginia and consists of approximately 2,300 acres.

2.4.4.1.7 Fort Eustis

Fort Eustis is the location of the U.S. Army Transportation Center. There are five small arms ranges available for use on the installation.

- Range 1 is used for pistol qualification and shotgun familiarization.
- Range 2 is used for pistol and M-16 qualification.
- Range 3 and Range 4 are adjacent facilities located on Mulberry Island. Range 3 has nine firing positions and 81 targets used for M-16 qualification. Range 4 has no fixed firing points and is used for pistol, M21/M24 sniper, M-16 and M-60 machine gun qualification.
- Range 5 is a 21.4-acre site used for M-203 grenade launcher qualification. The M-203 course includes 19 target vehicle shells.

2.4.4.1.8 James River Reserve Fleet

The James River Reserve Fleet consists of approximately 100 mothballed naval vessels anchored in the James River off Fort Eustis, Virginia. The ships are part of the National Defense Reserve Fleet, which is maintained to provide maritime transport capacity in the event of a national emergency.

The James River Reserve Fleet accommodates limited NSW training. The Empire State and Bayamon vessels are used in Visit, Board, Search and Seizure (VBSS) exercises and related training. The Empire State is a freighter built with accommodations for carrying passengers. It was chosen for NSW training because its large superstructure more closely resembles a passenger ship than do most freighters in the Fleet. The Bayamon is a general cargo vessel with early roll on/roll off capability. Both ships are anchored individually. Weapons firings onboard are limited to simulated muntions.

2.4.4.1.8.1 Naval Auxiliary Landing Field Fentress.

The Naval Auxiliary Landing Field (NALF) Fentress is located approximately 7 miles southwest of NAS Oceana. It was established in 1940 and contains 2,560 acres, with an additional 8,780 acres in restrictive easements. NALF Fentress has one 8,000-foot-long runway equipped to simulate an aircraft carrier flight deck. It is used by squadrons stationed at NAS Oceana or NS Norfolk Chambers Field for field carrier landing practice (FCLP) operations. Ranges and training facilities available at the NALF Fentress include the 1,500-acre Naval Special Warfare Training Area.

2.4.4.1.8.2 Fort Story.

Fort Story a sub-installation of Fort Eustis, is an amphibious and logistics-over-the-shore training site used primarily by Active Army and Reserve Component forces. Consisting of 1,451 acres, the installation is 3 miles north of Virginia Beach, Virginia. Ranges and training facilities available at Fort Story include an explosive ordnance disposal (EOD) demolition range, two land drop zones, and beaches used for small boat amphibious exercises. An indoor Close Quarter Combat Range is programmed by the Navy Special Warfare Command.

The **Wyzacki Range** consists of the near-shore waters fronting the installation shore out a distance of 1 mile. Wyzacki is used for parachute water drops, air drops of boats and supplies, and insertion/extraction exercises.

Other training facilities available include Utah 1, Utah 2, Omaha, and Inchon beaches, and Hotel and Normandy landing zones. Fort Story's EOD range has a half-pound explosive limit.

2.4.4.1.8.3 Fort AP Hill.

Fort AP Hill, a sub-installation of Fort Belvoir, is a multi-faceted training installation used for Reserve Component and Active Army, Marine Corps, Air Force, Navy, and DoD civilian training. The installation consists of approximately 76,000 acres located near Bowling Green, Virginia, approximately 22 miles south of Fredericksburg.

Naval Special Warfare Training Facility, Camp Conners, consists of approximately 12 acres of land and facilities located on Fort A.P. Hill, Virginia. Use of the property is granted by the Department of the Army, Baltimore District, US Army Corps of Engineers to the Department of the Navy, Atlantic Division, Naval Facilities Engineering Command by means of a use permit (DACA-31-4-04-123/N62470-04-RP-00129) that expires June 30, 2005.

Camp Conners is located south of U.S. Highway 301 within Training Area 30 on the west side of South Range Road. The 12-acre site was formerly used as an ammunition stocking point. Figure 2-17 lists the buildings and facilities currently located on the site. Key features of these buildings are listed below.

- Buildings 2204 and 2205 have five individual rooms for officers or senior NCOs.
- Buildings 2206 through 2209 are open-bay berthing with a capacity of 16 personnel each.
- Building 2210 houses the administrative office of the facility manager.
- Building 2211 functions as either one large classroom, or two if its central accordion divider is used.

Building	Description	Square Feet
2201	Utility Building	Not available
2202	Water Storage Tank	Not available
2203	Dining Facility	4,141
2204	Officer Quarters	1,281
2205	Officer Quarters	1,281
2206	Enlisted Barracks	1,281
2207	Enlisted Barracks	1,281
2208	Enlisted Barracks	1,281
2209	Enlisted Barracks	1,281
2210	Admin, General Purpose	1,281
2211	General Instruction Facility	1,891
2212	Applied Instruction Facility	1,281
2213	Vehicle Maintenance	Not available
Parsons, 2004.		

Figure 2-17. Buildings and Facilities at Fort AP Hill

- Building 2212 provides space for training detachment or team administration.
- Building 2213 is a metal building with overhead lift and concrete apron that is used to maintain team High-Mobility Multipurpose Wheeled Vehicles (HMMWVs) and other vehicles.

In addition to permanent buildings, Camp Conners has other facilities that support NSW training.

- Seven milvans used for storage are located at the rear of the compound, as are four carports that shelter grounds maintenance equipment and unit-owned HMMWVs.
- One secure trailer serves as an armory, while two other trailers are used for weapons cleaning.
- Four ready storage lockers will be placed within a separately fenced portion of the post's ammunition supply point, thereby enabling NSW personnel to have 24-hour access to their ammunition storage.
- The unimproved portion of the Camp Conners is the site of a HMMWV driving course that includes a variety of man-made, rough terrain features.

Fort AP Hill has 30 training and maneuver areas totaling 44,000 acres. Ranges and training facilities used by NSW include ranges 3, 11, 16, 17, 18, 19, 22, 24, 25G, 26, 27, 28, 33, 34, 37, and 71. Each is briefly described below.

Range 3 is a Squad Automatic Weapon (SAW)/M60 Machine Gun Transition and Machine Gun Assault Course (ERETS) located at grid coordinates 98001688. Authorized weapons include the SAW and M60

and .50 caliber machine guns. Standard training includes SAW and M60 machine gun transition firing requirements (as outlined in FM 23-14 and FM 23-67); .50 caliber familiarization on the first three lanes; and sniper training.

The range has 10 transition lanes and three .50 caliber lanes. There are 14 computerized target locations per lane. There are three sets of single E silhouettes from 100 to 300 meters, seven sets of double E silhouettes from 400 to 750 meters, and an array of four sets of double E silhouettes at 800 meters. Five additional single silhouettes are located at 100 meters for assault fire. Fixed facilities include a tower with public address (PA) system, target shed, latrine, concurrent training area with covered bleachers, and range telephone.

Range 11 is a mortar range located at grid coordinates 00841855. Authorized weapons include 60 and 81 mm mortars, SAW, M60 machinegun, 90 mm recoilless rifle, and AT4 rockets. Standard training includes indirect and direct mortar fire, SAW and M60 machinegun field fire. The range includes light gun positions, two recoilless rifle positions and two AT-4 positions. Only hard targets are available. Fixed facilities include a wooden observation tower, latrine, concurrent training area with bleachers, and range telephones.

Range 16 is a grenade launcher course located at grid coordinates 01842045. Authorized weapons include M203 grenade launcher; M72, M202, and AT4 light anti-tank weapons; and 90 mm recoilless rifle. Standard training includes qualification requirements for the M203 grenade launcher; and familiarization for M72, M202, and AT4 light anti-tank weapons and 90 mm recoilless rifle.

The range has four firing lands with four firing positions. Only hard targets are available. Fixed facilities include a tower, target shed, latrine, concurrent training area with bleachers, and a range telephone.

Range 17 is a grenade launcher course located at grid coordinates 02562105. The authorized weapon is the M203 grenade launcher. Standard training includes qualification and two-story facade training. The qualification range has four firing lanes with four firing positions each and two each two-story facades. Fixed facilities include a tower with PA system, target shed, latrine, concurrent training area with bleachers, and range telephone.

Range 18 is a fire and maneuver/immediate action drill, live-fire range located at grid coordinates 03142126. Authorized weapons include small arms (7.62 mm and below) and M72 and AT4 light anti-tank weapons. Standard training includes tactical maneuver and provides the opportunity for a bridge or small objective assault. The range can support squad-size operations. The range is an open grassy area approximately 200 meters by 200 meters with approximately one square

kilometer of wooded maneuver area and trails leading to a water crossing site and objective area. Fixed facilities include a range telephone.

Range 19 is a mortar, machine gun, MK-19, and shoulder-fired rockets range located at grid coordinates 04662251. Authorized weapons for this range includes M-72, M-202, and AT4 light anti-tank weapons; 90 mm recoilless rifles; and 60 mm and 81 mm mortars. Standard training includes familiarization with M-72, M-202, and AT4 light anti-tank weapons; 90 mm recoilless rifle; Dragon; M203; machine gun; and 60 mm and 81 mm mortars.

The range has the capacity for two anti-armor weapons at a time, one Dragon gunner at a time, four M-203 weapons, two machine guns, and a full mortar platoon on line with a frontage of approximately 75 meters. Fixed facilities include a latrine, concurrent training area with bleachers, and a range telephone.

Range 22 is an engineer qualification course located at grid coordinates 07462040. Authorized weapons include standard demolition and breaching charges, 7.62 mm and below rifles, and M-72 and AT4 sub cal weapons.

Standard training is for obstacle breaching or emplacement. The range will accommodate up to an engineer platoon. The range has wire obstacles, a bunker, and bridge. Fixed facilities include a tower, target shed, latrine, assembly area, and after action review site with covered bleachers, evacuation bunkers, and landing zones for insertion and extraction.

Range 24 is a machine gun field fire and maneuver range located at grid coordinates 10341863. Authorized weapons include all machine guns, 60 mm and 81 mm mortars, anti-armor weapons up to and including Dragon, and 105 mm and 155 mm howitzers. Standard training includes semi-automatic weapons, M60, .50 caliber, and MK19 field fire; direct lay 60 mm and 81 mm mortars; direct fire artillery; vehicle mounted machine guns recon/attack course; and Dragon.

The range has six built-up machine gun positions, three gun mortar platoon, two artillery pieces, one vehicle-mounted machine gun lane, and two Dragon positions. The range has hard targets only. Fixed facilities include a latrine, concurrent training area with bleachers, and a range telephone.

Range 25G is a fire and ground maneuver complex located at grid coordinates 09351564. Authorized weapons include all organic platoon weapons, anti-armor including TOW/Dragon, all indirect fire weapons, and fixed and rotary wing aviation. Standard training includes Army Readiness and Training Evaluation Program (ARTEP) 7-8 Master Training Plan (MTP) requirements.

The range includes a main objective area, numerous indirect fire positions with three observation posts, two TOW/Dragon firing positions, two direct-lay mortar positions, and two grid squares of maneuver area. The range has hard targets, radio-controlled pop-up infantry targets, and radio-controlled armor lifters. Fixed facilities include control tower, operations center van, latrine, range telephone, and five concrete helipads with re-arm bunkers.

Ranges 26S, 27S, and 28S are fire and maneuver/immediate action drills with demolition/law infantry squad assault courses located at grid coordinates 104138 and 061125 and 033129 respectively. Authorized weapons include all organic squad weapons, machine guns up to and including 7.62 mm, and claymore mines.

Standard training allows squad training for soldiers in the application of fundamental offensive and defensive small-unit tactics under simulated battle conditions. They use all organic weapons in movement to contact and hasty attack operations.

There are three squad ranges. Each hard-wired range has approximately 15 electrical pop-up targets, 11 demolition pits for hostile fire simulation, machine gun fire-back simulators, and at least one hard target emplacement. Fixed facilities include control station for 26S and 27S and a control tower for 28S, latrine, concurrent training area with bleachers, and range telephones.

Ranges 26P, 27P, and 28P are fire and maneuver/immediate action drills with demolition/law infantry platoon assault courses located at grid coordinates 092137, 069123 and 048127 respectively. Authorized weapons include all organic squad weapons, machine guns up to and including 7.62 mm, and claymore mines.

Standard training allows platoon training for soldiers in the application of fundamental offensive and defensive small-unit tactics under simulated battle conditions. They use all organic weapons in movement to contact and hasty attack operations.

There are three platoon ranges. Each hard-wired platoon range has approximately 25 electrical pop-up targets, 22 demolition pits for hostile fire simulation, machine gun fire-back simulators, and at least one hard target emplacement. Fixed facilities include control station for 26P and 27P and control tower for 28P, latrine, concurrent training area with bleachers, and range telephones.

Range 33 is a mortar, machine gun, MK19, and shoulder-fired rocket course located at grid coordinates 97801319. Authorized weapons include small arms up to .50 caliber, anti-armor, 60 mm direct-lay mortar, and all field artillery direct fire. Standard training includes MK19 machine gun qualification, direct-lay mortar out to 1,500 meters, light and heavy anti-armor weapons, and artillery direct fire.

There are three lanes of MK19 qualification, three lanes of machine guns qualification, mortar platoon, three light anti-armor weapons, three Dragon weapon systems, two TOW weapon systems, and three artillery pieces. There are only hard targets. Fixed facilities include a tower, latrine, concurrent training area with bleachers, and range telephones.

Range 34 is a rifle fire marksmanship course located at grid coordinates 97241430. Authorized weapons include all rifles. Standard training includes rifle qualification requirements. The range has 16 foxhole firing positions and seven computerized popup targets per land. Fixed facilities include a tower with computerized control and recording equipment and PA system, target shed, latrine, concurrent training area with bleachers, and range telephones.

Range 37 is a pop-up range field with marksmanship out to 1,000 meters located at grid coordinates 97381591. Authorized weapons include all rifles. Standard training includes Arming, Fusing and Firing (AFF) designed to meet field fire phase of rifle marksmanship. Sniper marksmanship requirements less the moving target are superimposed over lanes 32 and 34, basic 25 meter Zero, and course "C" qualification. The AFF range has 34 foxhole firing positions with three hard-wire pop-up targets per lane at 75, 175, and 300 meters. The sniper has two foxhole positions with three hard-wire pop-up targets at 75, 175, and 300 meters and up to 11 radio controlled pop-up targets per lane at distances of up to 1,000 meters. The Zero and Course "C" range has 34 foxhole positions. Fixed facilities include a tower with PA system, target shed, latrine, concurrent training area with bleachers, and range telephone.

Range 71C is a heavy demolition (up to 150 pounds) range located at grid coordinates 06821880. Standard training includes combat engineer breaching and demolition operations. The site is a road junction in a tree-covered area used for basic instruction, crater, shape, tree cutting, steel cutting, Bangalore and Claymore mines. There are no fixed facilities.

2.4.4.1.8.4 Fort Pickett.

Fort Pickett National Guard Maneuver Training Center is a regional training center that supports Active and Reserve Component units of all services. The installation consists of approximately 41,000 acres south of Blackstone, Virginia. Range facilities available at Fort Pickett include a breach facility, demolition pit, live fire ranges, and a military operations in urban terrain (MOUT) facility. The Birchin Lake impoundment is used for underwater demolition and small boat training, including live fire exercises.

Range 1 is used for demolition to 50 pounds.

Range 4B is a demolition breaching range and **Range 4D** is a demolition range course. The two ranges are located at grid coordinates 399027 and

410025, respectively. Authorized weapons include breaching charges and demolition charges up to 50 pounds.

Range 11 is a 1,200-yard, known-distance range for marksmanship and sniper course located at grid coordinates 405066. Authorized weapons include .50 caliber and smaller crew-served weapons, 105 mm and 152 mm High Explosive Anti-Tank – Target Practice Tracer (HEAT-TPT) only, 120 mm HEAT and Target Practice, Cone Stabilizer, Discarding Sabot-Tracer (TPCSDS-T), and laser. The range has three lanes that are 200 meters long for crew-served weapons firing. The range will support tank table V and a modified tank table IX. There are 15 stationary target emplacements and two armor moving targets. No movement down range beyond the tower is allowed when Range11 is firing.

Range 11D is a target objective site for fire and maneuver demonstrations.

Range 18 South is a forced-march, live-fire range located at grid coordinates 467037. Authorized weapons include small arms and M203 grenade launcher with practice rounds. The range has three firing lanes with pop-up targets. Range 18 is used almost exclusively for SEAL training.

MOUT The MOUT Site consists of 16 concrete buildings, ranging in height from one to three stories, with a mixture of rubble and complete structures. There is an underground sewer system available for training that connects the center of town to its outskirts. A helipad is located on top of the service station building that can support up to a UH-60. A landing zone on the east side of the MOUT site can support two UH 60s or one CH 46/47. There is a shantytown consisting of four wooden shanties north of the landing zone. The shantytown contains garden plots, fences, and grave markers as obstacles. Weapon firing at the MOUT facility is limited to training rounds and simunitions.

2.4.4.1.9 Facilities

2.4.4.1.9.1 Large Area Tracking Range (LATR).

The LATR is not a range, but an instrumentation system that encompasses an area roughly 150 NM radius (without relay) from the LATR Ground Interrogation Station (GIS) located on Bodie Island, North Carolina. Its coverage extends to approximately 70,000 feet altitude. The range can be extended beyond line-of-sight distance by automatically relaying tracking signals from distant participants to the GIS. By using the maximum of three transportable GIS relays, the system's range can be extended to a radius of 500 NM, enabling LATR to be used throughout the VACAPES and Cherry Point operating areas.

The LATR provides tracking and exercise data support for up to 124 exercise participants in the LATR area. Time, space, and position

information is transmitted from participants to the LATR Range Operations Control Center and is used to provide real-time display capabilities for large-scale training events.

2.4.4.1.9.2 Shipboard Electronic System Evaluation Facility (SESEF).

SESEFs are land-based test facilities established to facilitate testing of electromagnetic transmitting and receiving equipment for Navy, Coast Guard, and Military Sealift Command vessels. Their coastal locations are near major Fleet concentrations, in both transit and operational areas, and allow the individual SESEFs to meet scheduled and unscheduled testing requirements. SESEFs provide electromagnetic system test and evaluation services to afloat and ashore commands. These services provide real-time assessment of material readiness in an operational environment to validate system performance following new construction and overhaul.

The Norfolk SESEF is located in Building 102 at Fort Story, Virginia Beach, Virginia. The facility overlooks the Atlantic Ocean, Chesapeake Bay, and approaches to the VACAPES OPAREA. In addition to at-sea testing, directional antennas provide line-of-sight support for pier-side testing from all naval and shipyard facilities in the Tidewater area. The Naval Undersea Warfare Center (NUWC) Division, Newport, Rhode Island operates this facility.

- The Norfolk SESEF is located at latitude 36º55’5” North and longitude 75º59’44” West.
- Buoy "A" is located at latitude 36º55’4.13”N and 75º38’15.4”W at a distance of 17.5 NM from SESEF.
- Buoy "B" is located at 36º54’59.85”N and 75º45’26.73”W at a distance of 11.5 NM from SESEF.

SESEF supports testing and analysis of shipboard communications and other electronics. No ordnance is allowed.

2.4.4.2 Surveillance, Scoring, and Feedback Systems

2.4.4.2.1 Surveillance

Airspace surveillance within the VACAPES Range Complex is accomplished through data received from an FAA ARSR-4 radar located at FACSFAC VACAPES and an ASR-8 located at NAS Oceana. The data are filtered through the FACSFAC air control tracking system (FACTS 3200) to create a single presentation on controller’s consoles. The FACTS 3200 system can accept data from up to 10 radar sites, track up to 1,000 targets, and provide this information to a maximum of 30 display consoles.

2.4.4.2.2 Scoring and Feedback

At Navy Dare County Range, an automatic Joint Advanced Weapons Scoring System V4 (AN/FXQ-SA (V)) is used to score each target. Cameras mounted in the center tower, east tower, and at selected targets enable range-control staff to monitor and instantly score each range event. Results, including distance in feet and clock position from the bull's-eye are transmitted to the pilots by radio after each run over the range. Range control staff also fax tabulated results to each range user on a daily basis.

The video from the WISS cameras is recorded and can be made available for review. However, it is rarely if ever requested by the units. Although not implemented, the video from the WISS system could be transmitted to NAS Oceana via the TACTS microwave link. The target at Stumpy Point range is monitored by two cameras that are integrated into Navy Dare County's WISS system.

The Strafe Scoring System (SSS) uses four transducers each on two berms to detect the acoustic signature of incoming rounds. The system is linked to the WISS, which enables range control to superimpose a diagram of the target over the impact pattern. This provides more detailed feedback to the pilots than was the case with earlier systems that merely enabled "hit or miss" scores to be recorded.

Real-time feedback is provided to participating aircrew via voice communications from the range control personnel, who advise the aircrew of weapon impact location (using a clock code), distance from the center of the target and, in the case of air-to-ground (A-G) gunnery event, the number of "hits" scored by the SSS.

Post-mission feedback from WISS- and SSS-supported events consists of telephonic voice debriefs or hard-copy facsimile debrief sheets provided to the participating aircrews by Navy Dare County Range personnel.

Real-time feedback for TACTS is provided both electronically and via voice communications. Real-time feedback to TACTS High Activity Aircraft (HAA) participants is provided by an aural tone in their radio headset whenever they are "killed" by a weapon fired by another aircraft. These automatic real-time feedback mechanisms are often supplemented by ultrahigh frequency (UHF) voice communications calls from the TACTS console operator. Real-time feedback to TACTS Low Activity Aircraft (LAA) is limited to UHF voice communications calls from the TACTS console operator.

Post-mission feedback from TACTS-supported events is provided by the three-dimensional situation and two-dimensional alphanumeric information displays. Replays of training events on the Oceana TACTS range can be viewed simultaneously at the Oceana TACTS facility and at

other remote TACTS Advanced Display and Debriefing Subsystem (ADDS) locations.

TACTS missions that are flown on other TACTS ranges (for example, Cherry Point TACTS) can be viewed simultaneously at that ADDS and the Oceana TACTS' ADDS. Feedback is also provided via the Personal Computer Debriefing System (PCDS), which enables pilots to review much of their training mission data on a personal computer at their local squadron operations building or hangar immediately following the training flight.

2.4.4.2.3 LATR

The LATR tracking system supports and can provide debriefing products to all phases of a training, ranging from unit-level, single warfare area training to Joint Task Force/Carrier Battle Group/Amphibious Ready Group advanced exercises.

The LATR provides the following feedback capabilities:

- Shore-located and remote display and debrief sites where exercise planners, commanders, or participants can view debrief displays in either near-real-time or shortly after completion of an exercise. Debriefing sites must have a secure data link.
- Shipboard display via Secure Intranet Protocol Router Network (SIPRNET), enabling debriefings at sea.
- Secure T1 line connectivity between shore sites configured for LATR display and debriefs, which provides high data quality, data rates, and reliability.
- Analog weapons release triggers and 1553 weapons systems bus data down-linked from appropriately configured aircraft.

The LATR Computer Debrief System (LCDS) is comprised of the LATR ROCC Workstation Systems (LRWS), the LATR Debrief Communication System (LDCS) and LATR Debrief Training System (LDTS).

- The LRWS is the central LATR computer suite for acquiring, processing and displaying participant data. Inputs to the LRWS consist of time, space, and position information (TSPI); weapons; audio event; time; and interactive operator inputs to support warfare training scenarios. The LRWS provides the means to perform exercise setup of the LATR Tracking System (LTS), as well as mission data and control over data processing and output display.
- The LCDS is the communication equipment that bridges the LRWS to the LDTS on land and afloat.
- The land-based LDTSs are remote workstations that provide either real-time monitoring, centralized debrief or autonomous debrief.

LATR is capable of displaying both TACTS and LATR information on the same display. This capability includes TACTS threat emitters and weapons flyout.

The LATR Air Combat Maneuvering Instrumentation (ACMI) display and debriefing system enables LATR to provide much higher update rates and a more sophisticated graphics display for ACMI training.

Live or post-mission LATR displays and debriefs can be conducted onshore at the Regional Operating Command Center, FACSFAC VACAPES, TACTS Building 310, and the Strike Weapons and Tactics School, Atlantic (SWATSLANT). At sea, live or post-mission debriefs can be conducted on ships with SIPRNET bandwidth sufficient to send the LATR live feed or an archived LATR file.

2.4.4.3 Communications

All units and platforms operating within the VACAPES OPAREA are required to maintain positive two-way radio communications with FACSFAC VACAPES' tactical call sign GIANTKILLER, FACSFAC's primary high frequency (HF) and Link Coordination Windows, and Fleet Satellite High Communications (SATHICOMM). Upon clearance, units may conduct operations, both tactical and live fire, at the discretion of the Commanding Officer and without positive control from FACSFAC VACAPES. Call sign and frequency changes, authentications, and encryptions are in accordance with Fleet operating instructions or messages.

Aircraft shall not operate in FACSFAC VACAPES airspace without an operable, two-way, A-G radio. Aircraft operating below 5,000 feet MSL may experience difficulty in establishing or maintaining two-way radio communication with GIANTKILLER and may be required to climb to at least 5,000 feet MSL to reestablish communications with GIANTKILLER.

Long-range aircraft, such as the P-3 and C-130, entering the FACSFAC VACAPES OPAREAS for extended operations are required to issue an operations normal report (OPS Normal) every hour while under GIANTKILLER's jurisdiction. All other aircraft, including helicopters, are required to give OPS Normal reports every half-hour. Appropriate lost communications, transponder failure, and search-and-rescue (SAR) procedures are contained in FACSFACVACAPESINST 3120.1J

There are two unencrypted telephone lines and one fax line serving the Navy Dare County Range. The telephone lines are linked to NAS Oceana by the same microwave link that was installed in 2003 to support installation of two threat emitters on loan from the Atlantic Electronic Warfare Training Range. Navy Dare County Range has no e-mail capability. Six unencrypted, two-way Motorola radios, all of which operate on the same frequency, are used by range control personnel.

Range control staff communicates with pilots by UHF radio on 358.8 megahertz (MHz). The alternate frequency is 320.2 MHz; however, it is

never used since it is desirable for all pilots in the area to monitor and use the single, primary frequency.

The Air Force's range control staff communicates with its range users on 349.1 MHz. If necessary, Navy Dare County Range control communicates with private or commercial aircraft on very high frequency (VHF) 122.9 MHz, which is routinely monitored.

All air-ground communications are recorded for possible use in an aircraft accident investigation or if a question arises about what information passed between range control and pilot. In the event neither occurrence arises, the recordings are deleted and the tapes reused.

2.4.4.4 Targets and Target Arrays

2.4.4.4.1 VACAPES OPAREA and Warning Areas

FACSFAC VACAPES coordinates providing targets and services that support training and exercises within the VACAPES OPAREA and warning areas. Figure 2-18 summarizes these services, their provider, and the typical training missions supported.

Target Service	Provider	Typical Training Missions Supported
Lear Jet	Contractor	Air Intercept Control (AIC), TRACKEX, GUNEX, Anti-Ship Cruise Missile (ASCM) simulation, target towing, long range Detect-to-Engage (DTE), and Command and Control Warfare/Electronic Warfare (C2W/EW) missions.
Cheyenne Turboprop	Contractor	Anti-Submarine Air Control (ASAC), TRACKEX, AIC.
H-3 Helicopter	SAR Oceana	SAR,Medical Evacuation (MEDEVAC), Photography
H-46 Helicopter	COMNAVAIRLANT	MEDAVAC, Drone Recovery, Photography
VF, VFA, AND VAW Aircraft	COMNAVAIRLANT	Combat Air Patrol (CAP), AIC, LINK 4A (F-14, F/A-18) Air and surface surveillance, Link, Autocat (E-2)
MK 33/35 SEPTARS	Fleet Composite Squadron (FLECOMPRON) SIX	Gunnery/Bombing Target
BQM-74 drones	FLECOMPRON SIX	MISSILEX
Airborne Gunnery Targets (TPT/TRX)	Contractor	GUNEX
C2W/EW	Fleet Information Warfare Center (FLTINFOWARCEN)	Available outside the FACSFAC VACAPES OPAREAS
Lear Jet EW	Contractor	Electronic warfare services include interim EW noise/jamming services with deception capability.
Source: U.S. Navy. 2001a		

Figure 2-18. Target Services and Capabilities

2.4.4.4.2 Palmetto Point Range

Currently there is no target at the Palmetto Point range. By the mid-1990s, the original target (a 130-foot-long by 50-foot-wide barge with two cylinders on top, each of which was 30 feet long by 10 feet wide located at 36°00.55"N and 76°09.35"W) had been destroyed and was no longer viable. This event coincided with the Navy's phase-out of the A-6 Intruder, but occurred prior to the introduction of the F/A 18 Hornet.

At this time, Commander, Air Atlantic (COMAIRLANT) considered replacing the target; however, they decided that doing so was not feasible

based on the small size of the target area, limited airspace, civilian population encroachment, and the amount of time and money required to obtain the required real estate and environmental clearances. This would have included, but would not have been limited to, a new real estate agreement for water-based target, Range Air Installation Compatible Use Zone (RAICUZ), and weapons footprint analysis. In addition, the WISS serving the target had been deactivated and removed.

2.4.4.4.3 Stumpy Point Range

By the mid-1990s, the original Stumpy Point target (a ship, 315 feet long by 50 feet wide located at 35°32.19”N and 075°40.38”W) had been destroyed. The range was unusable until 2003, when FFC acquired two excess barges and paid to have them welded together, towed to the range, and sunk at approximately the same coordinates as the original Stumpy Point target. The new target was in place by mid-August 2003. The Stumpy Point WISS was upgraded and realigned for the new target at the same time.

In mid-September 2003, Hurricane Isabel struck the target and sheared the welds holding the upper barge to the lower barge. The Navy notified the Coast Guard and has attempted to locate the barge, but with no success to date (March 2004). The Navy is still looking for the barge, which if found, could possibly be salvaged depending on its condition. In the meantime, the Stumpy Point range remains unusable.

2.4.4.4.4 Navy Dare County Range

The Navy Dare County Range contains the following targets.

The **Navy East Conventional Target** is a rocket-glide bombing target consisting of one white personnel carrier 30 feet long and 14 feet wide. On request, the target can be illuminated by a 50-foot circle of white lights surrounding the target with a 1,000-foot row of white lights along the run-in line. The target is located at 35°45’08”N and 075°50’29”W. Up to 500 pound inert ordnance is authorized.

The **Center Bull (Navy Nuclear) Target** area is a multi-purpose bombing and laser target range consisting of a large circular target located 7,000 feet south of the center tower, at 35°44’32”N and 075°51’33”W. The target consists of a conex box painted white in a 500-foot-diameter circle and a 1,000-foot-diameter circle with a height of 20 feet. The firebreak, which surrounds the Navy complex and circles the southern half of this target, has a radius of 4,000 feet from target center and provides an additional aerial spotting aid. Up to 500-pound inert ordnance is authorized. Range personnel estimate that the Navy Nuclear Target is by far the most used target on the range, accounting for approximately 90 percent of all usage.

The **Short Bull Target** area is a multi-purpose bombing and laser target range consisting of a Landing Amphibious Rescue Craft (LARC), 40 feet long and 10 feet wide, with white engine containers on top. It is located 1,200 feet short of Navy Nuclear Target. The short bull target is located at 35°44'39.6"N and 075°51'47.7"W. Up to 500-pound inert ordnance is authorized.

The **Old Bomb Dummy Unit (BDU)** is a multi-purpose bombing and laser target range consisting of a jet engine container that is 14 feet in length, 8 feet in diameter, and painted white sitting on an amphibious landing craft that is 30 feet long and 15 feet wide. The old BDU target is located at 35°45'10.5"N and 075°51'09.5"W. Up to 500-pound inert ordnance is authorized.

The **New Bomb Dummy Unit** is a multi-purpose bombing and laser target range consisting of a jet engine container that is 14 feet in length, 8 feet in diameter, and painted white sitting on an amphibious landing craft that is 30 feet long and 15 feet wide. The new BDU target is located at 35°45'06.3"N and 075°50'53.9'W. Up to 500-pound inert ordnance is authorized.

Target No. 1 is a multi-purpose bombing and laser target consisting of a white conex box. The target is located at 35°44'35.8''N and 075°51'28.5'W. Up to 500-pound inert ordnance is authorized.

Target No. 2 is a multi-purpose bombing and laser target consisting of a white conex box. The target is located at 35°44'32.4"N and 075°51"26.6"W. Up to 500-pound inert ordnance is authorized.

Target No. 3 is a multi-purpose bombing and laser target which is located at 35°44'34.4''N and 075°51'39.8"W. Up to 500-pound inert ordnance is authorized.

Target No. 4 is a multi-purpose bombing and laser target which is located at 35°44'46.7"N and 075°50'48.2"W. Up to 500-pound inert ordnance is authorized.

Minimum Altitude Lay-Down Target is 700 feet south of the center tower and consists of an amphibious landing craft with one white conex box on top. It is 60 feet in length and 15 feet in width; the run-in headings 109 degrees magnetic (MAG) with a left-hand pattern. Up to 500-pound inert ordnance is authorized.

Strafing Target is located 2,000 feet southwest of the center spotting tower. Two strafing banners used as aiming points are located at 35°45.37'N and 075°51.5'W. An acoustical scoring system is installed at the strafing target. Only solid ball ammunition is authorized.

Airborne Laser Accuracy Scoring Target (ALAST) Board consists of one 50-foot by 50-foot billboard painted white. The point of aim is

depicted by a black cross. The ALAST Board is located at 35°44'22"N and 075°50'22"W. An infrared camera monitoring the billboard enables range personnel to detect laser light and inform pilots on the accuracy of their laser targeting. The ALAST Board is one of five laser target areas at the range.

Laser City consists of a complex of six buildings located approximately 2,500 feet east and 1,700 feet south of the Navy loft target. A mock runway and ramp area are located south of the buildings. Strobe lighting has been installed in the buildings to simulate small arms fire. This strobe system typically is engaged when pilots are targeting either the Navy nuclear or short bull targets. Laser City is a no-drop area. Practice attack settings are only permitted with a weapon station selected that has no ordnance.

Mobile Laser Evaluator (MLE) is a vehicle-mounted laser receiver that, when illuminated by laser energy of any pulse repetition frequency (PRF), transmits a tone over UHF frequency 359.5 MHz.

Two **T-72 Surrogate Tank Simulations** are available with advanced scheduling from FACSFAC VACAPES. Each target is composed of molded thermoplastic with a zinc undercoating modeled on a 1:1 scale with the T-72 tank. Each target has a five-kilowatt generator that powers heat strips connected at strategic locations on the underside to simulate the natural heating of a T-72 tank. The targets are used for infrared heat-source identification and targeting only.

Twelve **Armored Personnel Carrier Simulations** are available with advanced scheduling. Each target is painted with infrared reflective paint. The simulations are used to practice target acquisition only and typically are placed next to established targets. The targets are used for acquisition and targeting only.

A simulated **Surface-to-Air Missile Battery** was added to the range in January 2003. The target consists of five mock missile launchers arranged in a "puppy paw" configuration. It is located at 35°44.37'N and 075°51.72'W. Up to 500-pound inert ordnance is authorized. A single camera linked to the WISS system monitors the center of the target.

2.4.4.4.5 Other Infrastructure

2.4.4.4.5.1 Oceana TACTS Range.

Other infrastructure supporting the Oceana TACTS Range include:

- UHF/VHF communications.
- Commercial 115/208 volt 60 hertz (Hz) power is used at the NAS Oceana TACTS facility and six remote land sites. The remote ocean sites are powered by solar panel/battery systems.

2.4.4.4.5.2 Stumpy Point Range.

Other infrastructure supporting the Stumpy Point Range include:

- UHF communications.
- Two instrument towers with WISS cameras, solar and wind power, and microwave link.

2.4.4.4.5.3 Navy Dare County Range.

Other infrastructure supporting the Navy Dare County Range include:

- UHF/VHF communications.
- Three visual spotting towers that are located north of the target areas along the road, which provides a firebreak. The center tower is manned and functions as the master control station. It contains three UHF transceivers and one emergency VHF transceiver. Two spotting towers (east tower and west tower) are located 7,000 feet east and west of the center tower. The center and east towers have mounted cameras that are part of the WISS, while the west tower is unused. The center and east towers have steady, red obstruction lights. The center tower has a red rotating beacon.
- Four metal service/support buildings used for administration, maintenance, supply, and support spaces. One of the buildings houses the generator that supplies backup power to the facility.
- Commercial 115/208 volt 60 Hz power.
- Two backup 60 kilowatt (kW) generators (one each at the center and east towers).

2.4.5 Opposition Forces – Multidimensional Threat Representation

2.4.5.1 VACAPES OPAREA and Warning Areas

A variety of Navy and contractor-provided aircraft and target services are available to simulate threats during training exercises. For example, contract jet and turboprop aircraft can be scheduled through FACSFAC VACAPES to represent threats during TRACKEX, GUNEX, and electronic warfare exercises. BQM-74 drones from FLECOMPRON SIX simulate enemy missile threats in support of MISSILEX. Navy VF, VFA and VAW aircraft arranged through COMNAVAIRLANT pose as enemy aircraft in support of fleet operations.

2.4.5.2 Navy Dare County Range

A strobe light system installed in the Laser City target can be used to simulate hostile ground fire. In the past, Smokey Sam rockets were used to simulate surface-to-air missiles; however, they are rarely (if ever) requested or used now.

Two portable electronic threat emitters from the Mid-Atlantic Electronic Warfare Range (MAEWR) have been moved to Navy Dare County Range. The emitters, which are MAEWR assets on loan to Navy Dare

County Range, are linked by microwave to the Oceana TACTS system . They receive data on the target aircraft and transmit data back to the TACTS office.

2.5 ATLANTIC TEST RANGE

2.5.1 Organizational Relationships

2.5.1.1 Major Claimant

The Naval Air Systems Command (NAVAIR) is the major claimant of the Atlantic Test Range.

2.5.1.2 Host

The Naval Air Warfare Center, Aircraft Division (NAWCAD) is the host command of the Atlantic Test Range. Shore facilities supporting the range complex are located on NAS Patuxent River. Shore station management, including facilities and grounds maintenance, is the responsibility of NAS Patuxent River, Naval District Washington, and Chief of Naval Installations.

2.5.1.3 Tenants

No tenant units have responsibility for the restricted airspace and ranges that comprise the Atlantic Test Range.

2.5.1.4 Frequent and Intermittent Users

Figure 2-19 summarizes the Naval and other military forces supported by the Atlantic Test Range.

2.5.2 Range Management Structure

2.5.2.1 Controlling Authority

NAWCAD is the controlling authority for the restricted areas and ranges that comprise the Atlantic Test Range.

2.5.2.2 Scheduling Authority

NAWCAD, Atlantic Ranges and Facilities, Range Operations Division, Central Schedules is the scheduler for activities occurring within the Atlantic Test Range.

Scheduling activities for specific components of the range complex are summarized in Figure 2-20.

Units	
SECOND Fleet	Cruiser-Destroyer Group EIGHT
Carrier Battle Groups	AIRLANT
Carrier Group TWO	Strike Fighter Wing
Carrier Group FOUR	Naval Special Warfare Group TWO
Carrier Group EIGHT	Non-Navy Users
Cruiser-Destroyer Group TWO	Other Services
Source: U.S. Navy, 2001c	

Figure 2-19. Naval and Military Forces Supported by the Atlantic Test Range

Range Complex Component	Scheduling Activity
Restricted Areas 4002, 4005, 4006, 4007A, 4008, 6609 Bloodsworth Island	Commander, NAWCAD Atlantic Ranges and Facilities Range Operations Division Central Schedules DSN: 342-4607/4608; Comm: (301) 342-4607/4608
Aberdeen Proving Ground	Aberdeen Training Center DSN: 298-0323; Comm: (410) 278-0323
Source: U.S. Navy, 2004d.	

Figure 2-20. Range Scheduling Activities

2.5.2.3 Scheduling Procedures

Detailed scheduling procedures for the Atlantic Test Range are established by NAWCAD and published in NASPAXRIVERINST 3710.5T (Air Operations Manual). Users must be familiar with these instructions to ensure required lead times and other planning requirements, such as timing for support services, are met.

Restricted areas under the cognizance of NAS Patuxent River are scheduled through the Central Schedules Office. Its normal operating hours are Monday through Friday, 0700 to 1600 Eastern Time (ET).

All users must submit a schedule request to Central Schedules that provides the following week's input by 1200 on Wednesday of each week. Central Schedules then provides all requesting units with a consolidated schedule of airspace usage for the next week by 1200 Friday.

2.5.2.4 Staffing

As of April 2004, the staffing of Atlantic Ranges and Facilities included two officers, 187 civilians, and 236 civilian contractors.

2.5.3 Range Management Procedures

2.5.3.1 Range Control Procedures

2.5.3.1.1 Airspace Controlling Procedures

The NAS Patuxent River Air Traffic Control Facility (ATCF) is designated as a Class VA facility that provides ATC services and SUA control services. Procedures for the control of air traffic are based on standard FAA/DoD guidelines as supplemented by letters of agreement (LOA) with adjacent FAA facilities.

NAS Patuxent River Terminal Radar Approach Control (TRACON) is a branch of the ATCF. The TRACON (Patuxent Approach or Patuxent Departure) provides approach control services from 0700 to 2300 ET, 365 days a year, regardless of airfield operating hours. Patuxent River ATCF has been delegated control jurisdiction by the FAA of airspace areas from the surface to 7,000 feet.

NAS Patuxent TRACON provides enroute control services to aircraft filed at or below 7,000 feet and on a route that will penetrate NAS Patuxent's area of jurisdiction. Washington ARTCC provides enroute services for traffic operating within NAS Patuxent River TRACON airspace between 2300 and 0700 ET.

NAS Patuxent River TRACON provides the following ATC services:

- Sequencing of all arriving and departing aircraft.
- Standard instrument flight rules (IFR) separation between IFR aircraft.
- Traffic advisories between IFR and visual flight rules (VFR) aircraft.
- Traffic advisories between VFR aircraft and, as appropriate, safety alerts.

Air traffic in the Patuxent River restricted areas and offshore warning areas is monitored by an expanded version of the SureTrack Vessel Management System called BAYWATCH. The system ingests and integrates multiple, varied data sources on a single display. Data are received from ASR-8 surveillance radars on NAS Patuxent River, FACSFAC VACAPES radar, Patuxent River, and National Atmospheric and Space Administration (NASA) Wallops Flight Facility (WFF) instrumentation radar and GPS.

Although BAYWATCH is not an ATC facility; it operates under the cognizance of NAS Patuxent River ATC and is responsible for providing advisories to aircraft operating in the Patuxent River Operating Area (PXOA). BAYWATCH is responsible for monitoring air traffic that transits restricted airspace.

BAYWATCH provides the following services:

- VFR traffic advisories to participating aircraft.
- Restricted area boundary information to aircraft operating within the PXOA.
- Exclusive use airspace coordination within restricted area boundaries.
- Coordinates with Patuxent TRACON concerning spill-ins and spill-outs.

2.5.3.1.2 Surface Controlling Procedures

Surface surveillance radars linked to the SureTrack Vessel Management System provide complete coverage of the Chesapeake Bay waters affected by Fleet training and RDT&E operations within the Atlantic Test Range. The location, speed, and bearing of civilian surface vessels are routinely monitored by a combination of radar tracking and visual tracking. This includes, but is not limited to, video theodolites, range boats, and aircraft pilots. The goal of the tracking is to ensure that surface vessels do not encroach on the hazard profile and buffer zones established for a particular range event.

Range control personnel monitor marine band, UHF, and VHF frequencies and communicate with private vessels as necessary to divert them from headings that would conflict with range operations. BAYWATCH issues Notices to Mariners in advance of range events that require surface clearance.

2.5.3.2 Range Safety Procedures

NAVAIRWARCENACDIVINST 3710.1, Range Safety Manual, (January 24, 2001) contains procedures for safely conducting testing and training on the Atlantic Test Range. The manual is a guide for planning aircraft weapon systems testing and training for aircraft and surface craft missions. It summarizes the safety policies, procedures, and responsibilities of the Atlantic Test Range in conducting safe range operations. In addition, the manual serves the following purposes:

- Acquaints range users with range safety policies.
- Defines user restrictions and requirements to ensure safety on the range.
- Assists the range user in providing sufficient information for safety planning and analysis to optimize project results.
- Defines Atlantic Ranges and Facilities responsibilities in supporting range users' projects.
- Describes the range safety procedures to be followed when conducting missions supported by Atlantic Ranges and Facilities.

Final authority and accountability for safety rest with the Commander, NAWCAD. To ensure appropriate attention is focused on all aspects of range safety, certain responsibilities are delegated to the Range Safety Officer under the direction of the Commander, Naval Test Wing Atlantic and the Head, Atlantic Ranges and Facilities Department. Range safety policies are described in NAVAIRWARCENACDIVINST 3700.2A.

The Range Safety Office maintains relationships with other range safety offices to share resources and expertise. For all standard Fleet training operations within the Atlantic Test Range, FACSFACVACAPES Instruction 3120.1J is the primary source of safety guidance. For non-standard operations (i.e., RDT&E testing), NAWCAD assumes overall control and range safety responsibility for the safe conduct of the NAWCAD exercise or operation within VACAPES Range Complex warning areas, following the current letter of agreement between NAWCAD and FACSFAC VACAPES.

The NASA Goddard Space Flight Center maintains the WFF, primarily for suborbital launch services and research. WFF supports NAWCAD by providing radio communications, flight termination and telemetry relay, radar tracking, and other support services during offshore missile firing exercises conducted by NAWCAD. Additionally, supersonic target launches are conducted from WFF's launch complex.

2.5.3.3 Range Inspection Procedures

Range clearance of target areas is required by the Code of Federal Regulations (CFR) and local instructions as listed in Figure 2-21.

Regulation	Area	Clearance and Inspection
33 CFR 334.200, Aerial Firing Range and Target Areas	Cedar Point to Point Lookout, Hooper Target, Hannibal Target	Patrol by surface craft or aircraft to warn watercraft that might be endangered.
33 CFR 334.180, Bloodsworth Island shore bombardment, air bombing, air strafing and rocket firing area	Bloodsworth Island [a/]	Surface or air search patrol maintained during event.
33 CFR 334.210, Naval guided missiles test operations area	Tangier Island	Surface or air search of hazard area, patrol vessel required to remain on station during event
CINCLANTFLT 3120.26 Atlantic Operating Areas	All	The range be clear, regardless of the method used.
Final Environmental Impact Statement, Increased Flight Operations in the Atlantic Test Range	All	One or more surface craft plus chase aircraft and or radar sweeps.

a/ Range clearance and inspection procedures for Bloodsworth Island are pending completion of an ongoing environmental assessment for Navy use of the island. When that study is completed, new clearance and inspection instructions will be issued commensurate with those training activities occurring on Bloodsworth Island.

Source: U.S. Navy. 2001e

Figure 2-21. Atlantic Test Range Clearance and Inspection

2.5.3.3.1 Hooper Target

Electronic surveillance is provided by shore-based monitoring radars that are used to monitor surface traffic on the range. Video cameras are used to cross-check the radar. Range support boats and shore-based video cameras are used to conduct visual verification of a cleared hazard area when required. Range support boats patrolling near the hazard area are used to warn boat traffic away. These boats also continually recheck the

area to ensure it remains clear and report the status of the hazard area to Range Safety.

BAYWATCH is responsible for monitoring air traffic that transits the restricted airspace and directs controlled traffic around the activated exclusive use areas.

Range users can perform a live run with intent to fire when Range Safety declares "GREEN RANGE." The typical GREEN RANGE criteria are as follows:

- All available resources show that the range surface is clear of boats (a minimum of two independent sources is required).
- The user has exclusive use of the airspace.
- The exclusive airspace is clear of non-participants.
- A practice run has been completed.

2.5.3.3.2 Hannibal Target

Range inspection procedures at Hannibal Target are similar to those at Hooper Target. Range Safety will monitor the hazard area using the Point No Point and Point Lookout radars and will rely on the range boat for visual confirmation that the area is clear. The range boat will contact any boats in the hazard area and warn them away.

When an aircraft checks on station, it will contact BAYWATCH and request exclusive airspace in Restricted Area 4005 South from its release altitude (or higher) to the surface. If a gunboat is using the range, the Range Control Officer will request exclusive use of the airspace on its behalf. Range Safety and the Range Control Officer will verify the airspace is clear.

2.5.3.3.3 Tangier Target

Currently, there is no visual target available at the Tangier Target site. If the site is used, the range clearance procedures summarized below are applicable.

Range clearance at Tangier Target uses a range support boat to verify that the hazard area is clear, both by visual surveillance and with radar. A clearing pass by the aircraft is required to confirm the range is clear. The aircraft then will request exclusive airspace in Restricted Area 6609 from BAYWATCH.

GREEN RANGE procedures are identical to those for the Hooper Target. Primary surface surveillance is by range boat and secondary surveillance is by aircraft.

2.5.3.3.4 Bloodsworth Island

Range inspection for ordnance training events is conducted in accordance with NAB Little Creek instructions, which are independent of NAWCAD Patuxent River Range Safety and are based on range monitoring by the aircraft or surface firing unit.

Range boats are used to clear the hazard area for testing events and aircraft are used to verify that the island is clear. The western shore of the island is at the horizon of Point No Point radar and beyond the horizon of Bay Forest and Point Lookout radars.

GREEN RANGE procedures are identical to those for the Hooper Target. Primary surface surveillance is by range boat and secondary surveillance is by aircraft.

2.5.3.4 Coordination Procedures

In FY96, Naval Aviation Systems Team (Aircraft Division), Patuxent River, began exploring the feasibility of using the RDT&E range complex to enhance Naval aviation operator training. By the end of FY97, the scope expanded to include not only Naval (USN and USMC) training, but also that of other services, including the Army and Air Force. Subsequently, Aberdeen Test Center and Fort A.P. Hill joined the effort and the Commander, Fleet Forces Command endorsed the concept and formation of the Chesapeake Regional Ranges Cooperative (CRRC).

Through a memorandum of agreement, the members of the CRRC agree to collaborate in supporting the RDT&E and interoperability requirements of DoD acquisition managers. They also support and cooperate in all phases of warfighter readiness training and Joint Forces warfare experimentation.

As of May 2004, the following organizations comprised the CRRC:

- NAWCAD, Patuxent River, MD
- NASA Wallops Flight Facility, Wallops, Virginia;
- U.S. Army Aberdeen Test Center, Aberdeen, MD
- Maryland Army National Guard, 2nd Battalion, 115th Infantry
- U.S. Army Fort AP Hill, Bowling Green, Virginia (Training Range);
- Naval Sea Systems Command (NAVSEA) – Naval Surface Warfare Center (NSWC), Combat Direction Systems Activity, Dam Neck, VA;
- Fleet Forces Command (FFC N7) (Training Ranges); and
- Joint Interoperability Test Command, Washington Operations, Indian Head, MD

In addition to the coordination activities that occur among the members of the CRRC, the Airspace Management Branch, Range Operations Division provides aircraft control and traffic advisory for extensive airspace resources covering regions over the Chesapeake Bay and the

Atlantic Ocean along the coastline of Delaware, Maryland, and Virginia. The branch also serves as liaison to FACSFAC VACAPES, FAA, and Air Operations.

2.5.3.5 Links to Other Ranges

FACSFAC VACAPES controls the offshore warning areas and operating area in the vicinity of the Atlantic Test Range. As a designated air traffic control facility, they are responsible for all aircraft operating within their area of responsibility, the scheduling of offshore warning areas and operating areas, and issuing Notices to Airmen (NOTAM) and Notices to Mariners (NOTMAR). FACSFAC VACAPES also coordinates aircraft traffic control and flight monitoring.

FACSFACVACAPESINST 3120.1J applies for all standard Fleet operations, such as training. For non-standard operations, such as RDT&E testing, NAWCAD assumes overall control and responsibility for the safe conduct of NAWCAD exercises or operations within VACAPES Range Complex warning areas pursuant to the current letter of agreement between FACSFAC VACAPES and NAWCAD.

The NASA Goddard Space Flight Center maintains the WFF primarily for suborbital launch services and research. WFF supports NAWCAD by providing radio communications, flight termination, telemetry relay, radar tracking, and other support services during offshore missile firing exercises conducted by NAWCAD. Additionally, supersonic targets are launched from WFF in support of Fleet training.

2.5.4 Atlantic Test Range Assets

2.5.4.1 Range Area Descriptions

2.5.4.1.1 Overland Special Use Airspace

Overland SUA within the Atlantic Test Range is summarized in Figure 2-22 and described in the following paragraphs.

Airspace	Floor	Ceiling
Restricted Area R-4002	Surface	20,000 feet
Restricted Area R-4005	Surface	Up to, but not including, FL250
Restricted Area R-4006	3,500 feet	Up to, but not including, FL250
Restricted Area R-4006 North	3,500 feet	Up to 6,500 feet
Restricted Area R-4007	Surface	Up to, but not including, 5,000 feet
Restricted Area R-4008	FL250	FL850
Restricted Area R-6609	Surface	FL200
Source: U.S. Navy. 2002b,		

Figure 2-22. Overland Special Use Airspace within the Atlantic Test Range

2.5.4.1.1.1 Restricted Area 4002 (R-4002).

R-4002 is SUA in the Chesapeake Bay area located approximately 20 NM southeast of the NAS Patuxent River VORTAC, bearing 115 degrees. R-4002 overlays Bloodsworth Island, a shore bombardment and bombing range. R-4002 is partially within R-4006 and extends to the surface below R-4006. R-4002 extends from the surface to FL200. Figure 2-5 illustrates the location of R-4002 airspace.

Activities conducted within the area include tactical training, radar evaluation, electronic sensor measurement flights, and no-drop weapons delivery training.

2.5.4.1.1.2 Restricted Area 4005 (R-4005).

R-4005 is SUA located over the confluence of the Potomac River and Chesapeake Bay, approximately 15 NM south of the Patuxent VORTAC, bearing 180 degrees. R-4005 is partially within R-4006 and extends to the surface below R-4006. The airspace extends from the surface up to, but not including, FL250.

R-4005 airspace is divided into the following four subareas: R-4005 North, R-4005 South, R-4005 West. (over Outlying Landing Field Webster), and R-4005 Southwest. R-4005 airspace contains remotely-operated aircraft operations, surface up to 3,500 feet. Figure 2-5 illustrates the location of R-4005 airspace.

Activities conducted within the area include chaff, flares, weapons separation, radar cross-section measurements, air combat maneuvering, aerial survey, captive carriage, electronic warfare, radar evaluations, forward-looking infrared radar, antenna patterns, avionics testing, tactical laser evaluation, departures/high angle of attack, refueling, air-to-air intercepts, approaches, flight qualities testing, Identification Friend or Foe (IFF), terrain avoidance warning systems evaluations, surface gunfire, air show practice, test pilot training, pilot training, check flights, flying qualities demonstration, glider operations, night vision goggles, air starts, ground proximity warning system evaluations, auto landing training and evaluations, touch and go, electro-optical targets, instrument check flights, formation landings, and night instrument training.

2.5.4.1.1.3 Restricted Area 4006 (R-4006).

R-4006 is SUA located approximately 20 NM east of the Patuxent VORTAC. The airspace extends from 3,500 feet MSL up to, but not including, FL250. Patuxent Terminal Radar Approach Control maintains that portion of R-4006 north of air route SBY R-313, altitude 3,500 to 6,500 feet MSL (R-4006 North) for transiting (i.e., nonparticipating) aircraft when the R-4006 airspace is active. Figure 2-5 illustrates the location of R-4006 airspace.

Activities conducted within the area include test pilot training, pilot training, stall and spin, departures/high angle of attack, ///MIDS TACAN, basic flight maneuvers, ///BIS flights, night instrument training, electronic warfare, refueling, Cockpit Video Recording System (CVRS) demonstration flights, X-31 thrust vector tests, tactical training and development, antenna patterns, radar evaluations, tanker evaluations, communications and radio testing, NASA support, air-to-air intercepts, altimeter evaluations, ///ROA, forward-looking infrared radar, captive carriage, electronic warfare training and testing, and functional test flights.

2.5.4.1.1.4 Restricted Area 4007A (R-4007A).

R-4007A is SUA located over NAS Patuxent River. The R-4007A airspace extends from the surface up to, but not including, 5,000 feet MSL. R-4007 is not SUA unless specifically activated in accordance with procedures described in NASPAXINST 3710.5T. Figure 2-5 illustrates the location of R-4007A airspace.

Activities conducted in the area include X-31 thrust vector tests.

2.5.4.1.1.5 Restricted Area 4008 (R-4008).

R-4008 is special-use airspace located approximately 20 NM east of the Patuxent River VORTAC. In the vicinity of Bloodsworth Island, R-4008 airspace overlies R-4002 and major portions of R-4005 and R-4006. The airspace extends from FL250 to FL850. Figure 2-5 illustrates the location of R-4008 airspace.

Activities conducted within the area include test pilot familiarity and training, pilot proficiency and training, stall and spin, departures/high angle of attack, MIDS TACAN, basic flight maneuvers, BIS flights, night instrument training, electronic warfare sensor measurements system evaluation, refueling, CVRS demonstration flights, X-31 thrust vector tests, tactical training and development, antenna patterns, radar evaluations, tanker evaluations, communications and radio testing, NASA support, air-to-air intercepts, altimeter evaluations, ROA, forward-looking infrared radar, captive carriage, electronic warfare training and testing, and functional test flights.

2.5.4.1.1.6 Restricted Area 6609 (R-6609).

R-6609 is SUA associated with the Tangier Island Targets, an unattended, non-instrumented range located in Chesapeake Bay approximately 27 NM south-southeast of the NAS Patuxent River VORTAC, Channel 123. R-6609 is partially within R-4006 and extends to the surface below R-4006. R-6609 extends from the surface up to FL200. Figure 2-5 illustrates the location of R-6609 airspace.

Activities conducted within the area include pilot proficiency training, air-to-air intercepts, acoustic systems evaluations, E-Field sensor testing, flying qualities and performance evaluation, IFF, Basic Fighter Maneuvers (BFM), aerial survey, refueling, radar evaluations, Fleet mine training exercise, and electronic warfare training.

2.5.4.1.2 Targets and Ground Ranges

Targets and ground ranges within the Atlantic Test Range are described in the following paragraphs.

2.5.4.1.2.1 Hooper Target.

The Hooper Target consists of five visual targets. Ordnance used includes inert bombs, rockets, torpedoes, mines, flares, chaff, and gun ammunition. The target area is within the aerial firing range restricted area defined by CFR 334.200. The airspace associated with the target area includes the NAS Patuxent River-controlled R-4005 North.

2.5.4.1.2.2 Hannibal Target.

The Hannibal Target consists of a scuttled Liberty Ship that provides a realistic target usable for inert weapons drops and small arms fire. Ordnance used includes inert bombs, rockets, torpedoes, mines, flares, chaff, and gun ammunition. The target area is within the aerial firing range restricted area defined by CFR 334.200. The airspace associated with the target area includes the NAS Patuxent River-controlled R-4005 South.

2.5.4.1.2.3 Tangier Island Target.

As originally placed, the Tangier Island Target consisted of two scuttled cargo ships. The targets were used for air-to-ground exercises using practice bombs and rockets. All above-water structures associated with this target have eroded away and the remaining hulks are now essentially underwater Portions of the target protrude above the surface during low tides. This poses a hazard to navigation and several claims have been filed against the Navy regarding the eroded target structure.

The target area is within the aerial firing range restricted area defined by CFR 334.210. The airspace associated with the target area includes the NAS Patuxent River-controlled R-6609.

2.5.4.1.2.4 Bloodsworth Island.

The Bloodsworth Island Range is located in the Chesapeake Bay. It consists of a chain of five marsh islands: Great Cove (submerged), Adams, Pone, Northeast, and Bloodsworth. Bloodsworth Island is the northernmost and largest at a point just north of the confluence of the Potomac River and Chesapeake Bay.

The 6,013 acres in Dorchester County, MD were established as a Navy range in 1942. The Bloodsworth Island Range in the lower Chesapeake Bay is situated between Hooper's and Holland Straits and Tangier Sound, approximately 3.5 miles west of Deal Island and 1.5 miles south of Bishops Head.

Bloodsworth Island has been designated as a shore bombardment, air bombing, air strafing, and rocket firing area (CFR 334.190). A surface restricted area and a surface danger zone are associated with the range.

As a part of Navy regionalization efforts, the Bloodsworth Island Range was transferred to NAWCAD from NAB Little Creek on March 27, 2001.

2.5.4.1.3 Other Range and Training Facilities

Other range and training facilities in the area are associated with the Aberdeen Proving Grounds. The Aberdeen Proving Grounds primarily supports research and testing and is the home of the U.S. Army Aberdeen Test Center.

Aberdeen Proving Grounds also has considerable warfighter training capabilities that are used in Navy and Joint Special Operations missions. These include live-fire boat unit exercises; live-fire, over-the-beach operations; Close Air Support (CAS); and hot insertions and extractions.

Ranges include Black Point, 9600 Impact Range, Stony Point, Cobb Creek, and Cod Creek. There also are numerous small arms ranges available for use on the installation. The center also has a 1,070-foot-long, 920-foot-wide, 150-foot-deep Underwater Explosive Pond that can support training.

The **Black Point** range is located on a low spit facing the main stem of the bay. The range accommodates live-fire, over-the-shore exercises and can accommodate hot, rotary-wing CAS and hot rotary-wing extractions.

The **9600 Range** is an impact area located in the Chesapeake Bay just south of Delph Creek. The range can accommodate rotary-wing and fixed-wing CAS training, including live bombing and strafing by A-10 and AC-130 aircraft.

Stony Point fronts the main stem of the Chesapeake Bay. The range is used for live-fire boat exercises. Operations can include live CAS training on the nearby 9600 Range.

The **Abby Point** range consists of an elongated rectangular parcel that encompasses a large area of Chesapeake Bay front, bracketed by the tidal coves of Romney Creek and the Bush River. The on-land portion of the range contains an impact area that can be used for live rotary-wing and

fixed-wing CAS. The over water areas of the range can be used for live boat exercises.

The **Cod Creek** range is located along the Bush River just northwest of Abby Point range. The Cod Creek range can be used for insertion/extraction and live-fire boat exercises. The range has an impact area that can accommodate live CAS training by A-10 and rotary-wing aircraft.

Cobb Creek

2.5.4.2 Surveillance, Scoring, and Feedback Systems

2.5.4.2.1 Surveillance

The Atlantic Test Range's surveillance capability includes airspace and surface assets.

2.5.4.2.1.1 Airspace Surveillance Assets.

A key source of airspace surveillance information is the GPN-27/ASR-8 radar at NAS Patuxent River. This radar is located near the center of the airfield and provides both raw returns and Identification Friend or Foe (IFF) data for air traffic control purposes.

Single target tracking precision radars located at Cedar Point are used to track individual targets. A phased-array multiple instrumentation radar at Cedar Point is used to track multiple targets.

The Enhanced Mid-Atlantic Tracking System (EMATS) is a GPS-based tracking system that provides real-time, extended area, multiple participant, over-the-horizon tracking capability. EMATS provides tracking coverage for missions performed on the Atlantic Test Range, including SUA over the Chesapeake Bay and warning areas off the Mid-Atlantic coast.

BAYWATCH uses IFF data generated by the ASR-8 radar, plus aircraft position information generated by the Cedar Point precision radar, FACSFAC VACAPES radar, and EMATS.

The Range Computation and Control System provides a variety of computational and display functions and is the primary tool used to control and conduct tests on the Atlantic Test Range. The system can display airspace information, such as IFF data from the ASR-8 and FACSFAC VACAPES radars, and position information for individual targets generated by other radars, laser trackers, theodolites, optical tracking mounts, and EMATS.

2.5.4.2.1.2 Surface Surveillance Assets.

Four surface search radar are employed on the western shore of the inner range and are positioned at Cedar Point, Bay Forest, Point No Point, and Point Lookout. The returns from these radars are used by Range Safety personnel to monitor surface traffic between the western shore of the Chesapeake Bay to the main ship channel with overlapping coverage from Cedar Point, Bay Forest, and Point No Point radars. The Hannibal Target area is monitored using the Point No Point and Point Lookout radars

High magnification video assets (theodolites and optical tracking mounts) are located along the western shore at Pylon, Chesapeake, Bay Forest, and Point No Point. These assets cover the entire range with precise azimuth reference to provide contact triangulation. They are used by Range Safety personnel to check radar contact information and verify the type of vessel being tracked by the radar sites.

The Atlantic Test Range Marine Operations and Target Support Section maintains numerous range boats. These boats are used to assist range clearance and are equipped with surface search radar, VHF marine band radio, and UHF radio.

2.5.4.2.2 Scoring

Scoring on the Hooper Target is provided by WISS. Towers housing scoring cameras are located at the Bay Forest Instrumentation Site and on the Point No Point Instrumentation Site. Video data are transmitted via fiber optic cable to the Range Operations Center for real time processing using the WISS. Onsite scoring can also be accomplished using portable GPS units.

The Atlantic Test Range has extensive optical and radar-based tracking capabilities, and electronic evaluation systems described in the above sections. These can be utilized in support of Fleet Training mission scenarios.

2.5.4.2.3 Feedback

Scoring using the WISS is relayed to aircrews from the Range Operation Center using two-way radio on the target frequency. Scoring sheets can also be forwarded to participating units upon request. The Chesapeake Test Range's high-speed video/film capability and photogrammetric systems can be employed in mission debrief and review. In addition, the high-quality footage recorded by these systems can be used in the production of films for classroom training and future mission orientation.

2.5.4.3 Communications

The Atlantic Test Range has a diverse array of communication systems that transmit voice, video, and data. The connectivity and interoperability of these systems is a critical element in fulfilling the range's mission. These include microwave, land-line, fiber optic, and satellite communications (SATCOM) -based systems.

The NAS Patuxent River ATCF provides ATC and SUA control services for the Atlantic Test Range. Aircraft using the ranges are required to maintain positive two-way radio contact with the NAS Patuxent River ATCF. Clearance of range areas requires that range control personnel monitor marine band, UHF, and VHF frequencies and communicate with private vessels as necessary to prevent intrusion. Scoring and range clearance is confirmed with the Range Operation Center on the target frequency. Targets and Target Arrays

2.5.4.3.1 Hooper Target

Hooper Target consists of a configuration of five visual targets. The primary target, known as center main target, is a large billboard centered at 38°12'54"N and 076°18'43"W on Patuxent River TACAN (PXT) R-148 at 6.1 miles DME. Four smaller, pyramid-shaped peripheral targets surround the center main target. These targets are normally used as visual and geographic references and are not intended to be hit by ordnance. An expendable target may be moored in the vicinity of Hooper Target to serve as the actual drop target.

2.5.4.3.2 Hannibal Target

The Hannibal Target consists of a scuttled Liberty Ship ex-American Mariner. The target is located at 38°02'18"N and 076°09'26"W on the PXT R-152 at 19.1 DME. A surface restricted area with a radius of 600 yards centers on and surrounds the target. The Liberty Ship is scuttled on a sandbar oriented 341°/161° True.

2.5.4.3.3 Tangier Targets

The Tangier Island Targets consist of two scuttled cargo ships located at 37°47.9'N and 076°03.8'W. The Tangier Island Danger Zone, centered at the target coordinates, includes a prohibited area with a 1,000-yard radius and a surface restricted area with a 3-mile radius.

2.5.4.3.4 Bloodsworth Island

Historically, Bloodsworth and Pone Islands have been used as impact areas; however, in 1983 the northern portion of Bloodsworth Island was designated as a "no fire" area to protect a great blue heron rookery.

Although Adams and Northeast Islands are within the danger zone, they have not been bombarded.

Remnants of former Naval gunfire support targets may be present. These targets consisted of sections of aluminum chain-link fence joined in a triangle and interwoven with colored slats to aid visual targeting. Targets used in support of NAWCAD testing consisted of pyramid-shaped wooden frames covered with white canvas. In addition to these targets, discarded vehicles and equipment were placed on the island to provide targets for aerial bombardment.

Over time, the mission for the Bloodsworth Island Range has gradually shifted to a test and evaluation focus. Current activities include visual non-impact targeting, aircraft radar evaluation, night vision system testing, and electronic system testing.

2.5.4.4 Other Infrastructure

2.5.4.5 Opposition Forces – Multi-Dimensional Threat Representation

The Atlantic Test Range operates multiple emitter sites to provide EC simulations. EC threat emitter simulations are used to:

- Train military aircrews to recognize mobile tactical threats;
- Provide aircrews with more-realistic training environments;
- Provide active threat radar parametrics for airborne and missile systems signal stimulation for national sensors and data analysis; and
- Provide signal stimulation for antimissile radiation testing.

Emitters can operate independently or in conjunction with visual targets. Emitters include both fixed and mobile assets, such as the Automated Communications Test and Training System, the Battlefield Voice Simulation System, Triple Ground Threat Emitter, Surface Threat Emitters, mobile communications vans, and antenna trailers. Since many of these systems are mobile, they are used to provide real-world threat scenarios at training events outside the Atlantic Test Range.

The Automated Communications Testing System is an integrated communications simulator that is capable of radiating amplitude modulation (AM), frequency modulation (FM), continuous wave (CW), analog and digital voice, tones, data link, and complex modulation . It uses an enclosure capable of emitting 16 simultaneous signals, a mobile van capable of emitting eight simultaneous signals, or two, remote-controlled trailers capable of one, 100-watt signal each.

The remote controlled emitter systems use line-of-sight radio frequency (RF) modems to establish links with the master controller station. Each emitter system includes a computer-controlled interface connected to broadband linear amplifiers to provide continuous coverage from 1 MHz to 1,100 MHz. The system controls amplitude, frequency, bandwidth, modulation type, and timing. GPS receivers update location and system

clocks in all mobile platforms, allowing quick setup and accurate Direction of Arrival information.

The Battlefield Voice Simulation System's computer-generated digital voice capability provides simulated battlefield command and control communications (C3) in English and foreign languages. The system supports Fleet and Joint Task Force Exercise training of land-based and airborne C3 interceptor platforms. It also supports aircraft antenna patterns, Direction of Arrival (DOA) jammer characterizations, and receiver sensitivity. The system is housed on a four-wheel-drive truck, enabling it to be support training from any location.

The Triple Ground Threat Emitter is capable of simulating the signal characteristics of certain hostile missiles, seaborne radar signals, and ground radar sites. It is used to support Fleet training exercises, aircrew training, EC, and operator training. The computer processing system provides multiple databases of pre-programmed RF signals. The system can be configured as a single, dual, or triple threat emitter with a man-in-the-loop for day or night optical tracking, or as an independent, remotely controlled system. The system is portable and its antenna assemblies are mounted on a motorized tripod that allows them to be automatically positioned according to tracking inputs. Tracking information can be received remotely or by landline from a source such as a tracking radar. Optical tracking and video taping of incoming aircraft can be accomplished even in low-light conditions.

The Surface Threat Emitter simulates over-the-horizon threats and can be used with targets to simulate coastal defense, cruise missile sites, and high-interest surveillance emitters. The system is available as an expendable target for live fire, as an augmentation to threat density scenarios, or as an independent radar simulator. Two transmitters are used with the system.

- The AN/DPT-1 provides pulse width and pulse repetition frequency selections and can be used for expendable target applications. It can operate unattended for up to 8 hours on a live-fire range. The AN/DPT-1 is designed for remote control operations via one-way radio commands for target applications.

- The AN/UPT-2 provides all of the capabilities of the Triple Ground Threat Emitter with increased Effective Radiated Power (ERP) and easily selected pulse train scenarios.

The Mobile Remote Emitter Simulator is a high-power EC simulator system that is capable of illuminating aircraft, ships, and other signal collection platforms with emitters ranging from 2 to 18 gigahertz (GHz). The system provides updated threat simulations for training and testing within the Atlantic Test Range and at remote sites on the East Coast. It is capable of receiving electronic countermeasure transmissions from 2 to 18 GHz for spectrum viewing and evaluation of countermeasure techniques. This mobile system is designed to render a more realistic

electronic combat environment by providing additional radar emitter density, greater signal complexity, and more diverse angle of arrival separation for Radar Warning Receivers (RWRs) and Electronic Support Measure (ESM) systems.

In addition to electronic systems, NAVAIR's Atlantic Targets and Marine Operations uses a vacuum thermal forming process to fabricate a variety of plastic armored vehicle targets to support Fleet training and RDT&E requirements. The targets are low-cost, durable, mobile, and realistic. The skid- or trailer-mounted, three-dimensional plastic targets are olive or desert sand color and copper coated to create a representative radar cross section. The targets can be augmented to provide an infrared signature that simulates a heated engine or cannon barrel. Targets include the BRDM II amphibious scout vehicle, SA-9 Gaskin missile launcher, AT-5 Spandrel missile launcher, T-72 main battle tank, ZSU-23-4 Shilka anti-aircraft weapon, and SA-6 Straight Flush, SA-6 Gainful, SA-13 Gopher, and SA-10 Tombstone.

CHAPTER 3 CURRENT RANGE COMPLEX OPERATIONS

3.1 INTRODUCTION TO RANGE COMPLEX OPERATIONS

The principal focus of the Range Complex Management Plan (RCMP) is on training operations that support the Navy Fleet Readiness Training Plan (FRTP) and Naval Special Warfare (NSW) training. The purpose of focusing on these range operations is to support subsequent environmental planning and development of an investment strategy tailored to the FRTP and NSW training operations conducted or planned for the range complex.

3.1.1 Method for Determining Training Operations included in the RCMP

The method for determining the training operations to be included in the VACAPES RCMP is a four-step process starting with the Navy Tactical Task List (NTTL):

- A list of Navy Tactical (NTA) tasks was developed that:
  - Are FRTP tactical training operations or major range events;
  - Required a range, training area, OPAREA, SUA, or facility; and
  - May require environmental planning or investment to support the training operation or event, or both.
- Each NTA task placed on the developed NTA task list was correlated with one or more types of Navy training operations.
- This list of NTAs and training operations was further assessed for those operations that are currently conducted, or are to be conducted in the future, within the entire VACAPES Range Complex. The result of the assessment was a list of training operations applicable to the VACAPES Range Complex.
- The final list of range operations was developed by removing one-time or non-recurring operations or operations covered by other environmental planning documents.

The result of this process is a representative list of range operations currently conducted and/or planned over the next ten years at the VACAPES Range Complex that may require further investment or environmental planning.

3.1.2 Operations Included in the VACAPES RCMP

The operations included in this VACAPES RCMP include, and are grouped by, individual range complex, either VACAPES Range Complex or Atlantic Test Range, and then by other service or commercially owned areas that support NSW training. Within each range complex, operations in Figure 3-1 are arranged in NTA order.

Area	Navy Task	NTA	Training Operation
VACAPES Range Complex			
	Conduct Tactical Insertion and Extraction	1.1.2.4	Insertion/Extraction
	Perform Mine Countermeasures	1.3.1	Airborne Mine Countermeasures (AMCMEX)
			Mine Neutralization
	Conduct Naval Special Warfare	1.5.6	Naval Special Warfare Operations
	Attack Surface Targets	3.2.1.1	Air-to-Surface Gunnery Exercise (GUNEX)
			Air-to-Surface Missile Exercise (ASMEX)
			Bombing Exercise (Sea) (BOMBEX)
			Surface-to-Surface Gunnery Exercise (GUNEX)
	Attack Submerged Targets	3.2.1.2	ASW Tracking Exercise - Helicopter
			ASW Tracking Exercise – Maritime Patrol Aircraft
			ASW Tracking Exercise – Surface
			Torpedo Exercise – Surface
	Attack Enemy Aircraft and Missiles (Offensive Counter Air)	3.2.3	Air Combat Maneuvers (ACM)
			Air-to-Air Gunnery Exercise (GUNEX)
			Air-to-Air Missile Exercise (AAMEX)
	Suppress Enemy Air Defenses (SEAD)	3.2.4	High-Speed Anti-Radiation Missile Exercise (HARMEX)
	Conduct Electronic Attack	3.2.5	Electronic Combat Operations
	Interdict Enemy Operational Forces/Targets	3.2.6	Air-to-Ground Gunnery Exercise (GUNEX)
			Air-to-Ground Missile Exercise (MISSILEX)
			Bombing Exercise (Land)
	Intercept, Engage, and Neutralize Enemy Aircraft and Missile Targets (Defensive Counter Act)	3.2.7	Surface-to-Air Gunnery Exercise (GUNEX)
			Surface-to-Air Missile Exercise (MISSILEX)
	Conduct Fire Support	3.2.8	Laser Targeting
	Conduct Non-lethal Engagement	3.2.9	Chaff
	Shipboard Electronic Systems Evaluation Facility	N/A	SESEF
	Research Development Test and Evaluation	N/A	RDT&E
Atlantic Test Range			
	Research Development Test and Evaluation	N/A	RDT&E
	Conduct Mining	1.4.1	Mining Exercise
	Attack Surface Targets	3.2.1.1	Surface-to-Surface Gunnery Exercise (GUNEX)
	Conduct Electronic Attack	3.2.5	Electronic Combat Operations
NSW Operations in Other Areas			
	Conduct Tactical Insertion and Extraction	1.1.2.4	Insertion/Extraction
	Conduct Breaching of Minefields, Barriers, Obstacles	1.3.2	Breaching
	Detonate Mines/Explosives	1.4.4	Land Demolitions
	Conduct Sustained Operations Ashore	1.5.5	Military Operations in Urban Terrain (MOUT)
	Conduct Naval Special Warfare	1.5.6	Naval Special Warfare Operations
			Direct Action
	Attack Surface Targets	3.2.1.1	Surface-to-Surface Gunnery Exercise (GUNEX)
	Conduct Fire Support	3.2.8	Close Air Support (CAS)
			Marksmanship
Source: Navy Tactical Task List, July 2001.			

Figure 3-1: Training Operations in the VACAPES RCMP

Operational data contained in this publication are from FY03 operations. Typical of ongoing conditions, many operations in FY03:

- Involved multiple units, multiple capabilities, and occurred in one or several range areas.
- Had a significant volume of other, routinely occurring training operations that did not meet the criteria for inclusion in this RCMP because investment or environmental planning requirements were not anticipated.

Data on operation by NTA are summarized below, as follows:

- Section 3.2.1: VACAPES Range Complex
- Section 3.2.2: Atlantic Test Range
- Section 3.2.3: NSW Operations in Other Service or Commercially Owned Areas.

More detailed information is provided in the VACAPES Operations Data Book. The RCMP Volume I Guidebook provides a thorough description of each operation.

///NOTE: Still capturing TACTS data, (e.g. ACM) to be completed at 100%.

3.1.3 Major Range Events Included in the VACAPES RCMP

Major range events included in an RCMP are grouped separately from individual range operations. They are significant operational employments during which several individual training operations are conducted involving multiple NTAs, units, and capabilities and. Normally they occur in several areas. The number of events was calculated from FY2003 data. Summary information and data on each event are displayed on a data strip following the event description and further discussed in the Operations Data Book.

Major range events may include:

- Joint Task Force Exercise (JTFEX);
- Composite Training Unit Exercise (COMPTUEX);
- Supporting Arms Coordination Exercise (SACEX); and/or
- Special Operations Capabilities Exercise (SOCEX).

3.2 OPERATIONS DESCRIPTIONS

Range operations data were collected from FACSFAC VACAPES, Atlantic Test Range, and other service or commercially owned areas used for NSW training. Data available did not always fulfill the data requirements in several areas, including type of operation conducted, participants, ordnance types and amounts, target types and numbers, and supporting participants, such as tugs or vehicles.

3.2.1 VACAPES Range Complex

3.2.1.1 Insertion/Extraction (NTA 1.1.2.4)

NSW personnel hone individual skills in delivery and withdrawal of personnel and equipment, using unconventional methods, through insertion/extraction operations. Parachute training of personnel, rubber boats, and equipment was the principal operation documented during these range evolutions.

Operations	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Insertion/Extraction	1.1.2.4	R-6606	Ops		15	0	0	0	15

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.2 Airborne Mine Countermeasures (AMCM) (NTA 1.3.1)

MH-53 helicopter squadrons conducted AMCM training operations in W-50. The purpose of this training was for the helicopter crews to practice the deployment, employment, and retrieval of the mine countermeasures equipment systems.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
AMCM	1.3.1	W-50	Ops		29	0	0	0	29

Future Activities and Considerations: The Fleet introduction of Organic Mine Countermeasures (OMCM) in FY05 will result in a fundamental change in tactics, techniques, procedures, and training for MCM. In 2004, mine countermeasure ships (SMCMs) and helicopters (MH-53s) are dedicated solely to the MCM mission and generally are not associated with CSGs, ESGs, or an ARG/MEU, and infrequently participate in VACAPES Range Complex training exercises.

In the OMCM concept of operations, the MCM capability will be embedded in (organic to) a task group. Multi-purpose helicopters (MH-60R/S), submarines, and surface combatants within the task group will be outfitted with OMCM systems. Training will be required in all phases of the FRTP to establish and maintain proficiency of OMCM-equipped units in the mine countermeasures mission, and MCM will likely be evaluated in all JTFEXs conducted in the VACAPES Range Complex.

MH-60R/S helicopters based in Norfolk will have a future AMCM mission and an AMCM training requirement. As the backyard range for these helicopters, the VACAPES Range Complex will require the capability to support unit level AMCM training. There are five different AMCM systems currently under development:

- Airborne Laser Mine Detection System (ALDS)

- Airborne Mine Neutralization System (AMNS)
- AQS-20X – Sonar, Mine Detecting
- Organic Airborne Surface Influence Sweep.
- Rapid Airborne Mine Clearance System (RAMCIS)

The Range Planning Team (RPT) will be responsible for tracking the status and timing of Initial Operational Capability/Final Operational Capability (IOC/FOC) of new AMCM systems and ensuring that VACAPES is fully ready to support required training operations. In this regard, they will review any environmental planning documents prepared by system commands for AMCM, assess the adequacy of the environmental coverage, and recommend to Fleet Forces Command (FFC) any additional environmental planning to be completed prior to introduction. They will also assess and recommend to FFC investments that will be required to support AMCM training in VACAPES.

The number, types, and locations of AMCM operations that will occur in VACAPES after the introduction of OMCM systems are not currently known. Future environmental planning efforts in VACAPES should review AMCM activity and update the number of operations conducted if appropriate.

The number, types, and locations of airborne mine countermeasures (AMCM) operations that will occur in the VACAPES Range Complex after the introduction of OMCM systems are not currently known. Future environmental planning efforts in the VACAPES Range Complex should review AMCM activity and update the number of operations conducted, if appropriate.

3.2.1.3 Mine Neutralization (NTA 1.3.1)

The majority of training operations included in this category involve EOD units using underwater explosive charges to destroy or neutralize simulated mines. Training operations to neutralize mines in the water may involve the detonation of explosive charges from 10 to 20 pounds of TNT equivalent.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Mine Neutralization	1.3.1	R-6606 W-386	Ops		45	0	0	11	56

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.4 Naval Special Warfare Operations (NTA 1.5.6)

This category contains a wide variety of NSW operations, including: Air Operations, Special Boat Team Operations involving live fire surface-to-surface gunnery, electronic combat, and diving.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
NSW Ops	1.5.6	W-50	Ops		44	0	0	0	44

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.5 Air-to-Surface Gunnery Exercise (GUNEX) (NTA 3.2.1.1)

Helicopter squadrons conducted most of the documented air-to-surface gunnery operations. These operations are designed to seek and destroy or disable enemy seaborne units.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (A-S)	3.2.1.1	W-50	Ops		14	0	0	0	14

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.6 Air-to-Surface Missile Exercise (ASMEX) (NTA 3.2.1.1)

Training during these operations involved helicopter laser targeting and training for what could have been an air-to-surface missile firing against an enemy seaborne unit.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
ASMEX	3.2.1.1	W-386	Ops		14	0	0	0	14

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.7 Bombing Exercise (Sea) (NTA 3.2.1.1)

The typical BOMBEX was conducted during an air wing training cycle, and involved one or more aircraft at a time engaging a seaborne unit.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
BOMBEX (Sea)	3.2.1.1	W-386	Ops		39	0	0	0	39

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.8 Surface-to-Surface Gunnery Exercise (GUNEX) (NTA 3.2.1.1)

The documented GUNEXs conducted during FY03 were principally conducted by NSW teams and Mobile Salvage Group units with 7.62, .50 cal, and 40 mm weapons against seaborne targets. It is assumed that all 5-inch and 76 mm naval gun equipped ships (CG, DD, DDG, FFG) training in the VACAPES Range Complex have also conducted this type of exercise to maintain their training requirements, but data documentation was not available.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (S-S)	3.2.1.1	W-50	Ops		21	0	0	4	25

Future Activities and Considerations: Operations are expected to continue at the current level.

3.2.1.9 Antisubmarine Warfare (ASW) Tracking Exercise/Torpedo Exercise (TRACKEX/TORPEX) (NTA 3.2.1.2)

The ASW TRACKEX trains aircraft, surface ship, and submarine crews in tactics, techniques, and procedures for search, detection, localization, and tracking of submarines. Participating units may use active and passive equipment, including hull-mounted sonar, towed arrays, variable depth sonar, and sonobuoys. The target for ASW TRACKEXs may have been a MK39 expendable mobile ASW training target (EMATT) or a live submarine.

The ASW TORPEX usually includes a TRACKEX to achieve the firing solution. In the VACAPES OPAREAS, the most commonly documented torpedo target is the MK39 EMATT. The practice torpedo shape (REXTORP) is more commonly used than an exercise torpedo (EXTORP).

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
ASW TRACKEX – Helo	3.2.1.2	W-386	Ops		23	0	0	0	23
ASW TRACKEX - MPA	3.2.1.2	W-386	Ops		131	0	0	9	140
ASW TRACKEX - Surface	3.2.1.2	W-386	Ops		85	0	0	7	92
TORPEX - Surface	3.2.1.2	W-386	Ops		26	0	0	0	26

Future Activities and Considerations: Two factors could affect ASW training operations in the future. The first is the installation of the Shallow Water Training Range (SWTR) that will probably be installed in the Cherry Point Operating Areas. The addition of this range could provide a training capability that would draw units to that range for a better training opportunity. Submarine transits from New London or Norfolk homeports to and from the SWTR could create additional "targets of opportunity" for ASW TRACKEX training by surface ships and aircraft. After the installation of the SWTR, the data on ASW TRACKEX operations in the VACAPES OPAREAS should be updated and incorporated into appropriate environmental assessments.

A second factor affecting future ASW operations is the Fleet introduction of the Littoral Combat Ship (LCS). The LCS is in the preliminary design phase with delivery to the Navy expected in 2007.

The LCS will be a high-speed ship designed for fighting in littoral or coastal areas. The LCS will feature an advanced hull form with a shallow draft and will be capable of quickly moving through the littoral at speeds of up to 40 to 50 knots.

Operating close to land, the LCS will enhance the capabilities of the Navy's larger multi-mission surface ships. By adding mission module packages to LCSs, commanders will tailor the ships to combat threats most often found in the littoral zone, such as diesel submarines, naval mines, and small, fast surface craft.

Considerations for the LCS potentially include active sonar operations inside 12 NM from land; and additional range, instrumentation, and targets need to satisfy littoral ASW training requirements. The RPT will oversee planning aspects for introduction of the LCS to the VACAPES Range Complex, including:

- Second Fleet IOC and homeporting plan;
- Status of SYSCOM environmental planning, applicability, and adequacy for the VACAPES Range Complex;
- Additional environmental planning and the plan of action and milestones required for littoral ASW training;

- Assessment of adequacy and suitability of current range assets to support littoral training; and
- New range investments and the plan of action and milestones required for the acquisition and installation of the investments to support littoral ASW training.

3.2.1.10 Air Combat Maneuvers (ACM) (NTA 3.2.3)

ACM operations are conducted at the OCEANA Tactical Aircrew Training System (TACTS) Range. These operations provide training in basic fighter maneuvering, offensive counter air, and defensive counter air.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
ACM	3.2.3	TACTS	Sorties		5,186	0	0	78	5,264

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.11 Air-to-Air Gunnery Exercise (GUNEX (A-A)) (NTA 3.2.3)

Air-to-air gunnery exercises may be performed in conjunction with air-to-air missile exercises or during air intercept control training operations, both of which offer a convenient opportunity for additional training.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (A - A)	3.2.3	W-386	Ops		54	0	0	0	54

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.12 Air-to-Air Missile Exercise (AAMEX) (NTA 3.2.3)

VACAPES OPAREAS offer the opportunity for realistic air warfare training in air intercept control, air intercept, and live missile firing exercises with Phoenix, Sparrow, Sidewinder, and Advanced Medium-Range Air-to-Air Missile (AMRAAM) against an array of targets.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
AAMEX	3.2.3	W-72 W-386	Ops		476	0	0	3	481

Future Activities and Considerations: The Fleet acquisition of a TSV in 2003 added a mobile capability to launch and recover aerial target drones. This affords the opportunity to schedule AAMEXs more frequently.

Future environmental planning efforts for the VACAPES Range Complex should ascertain the use of TSV-launched aerial targets for AAMEXs in the complex and incorporate data into the environmental assessment.

3.2.1.13 High-Speed Anti-Radiation Missile Exercise (HARMEX) (NTA 3.2.4)

The HARMEX is designed to train aircrews to suppress the enemy's air defense.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
HARMEX	3.2.4	W-386	Ops		18	0	0	0	18

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.14 Electronic Combat (EC) Operations (NTA 3.2.5)

EC operations are designed to present realistic electronic threat simulation and jamming to train personnel in threat identification and appropriate tactical reaction. Appropriately configured aircraft may also fly threat profiles against the ships so that crews are trained to detect electronic signatures of various threat aircraft, or for ship crews to detect counter jamming of their own electronic equipment by the simulated threat.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Electronic Combat Operations	3.2.5	W-72 W-386	Ops		130	0	0	57	187

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.15 Air-to-Ground Gunnery Exercise (NTA 3.2.6)

The Navy Dare County Range area provides excellent targets, scoring, and immediate feedback to aircraft conducting this operation. This feedback capability greatly increases the quality of training. As a result, nearly 3,400 operations occurred in the VACAPES Range Complex in FY03.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (A-G)	3.2.6	Navy Dare	Sorties		3,099	0	0	293	3,392

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.16 Bombing Exercise (Land) (NTA 3.2.6)

BOMBEX (Land) operations occur at Navy Dare County Range and Stumpy Point areas. Navy Dare County Range is instrumented to provide immediate feedback to range users. This feedback capability greatly increases the quality of training. As a result, nearly 3,000 operations occurred in the VACAPES Range Complex in FY03.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
BOMBEX (Land)	3.2.6	Navy DARE	Sorties		2,533	0	0	334	2,867

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.17 Surface-to-Air Gunnery Exercise (GUNEX) (NTA 3.2.7)

Surface-to-air, live-fire gunnery (5-inch, 76 mm, 20 mm close-in weapons system [CIWS], and 7.62 mm) exercises all require air target services to serve as a threat aircraft or missile. The target is normally a towed target presented in a representative threat profile.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (S-A)	3.2.7	W-386	Ops		419	0	0	180	599

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.18 Surface-to-Air Missile Exercise (MISSILEX) (NTA 3.2.7)

The VACAPES Range Complex provides a good array of targets for surface-to-air missile exercises, including the supersonic targets. A MISSILEX (S-A) may be conducted at the unit level, or during a larger, multi-scenario operation.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
MISSILEX (S-A)	3.2.7	W-386	Ops		231	0	0	16	247

Future Activities and Considerations: Operations are expected to decrease from the current level due to the elimination of the requirement for unit level live missile firings from Naval Surface Force ships. Aircraft carrier live missile firing and integrated/sustainment training firings as well as systems qualification live firings are expected to continue.

3.2.1.19 Laser Targeting (NTA 3.2.8)

Laser targeting operations train crews in the illumination of a designated target for their engagement by laser guided weapons.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Laser Targeting	3.2.8	W-386	Ops		6	0	0	0	6

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.20 Chaff (NTA 3.2.9)

A chaff operation provides the opportunity both to employ chaff and experience the effects. This operation can provide double training, from those who employ the chaff, and by those on whom the chaff is employed.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Chaff	3.2.9	W-386	Ops		68	0	0	10	78

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.1.21 Shipboard Electronic Systems Evaluation Facility (SESEF)

The SESEF provides the fleet with a dependable and technically capable source for real time comparative electronic combat and radio frequency signal analysis consistent with an operational environment.

SESEF CUSTOMER	VISITS	TESTS
CRUISERS	129	546
DESTROYERS	293	1800
FRIGATES	39	211
AMPHIBS	134	898
CARRIERS	94	549
MINE WARFARE	0	0
REPLENISMENT/SUPPORT SHIPS	12	59
PATROL BOATS	7	20
SUBMARINES	41	156
MILITARY SEALIFT COMMAND Units	20	88
USCGC	14	30
SHORE BASED FACILITY	105	274
AIR	0	0
MOBILE	1	1
FOREIGN	3	23
OTHER	3	8
TOTAL	895	4,663

Source: SESEF Norfolk

3.2.1.22 Research Development Test and Evaluation (RDT&E)

The Atlantic Test Ranges conduct Many RDT&E test events in the W-386 warning area. This data strip summarizes the documented events and available data.

RDT&E Operations	Type of Aircraft Involved	Total
Captive Carry	FA-18	58
Environmental Control System	FA-18	19
Electronic Systems	FA-18, P-3, Nimrod, BAC-111, EA6B, EP3	23
Flying Qualities	FA-18	12
Refueling Systems	FA-18, C-130	7
Thermal Surveys	FA-18	1
Electronic warfare	BAC-111	3
Propulsion	FA-18	1
	TOTAL	124

3.2.2 Atlantic Test Ranges (ATR)

3.2.2.1 Mining Exercise (NTA 1.4.1)

Most MINEX operations are conducted near the Hooper Target Complex, in R-4005, because of proximity to the Atlantic Test Range support assets for scoring, radar, and recovery and the hard bottom features that enhance recovery of practice mines. Standardized delivery routes, procedures, unambiguous landmarks, and drop zones have been established to maximize the training value.

A 2-mile-long by 1-mile-wide impact area is used for the actual release. This may be compressed for tactical aircraft when the hazard pattern is smaller. In any case, the Atlantic Test Range establishes a hazard pattern for the intended impact system and clear all surface traffic in the target box, within ½ mile of the target box, and along the run-in line from Point No Point lighthouse to the Hooper Target Complex. Release altitude is 1,000 feet or less. Release airspeed is 350 knots indicated airspeed (KIAS) and below for P-3 Patrol/B-52 Bomber aircraft and 500 KIAS and below for tactical aircraft. Dive angle is straight and level.

The Atlantic Test Range provides target area surveillance support using surface search radars, aircraft tracking radar, optical theodolites, and video cameras. Additionally, Atlantic Test Range sends range boats to clear the area and recover mines, if required. A Mission Range Safety Officer ensures that all surface and air hazards are monitored by two or more sources to provide complete coverage of the hazard area.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
MINEX	1.1.4	Hooper Target R-4005	Ops		44	0	0	0	44

Future Activities and Considerations: MINEX operations are expected to increase by approximately 50 percent by FY2010 due to future MINEX operations that will likely include new aircraft, mine delivery systems, and a mine detection test capability in waters underlying R-4005.

3.2.2.2 Surface-to-Surface Gunnery Exercise (NTA 3.2.1.1)

Routine gunfire training is required to ensure that ship crews attain and retain Fleet level weapons system proficiency consistent with their overall mission. Standard Operating Procedure (SOP) 3750.1, for Hannibal Target Ship Gunfire Training, has been published by the Atlantic Test Range to cover all gun crew training at the Hannibal Target complex.

The Hannibal Target complex provides a convenient location for weapons crew training because of its proximity to the Norfolk/Hampton Roads Naval Complex and the availability and flexibility of additional range support assets that can be provided by NAWCAD in the Atlantic Test Range. Training rounds are normally used in the Hannibal Target complex, but illumination rounds, such as "Red Star" flares, may be used if night operations are authorized. No high explosive (HE) rounds are permitted.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (S-S)	3.2.1.1	Hannibal Target R-4005	Ops		2	0	0	0	2

Future Activities and Considerations: GUNEX operations are expected to increase from 2 operations per year (baseline) to more than 10 operations per year by FY06. Future GUNEX operations will be performed at the Hannibal Target and Bloodsworth Island range, which provides a unique littoral environment. Much of the growth in future GUNEX operations will be to support NSW training requirements, a majority of which are expected to occur at Bloodsworth Island range.

3.2.2.3 Electronic Combat Operations (NTA 3.2.5)

There are two types of basic-level EC training available for Fleet users in the Atlantic Test Range:

- Signal identification, which allows aircrews to identify a broad range of threat signals.
- Chaff and flares deployment to practice methods to defeat EC threats.

All Fleet training EC operations are conducted in R-4005 and R-4006. P-3 aircrews usually conduct an EC operation immediately following a MINEX training event.

An example EC training operation would include a single P-3 aircraft coming from a MINEX in R-4005 at an altitude between 3,000 and 5,000 feet AGL. The P-3 would then go to R-4006 between 5,000 and 15,000 feet AGL and proceed to identify and practice defensive tactics against the various threat emitters that were scheduled. Chaff and flares can be employed to defeat the EC threats.

After completion of the training, aircrews receive a critique from ground operators concerning the effectiveness of the tactics deployed to defeat various EW systems.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Electronic Combat Ops	3.2.5	R-4006	Ops		26	0	0	0	26

Future Activities and Considerations: EC operations are expected to increase significantly over current levels to approximately 50 operations per year by FY07. The increase is attributed to use by more tactical aircraft, as well as ASW aircraft, and to new EC threats and EC systems.

3.2.3 NSW Operations in Other Service or Commercially Owned Areas

3.2.3.1 Insertion/Extraction (NTA 1.1.2.4)

NSW personnel hone individual skills in delivery and withdrawal of personnel and equipment, using unconventional methods, through insertion/extraction operations. Parachute training of personnel, rubber boats, and equipment, as well as watercraft and helicopters were the principal methods used during these range evolutions.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Insertion/Extraction	1.1.2.4	Ft. Pickett ATC	Ops		7 24	0 0	0 0	0 0	31

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.2 Breaching (NTA 1.3.2)

Breaching trains personnel to break through or secure a passage through an enemy defense, obstacle, minefield, or fortification. The training requires realistic "props," such as doors in buildings and locations that permit the use of explosive charges, to provide the appropriate stimulation and placement of explosive charges.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Breaching	1.3.2	Ft. Pickett	Ops		53	0	0	0	53

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.3 Land Demolitions (NTA 1.4.4)

Land demolitions training usually involves NSW basic platoon operations, and may include specialized training clearance techniques. These operations are frequently coupled with other operations where small arms may be fired.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Land Demolitions	1.4.4	Ft. Pickett Ft. AP Hill	Ops		11 79	0 0	0 0	0 0	90

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.4 Military Operations in Urban Terrain (MOUT) (NTA 1.5.5)

MOUT operations require a simulated city or village setting to provide realistic stimulation for conducting the training. This is primarily an offensive operation that involves the employment of many NSW techniques, including live fire.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
MOUT	1.5.5	Ft. Pickett	Ops		4	0	0	0	4

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.5 Naval Special Warfare (NSW) Operations (NTA 1.5.6)

This NSW operations heading includes numerous smaller NSW operations such as:

- Maritime Operations (MAROPS) and basic, intermediate, and advanced tactical training for SEAL platoon readiness.
- Special Boat Team (SBT) operations that emphasize live fire, demolitions, and navigation of combat rubber raiding craft (CRRC) utilizing dead reckoning, compass, and GPS; patrolling the littoral

zones (near-shore and inter-coastal waterways); and the insertion, support, and extraction of special warfare units.

- HMMWV training, including driving and mounted gunnery operations.
- Land demolitions (see NTA 1.4.4 above).
- Underwater demolition (see NTA 1.3.2 above)
- Small arms qualification (see Marksmanship, NTA 3.2.8).
- Land Navigation Field Training Exercises (FTX), conducted to provide basic land navigation training techniques.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
NSW Ops	1.5.6	Ft. AP Hill Ft. Pickett ATC	Ops		4 299 73	0 0 0	0 0 0	0 0 0	376

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.6 Direct Action (NTA 1.5.6)

Direct action operations are normally offensive operations where NSW teams seize or destroy a target. It often involves live fire and insertion/extraction by helicopter or watercraft, and is often combined with other NSW operations.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Direct Action	1.5.6	Ft. AP Hill Ft. Pickett	Ops		157 79	0 0	0 0	0 0	236

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.7 Surface-to-Surface Gunnery Exercise (GUNEX) (NTA 3.2.1.1)

A GUNEX is normally conducted by SBTs from MK V Special Operations Craft (SOC) or Rigid Hull Inflatable Boat (RHIB), using .50 cal, 40 mm, and 7.62 mm ordnance against land targets.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
GUNEX (S-S)	3.2.1.1	ATC	Ops		78	0	0	0	78

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.8 Close Air Support (CAS) (NTA 3.2.8)

NSW personnel often conduct CAS in conjunction with a GUNEX or direct action operation. The NSW personnel practice coordination with the aircraft providing the CAS. Air support services are often provided by Air Force or Air National Guard aircraft and may involve live ordnance.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
CAS	3.2.8	ATC	Ops		44	0	0	0	44

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.3.9 Marksmanship (NTA 3.2.8)

NSW operations that involved weapons employment and could not be clearly classified as another type of NSW operation were consolidated as Marksmanship. These operations included small arms tactical proficiency with shotguns, 5.56 mm, 7.62 mm, 9 mm, 40 mm, 60 mm, 84 mm, and .50 cal weapons, as well as various demolitions.

Operation	NTA	Area	Metric	Qualification	Unit Training	Integrated	Sustainment	Other Service	Total
Marksmanship	3.2.8	Ft. Pickett Ft. AP Hill	Ops		40 224	0 0	0 0	0 0	264

Future Activities and Considerations: Operations are expected to continue at or slightly above the current level.

3.2.4 Major Range Events

Major range events normally occur outside the VACAPES Range Complex. No major range events involving the VACAPES Range Complex or Atlantic Test Range were documented in FY03 in any of the data reviewed. Major range events normally include: Joint Task Force Exercise (JTFEX), Composite Training Unit Exercise (COMPTUEX), Supporting Arms Coordination Exercise (SACEX), Special Operations Capable Exercise (SOCEX).

3.3 OPERATIONS SUMMARY

A summary of the operations data strips previously presented for each range complex is presented in Figure 3-2. Detailed data are provided in the VACAPES Operations Data Book.

Operation	NTA	Area	Data Metric	Qualification	Unit	Integration (C2X, ARGEX)	Sustainment (JTFEX, SACEX/SOCEX)	Other Service	Total
VACAPES Range Complex									
Insertion/Extraction	1.1.2.4	R-6606	Ops		15	0	0	0	15
AMCM	1.3.1	R-50	Ops		29	0	0	0	29
Mine Neutralization	1.3.1	R-6606	Ops		45	0	0	11	56
NSW Ops	1.5.6	W-50	Ops		44	0	0	0	44
GUNEX (A-S)	3.2.1.1	W-50	Ops		14	0	0	0	14
ASMEX	3.2.1.1	W-386	Ops		14	0	0	0	14
BOMBEX (Sea)	3.2.1.1	W-386	Ops		39	0	0	0	39
GUNEX (S-S)	3.2.1.1	W-50	Ops		21	0	0	4	25
ASW TRACKEX – Helo	3.2.1.2	W-386	Ops		23	0	0	0	23
ASW TRACKEX – MPA	3.2.1.2	W-386	Ops		131	0	0	9	140
ASW TRACKEX – Surface	3.2.1.2	W386	Ops		85	0	0	7	92
TORPEX – Surface	3.2.1.2	W-386	Ops		22	0	0	3	25
ACM	3.2.3	TACTS	Sorties		5,186	0	0	78	5,264
GUNEX (A-A)	3.2.3	W-386	Ops		54	0	0	0	54
AAMEX	3.2.3	W-386	Ops		478	0	0	3	481
HARMEX	3.2.4	W-386	Ops		18	0	0	0	18
Electronic Combat Ops	3.2.5	W-72	Ops		130	0	0	57	187
GUNEX (A-G)	3.2.6	Navy DARE	Sorties		3,099	0	0	293	3,392
BOMBEX (Land)	3.2.6	Navy DARE	Sorties		2,533	0	0	334	2,867
GUNEX (S-A)	3.2.7	W-386	Ops		419	0	0	180	599
MISSILEX (S-A)	3.2.7	R-6606	Ops		231	0	0	16	247
Laser Targeting	3.2.8	W-386	Ops		6	0	0	0	6
Chaff	3.2.9	W-386	Ops		68	0	0	10	78
SESEF	N/A	SESEF Range	Ops		0	0	0	0	4,663
RDT&E	N/A	W-386	Ops		0	0	0	0	124
Total VACAPES					12,708	0	0	1,002	18,497
Atlantic Test Range									
MINEX	1.4.1	Hooper Target, R-4005	Ops		44	0	0	0	44
GUNEX (S-S)	3.2.1.1	Hannibal Target, R-4005	Ops		2	0	0	0	2
Electronic Combat Ops	3.2.5	R-4006	Ops		26	0	0	0	26
Total Atlantic Test Range					72	0	0	0	72

Figure 3-2. VACAPES Range Complex Operations in FY03 (Part 1)

Operation	NTA	Area	Data Metric	Qualification	Unit	Integration (C2X, ARGEX)	Sustainment (JTFEX, SACEX/SOCEX	Other Service	Total
NSW Ops in Other Area									
Insertion/Extraction	1.1.2.4	Ft. Pickett, ATC	Ops		31	0	0	0	31
Breaching	1.3.2	Ft. Pickett	Ops		53	0	0	0	53
Land Demolitions	1.4.4	Ft. Pickett, Ft. AP Hill	Ops		90	0	0	0	90
MOUT	1.5.5	Ft. Pickett	Ops		4	0	0	0	4
NSW Ops	1.5.6	Ft. AP Hill, Ft. Pickett, ATC	Ops		376	0	0	0	376
Direct Action	1.5.6	Ft. AP Hill, Ft. Pickett	Ops		236	0	0	0	236
GUNEX (S-S)	3.2.1.1	ATC	Ops		78	0	0	0	78
CAS	3.2.8	ATC,	Ops		44	0	0	0	44
Marksmanship	3.2.8	Ft. Pickett, Ft. AP Hill	Ops		264	0	0	0	264
Total NSW Ops					1,176	0	0	0	1,176
Grand Total					13,956	0	0	1,002	19,745

Figure 3-2. VACAPES Range Complex Operations in FY03 (Continued)

A single numerical data point represents a single operation or sortie from initial execution to completion. All data sets were derived from actual range management data or interviews.

3.3.1 VACAPES Range Complex Operations Summary

In addition to the operations listed in the previous data strips and Figure 3-2 for the VACAPES OPAREA, 7,325 separate air operations, which are summarized in Figure 3-3, occurred. These air operations primarily were in W-386 and W-72. Air operations were classified as air operations, exclusive air operations, flight operations, or surveillance flights. The U.S. Air Force conducted nearly half of them.

Operations	Operation Days
Air Operations	2,876
Exclusive Air Operations	3,408
Flight Operations	242
Surveillance	251
Other	548
TOTAL	7,325

Figure 3-3. VACAPES Range Complex Air Operations Summary in FY03

Principal user types of the VACAPES OPAREA were extracted from FACSFAC VACAPES FY03 data and are presented in Figure 3-4. As shown in the figure, nearly 2,000 aircraft, amphibious vehicles, ground units, ships, submarines, and support craft used VACAPES Range Complex in FY03.

Participants Type	Number Used	Total
Aircraft		5,839
Air Force	78	
CH-53	36	
E-2C	1	
EA-6B	116	
F-14	1,959	
FA-18	3,435	
H-3	34	
Other - Aircraft	9	
P-3	127	
SH-60	31	
VX-20	13	
Amphibious Vehicles		6
LCAC	6	
Ground Units		232
EOD	29	
NSW	50	
Personnel	35	
Special Boat Delivery Team	4	
Special Boat Teams	16	
Students	95	
US Air Force	3	
Ships		1,070
AOE	16	
CG	172	
CVN	93	
DD	55	
DDG	329	
FFG	99	
LCC	11	

Figure 3-4. VACAPES OPAREA User Types in FY03

Participants Type	Number Used	Total
LHA	9	
LHD	34	
LPD	16	
LSD	30	
Other - Ship	6	
USCGC	11	
USCGS	189	
Submarines		13
SSN	13	
Support Aircraft		79
Lear Jet	2	
KFIR	63	
Other - Support Aircraft	11	
SAAB	3	
Support Boats/Craft		23
Patrol Craft	21	
Tug	2	
TOTALS:	7,262	7,262

Figure 3-5. VACAPES OPAREA User Types in FY03 (Continued)

3.3.2 Atlantic Test Range Operations Summary

Principal user types of the Atlantic Test Range were extracted from Atlantic Test Range data and are presented in Figure 3-5. In FY03, there were 215 users of the Atlantic Test Range.

Participants Type	Number Used	Total
Aircraft		81
B-52	6	
FA-18	9	
P-3	66	
Support Boats/Craft		134
MK-5	2	
Range Clearance Boats	88	
Recovery Boats	44	
TOTALS:	215	215

Figure 3-6. Atlantic Test Range User Types in FY03

Ordnance documented in the Atlantic Test Range data is provided in Figure 3-6. In FY03, 99.6 percent of the ordnance expended was from small arms. The remainder included mines, chaff, and flares.

Ordnance Type	Quantity Expended	Total
Mines		183
BDU-45 Mine	39	
BDU-48 Mine	16	
JDAM	4	
MK56	16	
MK62 (MK82 500-pound bomb)	29	
MK63 (MK83 1,000-pound bomb)	23	
MK65	8	
MK80 Mine	8	
Other - Mine	40	
Other Ordnance		40
Chaff	10	
Flares	30	
Small Arms		61,995
.50 cal projectile	10,781	
40 mm projectile	2,629	
7.62 mm projectile	48,585	
TOTALS:	62,218	62,218

Figure 3-7. Atlantic Test Range Ordnance Types and Quantity in FY03

3.3.3 NSW Operations in Other Service or Commercially Owned Areas Operation Summary

NSW operations are conducted in the VACAPES Range Complex, Atlantic Test Range, and several operating areas belonging to other services or in commercial areas. Figure 3-7 provides an overview for FY03 of the NSW documented operations by location, not including Fort Story data.

NSW Locations	Number of Operations
Navy Owned Areas	61
VACAPES OPAREA	59
Atlantic Test Range	2
Other Service or Commercial Areas	1,176
Aberdeen Testing Center	133
Fort AP Hill	507
Fort Pickett	536
Total:	1,237

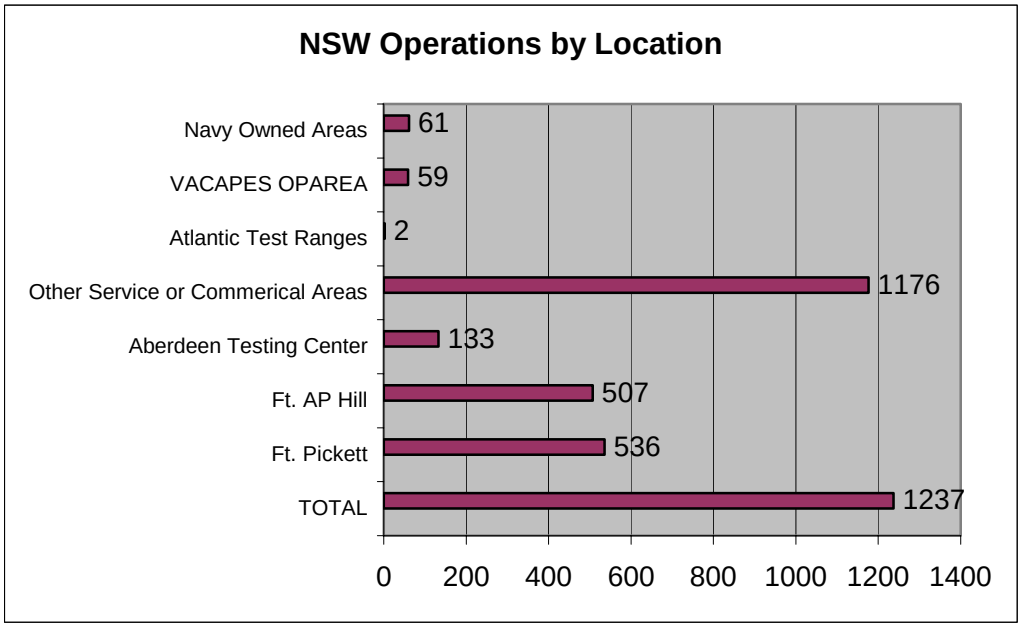


Figure 3-8. NSW Operations by Location in FY03

NSW operations documented at Fort Story were not aggregated with the data from the other sites because they were identified only as the number of range training days used rather than by type of operation. Therefore, NSW operations at Fort Story are presented separately in Figure 3-8.

	Number of Days	Number of Personnel	Total Training Days
Fort Story	155	2,524	3,496

Figure 3-9. NSW Operations at Fort Story in FY03

Participant types in NSW operations documented in other service areas or in commercial areas in FY03 are provided in Figure 3-9. Ground units represented more than 99 percent of the participants.

Ordnance types and expenditures in NSW operations documented in other service areas or in commercial areas are presented in Figure 3-10. Although small arms accounted for 99 percent of the ordnance, there was substantial use of other ordnance, including cannon shells, demolitions and explosives, grenades, mines, and mortar shells.

Participants Type	Number Used	Total
Aircraft		38
A-10	20	
SH-60	14	
UH-1	2	
UH-60	2	
Boats/Craft		32
MK V Special Operations Craft	10	
RHIB	14	
Zodiac	8	
Ground Units		21,005
NSW	18,223	
SBTs	1,766	
Special Delivery Vehicle Team	1,016	
TOTALS:	21,075	21,075

Figure 3-10. NSW Operations in Other Areas by Participant Types in FY03

Ordnance Type	Quantity Expended	Total
Bombs		42
BDU 33	42	
Cannon Shells		475
30 mm projectile	475	
Demolitions/Explosives		6,351
Blasting Cap	307	
Demolition (Demo) Blk	5	
Demo C4	601	
Demo Charge	2,722	
Detonation Cord (DetCord)	2,503	
Initiator	93	
TNT	120	
Grenades		5,466
40 mm	22	
40 mm HE	3,016	

Figure 3-11. Ordnance Types and Quantities used in NSW Operations in Other Areas in FY03

Ordnance Type	Quantity Expended	Total
40 mm ILL	1,809	
40 mm TP	434	
SIM Grenade	185	
Mines		627
Claymore	627	
Mortar Shells		1,432
60 mm HE	1,240	
60 mm TP	192	
Other Ordnance		474
Flares	22	
Smoke	452	
Small Arms		1,371,572
.50 cal projectile	155,924	
12 gage	17,360	
40 mm projectile	23,582	
5.56 mm projectile	718,383	
7.62 mm projectile	402,213	
9 mm projectile	54,110	
TOTALS:	1,386,439	1,386,439

Figure 3-12. Ordnance Types and Quantities used in NSW Operations in Other Areas in FY03 (Continued)

This page intentionally left blank

CHAPTER 4 ENVIRONMENTAL, NATURAL RESOURCES, AND LAND USE MANAGEMENT

This chapter inventories the existing plans, programs, permits, studies, and mitigation measures associated with the "at sea" and land areas of the VACAPES Range Complex. For consistency, discussions generally begin with the "at sea" areas and then proceed to Navy-controlled near shore/on land training areas, the Atlantic Test Range, and non-Navy controlled near shore/on land training areas.

Special warfare (SPECWAR) training takes place at a wide variety of facilities. Therefore, installation-related information has been included to the extent that it provides the environmental framework within which SPECWAR and other Navy operations and training occurs.

4.1 OPERATIONS AND ENVIRONMENTAL STEWARDSHIP

Environmental stewardship is a key component for range sustainability. The purpose of environmental stewardship is to responsibly manage resources for the benefit of present and future generations. Conducting required training operations, while at the same time meeting regulatory requirements and minimizing environmental impacts, is a goal that will ensure the sustainability of the VACAPES Range Complex. Meeting this goal will promote both operational and environmental sustainability.

Within the VACAPES Range Complex, the Navy operates on ranges that it owns and maintains environmental responsibility for, and on ranges where it is one of many users with environmental oversight provided by a different service or agency. This difference in ownership and environmental responsibility can cause the funding, consulting, or decision-making authority to be different from range to range and may cause timing issues when trying to schedule a training area. Figure 4-1 provides the initial points of contact (POCs) for operations-related environmental issues.

Position	Organization	Phone
Special Operations Support Team Program Manager	Aberdeen Test Center	410.278.9187
Operational Environmental Planning	Atlantic Test Range	301.757.1730
Range Manager	Blackwater USA	877.425.5987
Range Manager	Camp Pendelton	757.491.5104
Natural Resources	CNRMA	757.444.3009
Environmental Compliance	CNRMA	757.444.3009
Regional Environmental Coordinator's Office	CNRMA	757.445.9984
Marine Resources	FFC	757.836.7174
Environmental Planning	FFC	757.836.6575
VACAPES Complex Manager	FFC	757.836.5892

Figure 4-1. Environmental Points of Contact for VACAPES Range Complex Operations-Related Environmental Issues

Position	Organization	Phone
Range Manager	Fort AP Hill	804.633.8456/8466
Range Manager	Fort Eustis	757.878.5484
Environmental Planning	Fort Eustis	757.878.2375 X 23
Range Manager	Fort Pickett	434.292.8605
Range Manager	Fort Story	757.422.7101 Ext. 231
Environmental	Fort Story	757.422.7101 Ext. 243
Range Manager	James River Inactive Ship Fleet (Ghost Fleet)	757.887.3233 Ext. 17
Range Office	NAB Little Creek	757.462.4410
Range Office	NAS Oceana	757.433.9561
Range Manager	Navy Dare Range	252.473.2720
Range Manager	NSA Northwest	757.421.8038
Range OIC	NSA Northwest	757.421.8583
Range Manager	NWS Yorktown	757.887.7431

Figure 4-1. Environmental Points of Contact for VACAPES Range Complex Operations-Related Environmental Issues (Continued)

4.2 ENVIRONMENTAL LAWS

Volume I of this RCMP outlines the environmental laws, regulations, and executive orders (EOs) generally applicable to each of the Navy's range complexes. This section details the state and local environmental requirements that are specifically applicable to training areas within the VACAPES Range Complex.

4.2.1 Air Quality

Achieving Clean Air Act (CAA) standards is the responsibility of the states, which must develop state implementation plans (SIPs) that outline to the United States Environmental Protection Agency (EPA) how each state will achieve and maintain the standards. SIPs implement CAA programs at the State and local level, such as the:

- Title V operating permit,
- New source performance standards,
- New source review, and
- National emission standards for hazardous air pollutants (NESHAP).

States may require pollution control and prevention measures that are more stringent than those mandated by EPA, but may not allow measures that are less stringent. The Navy must comply with the requirements of federal, state, interstate, and local air pollution control regulations.

Statutory air quality authorities for the three states within the VACAPES Range Complex are contained in the following agencies and regulations.

Maryland Department of the Environment (MDE). The Air and Radiation Management Administration administers and enforces the state's air pollution control regulations. Maryland's air program is shaped by its SIP found at 40 CFR 51 and 40 CFR 52.1070 to 52.1118. Information on air permits can be found at Code of Maryland Regulations (COMAR) 26.11.02 and COMAR 26.11.03. Information on hazardous and toxic air pollutants can be found at COMAR 26.11.15.

Maryland is part of the Northeast Ozone Transport Region and participates in the Ozone Transport Commission (OTC). This commission focuses on regional control strategies for solving the region's ozone problem. Recommendations of the OTC, if approved by the EPA, may be required to be implemented by all member states.

The Virginia Department of Environmental Quality (DEQ). The Division of Air Program Coordination administers and enforces the state's air pollution regulations. Virginia's SIP details strategies for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS) that are included in 40 CFR 51 and 40 CFR 52.2420 to 52.2465.

Three regulatory boards, composed of Virginia citizens appointed by the governor, are responsible for adopting Virginia's environmental regulations. One of these, the Air Pollution Control Board, has statutory authority to promulgate regulations and approve certain permits. Regulations governing air quality in Virginia can be found at Title 9, Virginia Administrative Code 5, Chapters 10, 20, 30, 40, 50, 60, 70, 80, 91, 140, 150, 160, 170, 200, 210, and 500; Virginia Air Pollution Control Law; and in the Regulations for the Control and Abatement of Air Pollution.

The North Carolina Department of Environment and Natural Resources (DENR). The Division of Air Quality is responsible for protecting and improving ambient air quality. North Carolina's air quality issues are governed by its SIP found in 40 CFR 51 and 40 CFR 52.1770 to 52.1783.

Air permit information can be found at 15a North Carolina Administrative Code (NCAC) 2d (Air Pollution Control Requirements) and 15a NCAC 2q (Air Quality Permit Procedures). The construction and operation permit program covers all new and modified existing sources of air pollution (15A NCAC 2D.0524). The toxic air pollutant program requires existing, new, or modified sources to be permitted if they emit listed toxic pollutants above the listed emission rate (15A NCAC 2D.1110 to 2D.1112). DENR also administers the Title V permitting program.

4.2.2 Water Quality

The Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), requires each state to establish water quality standards for its surface waters based on designated uses. For "impaired" water bodies, each state is supposed to develop total maximum daily loads (TMDLs), which are the amount of pollutants that can be assimilated by a body of water without exceeding the water quality standards. Based on the developed TMDLs, the state or EPA can limit any discharge of pollutants to a level sufficient to ensure compliance with state water quality standards.

The 1996 amendments to the Safe Drinking Water Act, Section 1447(a), provide that federal agencies "1) owning or operating any facility in a wellhead protection area; 2) engaged in any activity at such facility resulting, or which may result, in the contamination of water supplies in any such area; 3) owning or operating any public water system; or 4) engaged in any activity resulting, or which may result in underground injection which endangers drinking water" shall be subject to and comply with all substantive and procedural federal, state, interstate, and local requirements to the same extent as any person.

Statutory water quality authorities for the three states within the VACAPES Range Complex are contained in the following agencies and regulations.

For **Maryland**, regulations governing safe drinking water are found at COMAR 26.04.01 (Quality of Drinking Water in Maryland). The Water Management Administration (WMA) in the MDE is responsible for assuring the state's waters are safe for drinking, recreation, and wildlife. The Environmental Permits Service Center, part of the MDE, provides assistance to those seeking permits.

In 1991, the EPA approved Maryland's Wellhead Protection Program designed to protect the public drinking water supply by managing land surfaces around a well where activities might affect the quality of the water.

MDE has put several programs into effect aimed at reducing water consumption statewide to help state facilities meet water conservation goals established under EO 01.01.2001.03.

Information on the **Virginia** State Water Control Law can be found at Virginia Code Annotated (VCA) 62.1-44.2 to 44.34:28. Other state water regulations can be found at 9VAC25-31 and 32; 9VAC25-151-80, 210, 220, 260, 380, 400, and 581; and 12VAC5-462-290, 12VAC5-581-10, 12VAC5-581-420, 12VAC5-590-830 *et seq*.

The Virginia DEQ administers the Federal Clean Water Act and enforces state laws to improve the quality of Virginia's streams, rivers, bays, and

ground water for aquatic life, human health, and other water uses. The Virginia Department of Health's Office of Drinking Water enforces the state's drinking water regulations, standards of the Virginia Public Water Supply Law, and the Federal Safe Drinking Water Act. The DEQ Water Division and the Virginia Water Control Board also are key players in Virginia's water resource policies.

Three regulatory boards, composed of Virginia citizens appointed by the governor, are responsible for adopting Virginia's environmental regulations. One of these is the State Water Control Board, which has statutory authority to promulgate regulations and approve certain permits.

According to **North Carolina** General Statute (NCGS) 130A Article 10, the Public Water Supply Section of the DENR is responsible for the state's safe drinking water. The DENR also administers two major stormwater permitting programs. The North Carolina Division of Water Quality (DWQ) is the agency responsible for statewide regulatory programs in ground water and surface water protection.

The North Carolina Water Supply Watershed Protection Program (WSWPP) was created under the state Water Supply Watershed Protection Act. It classifies each surface water supply in the state and creates minimum standards for local governments to enforce. The law protects drinking water by limiting such variables as housing density, wastewater discharges, and runoff from motor oils and fuels.

DENR's Groundwater Quality Section administers a program to preserve and improve the quality and quantity of the state's ground water resources. The section works to prevent ground water pollution, responds to contamination when it occurs, and promotes responsible management of ground water resources.

DENR's 1998 Compliance and Enforcement Policy for Water Quality strengthens enforcement and heightens compliance with state and federal water regulations. The policy calls for increased penalties for significant violators, delegated enforcement authority to regional officers, and a new penalty protocol for discharges from sewer collection systems. Pollution prevention (P2) is the preferred approach for achieving environmental protection, and the state has developed recognition and incentive programs that encourage facilities to go "beyond compliance."

4.2.3 Hazardous Waste

The Resource Conservation and Recovery Act (RCRA) regulates the management of solid waste and hazardous waste. The Military Munitions Rule clarifies when conventional and chemical military munitions become a hazardous waste under RCRA. RCRA provides that the EPA may delegate authority to states to regulate hazardous waste under state law in lieu of RCRA.

Regardless of EPA-delegated hazardous waste authority, Navy facilities need to meet state hazardous waste substantive and procedural requirements under the Federal Facilities Compliance Act. These include the requirement to obtain state permits for hazardous waste management and disposal.

Statutory hazardous waste authorities for the three states within the VACAPES Range Complex are contained in the following agencies and regulations.

In **Maryland**, hazardous waste management is regulated by the MDE. Maryland's hazardous waste management rules include the federal RCRA rules and several more stringent state requirements. There is a State Hazardous Substance Response Plan. The Controlled Hazardous Substance Advisory Council advises and assists the MDE.

Regulations for hazardous waste can be found at COMAR 26.13. Maryland's hazardous waste management rules include the federal RCRA rules and several more stringent state requirements. There is a State Hazardous Substance Response Plan.

Virginia DEQ has the authority to administer and enforce the state's hazardous waste management rules. DEQ's Division of Waste Program Coordination oversees the state rules on hazardous waste generator; transporter; and treatment, storage, and disposal facility (TSDF) law and rules.

Hazardous waste rules are included in the Virginia Waste Management Act, VCA 10.1-1400; and 9 Virginia Administrative Code (VAC) 20-60.

Three regulatory boards, composed of Virginia citizens appointed by the governor, are responsible for adopting Virginia's environmental regulations. One of these, the Waste Management Board, has statutory authority to promulgate regulations and to approve certain permits.

In **North Carolina**, the Division of Waste Management – Hazardous Waste Section (a division of the DENR) oversees the hazardous waste management rules which include RCRA and state requirements. Several state rules, such as North Carolina's hazardous waste generator classifications, are more strict than the federal rules.

Hazardous waste generators, owners, and operators of TSDFs must pay an annual fee to DENR, based on the amount of waste they generate or manage. North Carolina also has additional hazardous waste storage and generator reporting requirements. Hazardous waste laws and rules can be found at North Carolina General Statutes 130A-290 to 130A-309 and 15A NCAC 13A.0101 to 15A NCAC 13A.0119.

4.2.4 Petroleum, Oils, and Lubricants (POL) Management

The Oil Pollution Act of 1990 preserves state authority to establish laws governing oil spill prevention, response, and periodic drills and exercises. Statutory POL management authorities for the three states within the VACAPES Range Complex are contained in the following agencies and regulations.

In **Maryland**, the Secretary of the MDE has the authority and responsibility for approving the use of chemical countermeasures for control of oil spills in or affecting Maryland waters. The Oil Control Program within the Waste Management Administration of the MDE regulates all oil-related activities, such as aboveground and underground oil storage facilities, oil-contaminated soil treatment facilities, and oil transportation.

According to COMAR 26.10.01.03, anyone discharging or allowing the discharge of oil is to report the incident immediately to the Waste Management Administration. Maryland's Oil Operations Permits are run according to Environment Article - §4-405, Annotated Code of Maryland; COMAR 26.08.01 - .04; COMAR 26.08.08; COMAR 26.08.07; COMAR 26.10.01.07; COMAR 26.10.01.06; and COMAR 26.10.13.

The **Virginia** Secretary of Natural Resources (VASNR) has the authority and responsibility for providing approval for the use of chemical countermeasures for control of oil spills in or affecting Virginia waters. The Water Control Board promulgates Virginia's regulations covering petroleum storage tanks. The regulations for "Facility and Above-Ground Storage Tank Regulation," are found at 9VAC25-91-10.

According to General Statue 143-215.85, notice of a discharge of petroleum or any other substance into the environment from underground storage tanks (USTs) must be reported to Virginia DEQ, Water Division, Office of Spill Response and Remediation. Information needed to report a discharge includes the nature of the spill, location/time of the discharge, and the measures that are being taken or are proposed to contain and remove the spill.

The **North Carolina** Oil Pollution and Hazardous Substances Control Act of 1978 (Article 21A.. Part 1. General Provisions. § 143-215.75) created the Oil Pollution Control Program. North Carolina General Statute 143-215.94 allows cleanup costs to be imposed on those having control over the oil or other hazardous substances or causing or contributing to the discharge of oil or other hazardous substances. 15A NCAC .0118 covers the standards for the management of used oil and 15A NCAC .0106 identifies hazardous wastes.

4.2.5 Coastal Zone Management

The Coastal Zone Management Act (CZMA) delegates regulatory authority to coastal states having a federally approved Coastal Management Plan (CMP). All of the states within the VACAPES Range Complex (Maryland, Virginia, and North Carolina) have federally approved CMPs that are discussed below.

4.2.5.1 Maryland Coastal Management Plan

Maryland's CMP was approved in 1978. The CMP does not specifically identify enforceable policies, but instead, identifies those actions that will trigger a consistency review. Those actions include:

- Proposals to construct and operate an activity that discharges emissions to the outside air;
- Proposals to conduct various activities within the Chesapeake and Atlantic Coastal Bays Critical Area;
- Proposals to treat, store, of dispose of hazardous waste;
- Proposals by a state or federal agency for construction that disturbs 5,000 square feet or more of land or results in 100 cubic yards or more of earth movement;
- Proposals to drill and operate a gas or oil well;
- Proposals to store more than 10,000 gallons of oil in aboveground tanks, transport oil, or operate oil transfer facilities;
- Proposals to install, alter, or extend a refuse disposal system;
- Proposals for any work that may change a tidal wetland;
- Proposals to appropriate or use any of the state's surface and/or underground waters;
- Proposals to place fill or discharge pollutants in the waters of the United States (including adjacent wetlands);
- Proposals to dispose of wastewater into the state's ground water or surface waters; and
- Proposals that accompany Nontidal Wetlands and Waterways Permits and Tidal Wetland Permits.

4.2.5.2 Virginia Coastal Resources Management Program

The Virginia Coastal Resources Management Program was authorized by Virginia EO Number 13 (1986), and continued by subsequent EOs, the most recent being EO 23 (1998). Virginia's Coastal Management Area includes most of Tidewater, Virginia, as defined by Virginia Code §28.2-100, and all coastal waters of the U.S. territorial sea, extending to the 3-mile limit of Virginia sovereignty. Virginia's enforceable policies include:

- **Fisheries Management.** This program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. The State Tributyltin (TBT) Regulatory Program (related to the possession, sale, or use of marine

antifoulants containing TBT) is also covered under fisheries management.

- **Subaqueous Lands Management.** This program establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent and nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ, Water Division.
- **Wetlands Management.** This program preserves tidal wetlands, prevents their despoliation, and accommodates economic development in a manner consistent with wetlands preservation.
- Dunes Management. The goal of the dunes management program is to prevent destruction or alteration of primary sand dunes.
- **Non-Point Source Pollution Control.** This program requires soil-disturbing projects to be designed to reduce soil erosion. Its goal is to decrease chemical nutrient and sediment contributions to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth.
- **Point Source Pollution Control.** Point source pollution control is accomplished through implementation of the National Pollutant Discharge Elimination System (NPDES) permit program.
- **Shoreline Sanitation.** This program regulates installation of septic tanks. Navy operations typically do not trigger this enforceable policy.
- **Air Pollution Control.** This program implements the Federal Clean Air Act to provide a legally enforceable SIP for the attainment and maintenance of the NAAQS. See Section 4.2.1 for additional information on air pollution control.
- **Coastal Lands Management.** This program is a state-local cooperative administered by the Chesapeake Bay Local Assistance Department and 84 localities in Tidewater, Virginia. It was established pursuant to the Chesapeake Bay Preservation Act.

Although not required for purposes of federal consistency, the following advisory policies of Virginia's Coastal Resources Management Program should be considered:

- Geographic Areas of Concern. These include, but are not limited to, coastal natural resource areas, coastal natural hazard areas, and waterfront development areas.
- Shorefront Access Planning Protection. These apply to a variety of areas, some of which include Virginia public beaches; Virginia Outdoors Plan parks, natural areas, and wildlife management areas; waterfront recreational land acquisition; waterfront recreational facilities; and waterfront historic properties.
- DoD Agency Activities and Development Projects. Some of these include natural heritage resources and wildlife, historic structures and archeological resources, solid and hazardous wastes, pesticide and herbicides, state scenic rivers and scenic byways, tree protection, pollution prevention, energy conservation.

4.2.5.3 North Carolina State Coastal Management Plan

The North Carolina State CMP is implemented through Coastal Resource Commission certification of individual coastal county land use plans. VACAPES Range Complex assets are covered by the Tyrrell and Dare County land use plans. Policies that may need to be considered when implementing Navy actions include the following.

The Tyrrell County land use plan, which applies to Palmetto Point, was certified by the Coastal Resources Commission on January 23, 1998 (Holland Consulting Planners, 1996).

1. Tyrrell County will cooperate with the U.S. Army Corps of Engineers in the regulation/enforcement of the 404 wetlands permit process.

2. Tyrrell County opposes any 404 wetlands mitigation projects within Tyrrell County undertaken to replace 404 wetlands areas outside Tyrrell County.

3. Tyrrell County will encourage and support water conservation efforts.

4. Expansions of Aviation Military Restricted Areas or Military Operations Areas in eastern North Carolina must be consistent with civil aviation regulations, must comply with other applicable state and federal regulations, and must be supported by environmental impact statements addressing the cumulative impact of such airspace uses.

5. Tyrrell County supports the following aircraft operations standards which were adopted by the Coastal Resources Commission on December 1, 1989, and were effective March 1, 1990.

    a. Minimum Altitudes: No development involving airspace activity shall be allowed in any Area of Environmental Concern (AEC) which would result in violation of minimum altitude standards adopted by the Federal Aviation Administration and codified at 14 CFR Part 91.79. Future amendments by the Federal Aviation Administration shall be deemed to be incorporated into this rule pursuant to G.S. 150B-14(c) unless the commission objects within 90 days of publication of the action in the *Federal Register*.
    b. Noise Pollution: Except as required for safe aircraft takeoff and landing operations, airspace activity associated with coastal development shall not impose an increase in average noise exceeding 10 decibels on the A-weighted scale (dBA) above background levels. Noise measurements shall be the normalized day-night average sound level (DNL) as set forth by the Environmental Protection Agency. The maximum noise level associated with any single event shall not exceed 85 dBA. These

limits shall not apply where noise impacts are confined to surface areas owned or controlled by the project's proponent.

6. It is the policy of the State of North Carolina that access corridors free of SUA designations shall be preserved along the length of the barrier islands and laterally at intervals not to exceed 25 miles and provide unobstructed access both along the coastline and from inland areas to the coast. Such access corridors shall extend from the surface to an altitude of 6,000 feet above sea level except where communication and radar services allow positive aircraft control at lower altitudes.

7. Development of aviation-related projects and associated airspace management practices shall, to the maximum extent practicable, facilitate use of aircraft by local, state, and federal government agencies for purposes of resource management, law enforcement, and other activities related to public health, safety, and welfare. In any case, access to restricted areas shall be provided on an emergency basis when required to respond to an immediate threat to public health and safety.

8. It is the policy of the State of North Carolina that all public trust waters subject to surface water restrictions pursuant to 33 USCS 3 for use in military training shall be opened to commercial fishing at established times appropriate for harvest of the fisheries resources within those areas.

9. Where laser weaponry is used, the area of the restricted surface waters shall be at least as large as the recommended safety zone.

10. Water quality shall be tested periodically in the surface water restricted areas surrounding such targets and results of such testing shall be reported to the NC Division of Coastal Management..

11. Tyrrell County opposes the expansion of any restricted airspace in Tyrrell County. Tyrrell County does not favor the continued existence or expansion of the existing airspace restriction imposed by the presence of USAF bombing ranges in the Albemarle Sound area near the county.

12. Tyrrell County opposes the disposal of any toxic wastes, as defined by the US Environmental Protection Agency's listing of Hazardous Substances and Priority Pollutants (developed pursuant to the Clean Water Act of 1977) within its planning jurisdiction.

13. Tyrrell County recognizes the value of water quality maintenance to the protection of fragile areas and to the provision of clean water for recreational purposes. The County will support existing state regulations relating to stormwater runoff resulting from development (Stormwater Disposal Policy 15A NCAC 2H.001-.1003).

14. Tyrrell County supports the use standards for estuarine waters and public trust areas as specified in NCAC 7H.0207.

15. Tyrrell County is generally receptive to state and federal programs, particularly those which provide improvements to the county. However, Tyrrell County does not support expansion of military restricted airspace in eastern North Carolina, or the expansion of state and federal lands within the county for activities which do not generate jobs or revenues for the county.

16. Tyrrell County recognizes that a basic element in developing and implementing a land use plan is the successful involvement of a jurisdictions' citizenry in the development of the plan. Citizen input will continue to be solicited, primarily through the Planning Board, and with advertised and adequately publicized public meetings held to discuss special land use issues and to keep citizens informed.

The Dare County land use plan, which applies to the Dare County Bombing Range and Stumpy Point, was certified by the Coastal Resources Commission on July 23, 2003 (Dare County, 2003).

1. Dare County advocates the use of existing (2002) state and federal regulatory programs for protecting and preserving coastal wetland areas of environmental concern.

2. Dare County supports the use of mitigation for the loss of wetland areas for public purpose projects. For both public and private mitigation projects, up to 25% of the mitigation should take place on site or in Dare County.

3. Dare County supports the U.S. Army Corps of Engineers nationwide permit program as administered in 2002.

4. Dare County supports the preservation and protection of the public's right to access and use of public trust areas and waters.

5. Development in any public water supply AEC should be managed to protect the long-term viability of the ground water resources.

6. Dare County recognizes ground water resources as an essential element for the County's drinking water supply. The management of ground water resources and their protection is a priority issue in Dare County.

7. Dare County supports efforts by local, state, and federal agencies to preserve, protect, and improve water quality.

8. Dare County encourages the management of surface water quality on a basin-wide approach recognizing the importance of water quality in

other inland regions influence and impact the water quality of the coastal regions.

9. Dare County supports North Carolina's shoreline access policies as stated in 15A NCAC 7M, Section .0303.

10. Development projects shall be designed and constructed to minimize detrimental impacts on surface water quality, ground water quality, and air quality. Structures should be designed to fit the natural topographic conditions and vegetation versus modifications to natural conditions to accommodate structures.

11. The continued productivity of commercial and recreational fisheries shall be fostered through restoration and protection of the unique coastal ecosystems upon which they depend.

12. Dare County supports measures to protect and preserve designated primary nursery areas. Dare County also recognizes the importance of all areas in our surrounding waters that serve as habitats for the area's abundant fisheries resources.

13. State and federal agencies with the authority to manage fisheries resources should be the responsible parties for the resolution of conflicts involving fisheries resources in Dare County.

14. Dare County supports the maintenance of preserve areas for wildlife habitat and access to the public to these areas for managed wildlife harvesting and observation.

15. Stormwater runoff should be managed to the greatest degree possible to protect the water quality of the public trust waters surrounding Dare County, particularly Class SA waters.

16. Proposals to expand the area of the existing bombing ranges on the Dare County mainland should be reviewed on a case-by-case basis with support or opposition offered depending on the terms of the proposal and its potential impacts on the local community and the importance to our Nation's national defense.

17. Dare County advocates the use of on-site septic tank/drainfield systems as the primary method of wastewater treatment in unincorporated Dare County. Non-traditional methods of wastewater treatment should be used only when natural soil conditions dictate their use and not solely to accommodate larger structures or a greater dwelling capacity.

18. Dare County advocates participation in a regional solid waste authority and continued operation of voluntary recycling efforts. Additional programs for hazardous materials disposal and large item pick-ups are encouraged.

19. Dare County is committed to maintaining a full-time emergency management department and emergency operations centers and places a high priority on hurricane preparedness and response.

20. Recovery priority shall be directed to restoring and repairing infrastructure improvements such as transportation routes, utilities, and medical and emergency management facilities.

21. In the event of extensive hurricane damage to publicly-owned utilities or other improvements requiring replacement or reconstruction, alternative locations that will mitigate the potential for similar repetitive losses will be examined and implemented wherever feasible and practicable.

22. Dare County supports the active involvement of all interested persons in its land use planning and policy development activities.

4.3 ENVIRONMENTAL COMPLIANCE

Environmental compliance typically refers to those environmental media areas that have specific regulatory and/or permit requirements that condition or limit operations. Examples would include air permits and incidental take statements. Compliance with the traditional environmental planning-type requirements, such as the National Environmental Policy Act (NEPA), EO 12114, and the CZMA are discussed in Section 4.5, Environmental Planning.

4.3.1 ENVIRONMENTAL COMPLIANCE FOR OPERATIONS "AT SEA"

Most environmental compliance laws, such as the CAA, CWA, and RCRA, do not have jurisdiction over Navy operations beyond 3 nautical miles. Some environmental compliance laws' jurisdiction, however, extends into the global commons up to the point of another country's Exclusive Economic Zone (EEZ). Some of these compliance laws include the Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA), and Magnuson-Stevens Act.

Although Palmetto Point and Stumpy Point are water-based targets, the operations at these ranges occur within the public trust waters of the state of North Carolina. Therefore, they are discussed in Section 4.3.2, below.

To comply with the MMPA and Section 7 of the ESA, the Navy has submitted a biological assessment (BA) and incidental harassment authorization (IHA) / letter of authorization (LOA) application package to the National Marine Fisheries Service (NMFS). This package addresses impacts associated with the proposed use of the Virtual At-Sea Training/Integrated Maritime Portable Acoustic Scoring and Simulator (VAST/IMPASS) System. Issuance of the biological opinion (BO) and IHA/LOA by NMFS is pending.

4.3.2 ENVIRONMENTAL COMPLIANCE FOR OPERATIONS ON LAND AREAS

Environmental compliance at land ranges and training areas within an installation, its subordinate areas, and remote sites falls within the responsibility of the Regional Commander. The Regional Commander has traditionally budgeted for environmental compliance through specific media-based programs. Funding for these programs is provided through the program objective memorandum (POM) budget process to ensure that all "must fund" projects are completed immediately for any instances of non-compliance and prior to a required implementation date for a new law or regulation.

The Mid-Atlantic Region has developed and fully implemented extensive environmental compliance management programs. Among them are hazardous materials management and disposal in compliance with RCRA, NPDES permitting and outfall monitoring in compliance with the CWA, and air permitting in compliance with the CAA.

Range Sustainability Environmental Program Assessment (RSEPA)

As required by DoD Directives 4715.11 and 4715.12, *Environmental and Explosives Safety Management of DoD Active and Inactive Ranges within the United States and Abroad*, the Navy has developed procedures to conduct Range Sustainability Environmental Program Assessment (RSEPA). RSEPA evaluates past, current, and future range uses, assesses the current sources and levels of contamination and the potential hazards to human health, including hazards from off-range migration of ammunition constituents, and provides a plan of action to ensure safe sustainable use and implementation of a remediation process. The requirement set forth in the 10 May 2004 update of 4715.11 related to hydrology and hydrogeology are addressed within the RSEPA process.

The *Draft VACAPES Range Complex Decision Point 1 Recommendations Report* was completed in March 2004. The document is currently undergoing review by the Navy. This draft report details each of the compliance areas for Navy Dare County Bombing Range (DCBR) and the FCTC Dam Neck Range. A summary of the draft report findings are provided in the DCBR and FCTC discussions below. (The name of the FCTC Dam Neck Range recently was changed to the Training Support Center, Hampton Roads (TRASUPPCEN), but the old nomenclature will be maintained when referring to the *Draft VACAPES Range Complex Decision Point 1 Recommendations Report*).

NWS Yorktown/Cheatham Annex. The Navy has been issued separate state operating permits for NWS Yorktown and Cheatham Annex. No emissions sources associated with training operations were included in the permit conditions (Commonwealth of Virginia, 2002 and 2004). Yorktown and Cheatham Annex are located in an area classified as maintenance/attainment for the 1-hour ozone standard and marginal non-attainment for the 8-hour ozone standard

NWS Yorktown and Cheatham Annex have spill prevention, control, and countermeasure (SPCC) plans in place which identify reporting and containment procedures in the event of a spill. The SPCC plans are currently being revised and will be finalized by the end of FY05.

There are no stormwater permits associated with training operations at NWS Yorktown and Cheatham Annex.

NAB Little Creek. The Navy was issued a Virginia Title V Operating Permit in April 2003 with an expiration date of April 2008 (Commonwealth of Virginia, 2003). This air quality permit specifies the following limitations for the indoor firing range:

- Particulate emissions from the small arms range shall be controlled by disposable particulate filters. The particulate filters shall be provided with adequate access for inspection.
- The annual throughput of bullets through the firing range shall not exceed 1,500,000 bullets, calculated monthly as the sum of each consecutive 12-month period.
- Visible emissions from the disposable particulate filters stack for the small arms range shall not exceed five (5) percent opacity as determined by EPA Method 9.

Monitoring and recordkeeping requirements are also identified. No other training-related emissions sources are identified in the permit. Little Creek is located in an area classified as maintenance/attainment for the 1-hour ozone standard and marginal non-attainment for the 8-hour ozone standard

NAB Little Creek has an SPCC plan in place that identifies reporting and containment procedures in the event of a spill. The SPCC plan is currently being revised and will be finalized by the end of FY05.

There are no stormwater permits associated with training operations at NAB Little Creek.

FCTC Dam Neck. The Navy was issued a Virginia Title V Operating Permit in April 2003 with an expiration date of April 2008. This air quality permit lists emissions associated with the multi-story trainer and small arms ranges as insignificant sources under 9 VAC 5-80-720 (Commonwealth of Virginia, 2003). No other sources of emissions associated with training operations were identified.

This permit was issued in error, as Dam Neck is not a major source for any criteria or hazardous air pollutant. As such, the Navy will request a Synthetic Minor permit from the Virginia DEQ when the current Title V permit expires (Department of the Navy, 2004, RSEPA Decision Point 1). Dam Neck is located in an area classified as maintenance/attainment for the 1-hour ozone standard and marginal non-attainment for the 8-hour ozone standard.

FCTC Dam Neck has an SPCC plan in place that identifies reporting and containment procedures in the event of a spill. The SPCC plan is currently being revised and will be finalized by the end of FY05.

Dam Neck has a stormwater pollution prevention plan that requires monitoring of stormwater run-off from primarily paved areas; however, the plan does not address stormwater run-off from paved range areas. There are no stormwater permits associated with training operations at FCTC Dam Neck.

Potable water is supplied by the City of Virginia Beach. Domestic and industrial wastewater are discharged to the Hampton Roads Sanitation District, a publicly-owned treatment works (POTW) (Department of the Navy, 2004, RSEPA Decision Point 1).

Solid waste, hazardous waste, and Military Munitions Rule (MMR) requirements at Dam Neck are managed by the Navy Mid Atlantic Region's Hazardous Material Program. The Dam Neck Range meets RCRA regulatory requirements by having a hazardous waste management plan. Navy Region personnel conduct monthly inspections at Dam Neck to ensure compliance with RCRA and the MMR. No hazardous waste management notices of violation (NOVs) have been issued for the Dam Neck Range (Department of the Navy, 2004, RSEPA Decision Point 1).

NALF Fentress. The Navy was granted an exclusionary general air permit exemption in March 2000 for NALF Fentress provided that use of the emergency generator is limited to 500 hours or less (Department of the Navy, 2000). All other stationary air emission sources at NALF Fentress also are exempt from permitting. NALF Fentress is located in an area classified as maintenance/attainment for the 1-hour ozone standard and marginal non-attainment for the 8-hour ozone standard.

NALF Fentress has an SPCC plan in place that identifies reporting and containment procedures in the event of a spill. The SPCC plan is currently being revised and will be finalized by the end of FY05.

There are no stormwater permits associated with training operations at NALF Fentress.

NSA Northwest. The Navy was issued a Stationary Source Permit to Operate for NSA Northwest. Although two firing ranges were identified in the permit's equipment list, no operating or emissions limitations were imposed (Department of the Navy, 2002). NSA Northwest is located in an area classified as maintenance/attainment for the 1-hour ozone standard and marginal non-attainment for the 8-hour ozone standard.

NSA Northwest has an SPCC plan in place that identifies reporting and containment procedures in the event of a spill. The SPCC plan is currently being revised and will be finalized by the end of FY05.

There are no stormwater permits associated with training operations at NSA Northwest.

Palmetto Point. No information.

Navy Dare County Bombing Range (DCBR). (Department of the Navy, 2004, RSEPA Decision Point 1). Navy Dare County Bombing Range (DCBR) has two stationary emissions sources consisting of internal combustion engines associated with a diesel generator and a gasoline generator. Neither has a large enough rating capacity to require air permitting. Navy DCBR is located in an air basin that is in attainment for federal and state ambient air quality standards.

An SPCC plan is not required at Navy DCBR because the aggregate storage capacity is below the federally required threshold.

According to the North Carolina DENR's Division of Coastal Management, Navy DCBR consists primarily of pocosin and freshwater marsh. Before undertaking any new actions or projects, the Navy must assess potential impacts on jurisdictional wetlands and waters of the United States and obtain a Section 404 permit under the Clean Water Act, if necessary.

There are no sources of drinking water or sole source aquifers located at Navy DCBR. Wastewater is discharged into a sanitary septic system.

Navy DCBR has not received any hazardous material management NOVs. Management of Navy DCBR's hazardous material regulatory requirements is handled by Air Force personnel and contractors from Seymour Johnson AFB.

A satellite accumulation point for spent mercury light bulbs is located at Navy DCBR and regulated under RCRA. This satellite accumulation point is used for temporary storage of the spent bulbs before they are sent to Air Force property for proper disposal.

Very limited quantities of hazardous solid waste items are generated during the normal course of operations at Navy DCBR. In addition to the mercury light bulbs, these items include batteries, paint, and oil and grease. All of these items are transported on Navy DCBR roads to Air Force property where Seymour Johnson AFB assumes responsibility for the disposal.

Air Force personnel and contractors conduct biennial range clearance (including disposal of residue) and manage hazardous waste requirements for Navy DCBR under the MMR. Navy Region personnel conduct monthly inspections at Navy DCBR to ensure compliance with RCRA and the MMR. No hazardous waste management NOVs have been issued for Navy DCBR.

Stumpy Point. The Navy obtained a Section 10 Permit under the Rivers and Harbors Act to replace existing barge targets in April 2003 (Department of the Army, 2003, Permit). The Navy subsequently installed the replacement barge target in accordance with the permit conditions. In September 2003, the new barge target broke free during Hurricane Isabel and has not been retrieved or located.

In September 1990, the Navy, through Sirrine Environmental Consultants, collected water and sediment samples from within the Stumpy Point range boundaries and control locations outside the range. Samples were collected immediately following aircraft bombing activity.

- Water samples were analyzed for pH, conductivity, turbidity, temperature, dissolved oxygen, nine soluble metals (copper, zinc, iron, aluminum, chromium, magnesium, nickel, lead, and silver), sulfate, sulfide, ammonia, volatile organics (EPA 624), and semi-volatile organics (EPA 625).
- Sediment samples were analyzed for the above soluble metals, sulfate, and sulfide.

The results were compared to test samples obtained from off-target control sites, and analyzed for statistical differences.

For those parameters with standards, all tested water quality parameters, except nickel, were within the limits set by the North Carolina Water Quality Standards for saltwater classifications. The nickel concentration was significantly higher than the state water quality criterion, although the concentration did not differ significantly from the control sight located outside the bombing range. This suggests that bombing activities are not responsible for the elevated nickel concentrations.

Sediment analysis data were all statistically similar between control and target sampling locations.

Water and sediment samples were visually inspected for the presence of chaff. There were neither high aluminum concentrations nor visual detections of chaff in either the water or sediment samples (Sirrine Environmental Consultants, 1991).

Atlantic Test Range (Patuxent River) Data required

There is no record of air or water permits being issued for Bloodsworth Island (Shaver, 2004).

Aberdeen Proving Ground, Fort A.P. Hill, Fort Eustis, and Fort Pickett. Compliance requirements have been incorporated in the mission EAs discussed in Section 4.5.3.

Fort Story. No information.

Camp Pendleton. No information received.

Blackwater USA. Private facility. No information provided.

James River Inactive Ship Fleet. The MARAD is under Congressional mandate to dispose of all mothballed ships by 2006.

4.4 ENVIRONMENTAL MANAGEMENT

Environmental management is the means of conserving, protecting, and restoring the environment, including the natural and cultural resources, while ensuring military readiness and sustainability. The basis for environmental management in the VACAPES Range Complex is ecosystem management, which takes a long-term view of human activities, including military uses, and considers biological and cultural resources as part of the same environment. The planning documents that implement this management approach are integrated natural resources management plans (INRMPs) and integrated cultural resource management plans (ICRMPs).

4.4.1 INTEGRATED NATURAL RESOURCE MANAGEMENT PLANS (INRMPS)

The Navy has completed Sikes Act-compliant INRMPs for all VACAPES Range Complex assets requiring INRMPS. INRMPS are not required for the at-sea OPAREAS, water-based targets, or private facilities.

NWS Yorktown/Cheatham Annex. The Navy is preparing an INRMP and environmental assessment (EA) for the NWS Yorktown, Cheatham Annex, and Yorktown Fuel Terminal with a plan period of 2005 through 2009 (Department of the Navy, 2004). The natural resources management issues addressed in the INRMP include:

- Wetlands and water quality protection;
- Installation restoration sites;
- Ground maintenance and urban forestry;
- Demolition site restoration;
- Forest management;
- Fish and wildlife management;
- Outdoor recreation and environmental awareness;
- Threatened and endangered species protection;
- Habitat conservation;
- Fire management;
- Pest management; and
- Cultural resources management.

Management recommendations were developed by natural resources management units at NWS Yorktown, Cheatham Annex, and Yorktown Fuel Terminal. Recommendations that may potentially affect training operations were developed for the NWS Yorktown – Restricted Area. These recommendations state that "Field verification and concurrence from the appropriate County Planning Department must be sought prior

to beginning any activities that have the potential to impact wetlands or are within the buffer areas."

NAB Little Creek, Camp Pendleton, and Bloodsworth Island. The Navy prepared an INRMP and EA for NAB Little Creek that included natural resources management areas on the Naval Amphibious Base (NAVPHIBASE), the Camp Pendleton Annex, and Bloodsworth Island (Department of the Navy, 1997). The ownership of Bloodsworth Island has since been transferred to the Atlantic Test Range (Patuxent River). The planning period covers from 1997 through 2006. Best management practices (BMPs) for mission-related land use and training were identified for each installation evaluated in the INRMP and are listed below.

NAVPHIBASE

- Develop a comprehensive harbor dredging plan.
- Avoid sand dunes. Use only established and authorized vehicle routes. Repair impacted areas during range sweeps to minimize erosion. Use erosion control and design techniques.
- Avoid vegetated areas that might catch fire.
- Use existing training routes. Avoid further impacts to vegetated areas. Use no live vegetation for camouflage.
- Follow procedural guidelines and SOPs.

Camp Pendleton

- Avoid further impacts to vegetated areas. Use no live vegetation for camouflage.
- Use existing training routes. Avoid further impacts to coastal dunes.

Bloodsworth Island

- Rotate target areas to allow natural recovery from impacts.
- Avoid the use of incendiary rounds or bombs.
- Rotate training sites within authorized fan of fire while complying with United States Fish and Wildlife Service (USFWS) mitigation guidelines.

Additionally, natural resources management recommendations were developed for each study area. Those recommendations potentially affecting training operations included the following.

NAVPHIBASE

- Coordinate with training units to incorporate BMPs to minimize impacts to maritime forested areas and established dune protection areas.
- Establish set vehicular routes for training activities and coordinate with the training units to use the least intensive methods for maintaining the routes.
- Prohibit the cutting of live vegetation.

- If construction of additional foxholes for training becomes necessary, locate the new foxholes outside of the dripline of existing trees in order to reduce root damage.
- Post signs prohibiting vehicular traffic around interdunal swale wetlands to prevent potential impacts from training activities.
- From the beginning of April to the end of June, check the beach/foredune area once a week for signs of shorebird nesting activity. If nesting is found, cordon off the immediate area and post signs prohibiting disturbance or harassment.

Camp Pendleton

- Incorporate land maintenance funding into the LCAC operational budget to ensure that continued operations meet environmental compliance and subsequent land restoration practices that would be required.
- Check the beach/dune complex during the loggerhead turtle nesting season (May to September) to determine use. Surveillance should be conducted in the early morning before tides, winds, or other disturbances obliterate the tracks.
- Post signs around dune and interdunal swale wetland protection areas excluding vehicular traffic and restricting foot traffic.
- Prohibit training activities within protection areas.

Bloodsworth Island

- Evaluate the possibility of dividing this management unit into separate training areas, and implementing a training rotation that allows a recovery period for the habitat that has been impacted by the training activities.
- Continue the closure of the range from October to March to protect overwintering waterfowl.

FCTC Dam Neck. The Navy prepared an INRMP and EA for FCTC Dam Neck that covers plan years 1998 through 2007 (Department of the Navy, 1998). Natural resources management recommendations for FCTCLANT include the following.

- Continue annual sea turtle track/nest identification training for beach patrol personnel (Contact John Gallegos, USFWS, at 757-721-3896.) Provide all beach patrol vehicles with updated copies of the "Standard Operating Procedures for Sea Turtle/Nest Sightings."
- To limit vehicular impacts to dune vegetation and interdunal swales, post additional "Dune Management Area" signs.
- Limit vehicle access to existing routes within the sand dunes, posting additional signs or erecting sand fencing as a barrier.
- Monitor dune vegetation that has been burned by target drone launching activities. Install sand fencing or sprig with dune grass as needed.

NAS Oceana and NALF Fentress. The Navy prepared an INRMP and EA for NAS Oceana and NALF Fentress covering the planning period from 2001-2011 (Department of the Navy, 2001). The INRMP identifies

natural resources management units for both NAS Oceana and NALF Fentress. Management recommendations for management units with the potential to impact training operations are listed below.

NAS Oceana

- Consider establishing a Bermuda grass monoculture in the clear zone area and enforce a mowing policy that maintains airfield turf at a height of 7 to 14 inches.
- Consider installing a number of propane cannons for wildlife dispersal prior to aircraft departure and landing.
- Enforce a deer depredation policy within the Airfield/Clearzone Management Unit.
- Assess wildlife utilization and potential bird-aircraft strike hazard (BASH) reduction conflicts on warm-season grass plots in the Airfield/Clear Zone Management Unit. In areas that are within 1,000 feet of the runway, consider conversion to a Bermuda grass monoculture.
- Continue surface removal and revegetation of abandoned portions of the taxiway. Consider using a Bermuda grass monoculture to reclaim areas that are within 1,000 feet of the runway.
- Keep vegetation in wetlands within airfield safety height restrictions by periodic manual cutting of woody vegetation.
- Monitor bird and wildlife use of agricultural outlease parcels for potential BASH conflicts and notify the Aviation Safety Officer, Airfield Facilities Division, and Air Traffic Control when birds are dispersed or during other agricultural activities that could pose a BASH hazard.
- Ensure that wildlife food plots are located at distances greater than 1,000 feet from all paved runways and taxiways.

NALF Fentress

- Manually cut vegetation in airfield areas too wet to support heavy equipment in order to comply with airfield safety height restrictions. Remove the cut debris from the area to prevent it from becoming a wildlife attractant.

NSA Northwest. The Navy prepared an INRMP and EA for NSA Northwest covering a planning period from 1999 through 2008 (Department of the Navy, 1998). Natural resource management recommendations that may affect operations at NSA Northwest include:

- Whenever land disturbing activities are conducted, the station should strive to meet one or more of the goals identified in EO 50737 (Memorandum on Environmentally Beneficial Landscaping Practices) wherever cost effective and practicable.
- Any land disturbing activities on the installation should implement erosion and sediment control measures as identified in the *Virginia Erosion and Sediment Control Handbook*, 3rd Edition, 1992.
- Encourage consideration of potential wetland impacts in the planning process for all new land disturbing activities in the operations

management unit that are proposed for areas that are not presently in active agricultural use.

Palmetto Point. An INRMP is not required for Palmetto Point.

Dare County. The Air Force prepared an INRMP and EA for the Dare County Ranges (Navy and Air Force) with a plan period of 1 March 2000 through 28 February 2005 (Department of the Air Force, 2000). The management emphasis areas addressed in the INRMP included:

- Atlantic white cedar;
- Hydrology and water quality;
- Fire management;
- Red-cockaded woodpeckers;
- Black bears;
- Alligators;
- Forestry;
- Red wolves;
- Public relations;
- Education and cooperation; and
- GIS.

Stumpy Point. An INRMP is not required for Stumpy Point.

Atlantic Test Range (Patuxent River). An INRMP was completed for NAS Patuxent River in February 2002 (U.S. Navy, 2002x)The plan focuses on land, forest, fisheries, wildlife, cultural resources, outdoor recreation, and environmental education. Management recommendations that may potentially impact training operations include the following.

- Establish water quality protection zones landward of any permanent or temporary waterbody or watercourse or wetland border.
- Establish a forest preserve at NAS Patuxent River to protect and maintain the critical ecosystem functions.
- Develop artificial reefs to encourage fish habitation.
- While the state endangered species law and its regulations may not be legally applicable, state-listed species should be afforded the same protection as federally listed species to the greatest extent possible.
- In the interest of biodiversity, consider reintroduction of species once native to the area that have been eradicated.

Aberdeen Proving Ground, Fort A.P. Hill, Fort Eustis, and Fort Pickett. INRMP requirements have been incorporated in the mission EAs discussed in Section 4.5.3.

Fort Story. No information.

Camp Pendleton. No information.

Blackwater USA. An INRMP is not required for Blackwater USA.

James River Inactive Ship Fleet. An INRMP is not required for the James River Inactive Fleet.

4.4.2 INTEGRATED CULTURAL RESOURCES MANAGEMENT PLANS (ICRMPS)

A systems approach to historical and archeological resource management has also been implemented through ICRMPs. The plans are patterned after the INRMPs and are aimed at cultural resource management to comply with applicable laws and regulations, while ensuring the capability of the installation to support the military mission.

NWS Yorktown. An ICRMP for archeology was completed in 1999 and provides the framework for NWS Yorktown's compliance with Sections 106 and 110 of National Historic Preservation Act (NHPA) (Department of the Navy, 1999). The ICRMP identifies 169 archeological sites at NWS Yorktown, many of which have undergone survey and evaluation.

Implementation of the ICRMP for archeology requires the completion of four procedures:

- Identification of historic resources;
- Submission of identification and evaluation reports;
- Determination of resource eligibility for listing in the National Register of Historic Places (NRHP); and
- Determination of effect from planned actions or ongoing operations.

Compliance requirements for historic resources at NWS Yorktown are covered under a separate programmatic agreement.

Cheatham Annex. A historic and archeological resources protection (HARP) plan (the Navy precursor to ICRMPs) for the Fleet and Industrial Supply Center at Cheatham Annex was completed in 1997 for compliance with Section 110 of the NHPA (Department of the Navy, 1997). A comprehensive Phase I cultural resources survey identified 28 previously unknown sites; investigated six previously identified sites; and evaluated 319 architectural resources. None of the architectural resources met the criteria for nomination to the NRHP.

Because a Phase I survey was completed for Cheatam Annex, only two procedures are required for the implementation of the HARP. They include an eligibility determination for identified historic resources and determination of effects for proposed undertakings.

NAB Little Creek. An ICRMP has not been developed for NAB Little Creek. Potential impacts to cultural resources are assessed on a case-by-case basis to comply with Section 106 of the NHPA.

FCTC Dam Neck. No ICRMP has been developed for FCTC Dam Neck. Potential impacts to cultural resources are assessed on a case-by-case basis to comply with Section 106 of the National Historic

Preservation Act (Department of the Navy, 2004 RSEPA Decision Point 1).

NALF Fentress. An ICRMP for archeology was prepared for NAS Oceana, which included NALF Fentress (Department of the Navy, 1999). Phase I surveys identified 45 archeological sites at NALF Fentress, 11 of which are considered potentially eligible for listing in the NRHP. Phase II surveys or impact avoidance was recommend for these 11 sites. Implementation of this ICRMP requires procedures similar to those identified in the NWS Yorktown ICRMP, above.

NSA Northwest. The Navy prepared a HARP for NSA Northwest in 1996 (Department of the Navy, 1996). Fifty archeological sites and 279 architectural resources were identified. None of the architectural resources were determined to be eligible for the NRHP. Thirteen of the archeological sites were recommended for Phase II evaluations and three historic cemetery sites were recommended for avoidance. Implementation of the NSA Northwest HARP requires procedures similar to those identified in the NWS Yorktown ICRMP above.

Dare County Bombing Range. The Air Force is responsible for cultural resource management at Navy DCBR. According to the current Cultural Resource Management Plan (CRMP), there are no resources eligible for listing on the NRHP, no indication of any future eligibility of any sites or locations, and no Native American burial or sacred areas on the range. The State Historic Preservation Office (SHPO) indicated in a letter dated August 6, 1996 to Seymour Johnson AFB that no further archeological surveys were required at DCBR.

Atlantic Test Range (Patuxent River) . An ICRMP was completed in December 2001 for NAS Patuxent River (U.S. Navy, 2001x). It is a 5-year planning document and covers the installation proper, Webster Field Annex, and Solomon Annex.

The status of previously recorded cultural resources is presented in the ICRMP. Recommendations highlight resource identification, evaluation initiatives, and treatment actions for the short- and long-term. The document also provides SOPs for several activities for the installation, including soil erosion control, hazardous material clean up, and unexpected discovery of archeological deposits or human remains.

A summary of environmental compliance and natural/cultural resources documentation is listed in Figure 4-2.

Title	Location	Date	Status
ICRMP	Atlantic Test Range	December 2001	Complete
Draft Phase II Archeological Investigations at Bloodsworth Island	Atlantic Test Range	1999	Complete
Archeological Excavations at Site 18-DO-82 at Bloodsworth Island	Atlantic Test Range	1982	Complete
INRMP	Dare County Bombing Range	March 2000	Complete
CRMP	Dare County Bombing Range	July 1996	Complete
SPCC Update	FCTC Dam Neck	Estimated Completion: September 2005	In Process
Pre-Final INRMP	FCTC Dam Neck	February 1998	In Process
SPCC Update	NAB Little Creek	Estimated Completion: September 2005	In Process
INRMP	NAB Little Creek	March 1997	Complete
SPCC Update	NALF Fentress	Estimated Completion: September 2005	In Process
ICRMP	NAS Oceana and NALF Fentress	1999	Complete
INRMP	NAS Oceana and NALF Fentress	November 2001	Complete
HARP Plan	NSA Northwest	1996	Complete
SPCC Update	NSA Northwest	Estimated Completion: September 2005	In Process
INRMP	NSA Northwest	June 1998	Complete
ICRMP	NWS Yorktown	1999	Complete
SPCC Update	NWS Yorktown and Cheatham Annex	Estimated Completion: September 2005	In Process
INRMP	NWS Yorktown, Cheatham Annex and Yorktown Fuel Terminal	2004	Complete
HARP Plan	NWS Yorktown-Cheatham Annex	1997	Complete
Water Quality and Sediment Sampling	Palmetto Point and Stumpy Point	February 1991	Complete
Draft RSEPA Decision Point 1 Recommendations Report	VACAPES Range Complex	March 2004	In Process

Figure 4-2. Environmental Compliance and Natural/Cultural Resources Documents

4.5 ENVIRONMENTAL PLANNING

Environmental planning, as defined by DoD Instruction 4715.9 "*Environmental Planning and Analysis*," is the process of identifying and considering environmental factors that have an impact on, or are impacted by, planned DoD activities and operations. Environmental planning efforts are principally undertaken in compliance with NEPA and EO 12114. The environmental documents produced under these requirements must also provide for completion of the federal consistency process under CZMA, and any consultation or permitting undertaken in accordance with the ESA, NHPA, MMPA, , and Magnuson-Stevens Act, among others. Early consideration of potential environmental impacts can actually enhance military readiness by assuring access to critical training areas.

4.5.1 NEPA AND EO 12114

A discussion of the general process and requirements for NEPA and EO 12114 is found in Volume I of this RCMP. Section 4.5.3, below,

identifies NEPA and EO 12114 documents specifically applicable to the VACAPES Range Complex.

4.5.2 COASTAL ZONE MANAGEMENT ACT (CZMA)

Requirements of the CZMA are included in Volume I of this RCMP. The coastal programs for each state within the VACAPES Range Complex (Maryland, Virginia, and North Carolina) were summarized previously in Section 4.2.5.

4.5.3 PREVIOUS AND ONGOING ENVIRONMENTAL PLANNING WITHIN THE RANGE COMPLEX

4.5.3.1 Previous Environmental Planning

4.5.3.1.1 VACAPES OPAREA

A marine resources assessment (MRA) was conducted by the Navy to begin collection of biological and oceanographic data concerning the protected and managed marine resources, including threatened and endangered species, marine mammals, and essential fish habitat (EFH), in the VACAPES OPAREA (Department of the Navy, 2001). This MRA contributes to a database that will be used in Fleet's integrated long-range planning process and provides data for analysis of future training needs in relation to important marine resources. All available literature, sighting, survey, fisheries by catch, and stranding data were compiled and interpreted to assist in making determinations of protected species distribution. Authors of the MRA identified data gaps for marine resources within the VACAPES OPAREA and made the following recommendations to provide improved information.

- Conduct aerial and shipboard marine mammal and sea turtle surveys in those sections of the VACAPES OPAREA that have been identified as "No Effort" or "Low Effort" from previous studies.
- Map the continental slope and rise (water deeper than 2,000 meters) of the outer VACAPES OPAREA to obtain higher resolution bathymetry data.
- Utilize Navy ships as platforms of opportunity. Scientific survey vessels are few in number and their deployments may not correspond to regions within the OPAREA of high interest. Marine animal observers on board Navy ships within the OPAREA can greatly add to knowledge of this region. Observers could be trained Navy personnel (see the next recommendation).
- Develop a program to train observers assigned to Navy ships. Observers would be trained to identify marine mammal and sea turtle species at sea, as well as possibly collect hydrographic data.
- Utilize satellite-tracking technology to monitor the movements of species of special interest.
- Obtain marine mammal and sea turtle datasets for the VACAPES OPAREA not publicly available for inclusion in original assessment.
- Update the VACAPES MRA every 2 to 4 years.

- Subject the MRA to peer review.
- Utilize an ecological approach in evaluating the marine resources of any particular OPAREA and deriving the distributional polygons.
- Support financially a sea turtle methodology workshop.
- Survey coastal waters to determine the distribution of pelagic *Sargassum* species.
- Standardize fisheries information among the United States' East Coast fishery management councils. For much of the VACAPES OPAREA, information about EFH is available by species but the various management councils use different graphical formats to display their data or provide no maps of the EFH for the species they govern.

A technical report presenting density estimates for marine mammals and sea turtles occurring in the VACAPES OPAREA was prepared in support of the Secretary of the Navy's 28 December 2000 memorandum, "*Compliance with Environmental Requirements in the Conduct of Naval Exercises of Training at Sea*." This document provides valuable baseline information that can be used for the Navy's MMPA and ESA compliance requirements. (Department of the Navy, 2002).

A draft Overseas Environmental Assessment (OEA) was prepared for Improved Extended Echo Ranging (IEER) System training operations. In this document, an area located approximately 48 NM east of the mouth of Chesapeake Bay and 28 NM northeast of North Carolina's Oregon Inlet was identified as a suitable location to conduct IEER routine training (Department of the Navy, 2001, IEER OEA). The OEA was never finalized because the analysis indicated that an incidental harassment authorization or letter of authorization under the MMPA would be required.

An OEA for naval gunfire exercises along the East Coast of the United States was prepared in February 2004 (Department of the Navy, 2004, GUNEX OEA). The OEA analyzed 66 naval gunfire (NGF) exercises over 24 days in the VACAPES, Cherry Point, and Charleston/ Jacksonville Operating Areas. The exercise areas within the VACAPES OPAREA underlay W-386 7CD/8CD and W-72. The NGF training used slow-moving surface targets (SLED) and fast-moving SEPTARs. The training events only took place during daylight hours and involved the use of approximately 70 5-inch non-explosive and training rounds. Mitigation measures for these NGF exercises included the following.

<u>General Maritime Mitigation Measures/Measure to Avoid Collision</u>

- All surface vessels will have two lookouts with binoculars (at least one set will be Big-Eye 25x binoculars). The duty of the lookouts is to watch for and report to the Officer of the Deck all objects in the water with which the vessel may collide, including marine mammals and sea turtles.

- At least one posted lookout must have completed the marine mammal-training program. This lookout will not perform additional duties that would require abandoning his/her lookout duties.
- When whales have been sighted in the area, Navy vessels will increase vigilance and take reasonable and practicable actions to avoid collisions and activities that might result in close interaction of naval assets and marine mammals. Actions may include changing speed and/or direction and are dictated by environmental and other conditions (e.g., safety, weather).
- Naval vessels will avoid approaching any whale head-on, and will maneuver to keep at least 460 meters (1,500 feet) away from any observed whale.
- While in transit, naval vessels will be alert at all times, use extreme caution, and proceed at a "safe speed" so that the vessel can take proper and effective action to avoid collision with any marine animal and can be stopped within a distance appropriate to the prevailing circumstances and conditions.

Species Rescue and Reporting Requirements

Any stranded or injured sea turtles or marine mammals observed will be immediately reported to the Commander Navy Region Southeast at (904) 542-3118, 24 hours/day; Commander, Navy Region Southeast will then notify appropriate state and federal agencies.

SLED/SEPTAR Mitigation Measures

- Target-towing vessels and aircraft shall maintain a trained lookout for marine mammals and sea turtles. If a marine mammal or sea turtle is sighted in the vicinity, the tow-vessel will immediately notify the firing vessel, which will suspend the exercise until the area is clear.

Non-Explosive Munitions Mitigation Measures

- Lookouts will be used to visually survey for *Sargassum* rafts, which may be inhabited by immature sea turtles, in the target area. Vessels will avoid impacting the water within 200 yards of known or observed *Sargassum* rafts and coral reefs.
- A 200-yard radius buffer zone will be established around the intended target.
- Trained lookouts will be used to survey for marine mammals and sea turtles in and around the target and buffer zone prior to commencement and during the exercise as long as practicable.
- The exercise will be conducted only when the buffer zone is visible and is visually cleared of marine mammals and sea turtles.

An OEA was prepared for the Virtual At-Sea Training/Integrated Maritime Portable Acoustic Scoring and Simulator (VAST/IMPASS) System (Department of the Navy, 2004, VAST/IMPASS OEA). The OEA evaluated the environmental impacts of the Navy providing a means to certify U.S. Atlantic Fleet naval ships proficient in naval

surface fire support (NSFS). Two alternatives were analyzed in this OEA:

- Deploy the VAST/IMPASS System within and seaward of established military OPAREAS (including VACAPES); and
- Deploy the VAST/IMPASS System only in biologically preferred areas of established military OPAREAS (including VACAPES).

The OEA concluded that with mitigation, there would be no significant or long-term adverse impacts to the marine, coastal, or cultural environments of the East Coast OPAREAs or Eastern Gulf of Mexico Testing and Training Areas. The mitigation measures designed to minimize potential impacts from VAST/IMPASS exercises were as follows.

- Pre-exercise monitoring of the target area using high-power binoculars ("Big-Eyes") prior to the event, during deployment of the buoy field, and during the return to firing position. Ships would maintain a lookout dedicated to visually searching for marine mammals and sea turtles along the ship track line and 360 degrees at each buoy drop-off location. A minimum of one lookout/watch stander will have completed the Navy marine mammal/sea turtle observer training program.
- High-power binoculars ("Big-Eyes") would be used to monitor the impact range for marine mammals and sea turtles during firing exercises.
- Ships would not fire on the target if any marine mammals or sea turtles were detected within or approaching the impact area. Operations would be suspended until the impact area was clear of marine mammals or sea turtles.
- Post-exercise monitoring of the entire impact range for the presence of marine mammals and sea turtles would take place using high-power binoculars ("Big-Eyes") and the naked eye during retrieval of the buoy field following each firing exercise.
- The visibility must be such that the fall of the shot would be visible from the firing ship during the exercise.
- The VAST/IMPASS System would only be used during daylight hours and only in a Beaufort Sea State 3 or less. Calm sea states and good lighting conditions contribute to high visibility conditions, making it easier to spot any marine mammal or sea turtle in the area.
- If marine mammals or sea turtles are detected in the vicinity of the Navy vessel, personnel would increase vigilance and take reasonable and practicable actions to avoid collisions and activities that might result in close interaction of Navy assets and protected species. Actions may include changing speed and/or direction and are dictated by environmental and other conditions (for example, safety and weather). No firing will occur if marine mammals are detected within 60 meters (66 yards) of the vessel.
- The exercise will not be conducted with *Sargassum* in the impact area.

- Any stranded or injured sea turtles or marine mammals observed will be immediately reported to the appropriate Navy Region, who will report to the National Marine Fisheries Service (NMFS) stranding response network and NMFS Regional Office:
  - Commander Navy Region Southeast at (904) 542-3118, 24 hours/day;
  - Sea Turtle Stranding and Salvage Network at (361) 949-8173, Ext. 226;
  - NMFS Regional Office – contact Assistant Regional Administrator for Protected Resources at (727) 570-5312.

4.5.3.1.2 NAB Little Creek

An EA was prepared and a finding of no significant impact (FONSI) was signed for night live-fire training at NAB Little Creek (Department of the Navy, 2002, Night Live-Fire EA). The EA covered conducting night live-fire exercises for Naval Special Warfare Group TWO SEALs. Exercises included insertion, infiltration, action, and extraction of SEALs and involved the following features.

- SEALs will be inserted by boats or helicopters, swim one to two miles, conduct weapons functions tests, and fire at either the rifle range for static marksmanship training or pistol range for assault-style small arms training. Extraction will occur by surface crafts, helicopters, or ground vehicles.
- The training will typically involve 12 personnel at the rifle range and 12 at the pistol range and the exercises at the ranges will not exceed 3 hours. Static marksmanship training consists of firing 30 to 50 rounds per person. Assault-style training involves firing 30 to 100 rounds per person.
- Typically, these training evolutions occur two to three times per month. As many as 12 training evolutions per month could occur during wartime or emergency deployments. Except during national emergencies, night training will not be conducted on Saturday or Sunday nights.
- During the winter, exercises will typically end by 2100 hours, and during the summer, exercises will typically end by 2300 hours.
- Training will follow SOPs outlined in NAVPHIBASE Little Creek Instruction 8000.5 and COMNAVSPECWARGRU TWO Instruction 3592.

Mitigation measures to protect the environment included the following.

- Beach access will be restricted during exercises. A range lookout is assigned to maintain a constant watch to positively determine that the Danger Zone seaward of the two ranges is clear of all watercraft, personnel, and low flying aircraft. The range lookout will have radio communication with the Range Safety Officer (RSO) at all times. Range lookout is to be equipped with night vision goggles and a laser range finder. Before night firing, the range lookout must have a clear view of the over-water Danger Zone. Low visibility conditions are

grounds for delaying or suspending night live-fire training. Rotating/flashing red lights atop range poles just outside the Danger Zone lines of demarcation for the rifle and pistol ranges are illuminated prior to and during night live-firing. A range entrance gate guard prevents unauthorized access to the range area.

- If necessary to prevent erosion, bare areas at the rifle and pistol ranges will be seeded.
- Routine range/berm management prevents impacts to water quality.
- The Virginia Department of Environmental Quality concurred with the Navy's Coastal Consistency Determination.

An EIS was prepared and a record of decision (ROD) was signed for alternative location of a landing craft air cushion (LCAC) operational base on the East Coast of the United States (Department of the Navy, 1983). The EIS covered the construction and operation of an LCAC operational base at NAB Little Creek. Mitigation measures pertaining to LCAC operations include

- LCAC crews will take all precautions required by the practice of good seamanship and any special circumstances involved. The Navy does not intend to normally operate the LCAC immediately adjacent to the shoreline or adjacent/underneath the Chesapeake Bay Bridge, but may during emergency-type situations.
- LCACs will conform to nautical rules of the road with all reasonable consideration for fishing boats in the Chesapeake Bay and Virginia Beach off-shore areas.
- LCACs will remain in established shipping lanes until Buoy One enroute to NAB Annex – Camp Pendleton operating areas. They will return to NAB Little Creek by the same route.
- LCACs will not normally approach closer than 2.5 nautical miles of Lynnhaven Inlet.
- LCACs will not operate closer than 3 nautical miles of the Virginia Beach resort area enroute to the NAB Annex – Camp Pendleton operating areas.
- LCAC training activities, including overland training, will not occur within 1,500 feet of the northern boundary of NAB Annex – Camp Pendleton.
- Normal peacetime operating hours for the LCAC are between 0700 and 1630, Monday through Friday. Readiness requirements may require night operations up to 2200 hours. The period between 2200 and 0700 is designated "exclusionary" and operations during these hours require specific advance permission from SURFLANT. Night operations of any type will be scheduled 5 working days in advance.
- The Navy will limit operations conducted between 1700 on Fridays to 0700 Mondays, May to September, to extraordinary operational requirements (e.g., contingency operations, reserve training, major Fleet exercises, etc.)
- A Notice to Mariners (NOTAM) will be promulgated when major Fleet exercises are scheduled at Camp Pendleton.

- LCACs will monitor channel 16 for emergency assistance to other craft.
- A Beachmaster Team will be placed ashore by the LCAC for beach control/safety prior to conducting assault landing training at Camp Pendleton.
- The Little Creek Control Tower will monitor small craft movement in and near the Little Creek channel to provide an extra measure of safety.
- LCACs will be equipped with radars and night observation devices.
- All hazardous materials will be handled and disposed of consistent with Navy regulations and policies.
- The Navy will institute an informational program concerning dolphins to alert and inform LCAC operators on the known swimming and behavior patterns of bottlenose dolphins and proper actions to take upon encountering a pod of them.

4.5.3.1.3 Atlantic Test Range (Patuxent River)

An EIS was prepared and ROD signed (May 1999) for increased flight and related operations in the Patuxent River Complex (Department of the Navy, 1999, Pax River EIS). The ROD approved Operational Workload III that allows for up to 24,400 flight hours per year, including up to 3,300 annual flight hours of military training support.

The operational areas covered in the EIS are under the exclusive control of NAWCAD. They include:

- NAS Patuxent River, with all its flight and ground test facilities, runways and associated airspace;
- Outlying Field (OLF) Webster Field with its flight test facilities, runways, and associated airspace; and
- The Chesapeake Test Range (CTR), including its restricted airspace, aerial and surface firing range, and Hooper, Hannibal, and Tangier Island Targets.

Although no significant impacts were identified in the EIS, the Navy implemented a series of measures in response to public complaints about aircraft noise disturbances, supersonic events, sufficiency of pilot awareness briefs, unmanned aerial vehicle (UAV) operations in the CTR, and the operation of an open-air aircraft engine test cell. General guidance for meeting the operational and mitigation requirements specified in the ROD can be found in the implementation plan for the final EIS (Department of the Navy, 1999, FEIS Implementation Plan).

An EA was prepared for the addition of Special Warfare Training at Bloodsworth Island Shore Bombardment and Bombing Range (February 1998) (Need EA)

Various types of environmental planning documentation has been prepared for RDT&E activities at the Atlantic Test Range. Often, this documentation covered only discreet actions (that is, a specific number

of events, at a specific location, within a specific timeframe). However, it is useful in estimating the potential impacts for routine, continued use of the systems at both the Patuxent River and other Navy range complexes. Such documentation includes:

- EA/OEA for the SH-60R Helicopter/Airborne Low Frequency Sonar (ALFS) Test Program, October 1999.
- Advanced Amphibious Assault Vehicle (AAAV) EA (Draft)
- EA for the Joint Strike Fighter (JSF) U.S. Navy/U.S. Marine Corps variant concept demonstration phase flight test program, July 2000.
- EA/OEA for the Parametric Airborne Dipping Sonar Helicopter Flight Demonstration Test Program, July 2000.
- EIS for the Potomac Consolidated Terminal Radar Approach Control (TRACON) (PCT) Airspace Redesign, December 2002.
- Ecological Risk Assessment Framework for Low Altitude Overflights by Fixed-Wing and Rotary-Wing Military Aircraft.
- EA for the F/A-18 E/F Hornet EMD Flight Test Program at Patuxent River Complex, December 1995.
- EA for Weapon Impact Scoring System Calibration Points, May 2003.
- EA for the Aircraft Prototype Facility at NAS Patuxent River (draft), September 2002.
- Record of Non-Applicability/Conformity Analysis for the F/A-18 E/F Stores Separation Testing, November 1996.
- EA for the F/A-18 E/F Stores Separation Testing at NAS Patuxent River, January 1997.
- F/A-18 Environmental Impact Assessment, August 1979.
- EA for the Continued Use of Bloodsworth Island Shore Bombardment and Bombing Range (draft), February 1982.
- EA for V-22 Osprey Test and Evaluation, August 1995.
- EA for the Armed Helo System for the H-60 Helicopters at the Naval Air Station Patuxent River Complex and Atlantic Test Range, February 1998.
- EA for the Operational Tests and Evaluation of the T-45A Aircraft at NAWCAD, May 1995.
- Programmatic Lifecycle EIS for the Theater Missile Defense, September 1993.

4.5.3.1.4 Aberdeen Test Center

The Army prepared an EA and signed a FONSI (2001) for testing/training at the Aberdeen Test Center (Department of the Army, 2001, Aberdeen EA). This EA covered the broad spectrum of testing and training activities authorized at the Aberdeen Test Center. The types of field training exercises analyzed in the EA include, but are not limited to:

- Airborne jumps and hardware deployment procedures;
- Air assault movements (troop movement by helicopters);
- Unmanned aerial vehicle (UAV)/unmanned ground vehicle (UGV) use;
- Beach landings (by small watercraft only);

- Surface and subsurface watercraft maneuvers (ingress, egress);
- Firing from water to land;
- Foreign vehicle recognition (friend or foe identification);
- Small arms firing;
- Large caliber firing;
- Call for fire and artillery use;
- Orienteering and GPS use;
- Operations Other Than War (OOTW) – peace keeping exercises;
- Counter terrorist and counter proliferation test and training;
- Use of simunitions (smoke, flashbang, pyrotechnics);
- Military Operation in Urban Terrain (MOUT) and Close Quarters Battle (CQB) training;
- Breach and assault research, development, test, and training;
- Bivouacking at 24-hour intervals;
- Staged configuration for squad rehearsals (command post, land/water ambush);
- Rapid deployment rehearsals for quick response teams;
- Airfield take-down exercises; and
- Reconnaissance exercises.

General restrictions for training exercises that could minimize environmental impacts included the following.

- Intrusive ground disturbing work will be kept to a minimum. Directorate of Safety, Health, and Environment (DSHE) approval is required as along with coordination with Department of Public Works (DPW).
- Most areas will require unexploded ordnance (UXO) clearance prior to operations. All UXO is required to be cleared by EOD-certified personnel in accordance with Army Regulation 75-1, Army Regulation 385-63 and Aberdeen Proving Ground UXO contract specifications. All areas that have been UXO cleared must be visibly marked. This includes both land and water (e.g., on land – ropes, tape, and markers; on water – buoys marking lanes that have been cleared by divers).
- Areas within the 500-meter safety arc for bald eagle nesting areas will be restricted from 15 December to 15 June of each year unless permitted by the DSHE Natural Resource Office.
- Small arms fire, blanks/simulators, and other explosive control devices will be reviewed and approved by Aberdeen Test Center Range Control Office and DSHE.
- Use and location of large caliber rounds (not to exceed 8 inches unless otherwise approved) will be authorized by the Aberdeen Test Center Range Safety Office at established ranges.

All field training exercises must be documented (Record of Environmental Consideration) and coordinated with the Aberdeen Proving Ground DSHE prior to the proposed exercise.

4.5.3.1.5 Fort AP Hill

A draft EA was prepared by the Army for Continuation of Basewide Operations in January 2001 (Department of the Army, 2001, A.P. Hill EA). This EA covered the broad spectrum of activities occurring at Fort A.P. Hill, including training and maneuver area operations, range and impact area operations, specialized activities operations, resource management, support area operations, and maintenance and utility operations.

Types of operations and training activities specified within these broad categories include:

Training and Maneuver Area Operations

- Warfighting Training Lanes – Infantry Training, Combat Service Support, Anti-Tank (TOW), Scout, Combat Engineer, Mortar, and Artillery Lanes
- Fixed Training Sites – Anti-Tank Ditch, Bailey/Panel Bridge training Site, Bayonet Assault Course, Combat Village, Confidence Course, Deliberate Decontamination Chamber, Drivers Training Courses, Expert Field medical Badge Test Site, Expert Infantry Badge Test Site, Gas Chamber, hand-to-Hand Combat Pits, Hostage Rescue Training Site, Land Navigation Course, Leaders Reaction Course, Medical Deployment Site, Landmine Warfare Training Site and Center, Nuclear, Biological, and Chemical Chamber, Prisoner of War Compounds, Railroad Mock-Up load Site, Rappahannock Assault River Training, Rappel Towers, Reverse Osmosis Purification Unit Training Site, Tactical Raft and Bridge Sites, and Vehicle Recovery Site
- Aviation and Airfield Training – Army Airfield, Drop Zone, Assault Landing Zone Airfield, Flight Training Areas, Helicopter Land Pads, Landing Zones and Pick Up Zones

Training and maneuver mitigation measures are outlined primarily within Fort AP Hill (APH) Memo 350-1 (Training) and APH Memo 95-1 (Aviation). Additional mitigation measures are set by the installation. Figure 4-3 presents the active mitigation measures that reduce potential impacts to the human and natural environment during training and maneuver operations.

Range and Impact Area Operations

- Impact Area Weaponry – All Department of Defense conventional weapons with the exception of HELLFIRE and JAVELIN weapon systems in the live-fire portion of Fort A.P. Hill
- Artillery – Mortars, Howitzers, and Rocket Launchers
- Rockets and Missiles – Light Anti-Armor Weapons, Heavy Anti-Armor Weapons, Future Missiles and Rockets
- Demolition Weaponry – Bangalore, Claymore/Mine, MICLIC (mine clearing initiating charge)

Activity	Mitigating Measures
Warfighting Training Lanes	All lanes are required to be in the same or better condition than prior to unit's use. No fires are permitted. Troops are briefed within 24 hours or arrival on unit requirements, safety, police and sanitation, off limit areas, and conservation of cultural/ecological resources in area of training. Tracked vehicles are restricted to use of existing dirt/gravel roads and tank trails, and must cross streams at established bridges or culverts. Drip pans are required to be under all stationary vehicles. Fuel must be stored in bladders at designated POL berms.
Fixed Training Sites	All fixed training sites are required to be in the same or better condition than prior to unit's use. Troops are briefed within 24 hours of arrival on unit requirements, safety, police and sanitation, off limits areas, and conservation of cultural/ecological resources in area of training. Tracked vehicles are restricted to use of existing dirt/gravel roads and tank trails, and must cross streams at established bridges or culverts. Only designated chemical riot control agents are permitted at the nuclear, biological and chemical (NBC) sites.
Aviation and Airfield Training	All flight paths must be cleared with Director of Plans, Transportation, Mobilization, and Security (DPTMS) and all training requires a Prior Permission Request. Troops must adhere to the No-Fly Zones. The Army Airfield is restricted to landings, takeoffs, and emergency rotary wing procedures. The Airfield Commander conducts weekly inspections of the sod runway to insure adequate conditions. Use is restricted to three aircraft at one time and training is prohibited at night. The assault airstrip is off limits to tracked vehicles. Units must follow Fort A.P. Hill's SOPs, SPCC plan, and notify the installation fire department in the event of an accidental spill.

Figure 4-3. Active Mitigation Measure for Training and Maneuvering Operations

- Lasers
- Aviation Gunnery
- Chemical Agents and Smoke
- Pyrotechnics and Simulators
- Propellants and Other Explosives
- Ranges – Aerial Gunnery Complex, Anti-Armor Tracking and Machine Gun Qualification, Anti-Armor Weapons, Basic 10-Meter Firing, Basic 25-Meter Firing, Combat Pistol Qualification Course, Engineer Qualification, Field Firing, Grenade Launcher, Ground Unit Special Use Complex, Hand Grenade Accuracy (Qualification) Course, Hand Grenade Familiarization, Infantry Platoon and Squad Ambush Courses, Known Distance, Light Demolition/Claymore, Machine Gun Field Fire and Multiple Weapons, Machine Gun and Assault Course, Military Police Firearms Qualification Courses, Modified Record Fire, Mortar, Night Fire, Non-Standard Firing, Platoon Attack Course, Record Fire, Sniper Field Fire, Squad Attack Course, and Vehicle Mounted Machine Gun Attack Course
- Demolition Operations
- Explosive Activities – Cratering, Shape, Steel Cutting, and Tree Cutting
- Light Demolition Areas
- Heavy Demolition Areas

Range and impact area mitigation measures are outlined primarily within APH Memo 350-1 (Training), APH Regulation 350-2 (Range), Army Regulation (AR) 385-62, and AR 385-63 (Aviation). Additional mitigation measures are set by the installation. Figure 4-4 presents the active mitigation measures that reduce potential impacts to the human and natural environment during range and impact area operations.

Activity	Mitigating Measures
Range and Demolition Operations	Troops are briefed within 24 hours of arrival on unit requirements, safety, police and sanitation, off limits areas, and conservation of cultural/ecological resources in area of training. There is mandatory range clearance and policing prior to unit departure. Overlays are required to be submitted 48 hours prior to the use of demolitions/explosives, smoke, pyrotechnics, or tear gas. Tracked vehicles are restricted to use of existing dirt/gravel roads and tank trails, and must cross streams at established bridges and culverts. Range 17 fire is restricted to Target Practice ammunition. Excess propellant must be stored in a wood or metal box outside of indirect firing pits and vehicle positions. The firing of Depleted Uranium ammunition, Improved Conventional Munitions, and live M14 mines is prohibited. Additionally, munitions containing White Phosphorous are not to be purposely fired or dropped in a body of water.

Figure 4-4. Active Mitigating Measures for Range and Impact Area Operations

Fort A.P. Hill maintains an installation spill contingency plan and SOPs for spill response that must be followed in the event of a spill of hazardous or toxic fluids. Weapons-cleaning materials contaminated with cleaning solvent are to be disposed of as hazardous waste in the designated 55-gallon drum located adjacent to Range Control. Appropriate Surface Danger Zones must be followed during weapons training.

4.5.3.1.6 Fort Eustis

An EA was prepared and a FONSI signed for the expansion of training areas and ranges at Fort Eustis, Virginia (Department of the Army, 2004, Fort Eustis EA). The proposed action entails:

- Changing the boundaries of established training areas to match improved GIS data;
- Increasing acreages assigned to established training areas to incorporate encroachment buffers;
- Adding types of training activities (e.g., military operations in the urban terrain, convoy reaction courses, infantry squad battle courses, combat service support squad defensive non-live firing range, multi-purpose firing range, and a combat pistol qualifications course); and
- Renovating, constructing, or demolishing range facilities.

Implementation of the proposed action is expected to occur between 2004 and 2011.

4.5.3.1.7 Fort Pickett

A draft EA was prepared to evaluate future mission requirements at the Army National Guard Maneuver Training Center (ARNG MTC), Fort Pickett, Virginia (Virginia Army National Guard, 2002). Actions proposed in the Real Property Development Plan (RPDP) and Range Development Plan (RDP) were addressed in the EA.

The RPDP provides a site development plan analyzing existing condition and ARNG installation requirements. In addition, the RPDP provides a land use guide and infrastructure plan to support the future ARNG mission at Fort Pickett. The RDP outlines new range and training land

requirements, the need for upgrading training lands or placing existing ranges in an inactive status, and the rationale associated with each.

Both the RPDP and RDP recommended operational and organizational enhancement measures to ensure the installation's ability to support its future workload and mission. Actions specifically relating to operations and training include:

- Development of an Infantry Platoon Battle Course training area;
- Development of the Wonju Tank Maneuver Corridor; and
- Upgrade of the existing MOUT Training Site to create a 32-building Combined Arms MOUT Training Facility.

SPECWAR use of Fort Pickett for survival and explosives training was defined as an existing condition in the EA.

4.5.3.1.8 Fort Story

An EA was prepared and a FONSI signed by both the Army and Navy for proposed range facilities at Fort Story, VA for Naval Special Warfare Group Two (Department of the Navy, 2003, Range Facilities at Fort Story EA). The EA covers training exercises involving:

- The discharge of small arms inside a multi-purpose indoor range (about 200 days/year) and close quarters combat training facility (up to 180 days/year);
- The discharge of simunitions (military paint rounds) at the simunition village (120 days/year) and military operations in the urban terrain (MOUT) trainer (120 days/year); and
- Mechanical, ballistic, thermal, and explosive methods used at the Tactical Methods of Entry (BREACHER) Trainer (120 days/year).

While the majority of training will occur during daylight hours, 30 percent of training will occur after dark. Measures such as postponing or limiting training exercises during sound-focusing weather conditions that could increase the level of noise, limiting nighttime training, and giving the public advance notice of training may be implemented. Permission to use charges exceeding 0.5 pounds is contingent on the Army's ability to increase the maximum allowable external charge from 0.5 to 1.5 pounds.

Actions to enhance environmental protection include the following.

- As a part of routine indoor range maintenance, bullet traps will be inspected and cleaned beyond their normal lead-removal function, and all brass and lead will be removed/collected and sent for disposal at the appropriate facility.
- Soil contaminated with simunition material will be excavated and disposed of in accordance with Fort Story waste management policies.

- All hazardous materials to be used at the five ranges will be obtained from the NAB Little Creek Hazardous Minimization Center in accordance with Transportation Center, Fort Eustis (TCFE) 200-6.

All training will follow instructions developed specifically for the particular training facility. These instructions are based upon SOPs for Indoor and Outdoor Ranges at NAB Little Creek (NAVPHIBASE Little Creek Instruction 8000.5), as well as:

- Commander Naval Special Warfare Group-TWO (CNSWG-2) Instruction 3001.1 – Standard Operating Procedures for Conducting Close Quarter Combat at the MATCH House CQC Trainer.
- CNSWG-2 Instruction 3000.1 – Close Quarter Combat Range Officer in Charge/Range Safety Officer Job Qualification Requirements.
- CNSWG-2 Instruction 3591.1 with changes 1 and 2 – Range Officer in Charge/Range Safety Officer Job Qualification Requirements.
- CNSWG-2 Instruction 8020.1G – Standard Operating Procedures for NSWG-2 Ordnance Operations.
- Naval Sea Systems Command (NAVSEA) Instruction 8023.11 – Standard Operating Procedures for the Processing of Expendable Ordnance at Navy and Marine Corps Facilities.
- DoN Environmental Policy Memorandum 97-02; Implementing the US Environmental Protection Agency Military Munitions Rule.
- OPNAVINST 5530.13B – Physical Security of Arms, Ammunition, and Explosives.

4.5.3.1.9 Blackwater USA

As a privately owned and operated facility, Blackwater USA is not required to comply with NEPA.

4.5.3.1.10 James River Inactive Ship Fleet

MARAD does not require environmental planning documentation for SPECWAR's limited use (e.g., small boat approaches and exercises to regain control of a vessel) of its inactive ship assets (Rohr, 2004).

4.5.3.2 Ongoing Environmental Planning Efforts

4.5.3.2.1 VACAPES OPAREA

An EA is being prepared for mine warfare training, using up to 60 pound charges, in three established East Coast military training areas in the Atlantic Ocean. One of the sites being analyzed is immediately offshore of the NAS Oceana Dam Neck Annex in Virginia Beach, Virginia. The proposed action includes Joint Exercise Training Commander, Mine Warfare Command (CMWC), EOD, SMCM, undersea mine countermeasures (UMCM), airborne mine countermeasures, and sonar usage (AQS-14, SQQ-30, SQQ-32, AQS-20A, and SLQ-48).

An EIS is being developed for the installation and use of a Shallow Water Training Range (SWTR) on the East Coast of the United States. One of the sites under consideration is within the VACAPES OPAREA, east of Wallops Island, Virginia. This site is not the Navy's preferred alternative.

4.5.3.2.2 NAS Oceana, Dam Neck Annex

An EA is being prepared for the construction and operation of a Small Arms Testing and Evaluation Compound (SATEC). This facility will support the Naval Special Warfare and Development Group's (SPECWARDEVGRU) mission to research, develop, and test new weapons and breaching systems in realistic urban combat environments.

4.5.3.2.3 Atlantic Test Range (Patuxent River)

An EA is being prepared to resume operations at Bloodsworth Island Range to accommodate RDT&E activities and sustain military activities. The proposed action would allow the Navy to conduct RDT&E and military exercises at the Bloodsworth Island Range 12 month per year, with night operations allowed. Bloodsworth Island Range would be available for scheduling 5,000 hours per year, but operations that require clearance of the surface danger zone would be limited to 800 or 1,200 hours per year, depending upon which alternative is selected. The estimated completion date for this EA is December 2004.

A summary of environmental planning documentation is provided in Figure 4-5.

An assessment of environmental coverage for current range complex operations is summarized in Figure 4-6. To be accomplished at 100%

4.5.4 SCOPE OF FUTURE ENVIRONMENTAL PLANNING EFFORTS IN THE RANGE COMPLEX

Under the Tactical Theater Assessment and Planning (TAP) program, the Navy will initiate, if necessary, additional environmental planning documentation for the VACAPES Range Complex. The analytical approach in this documentation will be "programmatic" in that it will address training operations repetitive in nature and occurring within the same geographical area. Existing environmental planning documentation will be incorporated by reference into any new programmatic environmental planning documentation.

Most training operations by other users of the VACAPES Range Complex, including Marine Corps, Army, Air Force, Coast Guard, and foreign military, will conform to the baseline operations covered in the programmatic environmental planning documentation. Otherwise, the user will be required to fund and/or prepare supplemental environmental planning documents.

Title	Location	Date	Status
BA for VAST/IMPASS	Multiple	February 2004	Complete
Final IHA/LOA for VAST/IMPASS	Multiple	May 2004	Complete
Final OEA for VAST/IMPASS	Multiple	May 2004	Complete
Draft EA for the Continuation of Basewide Operations	Fort AP Hill	January 2001	Complete
EA for Aberdeen Test Center Test/Training	Aberdeen Test Center	April 2001	Complete
Draft OEA for the IEER Training Operations	Multiple	September 2001	In Process
EA for Special Warfare Training Facility (P-444)	Fort AP Hill	May 1992	Complete
OEA for Naval Gunfire Exercise Along the East Coast of the United States	Multiple	February 2004	Complete
Final EIS for Increased Flight and Related Operations in the Patuxent River Complex	Atlantic Test Range	May 1999	Complete
Implantation Plan for the Final EIS for Increased Flight and Related Operations in the Patuxent River Complex	Atlantic Test Range	May 1999	Complete
EA for Proposed Range Facilities for NSWG-2	Fort Story	June 2003	Complete
EA for Proposed Night Live-Fire Training NSWG-2	NAB Little Creek	May 2002	Complete
EA for the Expansion of Training Areas and Ranges	Fort Eustis	June 2004	Complete
Draft Mission EA for Army National Guard Maneuver Training Center	Fort Pickett	October 2002	In Process
Final EIS for Alternative Location of LCAC Operational Base on the East Coast of the United States	Multiple	September 2003	Complete
Marine Resource Assessment	VACAPES Range Complex	October 2001	Complete
Estimation of Marine Mammal and Sea Turtle Densities	VACAPES Range Complex	2002	Complete
EA for the addition of Special Warfare Training at Bloodsworth Island Shore Bombardment and Bombing Range	Atlantic Test Range	February 1998	Complete
EA for Mine Warfare Training	Multiple	Under Development	In Process
EIS for the Development of the Installation of a Shallow Water Training Range (SWTR)	Multiple	Under Development	In Process
EA for SATEC	NAS Ocean-Dam Neck Annex	Under Development	In Process
EA to Resume Operations at Bloodsworth Island	Atlantic Test Range	Under Development	In Process

Figure 4-5. Environmental Planning Documents

NTA	Training Operation	COVERAGE				Reference(s)
		Full	Partial	Out-Dated	None	
1.1.2.4	Insertion/Extraction					
1.3.1	Airborne Mine Countermeasures					
1.3.2	Breaching					
1.4.1	Mining Exercise					
1.4.4	Land Demolitions					
1.5.5	Military Operations in Urban Terrain					
1.5.6	Naval Special Warfare Operations					
3.2.1.1	Air-to-Surface Attack (Missiles, Bombs, Guns)					
3.2.1.2	Anti-Submarine Warfare Tracking Exercise					
3.2.3	Air-to-Air Weapons Exercise (Missiles, Guns)					
3.2.4	High-Speed Anti-Radiation Missile Exercise					
3.2.5	Electronic Combat Operations					
3.2.6	Air-to-Ground Attack (Missiles, Bombs, Guns)					
3.2.7	Surface-to-Air Weapons Exercise (Missiles, Guns)					
3.2.8	Close Air Support					
3.2.9	Chaff					
4.9.1	Mission Area Qualification Training					

Source: Navy Tactical Task List, July 2001

Figure 4-6. Environmental Coverage for Current Range Complex Operations

4.6 LAND USE PLANNING AFFECTING THE RANGE COMPLEX

Volume I of this document outlines the Navy's Air Installation Compatible Use Zone (AICUZ), Range Air Installation Compatible Use Zone (RAICUZ), and Regional Shore Infrastructure Plan (RSIP) programs. The various types of real estate instruments potentially applicable to range complex assets are also described in Volume I. Specific information related to the VACAPES Range Complex is provided below.

4.6.1 AIR INSTALLATIONS COMPATIBLE USE ZONES (AICUZ)

Patuxent River Complex – The 1970 AICUZ study is still in effect at NAS Patuxent River. The EIS for increased flight and related operations

contains updated noise contours, but does not address Accident Potential Zones (APZs). A National Airspace Modernization (NASMOD) study is currently underway to update the AICUZ study.

4.6.2 RANGE AIR INSTALLATION COMPATIBLE USE ZONES (RAICUZ)

Dare County Bombing Range. The Navy is currently preparing a RAICUZ for the Dare County Bombing Range. Completion of the RAICUZ is anticipated in April 2005.

Stumpy Point. The Navy approved the RAICUZ study for Stumpy Point in 2004 (Department of the Navy, 2003, Stumpy Point RAICUZ). The Stumpy Point RAICUZ study differs from the typical RAICUZ study because the range currently is not in use and current operations could not be analyzed. The study was based on operations allowed under the current Range Operations Manual found in NASOCEANAINST 3710.19A and on projected operational data for the range. The Stumpy Point RAICUZ study provided the following recommendations:

- A laser safety analysis should be conducted so that restrictions for laser use can be noted and the range can be certified for safe laser use by aircraft dropping Laser Guided Training Round (LGTR).
- Proposed range usage should be coordinated with the Navy Region Mid-Atlantic's Natural Resources personnel.
- A NEPA evaluation of the proposed changes in run-in headings or operations should be conducted before implementation of the change.
- The existing Range Operations Manual, NASOCEANAINST 3710.19A, needs to be updated to reflect limitations and revisions that are operationally required.
- Relocating the new target closer to the center of the surface danger zone should be considered. This would bring range safety zone (RSZ) A for the potential use scenario completely within the surface danger zone.

4.6.3 REGIONAL SHORE INSTALLATION MANAGEMENT PROGRAM (RSIP)

To be completed in 100%.

Patuxent River Complex. FYXX Military Construction (MILCON) planned to relocate the current ground station/tower at Point Lookout to another site at Point Lookout. The new site will have a 200-foot-high microwave tower, a 100-foot-high EW tower, and a new secure communications facility.

4.6.4 REAL ESTATE USE AND AGREEMENTS

Palmetto Point. The Navy and the State of North Carolina (1965) signed a special use agreement in March 1965 that assigned the "…right to use, construct, operate, maintain, replace, and remove an aircraft target facility with three appurtenant markers, such facility and markers to be

constructed within the confines of four (4) certain areas of submerged lands in Albemarle Sound, Tyrrell County, North Carolina."

This special use agreement provides for the target areas only. The corresponding surface danger zone is authorized by the Army in 33 CFR 334.410.

In August 1965, the Navy and the Socony Mobil Oil Company entered into a subordination agreement that subordinates the company's interests in the rights to the submerged lands granted to the Navy by the State of North Carolina. The company did, however, "…reserve the right and privilege of mining, exploring, operating, and producing minerals there from by slant drilling or other means but without entering upon the said submerged lands or installing thereon any equipment or other facilities" (Socony Mobil Oil Company, 1965).

Stumpy Point. The Navy and the State of North Carolina (1959) entered into a use agreement in January 1959 that granted the Navy "…the right, license, and permission to use those certain areas of submerged lands [in Pamlico Sound] … for the construction, maintenance, and operation of a target facility together with its components." This use agreement provides for the target areas only. The corresponding surface danger zone is authorized by the Army in 33 CFR 334.410.

Palmetto and Stumpy Point. In October 1997, the Marine Corps at Cherry Point received a letter from the North Carolina Department of Natural Resources (1997) regarding four active water-based targets. These included two targets in the Cherry Point Range Complex and the Stumpy and Palmetto Point targets. The letter called into question the validity of the existing use agreements, stating that "…the two existing agreements apparently do not encompass all the submerged lands being utilized and/or contain provisions of questionable legal value." The letter further states that "…the State [of North Carolina] is interesting in revisiting these three-decade old agreements…" and "…insuring the proper management of its submerged lands and clarifying the rights and responsibilities of both parties."

In response to this letter, both Marine Corps and Navy personnel attended several meetings with the state regarding the water-based targets. However, no formal response has been filed by the Navy. State interest in this issue has subsided in recent years.

Dare County Bombing Range. Dare County Bombing Range, which has an area exceeding 46,000 acres, was purchased by the Air Force in 1977 and 1979 through condemnation (U.S. District Court, 1977 and 1979). The Navy has exclusive or controlling use of the northeast side of the bombing range (Navy Dare County Range), but does not own any land or facilities. The Navy is, however, responsible for maintenance of the buildings they occupy.

An ISSA executed in February 1999 defines Air Force (supplier) and Navy (receiver) responsibilities regarding:

- Airfield base operations;
- Civilian personnel services;
- Communication services;
- Common use facility construction;
- Operations, maintenance, and repair;
- Environmental cleanup;
- Environmental compliance;
- Explosive ordnance support;
- Facility construction and major repair;
- Facility maintenance and minor repair;
- Fire protection;
- Budget;
- Geodetic support;
- Legal services;
- Mortuary services;
- Public affairs;
- Security services;
- Supply services; and
- Weather services.

The current ISSA does not have an expiration date (Department of the Air Force, 1999). No other real estate use agreement or permit regulates Navy activity at DCBR.

Fort A.P. Hill. Since 1993, the Army has issued the Navy a permit to use 12 acres of land (including structures) on South Range Road. The 12 acres contain the nine buildings that comprise Camp Conners, a Special Warfare Center. The Navy prepared an EA and issued a FONSI for the construction of these buildings in 1992 (Department of the Navy, 1992). SPECWAR uses assigned to these buildings include:

- Building 2203 Dining facility
- Building 2204 Officer quarters
- Building 2205 Officer quarters
- Building 2206 Enlisted barracks without dining facilities
- Building 2207 Enlisted barracks without dining facilities
- Building 2208 Enlisted barracks without dining facilities
- Building 2209 Enlisted barracks without dining facilities
- Building 2210 Administration, general purpose
- Building 2211 General instruction facility
- Building 2212 Applied instruction facility

The current permit, with a term of 18 months, expires on 30 June 2005 (Department of the Army, 2004). The Navy is already working on the permit renewal process and desires to extend the permit period to 25 years.

Numerous other real estate instruments exist within the VACAPES Range Complex, such as utility easements, licenses, and leases. All contain clauses for revocation at the option and discretion of the Navy.

A summary of land use planning documents and agreements is listed in Figure 4-7.

Title	Location	Date	Status
Land Use Permit for Naval Special Warfare	Fort AP Hill	1993	Complete
Dare County Land Use Plan	Dare County Bombing Range	2003	Complete
Support Agreement between Seymour Johnson AFB and NAS Oceana	Dare County Bombing Range	1999	Complete
RAICUZ	Dare County Bombing Range	Under Development	In Process
Tyrell County and Town of Columbia Land Use Plan Update	Palmetto Point	1996	Complete
Special Use Agreement between State of NC and US Department of Navy	Palmetto Point	March 1965	Complete
Subordination Agreement between Socony Mobile Oil Company and US Department of Navy	Palmetto Point	August 1965	Complete
Final RAICUZ	Stumpy Point	May 2003	Complete
Use Agreement between State of NC and US Department of Navy	Stumpy Point	January 1959	Complete

Figure 4-7. Land Use Documents and Agreements

CHAPTER 5 ENCROACHMENT AND SUSTAINMENT CHALLENGES

5.1 ENCROACHMENT ANALYSIS AND METHODOLOGY

Parsons note to reviewers: The contents of this chapter are provisional, pending NSWG-2 and NSWG-4 inputs.

The encroachment analysis identifies and describes encroachment pressures in the VACAPES Range Complex. The analysis used a series of 31 matrices, provided in Appendix B, that evaluated encroachment issues against the Ranges to Readiness (R2R) study training impact factors. The 31 matrices represent major range entities within the VACAPES Range Complex, the Atlantic Test Range, and Naval Special Warfare (NSW) training ranges. Sources of the information that were used to develop the matrices included numerous interviews, telephone conversations, and e-mail messages with FACSFAC VACAPES staff, range managers, and operators.

Each of the 31 major test entities included in the matrices was evaluated for 12 encroachment issues, including:

- Endangered species or their critical habitats;
- UXO and munitions
- Frequency encroachment;
- Maritime sustainability;
- Airspace restrictions;
- Air quality;
- Airborne noise;
- Urban growth;
- Cultural resources;
- Water quality;
- Wetlands; and
- Range transients.

Each of these encroachment issues was evaluated against the following 12 R2R encroachment factors:

- Creates avoidance areas;
- Reduces training days;
- Prohibits certain training events;
- Reduces range access;
- Segments training and/or reduces realism;
- Limits application of new weapons technologies;
- Raises flight altitudes;
- Inhibits tactics development;
- Complicates night and all-weather training;
- Reduces live-fire proficiency;
- Increases personnel tempo; and
- Greatly increases O&M costs.

As shown in Appendix B, each resulting matrix has 144 cells.

Each encroachment issue with its corresponding training impact was ranked as severe impact (color-coded red in the Appendix B matrices), moderate impact (yellow), or minimal impact (green). Subject matter experts (SMEs) from the VACAPES Range Complex, Atlantic Test Range, and other locations classified their encroachment impact observations within these rankings.

The encroachment rankings are not statistical measures. Rather, they reflect SME knowledge and judgment about environmental issues and subjective impacts.

- A severe impact is one that prohibits a training event or activity or makes the training event or activity ineffectual when measured against training standards.
- A moderate impact marginalizes training to the extent that the training can be done but must use alternate standards and methods that detract from otherwise optimum training.
- A minimal impact does not effectively detract from training content, procedure, or outcome.

All of the impacts are included in the matrices. However, only the moderate and severe impacts are described in this analysis narrative. Corresponding Navy Tactical Tasks (NTAs) accompany the observations.

5.2 NAVY VACAPES RANGE COMPLEX OPERATIONAL RANGES

The VACAPES Range Complex infrastructure is varied and widespread. Including the Atlantic Test Range and NSW ranges, the complex spans 28 range entities and 17 airspace entities. Most airspace is directly affiliated with ground and sea ranges. Several NSW range areas are non-Navy and are mentioned generally in this encroachment analysis.

The encroachment analysis determined that there is relatively little encroachment in the VACAPES Range Complex and that when encroachment occurs, its effects most often are minimal. However, there are some situations, described in detail below, where encroachment is causing moderate or severe interruptions or realism impacts to Naval operations.

This section exclusively addressed encroachment, and does not consider shortfalls in range capabilities, which are described in Section 2, Chapter 7, Range Complex Capabilities Assessment. The combination of encroachment and capabilities shortfalls provide insight into the range complex's ability to support Navy Tactical Tasks as listed in Section 1, Chapter 3, Current Range Complex Operations.

5.2.1 VACAPES OPAREA/W-50/W-386/W-387/W-72/W-110

The VACAPES OPAREA/W-50/W-386/W-387/W-72/W-110 supports air, surface, and subsurface operations. The controlling authority is FACSFAC VACAPES.

The Marine Mammal Protection Act (MMPA) is one of the greatest encroachment contributors in the VACAPES OPAREA. The impacts of the MMPA relate primarily to the anti-submarine warfare (ASW) mission area and are associated with the introduction of sound from sonar into ocean waters.

To protect the sound environment of marine mammals in near-shore waters, current Navy policy prohibits the employment of Improved Extended Echo Ranging (IEER) in the VACAPES OPAREA within 50 NM (93 kilometers (km)) of the coast. The IEER is a sonobuoy deployed by P-3 aircraft that aids in the search and detection of quiet submarines, including diesel-engine submarines operating in littoral waters. Use of the IEER is an important ASW capability that requires considerable practice to develop proficiency. This limitation on its use encroaches on the ability of Navy staff to obtain the experience needed to become proficient.

The testing of another critical ASW system under development, Low Frequency Active (LFA) sonar, has been enjoined by a federal court, based on sound effects on marine mammals. The result is encroachment on the ability to employ the full range of ASW search systems during Fleet training operations, including JTFEX and Composite Training Unit Exercise (C2X), and a qualitative reduction in Fleet ASW readiness.

Q-Route transit encroachment also is occurring in association with the protection of marine mammals. To enhance the security of port egress and strait transits of surface ships and submarines, certain routes have been surveyed to obtain a detailed sonar profile of the bottom contour. These surveyed routes are called Q-Routes. During periods of heightened security, simulated during JTFEXs, ships and submarines would normally transit the Q-Route and use active sonar to compare the current bottom profile with the surveyed profile to aid in identification of small mine-like objects. However, to avoid exceeding sonar use thresholds associated with marine mammals, Second Fleet has prohibited the use of active sonar for Q-Route transits during JTFEXs, with the understanding that this action reduces tactical realism and training value.

The FAA has significantly constrained the use of the airborne LINK-16 command, control, communications, and intelligence system within the VACAPES OPAREA/W-50/W-386/W-387/W-72/W-110. LINK-16 cannot be used within 50 miles of the coast. The FAA has placed severe limits on time slots and pulse frequency. In addition, LINK-16 employment applications require up to 90 days advance submittals, and approvals often are issued only within 24 hours of pending use. The

FAA has limited total LINK-16 transmissions to 6 hours per day. Another encroachment involves FACSFAC and FAA procedures in controlled airspace between W-72 and the Dare County Range/R-5314, which interrupt flight operations from W-72 into the R-5314 airspace. According to operators, current transition procedures regarding airspeeds, frequencies, and altitudes are not easy to implement and vary from mission to mission such that they segment training and reduce training realism. In addition, the procedures restrict altitude bands needed for realistic tactical scenarios.

MISSILEXs block large portions of W-72. Encroachments on unit-level training are severe during MISSILEXs and moderate over the course of the month. The number of MISSILEXs has increased since the loss of the Atlantic Fleet Weapons Training Facility (AFWTF).

Concern had been expressed that range transients involving commercial shipping, commercial fishing, and private pleasure boating would encroach on training, either by delaying events or forcing relocation to less than optimum locations. No data were available on these occurrences.

Encroachments also are associated with JTFEX environmental mitigation measures. All surface combatants, submarines, and supporting forces must conform with specified environmental mitigation measures during the JTFEX to protect marine mammals, sea turtles, and *Sargassum* habitats. However, these measures reduce training realism, segment training, and impede ASW operations. The measures include the following (Source: C2F, JTFEX 03-1, Exercise Environmental Mitigation Measures; msg 261843ZSEP02).

- All surface combatants and surfaced submarines shall designate and post marine mammal and sea turtle visual lookouts with marine mammal training.
- Vessels shall maintain at least 500 yards from an observed marine mammal and shall operate at a safe speed to avoid marine mammal collisions.
- Vessels shall conduct acoustic searches for close-aboard marine mammals.
- Surface combatants, submarines, and towed arrays shall reduce acoustic search power levels or shut down active sonar commensurate with marine mammal proximity.
- Water detonations and air-to-ground ordnance delivery must be preceded by a visual and acoustic all-clear for marine mammals and sea turtles in the target area.
- Live-ordnance delivery shall not be employed within 5 miles of a marine mammal or within 2 miles of a sea turtle or *Sargassum* raft.

Each of the encroachment issues in VACAPES OPAREA/W-50/W-386/W-387/W-72/W-110 was evaluated for severity of effect on training, based on the 12 R2R encroachment factors. The results of this evaluation are presented below and in the matrix in Appendix B.

5.2.1.1 Factors Relating to Frequency Encroachment

R2R encroachment factor: Reduces training days

Condition resulting in encroachment: FAA requirement to apply for LINK-16 operations 90 days in advance with short-notice approvals
Impact level: Moderate

Condition resulting in encroachment: FAA restriction of 6 hours per day of LINK-16 operations
Impact level: Moderate

R2R encroachment factor: Limits application of new weapons technologies

Condition resulting in encroachment: FAA restricted use of LINK-16 transmissions, time slots, and pulses per unit of time
Impact level: Moderate

R2R encroachment factor: Inhibits new tactics development

Condition resulting in encroachment: FAA restricted use of LINK-16 transmissions, time slots, and pulses per unit of time
Impact level: Moderate

Condition resulting in encroachment: LINK-16 frequency restrictions and allowable employment time
Impact level: Moderate

5.2.1.2 Factors Relating to Maritime Sustainability

R2R encroachment factor: Prohibits certain training events

Condition resulting in encroachment: LFA use enjoined by federal court
Impact level: Moderate

Condition resulting in encroachment: FAA prohibits use of LINK-16 within 50 NM of coast
Impact level: Moderate

Condition resulting in encroachment: Navy prohibition on the use of active sonar during Q-Route transit simulation in JTFEX
Impact level: Severe

R2R encroachment factor: Segments training/reduces realism

Condition resulting in encroachment: Restrictions on IEER and LFA employment preclude full use of available ASW search systems during JTFEX and C2X
Impact level: Moderate

5.2.1.3 Factors Relating to Airspace Restrictions

R2R encroachment factor: Segments training/reduces realism

Condition resulting in encroachment: Aircraft enroute procedures from W-72 to R-5314 restrict airspeed, frequency, and altitude usage such that they segment training and reduce training realism
Impact level: Moderate

Condition resulting in encroachment: Loss of W-72 airspace to MISSILEXs limits maneuvering airspace
Impact level: Moderate

R2R encroachment factor: Inhibits new tactics development
Condition resulting in encroachment: Loss of W-72 airspace to MISSILEXs
Impact level: Moderate

5.2.2 Oceana Tactical Aircrew Training System (TACTS)

There are no identified moderate or severe encroachment impacts in the TACTS range. Need to verify if any altitude restrictions.

5.2.3 Navy Dare County Range/R-5314

The Navy Dare County Range target area sits in the middle of wetland. The wetland is described as a carpet of vegetation floating on roughly 15 feet of water. The Navy is not allowed to fill parts of the wetland to establish maintenance roads and to create solid foundations for targets. Targets must rest on top of the floating vegetation. Floatable targets require special handling and maintenance with unique equipment. The wetland restrictions place an extensive burden on target procurement, placement, and maintenance.

The wetland encroachment issue in the Navy Dare County Range was evaluated for severity of effect on training, based on the 12 R2R encroachment factors. The results of this evaluation are presented below and in the matrix in Appendix B.

5.2.3.1 Factors Relating to Wetlands

R2R encroachment factor: Creates avoidance areas
Condition resulting in encroachment: Wetlands restrictions limit target placement and range maintenance
Impact level: Severe

5.2.4 Dam Neck Range/R-6606

There are no identified moderate or severe encroachment impacts at Dam Neck Range/R-6606.

5.2.5 Palmetto Point Range/R-5302

The Palmetto Point Range is an inactive range with the R-3202 airspace remaining active. There are no identified moderate or severe encroachment impacts at Palmetto Point Range/R-5302.

5.2.6 Stumpy Point Range/R-5313

Hurricane Isabel destroyed the Stumpy Point target in September 2003. R-5313 has no identified encroachment impacts.

5.2.7 Hatteras Air Traffic Control Assigned Airspace (ATCAA)

There are no identified moderate or severe encroachment impacts related to the Hatteras ATCAA.

5.2.8 Pamlico Military Operating Area (MOA)

There are no identified moderate or severe encroachment impacts in the Pamlico MOA.

5.3 ATLANTIC TEST RANGE

Although not part of the VACAPES Range Complex, the Atlantic Test Range has several ranges that contribute to LANTFLT training. These ranges are available to the extent that they do not interfere with the testing mission.

5.3.1 Bloodsworth Island/R-4002

Bloodsworth Island is no longer used for Fleet training (except for NSW training discussed separately. It was transferred from NAB Little Creek to the Atlantic Test Range in 2001. The island currently is used for Atlantic Test Range radar testing and by the Navy Test Pilot School for visual navigation.

During October through March each year, all overflight activity is prohibited to protect over-wintering migratory waterfowl. However, discussions with SMEs indicated that the severity of this impact was minimal.

Bloodsworth Island was previously used for Naval surface fire support training and air-to-ground bombing, but that training was ended because of severe encroachment. Because the island is no longer designated for these purposes, the continued presence of this encroachment is now considered a minimal impact.

5.3.2 Hooper Target/R-4005

There are no identified moderate or severe encroachment impacts to Fleet training at Hooper Target/R-4005.

5.3.3 Hannibal Target/R-4005

There are no identified moderate or severe encroachment impacts to Fleet training at Hannibal Target/R-4005.

5.3.4 Tangier Island Target/R-6609

There are no identified moderate or severe encroachment impacts to Fleet training at Tangier Island Target/R-6609.

5.3.5 R-4006

There are no identified moderate or severe encroachment impacts to Fleet training in R-4006.

5.3.6 R-4007A

There are no identified moderate or severe encroachment impacts to Fleet training in R-4007A.

5.3.7 R-4008

There are no identified moderate or severe encroachment impacts to Fleet training in R-4008.

5.4 NAVAL SPECIAL WARFARE (NSW) RANGES

5.4.1 Naval Amphibious Base (NAB) Little Creek

There are no identified moderate or severe encroachment impacts at NAB Little Creek.

///Training impacts pending NSWG-2 and NSWG-4 input.

5.4.2 TRASUPPCEN Hampton Roads

TRASUPPCEN is home to nesting sea turtles and protected dunes. Beach training is affected by nesting sites and dune activity. Training cannot be conducted in the nesting sites. Vehicular traffic is prohibited and foot traffic is restricted on the dunes and in interdunal swales.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.3 Camp Pendleton

Camp Pendleton is home to nesting sea turtles and protected dunes. Beach training is affected by nesting sites and dune activity. Training cannot be conducted in the nesting sites. Vehicular traffic is prohibited and foot traffic is restricted on the dunes and in interdunal swale wetlands.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.4 VACAPES OPAREA/W-50

There are no identified moderate or severe encroachment impacts in area W-50/

Training impacts pending NSWG-2 and NSWG-4 input.

5.4.5 Naval Auxiliary Landing Field (NALF) Fentress

There are no identified moderate or severe encroachment impacts at NALF Fentress affecting NSW training. Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.6 Blackwater Lodge

No information. Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.7 Naval Support Activity Norfolk, Northwest Annex

Pending NSWG-2 and NSWG-4 input.

5.4.8 Naval Weapons Station Yorktown and Cheatham Annex

There are no identified moderate or severe encroachment impacts at NWS Yorktown and Cheatham Annex.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.9 Bloodsworth Island

As described in Section 5.3.1, Bloodsworth Island was transferred from NAB Little Creek to the Atlantic Test Range in 2001. Bloodsworth Island is now used for Atlantic Test Range radar testing and by the Navy Test Pilot School for visual navigation.

During October through March each year, all overflight activity is prohibited to protect over-wintering migratory waterfowl. However, as described previously, SMEs have determined that the severity of this impact is minimal. There are no identified moderate or severe encroachment impacts on NSW training at Bloodsworth Island.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.10 Hannibal Target

There are no identified moderate or severe encroachment impacts to NSW training at Hannibal target. Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.11 Aberdeen Proving Ground

The Aberdeen Proving Ground has a number of bald eagle nesting sites that affect range operations and training. The protected habitat surrounding each site is a 500-foot bubble. Training activities are prohibited in the buffer zones from mid-December to mid-June.

UXO must be cleared before training can commence in most areas. In non-cleared, live-dud areas, operators must use ingress and egress routes.

Training impacts are pending NSWG-2 and NSWG-4 input.

Each of the encroachment issues in the Aberdeen Proving Ground was evaluated for severity of effect on training, based on the 12 R2R encroachment factors. The results of this evaluation are presented below and in the matrix in Appendix B.

5.4.11.1 Factors Relating to Endangered Species/Critical Habitat

R2R encroachment factor: Creates avoidance areas
Condition resulting in encroachment: Bald eagle buffer zones create areas that prohibit training from mid-December to mid-June
Impact level: Moderate

R2R encroachment factor: Prohibits certain training events
Condition resulting in encroachment: Training is prohibited in the bald eagle buffer zones from mid-December to mid-June
Impact level: Moderate

5.4.11.2 Factors Relating to UXO and Munitions

R2R encroachment factor: Creates avoidance areas
Condition resulting in encroachment: Training in non-cleared live-dud areas is prohibited and forces the operators to use established ingress and egress routes rather than tactical routes.
Impact level:

5.4.12 Fort Story

There are no identified moderate or severe encroachment impacts to NSW training at Fort Story.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.13 Fort AP Hill

There are no identified moderate or severe encroachment impacts to NSW training at Fort A.P. Hill.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.14 Fort Pickett

There are no identified moderate or severe encroachment impacts to NSW training at Fort Pickett.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.15 Fort Eustis

There are no identified moderate or severe encroachment impacts to NSW training at Fort Eustis.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.4.16 James River Inactive Fleet

There are no identified moderate or severe encroachment impacts to NSW training at the James River Inactive Fleet.

Training impacts are pending NSWG-2 and NSWG-4 input.

5.5 ENCROACHMENT SUMMARY

Figure 5-1 is a high level summary depicting the number of moderate and severe encroachment impacts within the VACAPES Range Complex.

	Encroachment Impacts		
Range	Moderate	Severe	Total
VACAPES OPAREA	11	1	12
Navy Dare County Range		1	1
Stumpy Point Range			
Palmetto Point Range			
Dam Neck Range			
Oceana TACTS			
Hatteras ATCAA			
Pamlico MOA			
Totals	11	2	13

Figure 5-1. High-Level Summary of Moderate and Severe Encroachment Impacts in the VACAPES Range Complex

Figure 5-2 is a high level summary depicting summarizes the number of moderate and severe encroachment impacts within the Atlantic Test Range.

	Encroachment Impacts		
Range	Moderate	Severe	Total
Bloodsworth Island Target			
Hooper Target			
Hannibal Target			
Tangier Island Target			
R-4006			
R-4007A			
R-4008			
Totals	0	0	0

Figure 5-2. High-Level Summary of Moderate and Severe Encroachment Impacts in the ATR

Figure 5-3 is a high level summary depicting the number of moderate and severe encroachment impacts within the NSW training ranges.

	Encroachment Impacts		
Range	Moderate	Severe	Total
NAB Little Creek			
FTC Dam Neck			
Camp Pendleton			
OPAREA/W-50			
NALF Fentress			
Blackwater Lodge			
NSG Northwest			
NWS Yorktown/Cheatham Annex			
Bloodsworth Island			
Hannibal Target			
Aberdeen Proving Ground	3		3
Fort Story			
Fort A.P. Hill			
Fort Pickett			
Fort Eustis			
James River Inactive Fleet			
Totals	3	0	3

Figure 5-3. High-Level Summary of Moderate and Severe Encroachment Impacts in the NSW Training Ranges

Figure 5-4, 5-5, and 5-6 contain the numbers of training impacts within each of the 12 encroachment issues for each range category within the VACAPES Range Complex, the Atlantic Test Range, and the NSW training ranges. The numbers are derived from the encroachment matrices in appendix B.

Figure 5-7, 5-9, and 5-9 are the numbers of impacts for each training impact factor for each range entity. Within each of the 12 encroachment

issues, there may be more than one training impact. These numbers are a compilation of the data on the encroachment matrices in Appendix B.

Figure 5-10, 5-11, and 5-12 are bar graphs depicting the total training impacts by type.

Range Complex	Encroachment Issues												
	Endangered Species	Cultural Resources	UXO/ Munitions	Frequency Encroachment	Maritime Sustainability	Airspace Restrictions	Air Quality	Clean Water	Wetlands	Airborne Noise	Urban Growth	Range Transients	Total
VACAPES OPAREA				5	4	3							12
Navy Dare County Range									1				
Stumpy Point Range													
Palmetto Point Range													
Dam Neck Range													
Oceana TACTS													
Hatteras ATCAA													
Pamlico MOA													
Totals				5	4	3			1				13
Percent				38	31	23			8				100

Figure 5-4. Encroachment Impacts within the 12 Encroachment Issues for the VACAPES Range Complex

Range Complex	Encroachment Issues												
	Endangered Species	Cultural Resources	UXO/ Munitions	Frequency Encroachment	Maritime Sustainability	Airspace Restrictions	Air Quality	Clean Water	Wetlands	Airborne Noise	Urban Growth	Range Transients	Total
Bloodsworth Island Target													
Hooper Target													
Hannibal Target													
Tangier Island Target													
R-4006													
R-4007A													
R-4008													
Totals													0
Percent													

Figure 5-5. Encroachment Impacts within the 12 Encroachment Issues for the Atlantic Test Range

Range Complex	Encroachment Issues												
	Endangered Species	Cultural Resources	UXO/ Munitions	Frequency Encroachment	Maritime Sustainability	Airspace Restrictions	Air Quality	Clean Water	Wetlands	Airborne Noise	Urban Growth	Range Transients	Total
NAB Little Creek													
FTC Dam Neck													
Camp Pendleton													
OPAREA/W-50													
NALF Fentress													
Blackwater Lodge													
NSG Northwest													
NWS Yorktown/Cheatham Annex													
Bloodsworth Island													
Hannibal Target													
Aberdeen Proving Ground	3												3
Fort Story													
Fort AP Hill													
Fort Pickett													
Fort Eustis													
Totals	3												3
Percent	100												100

Figure 5-6. Encroachment Impacts within the 12 Encroachment Issues for the NSW Training Ranges

	Training Impact Factors												
Range Complex	Creates Avoidance Areas	Reduces Training Days	Prohibits Certain Training Events	Reduces Range Access	Segments Training/ Reduces Realism	Limits New Technologies	Raises Flight Altitudes	Inhibits New Tactics Development	Complicates Night and All-Weather Training	Reduces Live-Fire Proficiency	Increases Personnel Tempo	Increases O & M Costs	Total
VACAPES OPAREA		2	3		3	1		3					12
Navy Dare County Range	1												1
Stumpy Point Range													
Palmetto Point Range													
Dam Neck Range													
Oceana TACTS													
Hatteras ATCAA													
Pamlico MOA													
Totals	1	2	3		3	1		3					13
Percent	8	15	23		23	8		23					100

Note: Each encroachment issue may have multiple training impacts, thus may be duplicated across more than one training impact.

Figure 5-7. Training Impacts for the VACAPES Range Complex

	Training Impact Factors												
Range Complex	Creates Avoidance Areas	Reduces Training Days	Prohibits Certain Training Events	Reduces Range Access	Segments Training/ Reduces Realism	Limits New Technologies	Raises Flight Altitudes	Inhibits New Tactics Development	Complicates Night and All-Weather Training	Reduces Live-Fire Proficiency	Increases Personnel Tempo	Increases O & M Costs	Total
Bloodsworth Island Target													
Hooper Target													
Hannibal Target													
Tangier Island Target													
R-4006													
R-4007A													
R-4008													
Totals													0
Percent													

Note: Each encroachment issue may have multiple training impacts, thus may be duplicated across more than one training impact.

Figure 5-8. Training Impacts for the Atlantic Test Range

	Training Impact Factors												
Range Complex	Creates Avoidance Areas	Reduces Training Days	Prohibits Certain Training Events	Reduces Range Access	Segments Training/ Reduces Realism	Limits New Technologies	Raises Flight Altitudes	Inhibits New Tactics Development	Complicates Night and All-Weather Training	Reduces Live-Fire Proficiency	Increases Personnel Tempo	Increases O & M Costs	Total
NAB Little Creek													
FTC Dam Neck													
Camp Pendleton													
OPAREA/W-50													
NALF Fentress													
Blackwater Lodge													
NSG Northwest													
NWS Yorktown/Cheatham Annex													
Bloodsworth Island													
Hannibal Target													
Aberdeen Proving Ground	2	1											3
Fort Story													
Fort AP Hill													
Fort Pickett													
Fort Eustis													
Totals	2	1											3
Percent	67	33											100

Note: Each encroachment issue may have multiple training impacts, thus may be duplicated across more than one training impact.

Figure 5-9. Training Impacts for the NSW Training Ranges

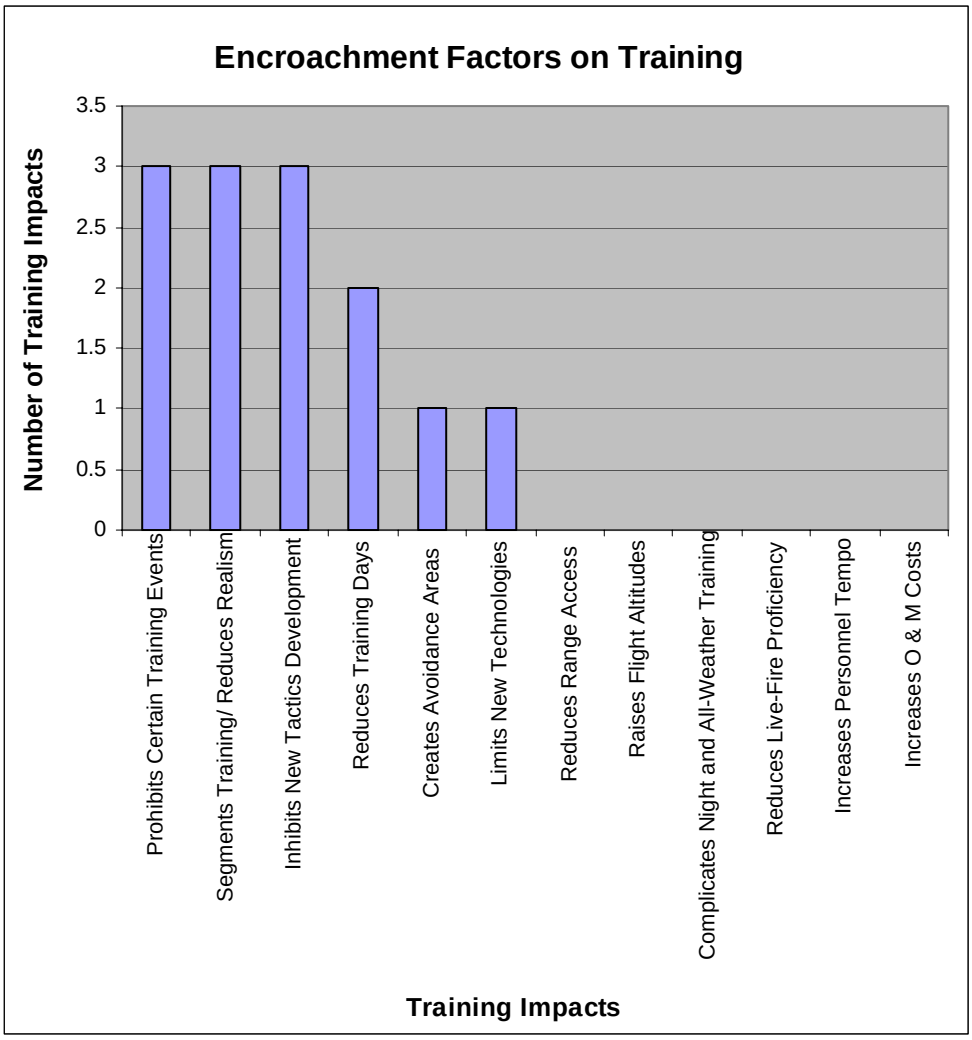


Figure 5-10. Training Impacts by Type for the VACAPES Range Complex

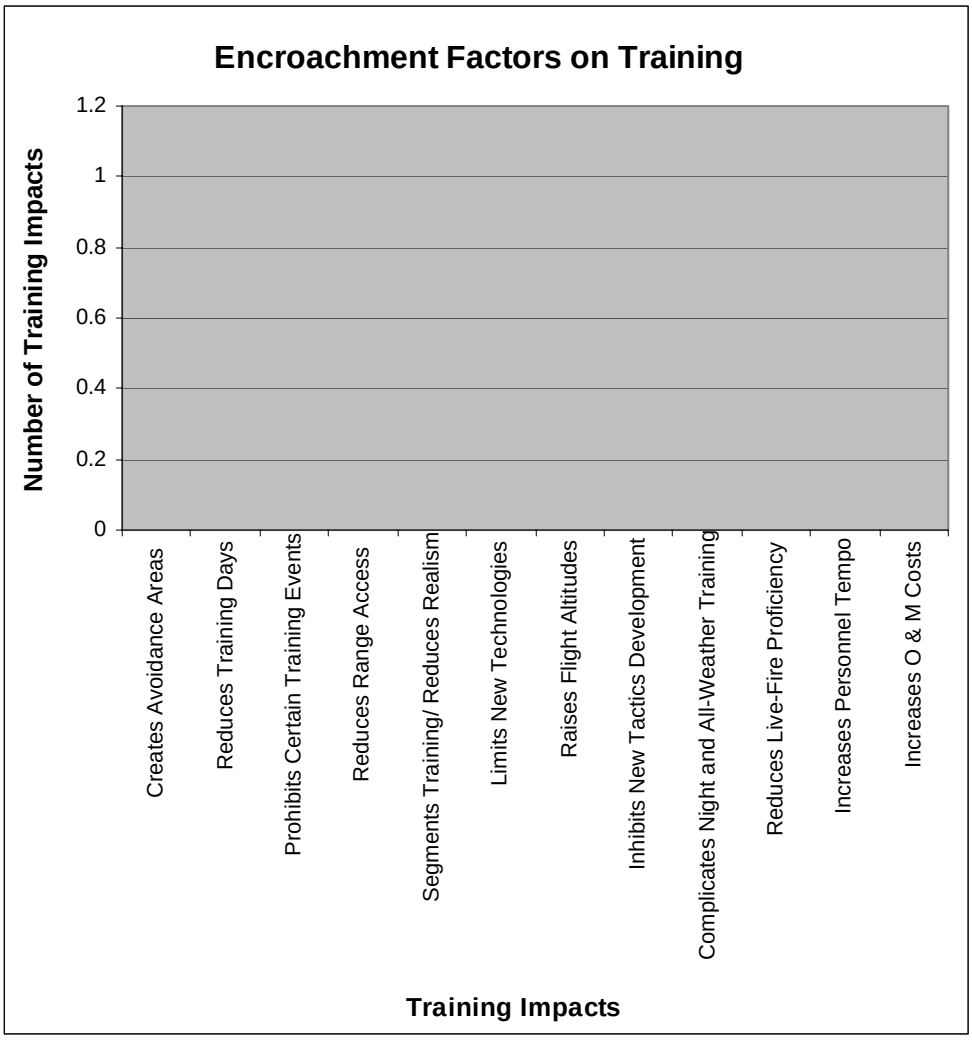


Figure 5-11. Training Impacts by Type for the Atlantic Test Range

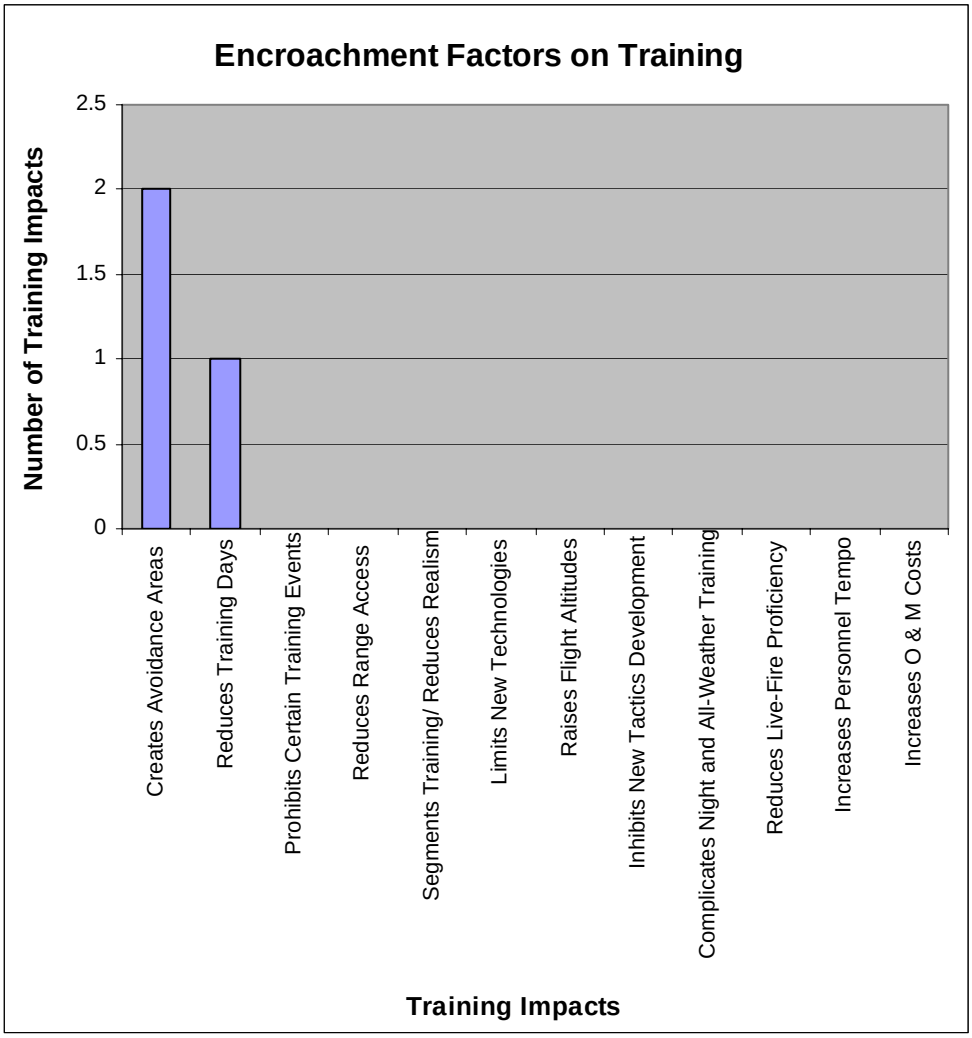


Figure 5-12. Training Impacts by Type for the NSW Training Ranges

This page intentionally left blank

CHAPTER 6 RANGE COMPLEX STRATEGIC PLANNING

6.1 STRATEGIC VISION AND MISSION

6.1.1 Strategic Vision

The Fleet Forces Command strategic vision for the VACAPES Range Complex is to provide sustainable and modernized ocean operating areas, airspace, ranges, training facilities, and range infrastructure and resources to fully support the FRTP in accordance with assigned roles and missions. For purposes of Fleet training, the VACAPES Range Complex includes training operations that occur at the Atlantic Training Range (Patuxent River). VACAPES is the principal backyard range for surface, submarine, amphibious, aviation, and special warfare units located at Norfolk, Little Creek, and Oceana.

The strategic vision for the VACAPES Range Complex includes eventual certification to host accredited Joint National Training Center (JNTC) events at sea.

6.1.2 Strategic Mission

The strategic mission of the VACAPES Range Complex is to support Naval operational readiness by providing a realistic, live-training environment for forces assigned to the Atlantic Fleet and other users. As its highest priority, the Range Complex will support the FRTP readiness process as revised in the Fleet Response Plan (CFFC message Date-Time-Group 231400Z May 03). The mission implements the strategic vision.

6.1.3 Management Objectives

The principal management objectives for the VACAPES Range Complex focus on range sustainability, modernization, integration and use, communications and scheduling, and data management.

6.1.3.1 Sustainability

The VACAPES Range Complex must be managed in a manner that: (1) supports national security objectives and maintains readiness of Navy and Marine Corps forces; and (2) ensures the long-term viability of the range complex while protecting human health and the environment. Sustainability must assure current and future access to the range complex for pre-deployment and other training requirements, and address the prevention or mitigation of the impacts of encroachment on training operations.

6.1.3.2 Modernization

The VACAPES Range Complex must support future Navy and Marine Corps training as technologies, capabilities, and threats evolve. This requires a 10-year, forward-looking plan to be developed and maintained to identify future required range complex capabilities, including range facilities, airspace, sea space, undersea space, and ground space necessary to keep pace with war-fighting developments and support the training concept of operations. Range complex capabilities are defined in the Navy Ranges Required Capabilities Document (RCD).

6.1.3.3 Consolidated Range Communications and Scheduling

The VACAPES Range Complex must possess systems and procedures that facilitate efficient range management and realistic training operations through effective, efficient range communications and scheduling. The Navy RCD outlines the specific communications and scheduling requirements a range must possess to support individual warfare areas.

6.1.3.4 Data Management

The VACAPES Range Complex must collect, analyze, and use pertinent data for range management, training operations, ordnance expenditures, and environmental planning and compliance. These processes are imperative for future planning of range improvements, investments, and encroachment mitigation. The data management processes should also be compatible with data processes being used on other range complexes for ease in data comparison and sharing.

6.1.4 Mission Needs for the VACAPES Range Complex and Atlantic Test Range

The mission needs for the VACAPES Range Complex and Atlantic Test Range flow from the strategic vision and mission. The FRTP phases are described in COMSECONDFLT Operations Order 201 (OPORD 201) and the "Standard Carrier Strike Group/Staff Inter-Deployment Training Cycle" (CFFC message Date-Time-Group DTG 012113Z Jul 03). The mission needs for the VACAPES Range Complex and Atlantic Test Range are:

- Support anti-air warfare (AAW) training during all phases, including the Sustainment Phase of the FRTP.
- Support the Integration Phase of the FRTP for the Maritime Integrated Tailored Training (MITT), including anti-surface warfare (ASUW) and ASW operations, and NSW training.
- Support the Unit Training Phase of the FRTP as a backyard range for Naval forces, including NSW, based in Norfolk, Little Creek, and Oceana. By training at a backyard range, compared to a remote range, personnel and operating tempos are reduced, resulting in increased time at home for sailors between deployments.

  - Unit Training Phase exercises must also be supported for other East Coast based units that use the VACAPES Range Complex to meet requirements that cannot be met anywhere else.
  - The VACAPES Range Complex must also be prepared to support Unit Phase training for new units that will become operational in the future, including LCS.
- The VACAPES Range Complex will be a component of the JNTC that the DoD has directed for implementation. The JNTC is not a specific range but a network of existing ranges linked together with Joint Forces Command (JFCOM) to enable realistic, multi-service training employing joint doctrine and techniques, rigorous live training mixed with simulations, information operations, and fully integrated intelligence, surveillance, and reconnaissance activities. As a component of JNTC, the VACAPES Range Complex will host joint training events and be capable of linking real-time communications and instrumentation with other range complexes and with JFCOM.
- Continue support for RDT&E activities to the extent practicable within existing range capabilities. Resource requirements for RDT&E that go beyond existing capabilities will be the responsibility of the sponsoring command or agency.
- Support, to the extent practicable within existing range capabilities, training by foreign naval and military forces that are periodic users of the range complex.

6.1.5 Roles and Missions

6.1.5.1 Roles and Missions of the VACAPES Training Complex

The required roles and missions to support the strategic vision for the VACAPES Range Complex are defined as warfare areas and levels of training, listed in Figure 6-1. the VACAPES Range Complex is required to support training in eight naval warfare areas: AAW, AMW, ASUW, ASW, strike warfare (STW), mine warfare (MIW), EC, and NSW.

The levels of training are identified as basic, intermediate, and advanced and refer to the relative scope, complexity, and range resources requirements for training. While the levels of training do not correlate exactly with the FRTP phases of training (maintenance/unit, integrated, and sustainment), in general:

- Basic-level training equates to unit-level training with a focus on the development of basic skills.
- Intermediate-level equates to integrated training beyond the basic unit level or graduate-level training such as Composite Training Unit Exercise (COMPTUEX).
- Advanced-level equates to scenario driven joint level exercises, which focus on integration and command and control functions such as Joint Task Force Exercises (JTFEXs).

The relative importance of required capabilities for each warfare area and training level, consistent with the strategic vision, are indicated as a

number: 1 equates to high priority, 2 to medium priority, and 3 to low priority. As an example, the ability of the VACAPES Range Complex to support intermediate level AAW, ASUW, and NSW training directly supports Commander, Carrier Group Four (CCG4) in his role as the director of intermediate level training for Commander, Second Fleet.

Basic level training for all eight warfare areas has the highest priority for the complex because of the ability of individual units in the Norfolk area to access this backyard range complex quickly from their homeports. Priorities are assigned to mission areas to help develop investment priorities for the range complex.

The required capabilities are not intended to limit training that may be conducted within the complex. Rather, they are identified to provide guidance for the development of the range complex capabilities in support of prioritized training requirements. The capabilities of the VACAPES Range Complex will evolve and modernize as new weapons systems achieve IOC, new threat capabilities emerge, and new technologies offer improved training opportunities.

	Training Complexity		
Warfare Area	Basic	Intermediate	Advanced
AAW	1	1	1
AMW	2		
ASUW	1	1	
ASW	3	2	
STW	1		
MIW	2		
EC	1		
NSW	1	1	

Figure 6-1. Navy Prioritized Roles and Missions for the VACAPES Range Complex by Warfare Area

6.1.5.2 Roles and Missions of the Atlantic Test Range

The Atlantic Test Range has secondary roles and missions in support of the 10-year strategic vision of the VACAPES Range Complex.. These roles and missions are defined in terms of warfare areas and levels of training, as indicated in Figure 6-2. The Atlantic Test Range is required to support training in three naval warfare areas: MIW, EC, and NSW. Just as with the VACAPES Range Complex, the levels of training conducted on the Atlantic Test Range are identified as basic, intermediate, and advanced and refer to the relative scope, complexity, and range resources required to support the training.

	Training Complexity		
Warfare Area	Basic	Intermediate	Advanced
MIW	1	3	3
EC	2		
NSW	2	3	

Figure 6-2. Navy Prioritized Roles and Missions for the Atlantic Test Range by Warfare Area

6.2 ATTRIBUTES OF THE RANGE COMPLEX

The Ranges to Readiness (R2R) study was completed in 2001 for the Atlantic and Pacific Fleets. This study developed a quantitative method to analyze the contribution of each range complex to Fleet training readiness. The strategic planning process should be derived from the R2R analysis and results to understand what makes the complexes important and of high value to the Fleet and Marine forces.

6.2.1 VACAPES Range Complex Attributes

The R2R analysis identified the VACAPES Range Complex as having one of the highest contributions to training readiness of all Atlantic Fleet range complexes, second only to the geographically adjacent Cherry Point OPAREA and the now disestablished AFWTF. The specific attributes, or factors, that make it an important complex for Naval readiness training include the following.

- **Proximity.** VACAPES Range Complex provides backyard range infrastructure for the units of the Atlantic Fleet stationed at Naval Stations Norfolk and Little Creek as well as NAS Oceana and Marine Corps Air Station Cherry Point. Combined with the Cherry Point OPAREA (CPOA), it is the closest at-sea range for a large percentage of Atlantic Fleet units.
- **Uniqueness.** VACAPES Range Complex unique attributes include its proximity to the CPOA, Oceana TACTS, Hatteras ATCAA, Bodie Island LATR, and Norfolk SESEF. In addition, the complex includes multiple target ranges, including the Harvey Point, Palmetto Point, Dam Neck, Stumpy Point, and Navy Dare County Ranges.
- **Ordnance.** Although the VACAPES Range Complex is rated as the most capable of all range complexes in the Atlantic Fleet for quantity of ordnance expended, the area of the range complex overland is restricted to inert or no ordnance.
- **Primary Training Elements (PTE).** The VACAPES Range Complex is identified in the R2R study as having one of the highest

abilities to support accomplishment of PTEs in the Atlantic Fleet (73 percent). This is second only to the combined ranges of AFWTF, Atlantic Underwater Test & Evaluation Center (AUTEC), Guantanamo, and Bermuda. This factor alone makes it one of the most desirable ranges, merely because of its proximity to units and the closure of the AFWTF Range.

- **Warfare Areas Supported.** The VACAPES Range Complex is capable of supporting all eight warfare training areas, including AAW, ASW, AMW, ASUW, MIW, STW, and NSW.
- **Training Levels Supported.** The VACAPES Range Complex supports FRTP training at all levels. It is primarily focused on support at the unit/maintenance phase.
- **Utilization.** The VACAPES Range Complex has one of the highest utilization rates of all Atlantic Fleet range complexes. This is attributable mostly to its proximity to Fleet units concentrated in the Norfolk area. It is second only to the Cherry Point/Camp Lejeune/Cherry Point OPAREA Range Complex for number of events supported.
- **Instrumentation.** The VACAPES Range Complex ranked highest for instrumentation capabilities. The range capabilities include WISS, TACTS/LATR, strafe scoring, and laser capable.
- **Targets.** The VACAPES Range Complex has a large number and variety of targets to support warfare area training events. Land targets include laser-safe, strafing, and scored bull targets. Target areas on land are separated enough to allow simultaneous operations over multiple target sets. Sea targets include HSMST, SEPTAR and hulk barge targets. Airborne targets include BQM-74, AQM-37, MQM-74, and aggressor air targets (contract air services).
- **Area of Battle Space.** The VACAPES Range Complex has the second largest battle space in the Atlantic Fleet. With an area of nearly 30,000 NM^2, it is second only to the Jacksonville complex in overall area among East Coast range complexes.

6.2.2 Atlantic Test Range Attributes

The R2R analysis identified the Atlantic Test Range as having a modest contribution to the training readiness of all Atlantic Fleet units. The specific attributes, or factors, that make it an important complex for Naval readiness training include the following.

- **Proximity.** The Atlantic Test Range serves as a backyard range for the aviation units of the Atlantic Fleet stationed at NAS Oceana and Marine Corps Air Station Cherry Point. It also is relatively close to the NSW units homeported in Little Creek.
- **Uniqueness.** The Atlantic Test Range is unique as the Navy's only RDT&E facility on the Eastern Coast. The range also has the EMATS, which provides real time, extended area, multiple participant, over-the-horizon tracking capability to the range.
- **Ordnance.** The Atlantic Test Range ranks as one of the most capable of all East Coast range complexes. Air-to-ground operations are

supported most extensively, with the ability to fire inert training practice bombs, laser-guided bombs, missiles, rockets, flares, chaff, and cluster-bomb units.

- **Ability to Accomplish PTE.** The Atlantic Test Range has a moderate capability to support accomplishment of PTEs in the Atlantic Fleet. Although its total score (28 percent) is low, this factor is very high in support of aviation units, based primarily on its air-to-ground capabilities and ordnance support.
- **Warfare Areas Supported.** The Atlantic Test Range is capable of supporting five warfare training areas, including AAW, MIW, STW, EC, and NSW, and primarily supporting air assets conducting STW and NSW operations.
- **Training Levels Supported.** The Atlantic Test Range supports FRTP training at all levels, but primarily is focused on supporting Air assets and NSW assets at the integrated phase.
- **Utilization.** The Atlantic Test Range is used primarily in its important role in RDT&E for airframe and weapons development to maintain the Navy's air combat capabilities. In its secondary role of supporting operational forces, the Atlantic Test Range is used primarily by aircraft conducting strike and anti-air warfare.
- **Instrumentation.** The Atlantic Test Range is instrumented as an RDT&E facility and contains EMATS, IFF, GPN-27/ASR-8 radar and WISS.
- **Targets.** The Atlantic Test Range has a small variety of ground targets to support strike and air warfare training. Target areas are separated to allow simultaneous operations over multiple target sets. Land targets include mobile land targets and hulks, which also support NSW operations.
- **Area of Battle Space.** The battle space contained in the Atlantic Test Range is the smallest of all Atlantic Fleet facilities. The largest portion of the Atlantic Test Range supports air operations.

6.3 FUTURE OPERATIONS AND PLANNING

6.3.1 Future Range Operations

The VACAPES Range Complex will continue to play a critical role in supporting the pre-deployment training for Atlantic Fleet naval operational forces to 2014 and beyond in accordance with assigned roles and missions. Foreseeable changes to training operations and requirements in the complex that must be incorporated into strategic planning include, but are not limited to, new platforms and new weapons systems.

6.3.1.1 New Platforms

6.3.1.1.1 Littoral Combat Ship.

The LCS is a specialized variant of the DD(X) family. It is designed to be a networked, agile, stealthy surface combatant capable of defeating

anti-access and asymmetric threats in the littoral waters. Primary missions include surface warfare (SUW) against hostile small boats; MCM; littoral ASW; intelligence, surveillance, and reconnaissance (ISR); homeland defense; maritime interception operations; special operation forces support; and logistic support for movement of personnel and supplies.

The LCS will operate with carrier strike groups and surface action groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, it will have the ability to operate cooperatively with the USCG and allies. Designed with the mission to operate in littoral waters, the unique range and training requirements for the LCS must considered. Construction is planned for 2005, with first delivery scheduled in 2007.

The LCS concept of operations will be unique because of the focus on littoral operations. The employment of sonar for MCM and ASW in littoral waters will require specific assessment. The capability and readiness of the VACAPES Range Complex to support LCS training will require specific focus.

6.3.1.1.2 Mine Countermeasures Unmanned Underwater Vehicles (UUV).

Long-Term Mine Reconnaissance System (LMRS). The LMRS is a clandestine mine reconnaissance system that employs unmanned, underwater vehicles capable of launch and recovery from attack submarines. The LMRS will provide an early, rapid, accurate means of surveying potential mine fields in support of safe passage. The LMRS is scheduled to deploy with Los Angeles and Virginia class submarines beginning in 2005.

Remote Mine-Hunting System (RMS). The AN/WLD-1(V)1 RMS has been designed for beyond line-of-sight mine reconnaissance against bottom and moored mines in deep and shallow water regions. The semi-autonomous system will detect, classify, and identify mines and record their precise location for avoidance and/or subsequent removal. The system is launched from surface vessels and will be integrated into the HSV-X2 and the LCS. IOC is scheduled for 2005.

The sonar suites associated with these systems will require environmental assessment before being introduced into the VACAPES Range Complex. Range planners must determine whether they will be included in the environmental planning for the VACAPES Range Complex RCMP.

6.3.1.1.3 Joint Strike Fighter (JSF).

The JSF is a multi-role fighter optimized for the air-to-ground role, designed to meet the needs of the Air Force, Navy, Marine Corps, and allies, with improved survivability, precision engagement capability, the

mobility necessary for future joint operations, and reduced life cycle costs.

The Navy version of the JSF is a multi-role, stealth strike fighter designed to complement the FA-18E/F. The aircraft has larger wing and tail control surfaces to better manage low-speed carrier approaches, strengthened internal structure to better handle the loads associated with catapult launches and arrested landings, and a carrier-suitable tail hook. First operational aircraft delivery is planned for FY08.

The Marine Corps version is a multi-role, short take-off and vertical landing (STOVL) strike fighter. It is designed to replace the AV-8B and FA-18A/C/D.

Once final decisions are made concerning the JSF introduction into the Navy and Marine Corps, a NEPA document will be prepared for JSF basing options. The issues for the VACAPES Range Complex will involve changes to air emissions and noise contours, compared to the baseline, as the result of JSF training operations. When the VACAPES/ environmental planning is under way, range planners must determine:

- If the JSF program and basing in the Atlantic is on a timeline that merits inclusion in the VACAPES Range Complex environmental planning; and
- Based on completed NEPA documents, the extent of JSF analysis required in the VACAPES Range Complex environmental planning.

6.3.1.1.4 EA-18G Growler.

The EA-18G Growler is an EC version of the FA-18 E/F that will replace the EA-6B Prowler. The Growler will have an integrated suite of EC systems that will initially be centered on the ICAP III system. The advanced capabilities of the Growler will require greater standoff ranges and broader frequency spectrum access than current systems. IOC is expected in 2009.

6.3.1.2 New Weapons Systems

6.3.1.2.1 Unmanned Combat Air Vehicle Systems.

Unmanned combat air vehicle (UCAV) systems are under development to perform many of the functions of manned platforms. These will include intelligence, reconnaissance, surveillance, strike, and electronic combat. Operation of these systems could produce new requirements for the VACAPES Range Complex in terms of airspace, frequency management, and target sets. IOC of these systems has not yet been established.

6.3.1.2.2 Extended Range Guided Munition (ERGM).

The EX-171 ERGM projectile is a major component of the Navy's littoral warfare concept. It is designed to support forces ashore with sustained, accurate fire. The 5-inch, rocket-assisted projectile is capable of carrying a 4-caliber submunition and will be fired from the new, 5-inch, 62-caliber gun being installed on Arleigh Burke (DDG-51) class destroyers. The projectile is 5 inches in diameter and 61 inches in length and uses a coupled GPS/inertial navigation system (GPS/INS) guidance system that is resistant to jamming, enabling it to attack targets in a heavy electronic-countermeasures environment. It is scheduled to be in the Fleet in 2006.

6.3.1.2.3 Advanced Gun System (AGS).

The AGS is a 155 mm gun weapon system planned for installation in the DD-21 Land-Attack Destroyers. It will to provide high-volume, sustainable fire in support of amphibious operations and the joint land battle. The AGS will include at least two separate gun systems for each DD-21 warship. Each gun system will be capable of independently firing up to 12 rounds per minute from an automated magazine storing as many as 750 rounds, with a range of 100 NM. The first gun system is scheduled for delivery to DD-21 in FY06, with an IOC of 2008.

6.3.1.2.4 Organic Mine Countermeasures Systems.

The AN/AQS-20 mine hunting sonar system consists of an underwater towed body containing a high-resolution, side-looking, multi-beam sonar system. It is deployed and controlled from rotary wing aircraft and provides real-time sonar images to locate, classify, mark, and record mine-like objects and underwater terrain features. Modifications currently being tested will transform the AN/AQS-20 into the AN/AQS-20/X. IOC for the system is scheduled for FY05.

6.3.1.3 NSW Operations in Areas Outside of the VACAPES Range Complex and Atlantic Test Range

NSW is a core Navy mission area. The seven principal NSW missions of combating terrorism, counter proliferation, special reconnaissance, direct action, psychological/information operations, foreign internal defense, and civil affairs and unconventional warfare differ significantly from other Navy warfare area missions. As a result, NSW tactical training range requirements differ significantly from the rest of the Navy.

The unique NSW range requirements are addressed in Section 12 of the RCD. In addition, the NSW Command has defined an NSW notional Training Range Complex for planning, investment, and operations purposes. This notional complex is defined as "an organized set of sea and land training areas designated and equipped for freedom of maneuver and practice in firing and live ordnance use against scorable

and tactical targets." (Naval Special Warfare Command, Range Requirements Document II, May 1999.)

The NSW Training Range Complex consists of subordinate group complexes, which have geographical requirements for four types of ranges based on their distance from home base:

- A local range is on base.
- A backyard range is within a short radius (nominally one hour's driving time, 50 to 60 miles) such that training there can be considered non-deployed for Personnel Tempo (PERSTEMPO) purposes.
- A regional range is within about 300 miles of the unit, one day's driving time.
- National ranges are beyond 300 miles.

The NSW requirements for local firing ranges on base, backyard ranges, regional ranges, and national ranges in the continental United States (CONUS) and overseas require support from existing range infrastructures. The fact that a capability may exist somewhere in the local range complex does not mean that the NSW requirement is filled. NSW units have requirements for local firing ranges that cannot be filled by regional ranges due to the time and effort involved in travel and logistics.

The NSW Command's Range Strategic Plan documents the need for access to a set of NSW uniquely capable and diverse tactical training ranges to establish and maintain individual and unit mission readiness for deployment. NSW units, however, lack range ownership. Therefore, they need access to non-NSW tactical training ranges to accommodate training in unique mission areas in all possible environments. The end result is a requirement for a set of ranges, embodied in the NSW Training Range Complex, that are geographically diverse in locale and environment.

Continued use, access, and development of an NSW range infrastructure is paramount to NSW readiness. Ranges in the vicinity of the VACAPES Range Complex and Patuxent River that support NSW training include, but are not limited to, Fort Story, Fort A.P. Hill, Fort Pickett, FTC Dam Neck, Black Water Lodge, and Aberdeen Proving Ground.

For those range areas that are actually contained in the VACAPES Range Complex and Atlantic Test Range, it is imperative that NSW roles and missions and developing technologies be evaluated for range complex support requirements.

6.3.2 Future Range Operations in a Joint Context

In 2002, the DoD began a process of Training Transformation (T2). The FY04 Defense Planning Guidance for the implementation of T2 has ramifications for the VACAPES Range Complex in that it directs:

- Twenty-five percent of major training events must be joint.
- Establishment of a JNTC no later than October 2004 that integrates a network of live ranges, simulations, and simulators.
- Establishment of a T2 investment program that includes investment in JNTC for:
  - Mission rehearsal and joint training integrated with Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR).
  - Interoperable live, virtual, and constructive training systems.
  - Modernizing and instrumenting ranges, areas, airspace, and systems.

The T2 for major training centers and ranges is based on four pillars: (1) realistic combat training, (2) opposing forces, (3) ground truth, and (4) feedback. The strategic plan for the range complexes will be developed in the context of these pillars. These pillars map the FRTC attributes as follows:

- Realistic combat training:
  - Live training with simulation-stimulation capability
  - Provides joint context
  - Based on joint doctrine-tactics-techniques
  - Mission rehearsal tied to Standing Joint Force Headquarters
- Opposing forces:
  - Representative real world air threat
  - Advanced, integrated threat systems representative of real world threat
  - Diverse, high-fidelity targets
  - Mobile, time-sensitive targets
  - Realistic information operations and C4ISR
- Ground truth:
  - Integrated range instrumentation
  - Increased capacity and coverage
  - Accredited, evaluated, and certified
- Feedback:
  - Fully implements joint training system
  - Focus on joint performance outcomes
  - Ability to assess new concepts and doctrine
  - Feeds joint lessons learned and reporting

The emphasis on joint training reflects the fact that all U.S. military operations will be joint and that forces must train accordingly. While the Navy has yet to designate specific range complexes for JNTC certification, strategic planning for the VACAPES Range Complex will proceed in anticipation of its role as a certified JNTC range complex. To

achieve affordability and efficiency, service requirements should be synchronized with joint requirements wherever possible.

Strategic planning for the VACAPES Range Complex through 2013 will include support for these future training operations.

6.3.3 Factors Influencing Future Requirements

Objectives and concept of operations at the VACAPES Range Complex and Atlantic Test Range will be influenced by a variety of factors in the areas of sustainability, modernization, and operations. Predictable factors will be discussed in the following paragraphs.

6.3.3.1 Range Sustainability: Urbanization

Urban growth and development around components of both ranges will cause:

- Increased restrictions on operations due to noise and hazard patterns.
- Increased likelihood of threatened and endangered species designations under the ESA.
- Increased likelihood of threatened or endangered species habitat designations under the ESA.
- Decreased training space.
- Increased constraints on airspace use on or around NAS Oceana and NAS Patuxent River.
- Increased pressure for recreational use of littoral waters and base property.
- Regulations by litigation – lawsuits by non-governmental and other organizations have the potential to enjoin some or all training activities.

6.3.3.2 Modernization

6.3.3.2.1 New Military Platforms.

The VACAPES Range Complex and Atlantic Test Range will be required to support training for platforms as they reach IOC. Some of these were discussed in Section 6.3.1.1 and include the LCS, JSF, and UUV.

6.3.3.2.2 New Weapons Systems.

The VACAPES Range Complex and Atlantic Test Range will be required to support new weapons systems as they reach IOC. Some of these were discussed in Section 6.3.1.2 and include UCAV systems, ERGMs, the AGS, and organic mine countermeasures.

6.3.3.2.3 New Instrumentation Technology.

The VACAPES Range Complex and Atlantic Test Range will acquire improved capability to score, track, provide feedback, as well as technology that can support non-fixed site ranges.

6.3.3.2.4 Improved Target Replication.

The VACAPES Range Complex and Atlantic Test Range will keep pace with real-world threats by continuously improving the physical and electronic targets presented to operating forces.

6.3.3.2.5 Live-Virtual-Constructive (LVC) Training.

The DoD T2 initiative envisions future training to be a combination of live field training integrated with virtual (three-dimensional, stand-alone simulation for specific training tasks) and constructive (e.g. two-dimensional war-gaming) training for aspects that cannot be conducted live.

6.3.3.3 Concept of Operations

6.3.3.3.1 Doctrine.

Changes to Service warfighting doctrine may change the required capabilities. The range requirements process will be connected to doctrine development to ensure that capabilities keep pace with warfighting tactics, techniques, and procedures.

6.3.3.3.2 Force Structure.

The VACAPES Range Complex and Atlantic Test Range must accommodate changing Navy and Marine Corps force structure, particularly with respect to range capacity. In addition to individual units, this includes changes to the number and composition of CSGs and ESGs, which will train in the complex. Current projections show force structure remaining approximately constant.

6.3.3.3.3 Homebasing.

The VACAPES Range Complex and Atlantic Test Range must accommodate changes to the number and location of operational forces based in Norfolk, Little Creek, and Oceana.

6.3.3.3.4 Training Strategy.

Changes to or the evolution of Navy and Marine Corps training strategies may result in new, modified, or deleted requirements. In particular, changes to the FRTP may significantly affect the type and number of

operations because of the significant contribution of the VACAPES Range Complex to FRTP training at the basic level.

Strategic planning for the VACAPES Range Complex and Atlantic Test Range must take into consideration each of these predictable factors. It also must be responsive to unpredictable developments such that the complex evolves in a manner that fully supports its mission by providing a realistic training environment for operational training.

This page intentionally left blank

CHAPTER 7 RANGE COMPLEX CAPABILITIES ASSESSMENT

This chapter will be completed at the 100% Submittal.

7.1 RANGE REQUIRED CAPABILITIES DOCUMENT (RCD)

The RCD describes the unconstrained required critical capabilities against which the Navy can develop investment strategies over the 10-year RCMP planning horizon.

Fleet Forces Command (FFC) will assess the existing capabilities of component elements of the VACAPES Range Complex against the required critical capabilities for the applicable range class(es) described in the RCD. Shortfalls between existing and required capabilities will form the basis for VACAPES Range Complexes investment strategies.

The purpose of the Navy Ranges RCD is to define the required capabilities that will allow Navy ranges to support mission essential training and testing in an unconstrained environment for a 10-year planning horizon.

The Navy RCD describes the required capabilities for each of the three levels of training complexity (Basic, Intermediate, and Advanced) for eight range functions. The range functions are aligned with Navy Primary Mission Areas (PRMARs):

- Anti-Air Warfare (AAW)
- Amphibious Warfare (AMW)
- Anti-Surface Warfare (ASUW)
- Anti-Submarine Warfare (ASW)
- Mine Warfare (MIW)
- Strike Warfare (STW)
- Electronic Combat (EC)
- Naval Special Warfare (NSW).

The Navy RCD also describes the required capabilities associated with naval aviation and surface/subsurface testing with two separate RDT&E range functions.

7.2 CAPABILITIES ASSESSMENT PROCESS

The roles and missions assigned to the VACAPES Range Complex were identified in Figure 6-1. Each of the roles and missions map to a corresponding set of unconstrained capabilities in the RCD. A comprehensive assessment was made of existing VACAPES Range Complex capabilities versus the corresponding required capabilities in the RCD. The output of the assessment is a set of range capabilities shortfalls within the VACAPES Range Complex.

7.3 REQUIRED CAPABILITIES FOR THE VACAPES RANGE COMPLEX

Range complex capabilities gaps and shortfalls for the VACAPES OPAREAS are described in the following paragraphs. Figures 7-1 through 7-/// are a synopsis of the gap analysis and capability shortfalls for easy reference. The summary sheets of the detailed RCD gap analysis are found in Appendix ///.

7.3.1 VACAPES Range Complex Operating Areas

The required capabilities for the VACAPES Operation Areas and associated Warning Areas are focused on the range operations that directly support the single and multi-unit Fleet training in the unit, integration phase, and sustainment phases of the Fleet Readiness Training Plan (FRTP). Specific range required capabilities for Navy Ranges are outlined in the Navy RCD.

7.3.2 Atlantic Test Range (Patuxent River) Operating Areas

The required capabilities for the Patuxent River Operation Areas and associated Warning Areas are focused on the range operations that directly support the single unit Fleet training in the unit phase of the Fleet Readiness Training Plan (FRTP). Specific range required capabilities for Navy Ranges are outlined in the Navy RCD.

7.4 RCD GAP ANALYSIS - VACAPES RANGE COMPLEX

7.4.1 VACAPES OPAREAS

7.4.1.1 Capabilities Common to All Range Functions

7.4.1.1.1 Scheduling System

- **Requirement:** The scheduling system for the range should include all necessary components and elements (including software applications) used by range personnel and users to determine range capability, availability, and assignment for use. The scheduling systems also should include those components and elements that assist range management personnel in capturing and reporting range usage data. The scheduling system should allow potential range users access to a web-enabled database of descriptive information (including individual range resources) for the entire Navy range infrastructure and the ability to schedule required range periods remotely at least two weeks in advance.
- **Current Capability Assessment**: Minimal.
- **Discussion:** VACAPES OPAREAS are currently scheduled by FACSFAC VACAPES using a labor intensive manually developed schedule that provides schedule information in a tabular format to the Fleet via naval message. This format is produced weekly and changes are made to the schedule via naval message. The schedule is also

posted in the same format to the FACSFAC VACAPES web site. As currently used, the scheduling system is adequate but does not meet the RCD requirements. A current initiative being undertaken by NAVAIR is the development of a web-enabled Range Management System. This initiative, if completed per its objectives, will upgrade the scheduling capabilities of FACSFAC to meet the full capability.

- **Impact:** Moderate. The current scheduling system does not accommodate short-notice scheduling changes and does not collect range usage data important to other Fleet objectives.

7.4.1.1.2 Communications System

- **Requirement:** The communications system should include all the necessary components and elements used by range personnel and users to establish and maintain secure and/or non-secure two-way point-to-point, surface-to-surface, surface-to-ground, and A-G communications with range operators, range maintainers, and range users. The system should include EC&C, OC, and D/L circuits that allow the unimpeded exchange of intra- and inter-range information and data (both secure and non-secure) among all range organizations and on- and off-range participants and designated observers.
- **Current Capability Assessment**: Partial.
- **Discussion:** The current communications system supporting the VACAPES Range Complex is contained at the FACSFAC VACAPES headquarters and meets all the Navy RCD requirements for the objective assessment with one exception: acoustic data transfer network. This requirement will be met to full capability with the planned installation of the SWTR on the Atlantic coast.
- **Impact:** Minimal.

7.4.1.1.3 MET System

- **Requirement:** The MET system should be capable of collecting and reporting present weather conditions, to include barometric pressure, cloud height, visibility, wind speed, wind direction, and where applicable, sea state, and sound velocity profile.
- **Current Capability**: Minimal
- **Discussion:** Current weather reporting in the VACAPES Range Complex is conducted by FACSFAC VACAPES through research on internet-based weather sites, with no real time weather observation equipment or MET personnel physically present on the range. This form of observation, although deemed adequate by range personnel, could result in lost training opportunities due to its incomplete coverage. Establishing a physical MET presence or remote sensing capabilities would achieve the full capability.
- **Impact:** Minimal.

7.4.1.2 VACAPES Range Capabilities in support of Anti-Air Warfare

7.4.1.2.1 Airspace

- **Requirement:** All the Advanced AAW training events airspace areas should have a large initial separation between friendly and OPFOR

elements to allow for horizontal maneuvering and tactics execution. The area should be 50NM x 80NM, surface to 60,000 feet AGL and be available for 5 hours. The area should be cleared for supersonic flight and some of the airspace should overlay land.

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.1.2.2 Sea Space

- **Requirement:** For the advanced level training events, the sea space area should be a 75NM x 75NM OPAREA and be available for 5 hours.
- **Current Capability**: Full
- **Discussion:** the VACAPES Range Complex is approximately 28,923 Square NM, and is available 24/7, which satisfies the requirement.
- Impact: None

7.4.1.2.3 Land Area

- **Requirement:** The land area should be 50NM x 80 NM with significant topographical features and be available for 5 hours in order to support the advanced level training events.
- **Current Capability**:
- **Discussion:** The land area in the VACAPES Range Complex is approximately 5,700 acres.
- Impact:

7.4.1.2.4 Target System

- **Requirement:** The target system should have the capability to support both A-A and S-A MISSILEX's. The target system should include subsonic and supersonic drones that can operate from surface to 50,000 feet. The drones in the target system should also be capable of active jamming and simulated cruise missile launch capabilities.
- **Current Capability**: Partial
- **Discussion:** Fleet Composite Squadron Six (FLECOMPRON SIX) as well as the Atlantic Test Range provides aerial target capability in the VACAPES Range Complex. The Fleet's Training Support Vessel (TSV) also provides a mobile target launch, control, and recovery capability. There is adequate inventory of aerial targets.
- **Impact:** Moderate.

7.4.1.2.5 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. The advanced level training events in AAW require the range to have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-A and S-A: have a manual or automatic scoring system; the ability to provide feedback both real-time and post

mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.1.2.6 OPFOR System

- **Requirement:** The Opposition Force system should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. The advanced level training events in AAW require at least a number of live and/or virtual threat rotary wing and fixed-wing aircraft. The OPFOR system should also be capable of Electronic Combat Threat Level 3 or 4.
- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.1.3 VACAPES Range Complex Capabilities in Support of Amphibious Warfare

7.4.1.3.1 Airspace

- **Requirement:** The airspace area to support all levels of training events for AMW exercises should be cleared for supersonic flight and be 10NM wide and extend both 10NM inland and 10NM seaward of the ESG, available surface to 35,000 feet AGL, and be available for 48 hours.
- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.1.3.2 Sea Space

- **Requirement:** For all levels of training events in AMW, the Sea Space area should be in an OPAREA that is 50NM² in area, centered on the beachfront, and be available for up to a 48-hour period.
- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.1.3.3 Undersea Space

- **Requirement:** The undersea space area required to support all levels of training for AMW should be up to 500NM² in area, be at least 5NM wide centered on the beachfront, extend seaward to the ESG element location and be available for up to a 48 hour window. It should extend from the surface to at least 600 feet beneath the surface. Some portion of the undersea space should be cleared for use of MCM weapons, explosives and clearing devices used by EOD and NSW teams.

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.1.3.4 Land Area

- **Requirement:** The land area should consist of up to a 10,000 yard dedicated beachfront which extends 1NM inland and allows for tactical maneuver and employment of hover craft, assault craft, amphibious wheeled and tracked vehicles, infantry and combat support elements. It should also support a 5NM x 5NM area to support live NSFS ordnance and portions cleared for use of A-G and EOD/NSW weapons. The land area should also support the development of defensive positions. The land area should also be available for up to a 48 hour period.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.3.5 Target System

- **Requirement:** The target system should contain exposed beach obstacles and fortified beach defenses, some of which should be cleared for inert A-G weapons. These targets should also be cleared for engagement with live NSFS ordnance. At the advanced level it should also include some undersea targets cleared for engagement with MCM and EOD/NSW weapons.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.3.6 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for AMW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-S, A-G, S-S, S-A, and Sub-S: an automatic scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.3.7 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order

of battle in the area of planned operations. OPFOR for training events in AMW should consist of the following: live or virtual minefields; one live submarine; live or virtual high-speed small boats; live, virtual or constructive battalion sized ground force; live, virtual or constructive armored and/or mechanized vehicle force; and live virtual or constructive A-S or S-S ASMs. The OPFOR system should also be capable of Electronic Combat Threat Level 3.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.4 VACAPES Range Complex Capabilities in Support of Anti-Surface Warfare

7.4.1.4.1 Airspace

- **Requirement:** The airspace to support advanced level training events in ASUW should be an area 100NM x 100NM surface to 60,000 feet AGL and be available for 24 hours.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.4.2 Sea Space

- **Requirement:** For the advanced level training events, the sea space area should be 75NM x 75NM and be available for 24 hours.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.4.3 Undersea Space

- **Requirement:** The undersea space should be sufficient to allow maneuvering of friendly subsurface units during the detection, tracking, and engagement phases of the exercise, including the employment of submarine-launched anti-ship weapons. The area should be in a 50NM x 150NM OPAREA, have sufficient depth to allow for submarine launched anti-ship weapons and be available for 24 hours.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.4.4 Target System

- **Requirement:** The target system should include all necessary components and elements associated with presenting and controlling fixed and mobile surface targets. To support advanced level ASUW training events, the system should contain at least one stationary, one towed and four self-propelled targets. Targets, which are remotely controlled and/or programmable, should be capable of replicating threat platform spectral signatures. All targets should be cleared for engagement with live anti-ship ordnance.
- **Current Capability:**

- **Discussion**:
- **Impact:**

7.4.1.4.5 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for advanced level ASUW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-A, A-S, A-G, S-S, S-A, and Sub-S; a manual and automatic scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.4.6 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. OPFOR for advanced training events in ASUW should consist of the following: at least at least four live, virtual or constructive surface combatants (at least half of which should be live) and at least four live, virtual or constructive fixed- or rotary wing aircraft (at least half of which should be live). The OPFOR system should also be capable of Electronic Combat Threat Level 3.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.5 VACAPES Range Complex Capabilities in Support of Anti-Submarine Warfare

7.4.1.5.1 Airspace

- **Requirement:** The airspace to support ASW training events should be an area up to 10,000NM² surface to 10,000 feet AGL and be available for up to 36 hours. It is preferred that some portion of the airspace overlie a UTR, but not required.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.5.2 Sea Space

- **Requirement:** The sea space to support ASW training events should be an area up to 10,000NM² and be available for up to 36 hours. The

area should be cleared for expenditure of sonobuoys and/or EXTORPs. It is preferred that a UTR exist, but not required.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.5.3 Undersea Space

- **Requirement:** The undersea space should be an area of 10,000NM² with a UTR and be available for a 36-hour period. It should have some water depths less than 600 feet. The UTR should encompass some area with depths less than 300 feet. The area must be cleared for using LFA and expenditure of EXTORP and EER
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.5.4 Target System

- **Requirement:** The target system should include all necessary components and elements associated with presenting and controlling fixed and mobile underwater maneuvering targets. ASW training requires 1 to 2 targets and the targets must be live, virtual or constructive. All must be capable of generating or replicating the acoustic signature of current and anticipated threats in both narrow and broad bands. All levels require at least one of these targets to be live.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.5.5 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for all levels of ASW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-S/Sub, S-Sub, Sub-S, and Sub-Sub; an automatic scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.5.6 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that

replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. OPFOR for training events in ASW should consist of up to the following: at least at least four live or virtual submarines (at least half of which should be live), up to and at least four live or virtual fixed- or rotary wing aircraft (at least half of which should be live). The OPFOR system should also be capable of Electronic Combat Threat Level 3.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.6 VACAPES Range Complex Capabilities in Support of Mine Warfare

7.4.1.6.1 Airspace

- **Requirement:** The airspace to support MIW training events should be an area up to 100NM² surface to 5,000 feet AGL and be available for up to 48 hours.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.6.2 Sea Space

- **Requirement:** The sea space to support MIW training events should be an area up to 100NM² and be available for up to 48 hours. The area should allow for mine laying operations and should be adjacent to or in close proximity to one or more prominent land formations that can be used by aircrews for geo-reference point for mine-laying operations.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.6.3 Undersea Space

- **Requirement:** MCM training operations are conducted primarily against bottom mines and moored mines. MCM training requires both shallow water (up to 600 feet) and deep water (up to 1,200 feet) range areas. The shallow water range area should include a UTR, with various bottom types, contours and depths and should adjoin the surf zone. The undersea space desired for MIW operations should be up to 100NM² in area which allows mine laying operations. A UTR is desired, but not required. In addition, the area should include a dedicated area (approximately 1NM x 2NM) for Shock Wave Action Generator (SWAG) and mine avoidance training.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.6.4 Target System

- **Requirement:** The MIW range should provide target minefields tailored for exercises to support both individual platform (Basic level)

training needs, as well as Intermediate and Advanced level training associated with integrated and major Fleet exercises. The range should include a mixture of instrumented and non-instrumented targets. Targets should include threat representative mines and realistic false targets to support threat discrimination training. Instrumented targets should provide near real-time feedback on mission performance, mine isonification, boat vulnerability and signature characteristics. To support all levels of training, the range should be capable of 30 non-instrumented and 20 instrumented target shapes, to include a combination of bottom mines, moored mines, and false targets. The shapes should include non-mine shapes that require MCM operators to classify shapes as mines or non-mines, some of the shapes should be on a dedicated mine avoidance range, some of the targets should allow for SWAG operations, and shapes and false targets must be mobile and relocatable.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.6.5 Instrumentation System

- **Requirement:** MIW range instrumentation components should be transparent to MCM sonar detection systems in order to not be confused with training targets and should be designed to withstand both active influence and mechanical sweeping techniques. The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for all levels of MIW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D and 3-D; the ability to conduct M&S for A-G, S-Sub, and Sub-Sub; an automatic scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.6.6 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. OPFOR for training events in MIW should consist of up to the following: One multi-axis threat with at least one Live submarine and up to four live or virtual threat aircraft, at least half of which should be live. The OPFOR System should also require Q-route planning and clearing. The

OPFOR system should also be capable of Electronic Combat Threat Level 3.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.7 VACAPES Range Complex Capabilities in Support of Strike Warfare

7.4.1.7.1 Airspace

- **Requirement:** The airspace area to support all levels of training events for STW exercises should be cleared for supersonic flight and be an area of 50NM x 100NM, from surface to 50,000 feet AGL. It should be available for up to an 8 hour period. The area should be cleared for the use of A-G gunnery, free-fall and guided A-G munitions, and naval gunnery. The area must allow the use of laser designating devices and the expenditure of chaff and flares. It should provide sufficient airspace to allow the use of standoff A-G tactics, NSFS, and land attack cruise missiles. It should also allow two separate and concurrent large-scale tactical strikes against geographically separated target complexes.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.7.2 Sea Space

- **Requirement:** For all levels of training events in STW, the sea space area should be in an OPAREA that is 75NM x 75NM in area and should accommodate two simultaneous and concurrent surface and/or subsurface events. The OPAREA should be available for up to an 8-hour period. The OPAREA should also accommodate typical training scenarios associated with employment of sea-launched cruise missiles and NSFS.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.7.3 Undersea Space

- **Requirement:** The undersea space should be an area of similar size and capabilities of the sea space area. It should be an area of 75NM x 75NM from surface to 300 feet and be available for up to an 8-hour window.
- **Current Capability:**
- **Discussion:** the VACAPES Range Complex has an area approximately 100NM x 185 NM and supports training scenarios typical of sub-marine launched cruise missiles in support of Strike Warfare.
- **Impact:**

7.4.1.7.4 Land Area

- **Requirement:** Land area is required for all levels of STW training. It should be of sufficient size/area to allow the installation of at least two scored targets, which at the intermediate and advanced levels should be geographically separated. The two separate target ranges should each be an area of 20NM x 20NM. The land should be cleared for use of live or inert A-G gunnery and live or inert precision or non-precision A-G and land attack cruise missile munitions up to 2,000 pounds. The land area should also be cleared for use of laser targeting and designating devices.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.7.5 Target System

- **Requirement:** The target system should include all necessary components and elements associated with presenting and controlling fixed and mobile land based targets. STW training requires a minimum of 2 geographically separate live or virtual targets (at least half of which must be live). The intermediate and advanced levels add two targets each to the overall requirement. The target systems must allow the use of live and/or inert weapons up to 2,000 pounds. At the advanced level some of the structural targets should replicate congested urban areas, requiring event participants to discriminate between valid and invalid targets in order to practice minimizing collateral damage.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.7.6 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for all levels of STW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-A, A-S, A-G, S-S, S-A, and Sub-S; an automatic and manual scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.7.7 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. OPFOR for training events in STW should consist of up to the following: at least two live or virtual rotary wing aircraft with A-A missile capability (one of which must be live) live or virtual fixed-wing aircraft equal in number to 1.5 times the number of friendly aircraft, up to a total of 16 threat aircraft per event (number of live threat aircraft should equal the number of live friendly aircraft. The OPFOR system should also be capable of up to Electronic Combat Threat Level 4.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8 VACAPES Range Complex Capabilities in Support of Electronic Combat

7.4.1.8.1 Airspace

- **Requirement:** The airspace requirement to support the basic level for EC training events is an area 30NM by 60NM surface to 60,000 feet AGL that allows the use of chaff and flares. It should support two concurrent events and be available for a 45 minute period.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8.2 Sea Space

- **Requirement:** The sea space area to support EC events should be an OPAREA of 20NM x 30NM and be available for a 1–hour period. The location of this range should allow land-based and airborne EC emitters to stimulate the surface/subsurface combatants' onboard equipment and allow for multiple, concurrent events.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8.3 Undersea Space

- **Requirement:** The undersea space area required to support EC training events should be an OPAREA of 20NM x 30NM and be available for a 1-hour period.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8.4 Land Area

- **Requirement:** The land area required to support EC training events should be a range with an area of 20NM x 20NM and be available for a 45-minute period. It should also allow for two concurrent events.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8.5 Target System

- **Requirement:** The target system associated with EC training events should have multiple, geographically separated sites with equipment arrayed consistent with OPFOR tactical employment. It should also have visually significant targets that replicate the expected threat EOB equipment and at least one site should allow for the use of live weapons, including anti-radiation missiles.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8.6 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for the basic level of EC training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, and 3-D; the ability to conduct M&S for A-S, A-G, S-S, S-A, and S-Sub; an automatic and manual scoring system; the ability to provide feedback both real-time and post mission; have voice Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.1.8.7 OPFOR System

- **Requirement:** To meet the full requirement for the basic level in EC training events, the OPFOR system must be capable of EC Threat Level 4
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.2 VACAPES Range Complex Capabilities in Support of Naval Special Warfare (NSW)

7.4.2.1 Airspace

- **Requirement:** Airspace is required for qualification level training associated with both rotary- and fixed-wing units and for S-A indirect fire weapons.

PRODEV

- No requirements

ULT

- A day-night period
- Area from surface to 6,000 feet AGL (Surface to 25,000 feet AGL required for High Altitude, Low Opening (HALO) and High Altitude, High Opening (HAHO) jump training
- Area extends 8 NM on either side of the land area

INTEROP (Same as ULT)

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.2.2 Sea Space

- **Requirement:** The sea space required to support NSW training events is an area 50 square NM that is at least 5 NM wide, centered on and contiguous to the beachfront
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.2.3 Undersea Space

- **Requirement:** The undersea space required to support NSW training events is an area 30 square NM that is at least 5 NM wide, centered on and contiguous to the beachfront. At least some portion of the undersea space must be cleared for the use of MCM weapons, explosive, and clearing devices used by NSW/EOD.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.2.4 Land Area

- **Requirement:** The land required to support NSW training must be available for 36 hour scheduled periods in an area that includes dedicated Maneuver, Live-Fire and Maneuver, and MOUT areas.
  - Maneuver: A dedicated area of at least 20 square NM that includes 10,000 yards of beachfront that would allow at least five optional venues (with varying terrain) of 2000 yards each
  - Live-Fire and Maneuver**:** 20 square NM area with 1000-yard beachfront. At least some portion should be cleared for live fire weapons.
  - MOUT Facility**:** Must include a central urban area and a smaller outlying area that support live-fire training for direct- and indirect-fire weapons, breaching, and rotary-wing CAS
  - Live-Fire Training Area: At least 6 square miles, including a Surface Danger Zone (SDZ) for direct and indirect weapon

systems. At least some portion should be cleared for the use of live NSFS, A-G, and NSW weapons and laser target designation.

- **Current Capability**:
- **Discussion**
- **Impact**:

7.4.2.5 Communications System

- **Requirement:** The communications system shall be comprised of the following:

PRODEV

- One EC&C circuit.
- Three OC circuits to support communications with ground, airborne and surface participants.

ULT

- Two EC&C circuits, one of which must support A-G and ship-to-shore (where applicable)
- Three OC circuits, one of which must support A-G and ship-to-shore (where applicable)
- One data link circuit.

INTEROP

- Three EC&C circuits, one of which must support secure A-G and ship-to-shore (where applicable)
- Four OC circuits, one of which must support secure A-G and ship-to-shore (where applicable)
- Two data link circuits, at least one of which must be able to support secure A-G and ship-to-shore (where applicable)

- **Current Capability Assessment**:
- **Discussion**:
- **Impact**:

7.4.2.6 Target System

- **Requirement:** The target system requirements for ULT and INTEROP follow. There are no target requirements for PRODEV.

ULT

- Exposed beach obstacles and fortified beach or nearshore defenses, at least some of which must be cleared for engagement with inert A-G weapons, live NSFS ordnance, and live NSW weapons and explosives.

INTEROP *ULT requirements plus the following:*

- Undersea targets required, to include mines and submerged beach obstacles in very shallow water, at least some of which must be cleared for engagement with MCM and live NSW weapons and explosives.

- **Current Capability**:
- **Discussion**:

- **Impact**:

7.4.2.7 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet ULT and INTEROP capability requirements of NSW training events the range should have the following: Time, Space and Position Information (TSPI), five low fidelity for ULT and twenty low fidelity for INTEROP; the ability to conduct EC&C in 2-D; the ability to conduct M&S for A-S, A-G, G-G, S-S, S-A, and Sub-S; an automatic scoring system; the ability to provide real-time feedback; have auto Real Time Kill Notification (RTKN); and the ability to provide an event debrief locally.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.2.8 OPFOR System

- **Requirement**:

  PRODEV

  - Individual Free Option Simulator (rules of engagement simulator)

  ULT

  - A live, virtual, or constructive company-sized ground force, at least a company of which must be L
  - A live, virtual, or constructive platoon-sized armored or mechanized vehicle force, at least a platoon of which must be live
  - Live, virtual, or constructive personnel or single vehicles
  - EC Threat Level 2

  INTEROP *Same requirements as ULT*

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.3 Atlantic Test Range Complex

7.4.3.1 Capabilities Common to All Range Functions

7.4.3.1.1 Scheduling System

- **Requirement:** The scheduling system for the range should include all necessary components and elements (including software applications) used by range personnel and users to determine range capability, availability, and assignment for use. The scheduling systems also should include those components and elements that assist range management personnel in capturing and reporting range usage data. The scheduling system should allow potential range users access to a

web-enabled database of descriptive information (including individual range resources) for the entire Navy range infrastructure and the ability to schedule required range periods remotely at least two weeks in advance.

- **Current Capability Assessment**
- **Discussion:**
- **Impact:**

7.4.3.1.2 Communications System

- **Requirement:** The communications system should include all the necessary components and elements used by range personnel and users to establish and maintain secure and/or non-secure two-way point-to-point, surface-to-surface, surface-to-ground, and A-G communications with range operators, range maintainers, and range users. The system should include EC&C, OC, and D/L circuits that allow the unimpeded exchange of intra- and inter-range information and data (both secure and non-secure) among all range organizations and on- and off-range participants and designated observers.
- **Current Capability Assessment:**
- **Discussion:**
- **Impact:**

7.4.3.1.3 MET System

- **Requirement:** The MET system should be capable of collecting and reporting present weather conditions, to include barometric pressure, cloud height, visibility, wind speed, wind direction, and where applicable, sea state, and sound velocity profile.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.2 Atlantic Test Range Capabilities in Support of Anti-Air Warfare

7.4.3.2.1 Airspace

- **Requirement:** All the Advanced AAW training events airspace areas should have a large initial separation between friendly and OPFOR elements to allow for horizontal maneuvering and tactics execution. The area should be 50NM x 80NM, surface to 60,000 feet AGL and be available for 5 hours. The area should be cleared for supersonic flight and some of the airspace should overlay land.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.2.2 Sea Space

- **Requirement:** For the advanced level training events, the sea space area should be a 75NM x 75NM OPAREA and be available for 5 hours.
- **Current Capability:**
- **Discussion:**

- **Impact:**

7.4.3.2.3 Land Area

- **Requirement:** The land area should be 50NM x 80 NM with significant topographical features and be available for 5 hours in order to support the advanced level training events.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.2.4 Target System

- **Requirement:** The target system should have the capability to support both A-A and S-A MISSILEX's. The target system should include subsonic and supersonic drones that can operate from surface to 50,000 feet. The drones in the target system should also be capable of active jamming and simulated cruise missile launch capabilities.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.2.5 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. The advanced level training events in AAW require the range to have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-A and S-A: have a manual or automatic scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.2.6 OPFOR System

- **Requirement:** The Opposition Force system should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. The advanced level training events in AAW require at least a number of live and/or virtual threat rotary wing and fixed-wing aircraft. The OPFOR system should also be capable of Electronic Combat Threat Level 3 or 4.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.3 Atlantic Test Range Range Capabilities in Support of Mine Warfare

7.4.3.3.1 Airspace

- **Requirement:** The airspace to support MIW training events should be an area up to 100NM² surface to 5,000 feet AGL and be available for up to 48 hours.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.3.2 Sea Space

- **Requirement:** The sea space to support MIW training events should be an area up to 100NM² and be available for up to 48 hours. The area should allow for mine laying operations and should be adjacent to or in close proximity to one or more prominent land formations that can be used by aircrews for geo-reference point for mine-laying operations.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.3.3 Undersea Space

- **Requirement:** MCM training operations are conducted primarily against bottom mines and moored mines. MCM training requires both shallow water (up to 600 feet) and deep water (up to 1,200 feet) range areas. The shallow water range area should include a UTR, with various bottom types, contours and depths and should adjoin the surf zone. The undersea space desired for MIW operations should be up to 100NM² in area which allows mine laying operations. A UTR is desired, but not required. In addition, the area should include a dedicated area (approximately 1NM x 2NM) for Shock Wave Action Generator (SWAG) and mine avoidance training.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.3.4 Target System

- **Requirement:** The MIW range should provide target minefields tailored for exercises to support both individual platform (Basic level) training needs, as well as Intermediate and Advanced level training associated with integrated and major Fleet exercises. The range should include a mixture of instrumented and non-instrumented targets. Targets should include threat representative mines and realistic false targets to support threat discrimination training. Instrumented targets should provide near real-time feedback on mission performance, mine isonification, boat vulnerability and signature characteristics. To support all levels of training, the range should be capable of 30 non-instrumented and 20 instrumented target shapes, to include a combination of bottom mines, moored mines, and

false targets. The shapes should include non-mine shapes that require MCM operators to classify shapes as mines or non-mines, some of the shapes should be on a dedicated mine avoidance range, some of the targets should allow for SWAG operations, and shapes and false targets must be mobile and relocatable.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.3.5 Instrumentation System

- **Requirement:** MIW range instrumentation components should be transparent to MCM sonar detection systems in order to not be confused with training targets and should be designed to withstand both active influence and mechanical sweeping techniques. The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for all levels of MIW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D and 3-D; the ability to conduct M&S for A-G, S-Sub, and Sub-Sub; an automatic scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.3.6 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. OPFOR for training events in MIW should consist of up to the following: One multi-axis threat with at least one Live submarine and up to four live or virtual threat aircraft, at least half of which should be live. The OPFOR System should also require Q-route planning and clearing. The OPFOR system should also be capable of Electronic Combat Threat Level 3.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4 Test Range Capabilities in support of Strike Warfare

7.4.3.4.1 Airspace

- **Requirement:** The airspace area to support all levels of training events for STW exercises should be cleared for supersonic flight and be an area of 50NM x 100NM, from surface to 50,000 feet AGL. It

should be available for up to an 8 hour period. The area should be cleared for the use of A-G gunnery, free-fall and guided A-G munitions, and naval gunnery. The area must allow the use of laser designating devices and the expenditure of chaff and flares. It should provide sufficient airspace to allow the use of standoff A-G tactics, NSFS, and land attack cruise missiles. It should also allow two separate and concurrent large-scale tactical strikes against geographically separated target complexes.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4.2 Sea Space

- **Requirement:** For all levels of training events in STW, the sea space area should be in an OPAREA that is 75NM x 75NM in area and should accommodate two simultaneous and concurrent surface and/or subsurface events. The OPAREA should be available for up to an 8-hour period. The OPAREA should also accommodate typical training scenarios associated with employment of sea-launched cruise missiles and NSFS.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4.3 Undersea Space

- **Requirement:** The undersea space should be an area of similar size and capabilities of the sea space area. It should be an area of 75NM x 75NM from surface to 300 feet and be available for up to an 8-hour window.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4.4 Land Area

- **Requirement:** Land area is required for all levels of STW training. It should be of sufficient size/area to allow the installation of at least two scored targets, which at the intermediate and advanced levels should be geographically separated. The two separate target ranges should each be an area of 20NM x 20NM. The land should be cleared for use of live or inert A-G gunnery and live or inert precision or non-precision A-G and land attack cruise missile munitions up to 2,000 pounds. The land area should also be cleared for use of laser targeting and designating devices.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4.5 Target System

- **Requirement:** The target system should include all necessary components and elements associated with presenting and controlling

fixed and mobile land based targets. STW training requires a minimum of 2 geographically separate live or virtual targets (at least half of which must be live). The intermediate and advanced levels add two targets each to the overall requirement. The target systems must allow the use of live and/or inert weapons up to 2,000 pounds. At the advanced level some of the structural targets should replicate congested urban areas, requiring event participants to discriminate between valid and invalid targets in order to practice minimizing collateral damage.

- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4.6 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for all levels of STW training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, 3-D and in the JNTC context; the ability to conduct M&S for A-A, A-S, A-G, S-S, S-A, and Sub-S; an automatic and manual scoring system; the ability to provide feedback both real-time and post mission; have automatic Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.4.7 OPFOR System

- **Requirement:** The Opposition Force System should include all necessary components and elements associated with presenting friendly event participants with an operating environment that replicates, to the greatest extent practical, the expected enemy order of battle in the area of planned operations. OPFOR for training events in STW should consist of up to the following: at least two live or virtual rotary wing aircraft with A-A missile capability (one of which must be live) live or virtual fixed-wing aircraft equal in number to 1.5 times the number of friendly aircraft, up to a total of 16 threat aircraft per event (number of live threat aircraft should equal the number of live friendly aircraft. The OPFOR system should also be capable of up to Electronic Combat Threat Level 4.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5 Atlantic Test Range Capabilities in Support of Electronic Combat

7.4.3.5.1 Airspace

- **Requirement:** The airspace requirement to support the basic level for EC training events is an area 30NM by 60NM surface to 60,000 feet AGL that allows the use of chaff and flares. It should support two concurrent events and be available for a 45 minute period.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5.2 Sea Space

- **Requirement:** The sea space area to support EC events should be an OPAREA of 20NM x 30NM and be available for a 1–hour period. The location of this range should allow land-based and airborne EC emitters to stimulate the surface/subsurface combatants' onboard equipment and allow for multiple, concurrent events.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5.3 Undersea Space

- **Requirement:** The undersea space area required to support EC training events should be an OPAREA of 20NM x 30NM and be available for a 1-hour period.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5.4 Land Area

- **Requirement:** The land area required to support EC training events should be a range with an area of 20NM x 20NM and be available for a 45-minute period. It should also allow for two concurrent events.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5.5 Target System

- **Requirement:** The target system associated with EC training events should have multiple, geographically separated sites with equipment arrayed consistent with OPFOR tactical employment. It should also have visually significant targets that replicate the expected threat EOB equipment and at least one site should allow for the use of live weapons, including anti-radiation missiles.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5.6 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet the full capability for the basic level of EC training events the range should have the following: both high and low fidelity Time, Space and Position Information (TSPI); the ability to conduct EC&C in 2-D, and 3-D; the ability to conduct M&S for A-S, A-G, S-S, S-A, and S-Sub; an automatic and manual scoring system; the ability to provide feedback both real-time and post mission; have voice Real Time Kill Notification (RTKN); and the ability to provide an event debrief at both the host range facility and some other remote location.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.3.5.7 OPFOR System

- **Requirement:** To meet the full requirement for the basic level in EC training events, the OPFOR system must be capable of EC Threat Level 4
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.4 Atlantic Test Range Capabilities in support of Naval Special Warfare (NSW)

7.4.4.1 Airspace

- **Requirement:** Airspace is required for qualification level training associated with both rotary- and fixed-wing units and for S-A indirect fire weapons.

  PRODEV

  - No requirements

  ULT

  - A day-night period
  - Area from surface to 6,000 feet AGL (Surface to 25,000 feet AGL required for High Altitude, Low Opening (HALO) and High Altitude, High Opening (HAHO) jump training
  - Area extends 8 NM on either side of the land area

  INTEROP (Same as ULT)

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.4.2 Sea Space

- **Requirement:** The sea space required to support NSW training events is an area 50 square NM that is at least 5 NM wide, centered on and contiguous to the beachfront
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.4.3 Undersea Space

- **Requirement:** The undersea space required to support NSW training events is an area 30 square NM that is at least 5 NM wide, centered on and contiguous to the beachfront. At least some portion of the undersea space must be cleared for the use of MCM weapons, explosive, and clearing devices used by NSW/EOD.
- **Current Capability:**
- **Discussion:**
- **Impact:**

7.4.4.4 Land Area

- **Requirement:** The land required to support NSW training must be available for 36 hour scheduled periods in an area that includes dedicated Maneuver, Live-Fire and Maneuver, and MOUT areas.
  - Maneuver: A dedicated area of at least 20 square NM that includes 10,000 yards of beachfront that would allow at least five optional venues (with varying terrain) of 2000 yards each
  - Live-Fire and Maneuver**:** 20 square NM area with 1000-yard beachfront. At least some portion should be cleared for live fire weapons.
  - MOUT Facility**:** Must include a central urban area and a smaller outlying area that support live-fire training for direct- and indirect-fire weapons, breaching, and rotary-wing CAS
  - Live-Fire Training Area: At least 6 square miles, including a Surface Danger Zone (SDZ) for direct and indirect weapon systems. At least some portion should be cleared for the use of live NSFS, A-G, and NSW weapons and laser target designation.
- **Current Capability**:
- **Discussion**
- **Impact**:

7.4.4.5 Communications System

- **Requirement:** The communications system shall be comprised of the following:

PRODEV

- One EC&C circuit.
- Three OC circuits to support communications with ground, airborne and surface participants.

ULT

- Two EC&C circuits, one of which must support A-G and ship-to-shore (where applicable)
- Three OC circuits, one of which must support A-G and ship-to-shore (where applicable)
- One data link circuit.

INTEROP

- Three EC&C circuits, one of which must support secure A-G and ship-to-shore (where applicable)
- Four OC circuits, one of which must support secure A-G and ship-to-shore (where applicable)
- Two data link circuits, at least one of which must be able to support secure A-G and ship-to-shore (where applicable)

- **Current Capability Assessment**:
- **Discussion**:
- **Impact**:

7.4.4.6 Target System

- **Requirement:** The target system requirements for ULT and INTEROP follow. There are no target requirements for PRODEV.

ULT

- Exposed beach obstacles and fortified beach or nearshore defenses, at least some of which must be cleared for engagement with inert A-G weapons, live NSFS ordnance, and live NSW weapons and explosives.

INTEROP *ULT requirements plus the following:*

- Undersea targets required, to include mines and submerged beach obstacles in very shallow water, at least some of which must be cleared for engagement with MCM and live NSW weapons and explosives.

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.4.7 Instrumentation System

- **Requirement:** The instrumentation system should include all necessary components and elements associated with event tracking, EC&C, M&S, scoring and debriefing. To meet ULT and INTEROP capability requirements of NSW training events the range should have the following: Time, Space and Position Information (TSPI), five low fidelity for ULT and twenty low fidelity for INTEROP; the ability to conduct EC&C in 2-D; the ability to conduct M&S for A-S, A-G, G-G, S-S, S-A, and Sub-S; an automatic scoring system; the ability to provide real-time feedback; have auto Real Time Kill Notification (RTKN); and the ability to provide an event debrief locally.
- **Current Capability**:
- **Discussion**:
- **Impact**:

7.4.4.8 OPFOR System

- **Requirement**:

  PRODEV

  - Individual Free Option Simulator (rules of engagement simulator)

  ULT

  - A live, virtual, or constructive company-sized ground force, at least a company of which must be L
  - A live, virtual, or constructive platoon-sized armored or mechanized vehicle force, at least a platoon of which must be live
  - Live, virtual, or constructive personnel or single vehicles
  - EC Threat Level 2

  INTEROP *Same requirements as ULT*

- **Current Capability**:
- **Discussion**:
- **Impact**:

7.5 RCD GAP ANALYSIS SHORTFALL SUMMARY

The RCD Gap Analysis Shortfall Summaries, Figures 7-1 and 7-2, are the summary of the range capability shortfalls for the VACAPES Range Complex and the Patuxent River Range Complex, respectively. The shortfalls are grouped by (1) range priority, (2) the shortfall impact, and (3) disposition upon current or planned need for the requirement. Capabilities that meet the fully defined requirement are not included within the summary.

Attribute Shortfall	Range Priority	Shortfall Impact	Disposition				Comments
			No Action	Work Around	Investment		
					Planned	Recommended	
VACAPES/W-122							
Common Range Attributes							
Scheduling System	1						
Communication System	1						
Met System	1						
Anti-Air Warfare	3						
Airspace							
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Amphibious Warfare	1						
Airspace							
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Anti-Surface Warfare	3						
Airspace							
Undersea Space							
Target System							
Instrumentation System							
OPFOR System							

Figure 7-1. RCD Gap Analysis Shortfall Summary –VACAPES Range Complex (Part 1)

Attribute Shortfall	Range Priority	Shortfall Impact	Disposition				Comments
			No Action	Work Around	Investment		
					Planned	Recommended	
Anti-Submarine Warfare	1						
Airspace							
Sea Space							
Undersea Space							
OPFOR System							
Mine Warfare	1						
Airspace							
Sea Space							
Undersea Space							
Target System							
Instrumentation System							
OPFOR System							
Strike Warfare	2						
Airspace							
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Electronic Combat	1						
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Naval Special Warfare							
Land Area							
Communication System							
Instrumentation System							
OPFOR System							
Target System							

Figure 7-1. RCD Gap Analysis Shortfall Summary –VACAPES Range Complex (Part 2)

Attribute Shortfall	Range Priority	Shortfall Impact	Disposition				Comments
			No Action	Work Around	Investment		
					Planned	Recommended	
Patuxent River							
Common Range Attributes							
Scheduling System	1						
Communication System	1						
Met System	1						
Anti-Air Warfare	3						
Airspace							
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Mine Warfare	1						
Airspace							
Sea Space							
Undersea Space							
Target System							
Instrumentation System							
OPFOR System							
Strike Warfare	2						
Airspace							
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Electronic Combat	1						
Land Area							
Target System							
Instrumentation System							
OPFOR System							
Naval Special Warfare							
Land Area							
Communication System							
Instrumentation System							
OPFOR System							
Target System							

Figure 7-1. RCD Gap Analysis Shortfall Summary – Atlantic Test Range

CHAPTER 8 PROJECT RECOMMENDATIONS

Chapter 8, Project Recommendations, will be developed and included in the 100% Draft.

This page intentionally left blank

CHAPTER 9 ORGANIZATION AND PROCESSES

DoD Directive 3200.15, Sustainment of Ranges and Operating Areas, defines range sustainment as "managing and operating ranges to support their long-term viability and utility to meet the National Defense Mission." The VACAPES Range Complex organizations and management processes must support sustainability practices that will:

- Ensure the VACAPES Range Complex is capable of supporting current and future operational requirements while protecting human health and the environment;
- Protect the VACAPES Range Complex's natural and cultural resources;
- Promote understanding of readiness, safety, environmental, and economic issues regarding the VACAPES Range Complex use and management;
- Consider stakeholder interests in range design, use, and management; and
- Facilitate the return of VACAPES Complex ranges to non-military uses when they are no longer required for national security.

9.1 SUSTAINABILITY PRINCIPLES TO SUPPORT READINESS TRAINING AND TESTING

Volume I of the RCMP outlines an initial set of principles to achieve range sustainability. They include:

- Strategic planning
- Formal organizational structures and processes
- Clearly defined requirements
- Identify encroachment impacts
- Interdisciplinary approach
- Solutions to encroachment
- Use best practices in range design and use
- Use metrics
- Manage natural and cultural resources externally and internally
- Community and stakeholder involvement

The following sections describe the VACAPES Range Complex organizations and processes that support range sustainability in accordance with these sustainability principles. Specific implementation solutions to range encroachment and sustainment challenges are included.

9.1.1 Implementing Strategic Planning

Range sustainability requires strategic planning to ensure that the VACAPES Range Complex is providing the capabilities required by assigned roles and missions in support of the VACAPES Range Complex strategic vision (see Section 6.1). This planning must be guided by a set of defined principles that apply directly to issues such as required growth, encroachment, and future Navy training requirements.

In addition to the strategic vision outlined in Chapter 6, the VACAPES Range Complex and Atlantic Test Range are included in the Navy integrated training and test range strategic study sponsored by Fleet Forces Command (FFC). This study highlights the overlapping requirements and capabilities of these two unique types of range complexes, while maintaining their separate missions.

The major cornerstone to strategic planning is a fully developed, well-justified investment strategy. Developing this strategy for the VACAPES Range Complex is addressed in Chapter 11. To be completed at 100%.

9.1.2 Formal Organizational Structures and Processes

Successful VACAPES Complex range sustainability management practices rely on an organization with the structure, procedures, planning, methods, coordination, and processes that address range sustainability issues. Some of the many components crucial to this process include, but are not limited to, a range information management system, data analysis capability, clear definition of roles and responsibilities, well-defined range procedures, and committed senior sponsorship. Further discussion on the needs of a range information management system is provided in Section 9.4.1.

Some of the organizations that provide the VACAPES Range Complex with the assets, infrastructure, management, and support to sustain the complex include FFC, AIRLANT, FACSFAC VACAPES, Commander, Navy Region Mid-Atlantic (CNRMA), Atlantic Test Range, NSWG-2, NSWG-4, NAS Oceana, and NAVFAC Atlantic. These organizations must interact on a regular basis to overcome encroachment problems, establish policies, and ensure that operations are conducted in a manner contributing to range sustainment and productivity.

These organizations work through formal and informal channels of communications. Enhanced Readiness Teams (ERTs) at the FFC and CNRMA levels are organizations that are designed to strengthen the processes and communications within the VACAPES Range Complex. Section 9.2.1 provides an overview of these organizations.

CNRMA is under the operational control (OPCON) of FFC on mission and operational issues associated with CONUS ranges, to include programming and budgeting, and is under administrative control (ADCON) of Commander, Navy Installations (CNI). CNRMA has a role in the management of the VACAPES Range Complex because of its responsibility for environmental coordination and the administration of base operating support (BOS) funding (resourced through CNI) for range support (range clearance and EOD operations) and range infrastructure such as Class I and II property. Figure 9.1 illustrates the organizational relationships and funding flow that support the VACAPES Range Complex.

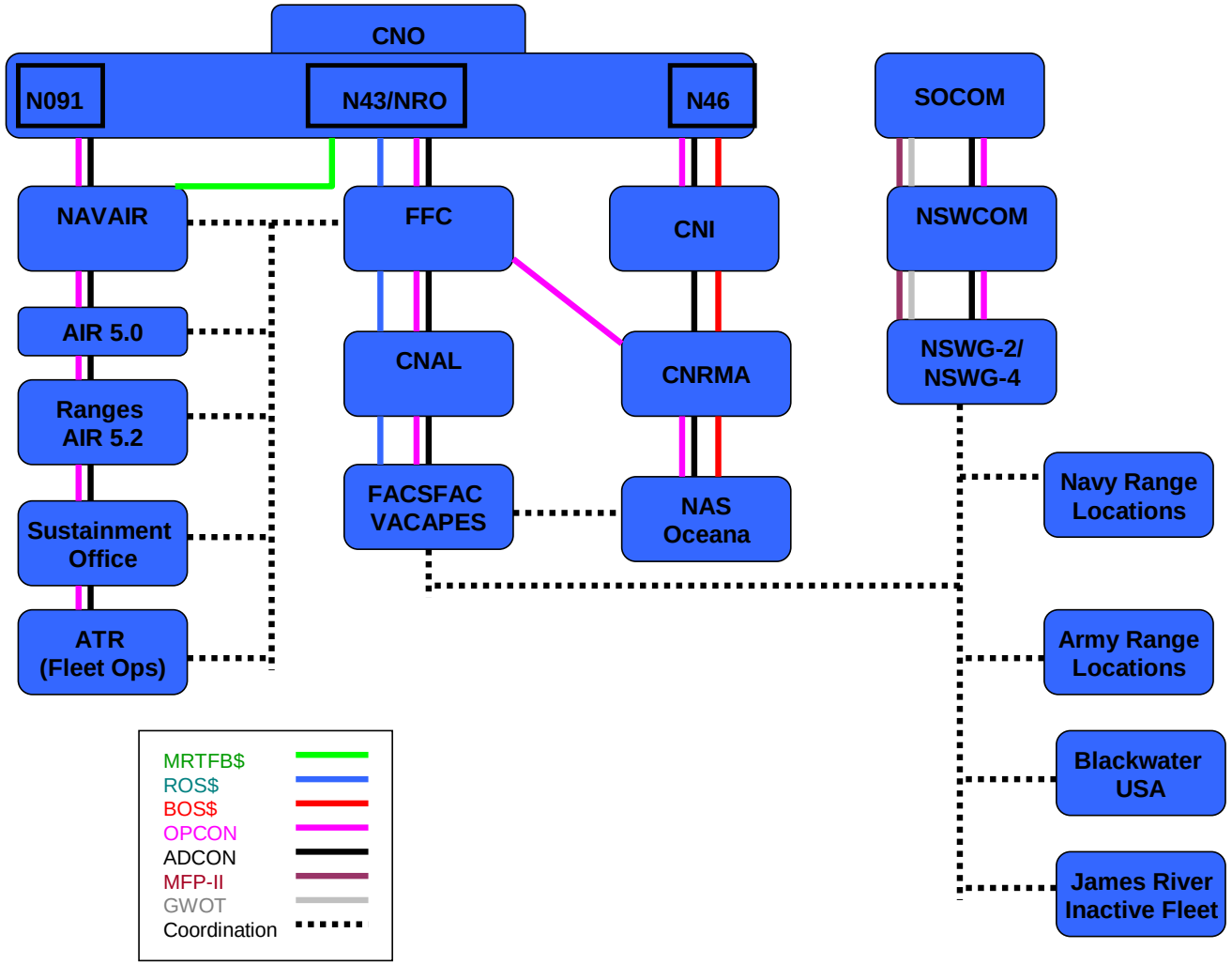


Figure 9-1. VACAPES Range Complex Organizational Relationships and Funding Support

9.1.3 Developing Clearly Defined Test and Training Range Requirements

FFC is developing the Navy Ranges Required Capabilities Document (RCD), which defines the required capabilities for eight range functions associated with the tactical training range infrastructure. The RCD includes a separate section to address RDT&E required capabilities.

This document provides a description of the Navy range functions, a review of the basis of Navy training requirements, and a summary of existing range shortcomings. Additionally, the document provides an overview of anticipated capabilities associated with the JNTC, common range attributes, associated thresholds (minimum acceptable operational performance value of a range-related attribute), objectives, and required range capabilities associated with each of the eight Navy range functions.

A range capability analysis of the VACAPES Range Complex is completed in Chapter 7 of this RCMP. This analysis was based on the assigned roles and mission outlined in the strategic vision and the required capabilities identified in the RCD. This analysis serves as a basis for the range investment strategy presented in Chapter 11.

9.1.4 Clearly Identifying Encroachment Impacts

Preparing the VACAPES Range Complex RCMP involved developing 31 encroachment matrices to describe encroachment impacts on VACAPES Complex ranges. These matrices are available in Appendix B and cover the VACAPES Range Complex, Atlantic Test Range, and COMNAVSPECWARCOM operations within the complex. The encroachment impacts are evaluated against 12 environmental issues affecting the ranges.

The matrices constitute a tool that range managers can use to identify, isolate, and resolve those impacts most pressing on range capabilities and the training mission. The matrix format helps to focus range managers on the main issues while deemphasizing the minor encroachment impacts. Chapter 5 contains the details of the encroachment analysis.

9.1.5 Establishing an Interdisciplinary Approach to Sustainable Range Management

The numerous commands within the VACAPES Range Complex have the necessary disciplines (expertise in O&M, management, natural resources, cultural resources, compliance, restoration, legal, EOD, and safety) required to ensure range sustainability. These disciplines have the opportunity to come together during the Navy-wide ERT meetings hosted by FFC. An additional forum to bring together these entities on a regional level is the CNRMA ERT, which focuses on the commands within the Mid-Atlantic Region. These organizations are discussed in section 9.2.

9.1.6 Developing Solutions to Encroachment

Encroachment mitigation is the logical follow-on to encroachment identification. Range managers, environmental staffs, and operators have the breadth and depth of knowledge to identify and analyze encroachment and its impacts on training and testing. Likewise, they are in the best position to develop and implement encroachment mitigation solutions. The operators, in particular, are directly affected by encroachment and gain the most from encroachment mitigation. The different perspectives of and contributions by range managers, environmental staffs, and operators provide comprehensive encroachment analyses and holistic encroachment mitigation solutions.

Secretary of Defense sustainable ranges guidance identifies areas in which the services may pursue encroachment solutions. Office of the Secretary of Defense (OSD) intends for the services to support and invest in these areas, which include:

- Acquiring buffer zones or employing other mitigation strategies around all ranges to support current and reasonably foreseeable future operations;
- Developing and implementing quantification and reporting processes for encroachment impacts;
- Developing service-wide range inventories and databases covering all ranges;
- Revitalizing AICUZ, RACUZ, and noise programs; and
- Promoting urban growth management programs at local, regional, state, and federal levels.

9.1.7 Using Best Practices in Range Design and Use

Long-term range sustainability requires the implementation of best practices not only in the use of the range but also in the modification of existing ranges and the design of new facilities. This implementation of best practices allows for more efficient land use and minimizes the impact each range has on the environment.

9.1.8 Employing Use Metrics

To be completed at 100%

9.1.9 Managing Natural and Cultural Resources Externally and Internally

Because of the large geographic area of the complex, the VACAPES Range Complex has numerous INRMPs and ICRMPs. These studies and plans provide an inventory of the existing condition of these resources. They also provide guidance for near- and long-term investment strategies and location considerations. See Chapter 4 for details.

9.1.10 Providing Community and Stakeholder Involvement

Although the VACAPES Range Complex does not currently have a formal, documented outreach program, there are several planning documents such as the INRMPs, ICRMPs, and environmental planning documents that discuss components of outreach. NAS Patuxent River, host of the Atlantic Test Range (ATR), maintains an "awareness strategy" and outreach plan that engages the local community and stakeholders in their area. Public Affairs Officer's (PAOs) also exist at the FFC level and at the individual bases that support the VACAPES Range Complex.

A proactive outreach program engages the local community and other stakeholders by keeping them informed, establishing good relationships, and maintaining mutual trust. It is recommended that the VACAPES Range Complex establish a coordinated outreach program among all command organizations. Chapter 10 of this RCMP provides a detailed discussion of this topic.

9.2 RANGE SUSTAINABILITY MANAGEMENT

Range sustainability management is a formal, organizational function requiring established procedures and processes. VACAPES Range Complex sustainment efforts rely on the coordination of many Navy organizations. It requires a fusion of information, technical expertise, and oversight dedicated to range sustainment.

Environmental management, operations and training, range maintenance, range customers, and a public outreach program all contribute to range sustainment. Additionally, sustainability management utilizes other organizations in the chain of command, such as CNO, FFC, CNI, CNAL, and CNRMA. The following sections describe organizations that provide direction and guidance for range sustainability management.

9.2.1 Navy Enhanced Readiness Team (ERT)

FFC established a Navy-wide ERT to bring together operations, facility, legal, and environmental staffs to focus on preserving operations, training, testing, and other critical mission activities. The charter places responsibility on the ERT to develop strategies that address emergent encroachment issues and establish organizational structures that enable the Fleets to plan and implement proactive strategies. In part, the charter states:

> "The ERT mission is to ensure sustained readiness by securing access to areas that allow us to meet current training requirements and to provide for the long-term needs of training with emerging weapons systems. The ERT must be both reactive to resolve existing issues, and proactive to

develop and implement an engagement strategy that reduces future encroachment."

The ERT is established at FFC Headquarters with N3/N5/N7 or their designated representatives as co-chairs. The Mid-Atlantic Regional ERT is established and is chaired by the Regional Commander or designated representative. The ERTs are chartered to address encroachment challenges when the topic:

- Could have an adverse effect on Navy standard operating and training procedures;
- May increase expenses associated with conducting standard operations and training; or
- Arises from the action(s) of an organization outside the Fleet Claimancy.

9.2.2 Range Planning Team (RPT)

A proposed VACAPES Range Complex range planning team (RPT) is a range policy and decision-making body similar to a board of directors or an overarching integrated product team (OIPT). The purpose of the RPT is to oversee and coordinate scheduling, operations, data collection and analysis, and support and investment activities in the VACAPES Range Complex and to identify and implement range sustainability practices to maintain and modernize the ranges and operating areas.

The RPT will be chartered by FFC and will be co-chaired by the COMSECONDFLT representative and a Type Commander Representative (alternating among TYCOMs yearly). Membership will include senior representatives of the following stakeholder commands:

- COMFLTFORCOM – ex-officio
- COMSECONDFLT
- COMNAVAIRLANT
- COMNAVSURFLANT
- COMSUBLANT
- COMNAVREG MID-LANT
- COMNAVSPECWARGRU TWO
- COMNAVSPECWARGRU FOUR
- FACSFAC VACAPES
- NAS Oceana
- Atlantic Test Range-Fleet Operations Liaison
- NAVFAC Atlantic

The RPT will report to and receive tasking from FFC N7. It will serve as the executive body to implement the various recommendations identified in the RCMP.

The RPT will meet quarterly to fulfill its responsibilities, which include but are not limited to, the following.

- Implement and oversee a sustainable range management and planning process.
- Implement the vision for the VACAPES Range Complex.
- Monitor the status of VACAPES Range Complex operational, environmental, and facility planning.
- Ensure that current VACAPES Range Complex capabilities adequately support training tasks, conditions, and standards.
- Validate VACAPES Range Complex capability deficiencies or shortfalls identified in Chapter 7 of this RCMP.
- Develop and monitor environmental and investment plans to ensure that the VACAPES Range Complex is fully ready to support new platforms and weapons systems at IOC.
- Identify VACAPES Range Complex capability shortfalls which result from the introduction of new doctrine, force structure, and weapons systems.
- Maintain and update a VACAPES Range Complex -wide prioritized list of projects and investments needed to address current and future capability shortfalls.
- Develop and monitor plans for integrating the VACAPES Range Complex into the JNTC architecture.
- Identify emerging VACAPES Range Complex encroachment challenges and develop strategies to negate, minimize, or mitigate potential impacts on the ability of the complex to support uncompromised training and testing operations.
- Review and approve VACAPES Range Complex force structure and supporting range alignment plans.
- Develop and implement consolidated range communications and scheduling systems and processes.
- Develop and implement a data management enterprise to support range management, training operations, and environmental planning and compliance.
- Provide a quarterly range complex utilization report (RCUR) to FFC. FFC will then develop and maintain a range utilization database to track range utilization, cancellations, and closures.
    - The database will compile range usage data on all types of training operations supported.
    - The database will track range workload requirements, investment requirements, and encroachment impacts on the range and training operations.

9.3 RANGE INFRASTRUCTURE MANAGEMENT

Range infrastructure management is vital to sustain the facilities, targets, and instrumentation on training ranges. The primary elements of infrastructure management include recurring maintenance, emerging maintenance, range refurbishment, forestry management, devegetation, wildfires, and EOD. Volume I of the RCMP contains definitions for the various elements of range infrastructure management discussed in the following paragraphs. This section will focus on the Navy Dare County Range and Palmetto Point/Stumpy Point, where applicable.

9.3.1 Recurring Maintenance

Recurring maintenance is performed on a scheduled basis by contractor personnel. Recurring maintenance includes repairing inoperative equipment, EOD operational range clearance and UXO removal actions, installation of new targets and systems, devegetation, forestry actions, and preparations necessary to reduce the potential for wildfires.

Periodically, ranges are closed to perform maintenance. These range closures present a challenge in balancing the need for maintenance and the demands for availability to support training, sometimes on short notice.

As range training intensifies and the numbers of on-range events increase, scheduling range maintenance becomes more difficult. It requires advanced, coordinated planning to ensure sufficient time is provided for range maintenance. It also requires flexibility, such as the ability of maintenance personnel react to last-minute schedule changes to cease all maintenance and open the range.

9.3.2 Emerging Maintenance

Emerging maintenance represents the VACAPES Range Complex's corrective maintenance actions. Maintenance management tracks range systems and targets based on their availability and condition. When a system or target requires repair, contractor personnel conduct the necessary maintenance as the schedule permits. Inspections evaluate the condition of systems and targets.

VACAPES Range Complex equipment discrepancies discovered during standard range inspections that require immediate correction are documented and appropriate actions are completed as rapidly as possible. If immediate action is not necessary, the documentation is entered into a list of maintenance requirements and corrective action is taken when it can be accommodated by the range schedule.

9.3.3 Range Refurbishment

Range refurbishment can include the installation of new range infrastructure hardware or systems, or the upgrade of an existing system. An example of refurbishment is the constant necessity to maintain on-range targets. As targets become battered or totally destroyed, they require replacement or refurbishment. Another example is the necessity to clean up around bulls eyes, remark the ground, and replace any objects located adjacent to the target that aid in target recognition. As electronic warfare systems age, they require refurbishment to ensure that they provide realistic threat scenarios.

VACAPES Range Complex refurbishment includes periodic review of aging range systems and planned replacement of system components

with state-of-the-art hardware when conducting repairs to malfunctioning systems. Older systems may be refurbished to represent current targets, threats, and realistic combat scenarios.

A system replacement and modernization (SRAM) program provides limited funding to assist the VACAPES Range Complex with range refurbishment. SRAM funding requirements are coordinated by CNAL through FFC, resourced by OPNAV N43, and executed by PMA-205 (previously PMA-248), whose agent is NSWC Corona. This progressive refurbishment or upgrading of systems is a cost-effective method for enhancing range performance and reducing the scope of periodic system replacement.

9.3.4 Forestry Management

The Navy Dare County Range and the USAF's 4OSS/OSOF Wing at Seymour Johnson AFB, Goldsboro, North Carolina expanded the fire prevention plan contract with State of North Carolina's Department of Environment and Natural Resources, Division of Forest Resources, Forest Service to include road and canal upkeep, repairs, and maintenance. Scrap cleanup, minor target and equipment repair ,and some devegetation are completed by Navy Dare County Range personnel.

9.3.5 Devegetation

Removal of vegetation is periodically required. Vegetation can obscure targets, restrict access to range areas, and create fire hazards, all of which result in range degradation. Navy Dare County Range maintenance contractor personnel conduct periodic devegetation as it becomes necessary around range structures and targets.

9.3.6 Wildfires

Navy Dare County Range, Palmetto Point, and Stumpy Point fire prevention and firefighting responsibilities are under contract with North Carolina Forest Service's fire prevention plan. Highest risk of fire normally exists during March, April, May, November, and December. The North Carolina Forest Service assigns Fire Codes 1-7 based on the circumstances; and Fire Codes 4-7 may negatively affect range operations.

The Navy Dare County Range authorizes air-to-ground exercises, including loft deliveries. Due to a fire hazard, live ordnance, flares, tracer ammunition, and pyrotechnics are prohibited. Authorized ordnance is restricted to inert ordnance and ordnance that uses marking charges only. Strafing is restricted to ball ammunition.

9.3.7 Explosive Ordnance Disposal (EOD)

The Navy Dare Range contracted EOD responsibilities to the USAF's Seymour Johnson AFB and Air Combat Command (ACC), Langley AFB, Virginia. Every 70 duty days, EOD personnel from Seymour Johnson AFB canvas the range. Additionally, range personnel retrieve only 20/30 mm ammunition and expended casings. Expended ordnance is not handled until inspected by EOD personnel; any unsafe ordnance is only disposed of by EOD personnel. The retrieved, safe debris is stockpiled at the range facilities until collected by the ACC contractor.

Other locals

9.3.8 Integration of Maintenance Activities

Maintenance activities have synergistic effects when integrated. The converse also can occur, where an individual maintenance activity performed on its own may interfere with other range management activities. For example, if range tree removal is not coordinated with forestry and cultural resources management, the tree removal may interfere with a forestry activity and/or prescribed fires may damage cultural resources sites that are pending survey, designation, or resolution. When maintenance activities are integrated and synchronized, there is less duplication of effort and more efficient and effective range sustainment.

Secretary of Defense sustainable range guidance focuses on maintenance practices to "maximize and sustain the availability of military range and land assets by resourcing for restoration and maintenance of range infrastructure and land assets." Further, OSD provides guidance to:

- Implement active land management practices that sustain range quality as required for military operations (e.g., the Army's Integrated Training Area Management (ITAM) program;
- Institute range UXO and residue management programs; and
- Institute appropriate operational range clearance programs.

9.4 DATA COLLECTION AND DATA MANAGEMENT

Data collection and management is a critical element in managing the VACAPES Range Complex and providing quantifiable data that reflect the range's contribution to fleet readiness. Data must also be available to support investment planning to ensure that range capabilities meet current and future fleet training and testing requirements. Operational and environmental planning requires data to determine the most effective and efficient way to prioritize problems. These data are the basis of a program that provides best care and maintenance of the range's resources and environment.

Volume I, Section 9.4 of the RCMP Guidebook contains a discussion of Government Accountability Office (GAO) findings and the requirement

for a comprehensive range database that can be used to measure a range's effectiveness for training fleet units and to describe its overall efficiency. Sections 9.4.1 through 9.4.5 provide information regarding data collection systems and data categories. A formal, systematic data collection process encompassing all aspects of range management and operations is required.

The VACAPES Range Complex encroachment analysis presented a clear case for the need to improve data collection and management. Conduct of the encroachment analysis demonstrated that data quantification regarding impacts on military readiness is imperative to internal situation awareness and meaningful dialogue with non-governmental organizations (NGOs); the States of Virginia, North Carolina, and Maryland; surrounding county and city governments; and the federal government.

The proposed range management system (RMS) would provide a data collection system that integrates all range activities, allowing each activity to enter data, view other data, and conduct analysis for range enhancements and sustainment. RMS should contain at least four categories of data, including administrative, equipment, operational, and classified. Each category should have as many sub-categories as required to manage scheduling, funding, briefs, on-range weapon expenditures, configuration control, range discrepancies, security, property, government furnished equipment (GFE) inventory, cost information, purchasing invoices, data products for range users, historical information, and range statistics.

9.4.1 Operational Data

Operational data within the VACAPES Range Complex must be captured to document current utilization of the ranges. These data will contribute to developing a historical record to track patterns of utilization and assist in the formulation of range investment planning. Operational data are required in three specific areas:

- Types of Operations Conducted
  - Numbers of operations (training exercises)
  - Area of operations
  - Types of operations correlated to a specific warfare mission area or navy mission essential task (NMET).
  - Participants and platforms utilized in each type
  - Total number of operations on an annual basis
- Ordnance Expended
  - Correlated to mission area/NMET
  - Type, quantity, and location (land, water, or ocean area) of expenditure on an annual basis
- ASW Training Events Involving Active Sonar Transmission
  - Area of operations
  - Duration of the event

- Participants and platforms utilized
- Number of ASW events on an annual basis

Different types of instrumentation and data systems exist within the VACAPES Range Complex to support range operations. The instrumented systems are described in Chapter 2 and include LATR, SESEF, WISS, SSS, and TACTS.

Operational data are captured in Target and Range Information Management System (TRIMS), Navy Scheduling System (NAVSKED), Military Airspace Management System (MAMS), and Range Facility Management Support System RFMSS.

9.4.2 Encroachment Data

VACAPES Range Complex encroachment issues and resulting limitations on range operations emphasize that data must be collected, analyzed, and utilized to develop encroachment solutions. Collection of encroachment data requires a concentrated effort between several VACAPES Range Complex organizations. The following features should be included in the data management system.

- The data must be categorized, measurable, and maintained in a collective database available to all organizations in the VACAPES Range Complex command hierarchy.
- This database must be kept current and in as basic a format as possible.
- Quantifiable information must be usable for analysis by various staffs responsible for enacting programs necessary to address encroachment issues.
- Anecdotal information is the most difficult type of data to collect, maintain, and utilize. However, design of the system must recognize that this type of information can be very important and provide a means for its capture and analysis with more standardized data.

Volume I, Section 9.4.1 of the RCMP guidebook contains detailed information regarding the specific categories of data needed and definitions for each category. A brief summary of each category is provided below.

Range Availability. Operational forces need to use ranges based on training requirements and schedules. At times, a range may be restricted from supporting any training. This can happen when encroachment factors (for example, noise restriction, vegetation, or time constraints) prohibit certain training events. Under these circumstances, the range is deemed not available for the prohibited training. Availability data provide a statistical measure of how encroachment influences training events and training schedules.

Range Access. Factors that restrict or prohibit training and testing activities on ranges or portions of ranges can include the presence in the

area of UXO, restrictions on airspace use, or seasonal closures to protect a migratory endangered species. Such restrictions can be measured. Recording restrictions will help quantify access impacts on range management and training and testing operations. For example, ranges should collect data on user requests where range access is denied because of encroachment.

Range Capability. A range complex must have the infrastructure and resources to accommodate training and testing requirements. Infrastructure and resources include land, airspace, instrumentation, targets, and other facilities.

Not every range has what it needs to conduct unrestricted training and testing. For example, airspace size and altitude limitations are encroachment issues that can restrict flight operations and air combat training. Frequency spectrum restrictions can encroach on tactical training and exercises of deployed forces by constraining command, control and communication capabilities.

The degree to which a range can accommodate training and testing requirements is indicative of range capability shortfalls. Range capability data must be collected to quantify these shortfalls and to focus investment planning.

Range Capacity. Ideally, a range complex can apply all its resources at the right time to accommodate training and testing requirements. There are times, however, when some ranges may be closed or marginalized for cleanup, vegetation, or other factors. When a range or portions of a range complex are restricted or unusable, capacity is affected.

Capacity reflects the combined effects of range availability, access, and capability. Capacity is a higher order metric that can be quantified for the range complex as a whole or for defined portions such as firing ranges, training and maneuver ranges, and outlying fields. Capacity data will allow the range commanders and managers to view their range infrastructure and resources from an interdependent perspective.

9.4.3 Range Data

Range data provide an important tool for VACAPES Range Complex managers to measure range performance against Navy requirements and the VACAPES Range Complex strategic plan. Identification of capabilities and requirement gaps should be completed through an evaluation of historical and current quantifiable data.

Chapter 7 of this RCMP presents a method of arranging the necessary information that compares range requirements and current capabilities. These data can provide insight into areas such as scheduling, range systems performance and reliability, efficient use of land and air space, unit readiness qualifications achieved on range, and performance when

operations surge to handle unexpected training requirements for fleet units.

Use of these or other data as determined by VACAPES Range Complex managers establishes a common basis for metric-based data and decisions based on consistent measurable activities. Additionally, others in the chain-of-command can more accurately evaluate range performance and needs to meet Navy training objectives. A program such as RMS is the data collection, archiving, analysis, and feedback tool needed for range management practices evaluation.

9.4.4 Installation Data

Installation data represent the basic information utilized by FFC, CNI, FACSFAC VACAPES, ATR, and support organizations to measure range infrastructure usage, condition, and performance. They should include an inventory of all VACAPES Range Complex real property, installed equipment, range facilities, infrastructure, and the characteristics of the available operating environment.

Data should describe this environment in terms of range land acreage and airspace with ceiling restrictions and area in square miles to include flying routes. The use and condition of the facilities and infrastructure, and any planned refurbishment or replacement, should be part of data collection efforts.

Installation data provide a tool for managers to program resources and funding. They would provide the justification for periodic refurbishment or replacement of vital structures and infrastructure.

Some of the required data are currently available, but not in an integrated and quantifiable fashion. Quantifiable installation data are necessary to develop long-range sustainment plans, manage range infrastructure, maintain inventories, and substantiate range investments. Installation data can also be used to measure range efficiency relative to funding requirements.

9.4.5 GIS Data

GIS data detailing location and spatial relationships are needed to depict range environment, limitations, and capabilities. Volume I, Section 9.4.5 contains a list of GIS layers that are helpful in establishing a GIS data collection program. These layers should be used as the basis for developing a comprehensive GIS for the VACAPES Range Complex.

These layers should be compared to the information already available in the multiple GISs in use in the installations within the VACAPES Range Complex, with a goal of providing consistent layers at all sites in standardized formats that can be consolidated and analyzed on a complex-wide basis.

This page intentionally left blank

CHAPTER 10 OUTREACH

10.1 INTRODUCTION

Outreach is defined as the process of communicating the military mission and developing and maintaining stakeholder partnerships to ensure the continuation of mission-essential operations. As referenced in Volume I, outreach is not only mandated by DoD Directive 3200.15, it is highly recommended to maintain a positive partnership between the VACAPES Range Complex and its stakeholders. According to DoDD 3200.15 (source: http://www.dtic.mil/whs/directives/corres/html2/d320015x.htm), ranges should:

- Institute multi-tiered coordination and outreach programs that promote sustainment of ranges and OPAREAs and resolution of encroachment issues that promote understanding of the readiness, safety, environmental, and economic considerations surrounding the use and management of ranges and OPAREAs.
- Ensure consideration of stakeholder interests in DoD range-related decisions.
- Improve communications and enter into cooperative agreements and partnerships with other federal agencies; state, tribal, and local governments; and NGOs with expertise or interest in DoD ranges, OPAREAs, and airspace to further sustainment objectives

This chapter describes the existing and proposed outreach activities, and suggested activity- and results-based outreach metrics, for the VACAPES Range Complex. The intent of this chapter is to provide guidance on how to create and maintain stakeholder partnerships through regular, proactive dialogue and information exchange. For the purpose of this chapter, “stakeholder” is a broad term used to encompass individuals and/or groups in the following categories: elected officials, regulatory agencies, community, and NGOs.

10.2 COMMUNITY PROFILE

10.2.1 Range

The VACAPES Range Complex includes rural and urban stakeholders who have widely varying perceptions and concerns about the range complex and military installations in general. In broad terms, some of the larger stakeholder groups in the area have the following characteristics.

- On the eastern shore of Virginia and Maryland, there is a very rural community with a large population of fishermen who rely on coastal waters to make their living. The VACAPES Range Complex generally has little interaction with these rural communities.
- A large number of wealthy citizens have vacation homes in Cape Charles, Virginia, the bay side of the Eastern Shore. Development here includes a new golf course and retirement community.

- In Virginia Beach, Virginia there is a large urban environment that relies heavily on oceanfront tourism. This urban community generally supports the Navy.
- In the northeast part of North Carolina, there is an abundance of vacation homes and the tourism industry is an important contributor to the local economy.
- The Dare County Range is situated in a less-affluent, rural community in coastal North Carolina.
- In the Hampton Roads area, it is estimated that the Navy presence adds approximately $1.4 billion to the local economy and there is strong local support for the Navy.

10.2.2 Elected Officials for the States of Maryland, Virginia, and North Carolina

There are a total of six United States senators from Maryland, Virginia, and North Carolina. In the U.S. House of Representatives, Maryland has eight representatives, Virginia has 11, and North Carolina has 13. For outreach purposes, it is recommended that the Navy should enhance communication with representatives from Maryland Districts 1 and 5 (Atlantic Test Range), Virginia Districts 2 and 11 (FFC, NAS Oceana and NAS Patuxent River), and North Carolina District 1 (Navy Dare County Range).

Additional information on elected officials is included in Section 10.4.1.

10.3 HISTORY OF OUTREACH AND INVOLVEMENT

10.3.1 Overview

The VACAPES Range Complex does not currently have a formal, documented outreach program. However, several bases participate in a variety of outreach activities. Recent activities include, but have not been limited, to the following.

- The VACAPES Range Complex management serves on several local boards and committees and meets with elected officials ad hoc at least once per year.
- The VACAPES Range Complex management currently maintains an open and cooperative relationship with several regulatory agencies, including the National Oceanographic Atmospheric Administration (NOAA), NMFS, and FAA.
- The VACAPES Range Complex participates in a number of community and civic-related outreach activities.
- For the most part, the VACAPES Range Complex contact or interaction with NGOs has been in response to NGO letters, opinions or editorials in local newspapers (Op Eds), or lawsuits.

Since a large majority of the VACAPES Range Complex borders urban development, encroachment issues exist. Many Navy aircraft, such as F-18s and Super Hornets, practice activities within the VACAPES Range Complex. Noise complaints made up an overwhelming majority of

comments during a 1998 Atlantic Test Range EIS, and residents who border NAS Oceana and the Navy Dare County Range occasionally log noise complaints.

While noise complaints will not have a direct impact on the VACAPES Range Complex's ability to operate, it is always in the best interest of the Navy to have good neighbor practices. With the introduction of newer aircraft and increased training exercises, there is a possibility for complaints to increase. Therefore, it would be in the best interest of the VACAPES Range Complex to inform the public with increased signage and/or web site data.

There are a few NGOs, including National Resources Defense Council (NRDC), that actively pursue lawsuits against the Navy. Currently, there is a pending lawsuit against the Navy regarding an outlying field (OLF) east of the Navy Dare County Range. The Navy believes that the area is essential for tactical military training, while the group filing the suit claims that constructing a landing field in this area would interfere with migratory patterns of birds. Although the OLF is not part of the VACAPES Range Complex, NAS Oceana and other bases will be affected by any decision to build or not to build the OLF.

Because of the pending lawsuit, the Navy is now in a "quiet period" and has halted all OLF-related outreach. However, the best strategy for the Navy, in particular the VACAPES Range Complex, may be to continue to talk about the need for an OLF without discussing the current litigation.

Another sensitive issue is mid-frequency active sonar in the VACAPES Range Complex. NRDC would like to engage in "constructive dialogue" with the Navy to discuss Navy sonar-use mitigation measures. The NRDC has contacted the Navy at least three times, in 7/00, 2/04, and 7/04, but according to NRDC, the Navy has not responded.

Based on previous experience at other military installations facing similar issues, it may be counter-productive to ignore or slowly respond to stakeholder feedback or halt outreach in fear of backlash. The VACAPES Range Complex may reduce its vulnerability on the sonar issue by taking a leadership role. This could include sharing its research, partnering with NGOs, and informally participating with environmental groups, such as the Sierra Club, in activities that all support, such as beach clean-ups.

Each base within the VACAPES Range Complex maintains a restoration advisory board (RAB). These RABs meet approximately 2 to 3 times per year.

NAS Patuxent River, host of the Atlantic Test Range, maintains an "awareness strategy" and outreach plan. The purpose of their awareness strategy, which is updated annually, is to proactively prepare for future

range sustainability requirements. In doing so, the awareness strategy:

- Assesses a regional strategy for noise disturbance
- Develops proactive information exchange with local communities on noise issues associated with NAS operations

The Atlantic Test Range identifies an operational environmental planning team that targets activities at internal and external audiences.

There are many stakeholders who have an interest in the VACAPES Range Complex and its operations. The VACAPES Range Complex's three principal outreach challenges are to:

- Maintain a constructive, working relationship with the Atlantic Test Range, Virginia Beach, Norfolk, and Manteo communities and continue to partner with local officials to prevent further noise encroachment issues around the Range.
- Sustain an accommodative, cooperative relationship with the FAA, NOAA, and NMFS.
- Seek long-term solutions to the outlying field and mid-frequency sonar issues.

Need closing paragraph

10.3.2 Outreach and Involvement at Individual Installations

FFC maintains relationships with federal agencies, but it is often up to the individual bases to interact, sometime on a daily basis, with state agencies, the community, and other stakeholders. The Environmental and Natural Resources Program Manual provides some guidance for such activities. This manual sets out CNO policy for tracking Navy compliance with the ESA and MMPA.

In the event of a marine mammal strike or stranding, it is Navy policy that OPNAV (N45) is the sole point of contact for liaison activities with the NMFS.

Following is a brief description of current outreach activities at the individual installations within the VACAPES Range Complex that maintain active outreach programs.

10.3.2.1 Atlantic Test Range

The Atlantic Test Range maintains positive relations with its key stakeholders by making a concerted effort to have an outreach strategy. A key to the Atlantic Test Range's success has been the commitment of resources to effectively execute an outreach plan. For example, they have hired communication specialists who have marketing and communications skills and are experienced in risk communication. The outreach team consists of two civilians and contract staff (not Navy employees). This assures outreach consistency and continuity.

The Atlantic Test Range outreach team has 16 internal and external groups or audiences. The team also has 17 unique issues or messages. The team uses media forums, websites, presentations, cable TV, and radio, effectively blending several media outlets, to communicate its messages.

Atlantic Test Range civilian leadership has had a long-term interest in community relations. The Atlantic Test Range technical director works closely with the CO on a myriad of issues, including outreach. Although the CO generally rotates every 2 years, the technical director does not rotate and, therefore, provided continuity with key stakeholders. The technical director spends at least half his time interacting with the community.

The goal at the Atlantic Test Range is to be proactive in ensure that the range stays open and not limited because of community pressures and/or environmental issues. Current outreach activities include maintaining:

- An outreach plan/matrix (refreshed every 8 to 12 weeks).
- A noise and service hotline (toll-free number).
- A database (Oracle, web based, and GIS) that captures stakeholder complaints, suggestions, and contact details.
- Sonic boom detectors and numerical software modeling tools to measure noise. After each complaint, a root-cause analysis is performed to determine if the noise came from the Atlantic Test Range and/or if the pilot was in compliance.

It is possible that the JSF, which will be assigned to the Navy, Air Force, and Marines, will be a sensitive issue because of noise. Although it will be about 12 years before this aircraft reaches the Fleet, the Atlantic Test Range will see JSF in approximately 2 years. For this reason, the Atlantic Test Range outreach team is already educating the media about the possible noise implications of this aircraft.

10.3.2.2 Navy Dare County Range

The Navy Dare County Range has limited resources to effectively execute proactive outreach activities. One employee monitors the majority of outreach. Because this individual has lived and worked at the Navy Dare County Range for many years, he has well-established relationships with many of the range's stakeholders. There is no formalized system for logging and responding to complaints, monitoring outreach, and interacting with stakeholders.

Navy Dare County Range is leased from the Air Force. The Air Force holds regular, hour-long meetings three or four times a year of the Dare Bombing Range Advisory Council (DBRAC). The DBRAC has about 20 members, including three Air Force officers; two Navy officers; a hunter representative; community representatives from Mann Harbor, Stumpy Point, and at large; an Air Force range manager; and a wildlife/red wolf biologist. At these meetings, the Air Force, Navy, and

community discuss "hot topics" and items pertinent to the Navy Dare Bombing Range. The DBRAC meets at the Manteo Courthouse in Dare County and the minutes for these meetings are kept at the courthouse.

10.4 OUTREACH OBJECTIVES AND MESSAGES

It is extremely important that the communities of Virginia Beach, Norfolk, and Manteo continue to understand and appreciate the social and economic contributions of the military and the role that the VACAPES Range Complex plays in maintaining our national security. In this effort, the VACAPES Range Complex should try to ensure that elected officials support legislation and marine or land use decisions necessary to fulfill the range complex investment strategy.

In terms of relationships with regulatory agencies, the VACAPES Range Complex should continue to maintain a cooperative relationship and partnership with the agencies that oversee marine, land, and air resources within and contiguous to range areas. At the federal level, these agencies especially include the NOAA, NMFS, and FAA. However, the VACAPES Range Complex also needs to foster positive professional relationships with other federal and state agencies, such as the EPA, USFWS, Corps of Engineers (USACE), Maryland Department of the Environment (MDE), North Carolina DENR and DWQ, and Virginia DEQ.

It is important to seek a long-term resolution to the outlying field issue. While the OLF is not part of the VACAPES Range Complex, the implications of building (or not building) a landing field in or around North Carolina will have direct effects on the VACAPES Range Complex activities**.**

To support these objectives and build broader relationships and partnerships with surrounding communities, the following major messages should be incorporated into communications with the VACAPES Range Complex stakeholders:

- VACAPES Range Complex is the premier site in the mid-Atlantic United States for providing realistic combat training for Naval forces.
- Protecting the airfields from any restrictions on planes being able to take off and land at NAS Oceana is critical to the VACAPES Range Complex mission and survival.
- The large expanses of ocean, land, and airspace at the VACAPES Range Complex are essential to its mission.
- The VACAPES Range Complex employs a large staff of experts and specialists to manage the environmental resources under its care.
- Numerous government agencies oversee the VACAPES Range Complex operations and environmental stewardship programs to ensure compliance with all laws and regulations.
- VACAPES Range Complex respects the ocean environment and cooperates fully in its protection.

- Atlantic Test Range works hard at its relationships with the local community and is proud of the mutual support they provide each other.
- VACAPES Range Complex endeavors, to the best of its ability, to minimize and mitigate negative impacts on its neighbors through aggressive noise management practices and programs.

10.4.1 Strategy, Tactics, and Current Status

This section provides an overview of suggested outreach activities for key stakeholders and goals to help meet the above objectives. This section also states current status of activities and suggested frequencies. The activities are separated into four stakeholder groups: elected officials, regulatory agencies, community, and NGOs.

To be fully effective, the commands responsible for the VACAPES Range Complex must coordinate internal communication amongst FFC, CNRMA, Atlantic Test Range and Navy Dare County Range so their messages to stakeholders are synchronized and consistent. It is also recommended that these groups work together to develop a "VACAPES Range Complex communications plan" to ensure regular contact and partnerships with key stakeholders.

10.4.1.1 Elected Officials

The VACAPES Range Complex leadership should continue regular contact with elected officials. Elected officials and their key staff, especially their military liaisons, should be invited to FFC, NAS Patuxent River, NAS Oceana, and/or the Navy Dare County Range at least once a year for briefings and range tours. These visits are especially important if there have been personnel changes in elected official or key staff .

10.4.1.1.1 U.S. Senate and Congressional Representatives.

Strategy: To maintain effective relations with Senate and Congressional Representatives, VACAPES Range Complex representatives should meet with or invite Maryland, Virginia, and North Carolina senators, representatives, and their staff to the range for briefings and a range tour annually. The VACAPES Range Complex is located in the following U.S. House of Representative districts: Maryland District 5, Virginia District 2, and North Carolina District 1.

Tactics: Every January and July, for example, telephone or email contacts to invite them to the range. For the most current list of Virginia, Maryland, and North Carolina representatives, visit:

http://www.senate.gov or
http://www.house.gov/house/MemberWWW_by_State.html.

Current Status: Meetings with elected officials are ad hoc. Some senate and congressional staff attend meetings organized by various commands, but formal meetings with staff do not occur on a regularly scheduled basis.

10.4.1.1.2 State Representatives, Such As the Governor and Legislatures

Strategy: The VACAPES Range Complex management should maintain open communication with Maryland, Virginia, and North Carolina governors and state legislators.

Tactics: The VACAPES Range Complex should invite state elected officials and their staffs to visit sites within the VACAPES Range Complex and learn about new developments and issues semiannually.

Current Status: Meetings with state elected officials are ad hoc.

10.4.1.1.3 Counties of Dorchester, St. Mary's, Northumberland, and Somerset, and Cities of Norfolk, Virginia Beach, Manteo.

Strategy: VACAPES Range Complex should maintain strong relations with city and county officials.

Tactics: To keep relations on track, the VACAPES Range Complex should assign specific responsibilities to key range individuals and send range representatives to attend county commissioner and city council meetings.

Current Status: The commanding officer in the Atlantic Test Range area has attended many of the city council and county meetings in the recent past.

10.4.1.2 REGULATORY AGENCIES

Most interaction with regulatory agencies is with the NOAA, NMFS, and FAA. The VACAPES Range Complex (in particular FACSFAC) relationship with the FAA is cooperative and is facilitated by the presence of an FAA onsite Navy employee. The VACAPES Range Complex maintains a much lower level of interaction with other regulatory or state agencies, such as the EPA and Virginia DEQ.

10.4.1.2.1 NOAA and NMFS.

Strategy:

Tactics:

Current Status:

10.4.1.2.2 FAA.

Strategy: It is critical that the VACAPES Range Complex maintain open and positive relations with the FAA. Communication with the FAA should remain frequent. In accord with the June 2003 FAA-FACSFAC annual SWAP meeting, FAA and FACSFAC should work together to realign the zigzag boundary between Washington D.C. Air Route Traffic Control Center (ZDC) and New York Air Route Traffic Control Center (ZNY). Because commercial air traffic will increase, FACSFAC should regularly consult with the FAA on ways to improve air traffic control in W-72 corridor. It is recommended that the SWAP meeting broaden its scope or add another FAA-FACSFAC meeting to address issues other than SWAP.

Tactics: Continue to work with the FAA on mutually beneficial issues. Perhaps meet semiannually (vs. annually).

Current Status: There are numerous formal and informal interactions between the VACAPES Range Complex and FAA, including the following.

- FACSFAC VACAPES and the Air Traffic Control System Command Center (ATCSCC) have an annual letter of agreement that aids the FAA by providing additional route alternatives, simplifying ATC coordination, and facilitating a more dynamic release of the Warning Area Airspace by the military.
- The FAA has a salaried employee, an air traffic representative, based at NAS Oceana.
- The Navy has an employee based at FAA.
- The FAA and FACSFAC meet annually for the SWAP meeting.
- FACSFAC annually updates a mission and point of contact pamphlet.

10.4.1.2.3 Other Federal and State Regulatory Agencies.

Strategy:

Tactics:

Current Status:

10.4.1.3 Community/Civic Stakeholders

A list of stakeholders is given in Section 10.7, Supplemental Information. While it appears that the VACAPES Range Complex interacts with many organizations, much of this involvement appears to be ad hoc or reactionary in nature.

Strategy: Develop a set list of outreach activities that is balanced between several community and civic groups. The important community and NGOs at the VACAPES Range Complex consist of:

- Community groups;

- Business organizations;
- Environmental and other outdoor (such as hunting) groups;
- Local media; and
- Veterans organizations.

Instead of waiting for incidents to occur, representatives from the VACAPES Range Complex and NAVSPECWAR should meet on a quarterly basis to discuss community relations issues and plans.

There are several small environmental groups who are VACAPES Range Complex stakeholders. Recently, large organizations such as the NRDC and Ocean Futures Society have been taking a more active interest in VACAPES Range Complex activities, especially ocean-related exercises.

The VACAPES Range Complex should consider a more proactive strategy to initiate partnerships with environmental groups. Effective partnering could have secondary benefits, such as more positive coverage of the VACAPES Range Complex's environmental stewardship efforts by the local media.

Tactics: Some of the tactics that should be implemented to foster effective community outreach include the following.

- Identify a VACAPES Range Complex lead PAO or c___ ///*need to define* (CPL).
- Determine which individuals and groups are most important to VACAPES Range Complex community relations and then identify which range representative will have responsibility for interacting with and reporting back progress on each group or individual.
- Provide stories to local media.
- Aim for positive articles or opinion editorials on a quarterly basis, preferably written by one of VACAPES Range Complex's community partners.
- Initiate a quarterly newsletter and invite articles from strategic community and civic partners.
- Consider adopting a tracking system, similar to one already in place at the Atlantic Test Range to identify key POCs and range representatives, a calendar, and a database of each outreach activity.
- Allocate and assign range accountability for different community and civic organizations. The goal will be to develop trust and a feeling of partnership within the local community.

Current Status: The majority of outreach activities at VACAPES Range Complex are ad hoc. Each group maintains its own list of key community stakeholders.

CNRMA regularly sends representatives to local chamber of commerce meetings. However, individual range representatives do not coordinate their communications with specific groups and there is no centralized tracking system to monitor which groups have been contacted, what

messages have been communicated, and when the communication occurred.

10.4.1.4 NGOs and Environmental Groups

It is crucial to maintain strong relations with NGOs and environmental groups. It is recommended that the VACAPES Range Complex have regular, targeted outreach activities focused on these organizations.

Strategy: The VACAPES Range Complex should identify three to five NGOs and/or environmental groups for efforts to improve relationships.

Tactics: Some of the tactics that should be implemented to foster effective outreach with NGOs include the following.

- Develop a targeted list of NGOs and environmental groups
- Identify specific goals for the VACAPES Range Complex, such as "Improve relationship with Virginia Marine Science Museum by engaging in two collaborative projects per year."
- Assign ownership within VACAPES Range Complex so that Navy environmental stewardship is clearly communicated.
- Meet and partner with a selected group of NGOs and environmental groups. Partnering topics should be jointly decided.

Current Status: The VACAPES Range Complex has effective outreach with some NGOs. For example:

- The VACAPES Range Complex currently plays an active role in the Chesapeake Bay Foundation, and high-level Navy management from CNRMA sits on the Chesapeake Bay Foundation board.
- Representatives from the VACAPES Range Complex (either NAVFAC-Atlantic or CNRMA) support local science museums and universities.
- Recently, CNRMA participated at the Biennial Conference on the Biology of Marine Mammals by having a trade show booth.

The VACAPES Range Complex does not play an active role in larger NGOs, especially ones that focus on ocean or marine mammal issues. According to the NRDC, the Navy has "failed to take meaningful action to address those dangers in a manner consistent either with its responsibilities under federal law or its acknowledged commitment to environmental stewardship."

10.4.2 Media for Communicating Outreach Messages

Consistent with the approach already in use at the Atlantic Test Range, the VACAPES Range Complex needs to use an integrated approach employing multiple media to provide effective communication of outreach messages. Figure 10-1 summarizes approaches that could be used to create and maintain effective outreach with the four stakeholder groups and identifies some of the actions necessary to implement these approaches.

Medium	Example Actions Required to Provide Effective Implementation	Stakeholder Groups			
		Elected Officials	Regulatory Agencies	Community at Large	NGOs
Briefings	Precede by internal meetings to ensure all are aligned on messaging.	X	X	X	X
Brochures or hotline magnet	Define message. For example, what is the VACAPES Range Complex doing to promote the environment.			X	X
E-mail blasts	Define audience, frequency. Develop tailored messages for different audiences.	X	X		
Fact sheets	Provide VACAPES Complex data points and answer frequently asked questions (FAQs).			X	X
Hotline	Provide public with toll-free numbers.	X	X	X	X
Meetings	Conduct regularly scheduled meetings.	X	X		X
Messaging	Develop four sets of messaging bullets (for elected officials, regulatory agencies, community-at-large, and NGOs).	X	X	X	X
Newsletters (electronic & print)	Regional or VACAPES Complex ownership? *///intent is unclear*	X			X
Onsite visits, fly-bys, and air shows	Make request forms readily available through web-based access.			X	
Op Eds	Partner with community representatives or NGOs to co-write.			X	X
POC list	Establish one owner, such as a VACAPES Range Complex PAO. Provide as a user-friendly list posted to web site.	X	X	X	X
PowerPoint presentations	Establish ownership by PAO office. These could address key messages, hotline, etc.	X	X	X	X
Public meetings, forums, RABs and workshops	Convert from current ad hoc approach to a regular schedule with joint decisions on topics to be addressed.	X		X	X
Speakers' bureau	Develop topics for guest speakers; ensure all are aligned on messaging. Provide resumes for candidate speakers.		X	X	
Web-based material	Coordinate content with stakeholders to foster interest and use. Provide interactivity so stakeholders can file noise complaints or provide information on marine mammals. Provide shared information, such as POCs.	X	X	X	X
Video/DVD	Focus on education, such as information on noise and marine mammals			X	X

Figure 10-1. Suggested Outreach Materials

10.5 POINTS OF CONTACT

To the community outside of the range, there is no difference between FFC, FACSFAC, CNRMA, CNI, and NDW. Therefore, when outreach

activities occur, activities of all entities must appear integrated as "the VACAPES Range Complex." Ideally, there should be at least one senior FFC present during meetings with elected officials, regulatory agencies, NGOs, and community activities.

Figure 10-2 provides the suggested POCs for stakeholder communications (Space-holder provided below. Need to modify after working it through with SME). To ensure that all entities speak with one voice, POCs have been developed as a mechanism for regular communication and information sharing.

Organization, Person, and Role	E-mail	Phone	Responsibilities
FFC			
Mary Smith, communications director			
Joe Brown, media specialist			
FACSFAC			
CNRMA			

Figure 10-2. Suggested POCs for Stakeholder Communications

Key messages and a communications calendar will reside with the VACAPES PAO. Key stakeholder messages and POCs should be revised at least annually and posted on an internal Web site. Range POCs should be posted in a user-friendly manner on an external Web site.

10.6 SCHEDULE OF ACTIVITIES AND METRICS

The range complex should develop a quarterly schedule of outreach activities to ensure a balance of monthly government, regulatory, community, and non-governmental activities. These activities can take the form of briefings, meetings, newsletters or public forums.

- Activity-based metrics are best for tracking a standardized schedule of actions taken to build trust and promote ongoing relationships. Activity-based quantitative performance measures are included in Figure 10-3.
- Results-based metrics are more appropriate for measuring success in achieving specific objectives for particular range sustainability issues, such as favorable land use decisions and regulatory determination. Results-based performance measures are included in Figure 10-4.

Activity Based (quantitative)	Owner/ Accountability	Frequency	Total Possible Points
Internal			
E-mail to internal list/agencies/stakeholders alerting them of range POCs		Semiannually	6
Spokespeople trained on key messages		Annually	8
Key messages revised and posted on internal website		Annually	6
POC list updated		Semiannually	8
Cross-reference strategies, goals, and communications plan with DoD regional counterparts		Annually	4
Internal subtotal			32
External			
Print and have published at least one Op Ed piece, press release, and human interest story		Semiannually	4
Update and advertise website (with POC list, hotline number, etc.)		Semiannually	4
Update and distribute flyers/brochures/fact sheets		Annually	4
Meet in person with state and local elected officials		Annually	10
Quarterly meetings and debriefs with key regulatory agencies (including NOAA, NMFS, and FAA)		Quarterly	12
Semiannual visits to research institutions and NGOs		Semiannually	16
Visit/meet with two environmental groups		Semiannually	6
Visit/meet with two local business groups		Semiannually	4
Visit/meet with two local civic groups (such as Rotary or Kiwanis clubs)		Semiannually	4
Visit/meet with Virginia Beach, Chesapeake Bay and Manteo city council members			4
External subtotal			68
Total			100
Points			
100-90: on track, good job			
89-80: could use slight improvement			
79-70: allocate more resources to improve performance			
<70: strategy needs reevaluation			

Figure 10-3. Activity-Based Quantitative Performance Measure

Results Based (Majority Are Qualitative)	Owner/ Accountability	Total Possible Points
Internal		
Spokespeople and POCs identified		10
Spokespeople trained on key messages		10
FFC, CNRMA, NDW, NAS Oceana, FACSFAC, Navy Dare County Range, and Atlantic Test Range management know POCs for each stakeholder group		10
Cross-referenced strategies, goals, and communications plan with DoD regional counterparts		10
Internal Subtotal		40
External		
Decisions at the local county government level support VACAPES Range Complex		10
Congressional funding supports investment strategy		10
NOAA and NMFS decisions support VACAPES Range Complex potential to expand or maintain current activities		20
FAA decisions support strategic vision		10
Progress made in outlying field negotiations		10
External subtotal		60
Total		100
Points		
100-90: on track, good job		
89-80: could use slight improvement		
79-70: allocate more resources to improve performance		
<70: strategy needs reevaluation		

Figure 10-4. Results-Based Performance Measure

10.7 SUPPLEMENTAL INFORMATION

10.7.1 List of Key Stakeholders

10.7.1.1 Elected Officials

- Senators for Maryland, Virginia and North Carolina
- U.S. House of Representatives for Maryland (District 5), Virginia (District 2) and North Carolina (District 1)
- Governors for Maryland, Virginia, and North Carolina
- State assembly members Maryland (Districts 1 and 5), Virginia (Districts 5-8, 13-18, 21, and 76-90) and North Carolina (Districts 1-6 and 12)
- Mayors and city council members from cities in Maryland, Virginia and North Carolina

10.7.1.2 Government or Environmental Related Meetings/Conferences

- Biennial Conference on the Biology of Marine Mammals
- Dare Bombing Range Advisory Council (DBRAC)

- Marine Mammal Commission's Advisory Committee on Acoustic Impacts on Marine Mammals
- Ocean's Week

10.7.1.3 Regulatory Groups

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Chesapeake Biological Laboratory
- City of Chesapeake
- City of Virginia Beach
- Federal Aviation Administration
- Maryland Department of the Environment
- ///*Other Maryland regulators*?
- National Marine Fisheries Service
- National Oceanic and Atmospheric Administration
- NC Department of Conservation and Natural Resources
- NC Department of Environment and Natural Resources
- NC Fish and Game
- NC Wildlife Resources Commission
- NC Division of Marine Fisheries
- US Forest Service
- US Army Corps of Engineers
- US Department of Agriculture
- US Environmental Protection Agency
- US Fish & Wildlife Service
- US Geological Survey
- VA Chesapeake Bay Local Assistance Department
- VA Department of Conservation and Recreation
- VA Department of Environmental Quality
- VA Department of Game and Inland Fisheries
- VA Department. of Historic Resources
- VA Division of Fish & Game
- VA Marine Resources Commission
- Wetlands boards (each Virginia municipality has its own board)

10.7.1.4 Businesses, Community Groups, and NGOs

- Chambers of Commerce
- Charter boat companies
- Chesapeake Economic Development Department
- *Coastal Conservation Association*
- *Concerned Citizens Against Jet Noise (CAJN)*
- Duke University
- Elks Lodge
- Geomarine
- Hampton Roads Planning District Commission
- Kiwanis Club
- Land developers
- Lions Club

- Maersk (shipping company)
- MD Waterman's Association
- Navy League
- NC Coastal Conservation
- NC Fishermen's Association
- *NC Wildlife Federation*
- *Public Employees for Environmental Responsibility*
- Rotary Club
- Sealands (shipping company)
- Smithsonian Institution
- University of Rhode Island
- VA Beach Economic Development Dept.
- *VA Coastal Conservation Association*
- VA Coastal Federation

///Jan Snyder note: move groups *in italics* into 10.7.1.5? There is some duplication between these two sections.

10.7.1.5 Environmental Groups

- Alliance for the Chesapeake Bay
- Alligator Refuge at Navy Dare
- Audubon Society
- *Baltimore Aquarium*
- *Center for Biological Diversity*
- *Center for Public Environmental Oversight*
- *Chesapeake Bay Foundation*
- *Chesapeake Bay Funders Network (///confirm that funders is correct)*
- *Chesapeake Bay Program*
- *Chesapeake Bay Research Consortium*
- *Chesapeake Foundation*
- Coastal Conservation Association
- Defenders of Wildlife
- *Dive clubs/groups*
  - *Lynnhaven Dive Center*
- *Dorchester (MD) Fishing Club*
- Ducks Unlimited
- Environmental Defense Fund
- Friends of Chesapeake
- Human Society
- International Fund for Animal Welfare
- Marine Mammal Commission
- Members of the Elizabeth River Project (ERP)
- National Marine Sanctuary Program
- National Wildlife Federation
- Natural Resources Defense Council
- NO OLF (Outlying Landing Field)
- Ocean Conservancy
- Ocean Futures Society
- Oceana (www.oceana.org)

- People for the Ethical Treatment of Animals (PETA)
- Potomac River Association
- Sierra Club
- Surfrider
- VA Institute of Marine Science
- VA Marine Science Museum
- VA Marine Resources Commission

10.7.1.6 Local Media

- Hampton Roads Daily Press
- Virginia Pilot
- Washington Daily News

10.7.1.7 Religious Leaders

10.7.1.8 Navy, Military, or Veterans Organizations

- Air Force (at Navy Dare County Range)
- Daughters of Union Veterans of the Civil War
- Disabled American Veterans
- Fleet Reserve Association
- Navy League
- Navy Special Warfare Group (NAVSPECWAR)

CHAPTER 11 INVESTMENT PLAN

Chapter 11, Investment Plan, will be developed and included in the 100% Draft.

This page intentionally left blank