

The background features a vertical film strip on the left side, showing various frames of a landscape. To the right, there are stylized blue waves. The overall color palette is dominated by blues and greens.

Hurricane Readiness for Coastal Communities

Participant Guide

Developed for:

Federal Emergency Management Agency
Emergency Management Institute
16825 South Seton Avenue
Emmitsburg, MD 21727-8998

Developed by:

C² Technologies, Inc.
1921 Gallows Road, Suite 840
Vienna, VA 22182
(703) 748-2780
www.c2ti.com

March 2006

TABLE OF CONTENTS

Unit 1: Course Introduction

Introduction	1-1
Objectives	1-1
Methodology.....	1-1
Welcome and Introductions.....	1-2
Unit 1: Course Introduction	1-2
Administrative Details.....	1-3
Activity 1:1—Getting to Know Each Other	1-4
Course Background	1-5
Course Goal.....	1-5
Course Objectives.....	1-6
Course Agenda	1-7
Course Materials.....	1-8
Unit 1—Appendix	1-9
FEMA—G-363 HURRICANE READINESS—ACRONYMS, TERMS, AND DEFINITIONS	1-9

Unit 2: Hurricane Readiness

Introduction	2-1
Objectives	2-1
Methodology.....	2-1
Unit 2: Hurricane Readiness	2-2
Hurricane Readiness Checklist (HRC).....	2-3
Phases of the HRC	2-4
Importance of the HRC	2-4
Key Individuals and Agencies	2-5
Examples of Key Individuals/Agencies	2-6
Communication	2-6
Emergency Support Functions (ESFs).....	2-7
ESF #1—Transportation	2-7
ESF #2—Communications.....	2-8
ESF #3—Public Works and Engineering	2-8
ESF #4—Firefighting.....	2-9
ESF #5—Emergency Management	2-9
ESF #6—Mass Care, Housing, and Human Services.....	2-10
ESF #7—Resource Support.....	2-10
ESF #8—Public Health and Medical Services	2-11
ESF #9—Urban Search and Rescue	2-11
ESF #10—Oil and Hazardous Materials Response.....	2-12
ESF #11—Agriculture and National Resources.....	2-12
ESF #12—Energy	2-13

ESF #13—Public Safety and Security.....2-13
 ESF #14—Long-Term Community Recovery and Mitigation2-14
 ESF #15—External Affairs2-14
 Activity 2:1—Hurricane Readiness—Coastal Communities2-15

Unit 3: Hurricanes and Hazards

Introduction3-1
 Objectives3-1
 Methodology.....3-1
 Unit 3: Hurricanes and Hazards3-2
 Basics.....3-3
 Hurricane Strength3-4
 Tropical Storm and Hurricane Effects3-4
 Storm Surge3-5
 Coastal and Inland Winds3-5
 Tornadoes3-6
 Flooding3-6
 Activity 3:1—Assessing Hurricane Hazards3-7
 Lessons Learned.....3-7

Unit 4: Pre-Season Readiness

Introduction4-1
 Objectives4-1
 Methodology.....4-1
 Unit 4: Pre-Season Readiness.....4-2
 Pre-Season Readiness Decision-Making.....4-3
 Evaluate Plans4-4
 Test/Update Tools and Equipment.....4-4
 Hurricane Awareness Study.....4-5
 NWS Coordination4-5
 Conduct Training.....4-6
 Public Education and Awareness.....4-6
 Published Materials.....4-7
 Television, Radio, and the Internet4-7
 Public Forums4-8
 Partner Organizations4-8
 Activity 4:1—Pre-Season Actions for Public Education and Awareness.....4-10
 Lessons Learned.....4-12

Unit 5: Hurricane Evacuation Studies

Introduction5-1

Objectives5-1

Methodology.....5-2

Unit 5: Hurricane Evacuation Studies5-3

Overview of the Hurricane Evacuation Studies (HES)5-4

Who Is Involved?.....5-5

Products Maintained in the HES5-5

Hazard Analysis5-6

Storm Tide Maps.....5-7

Vulnerability Analysis5-7

Behavioral Analysis.....5-8

Evacuation Zones5-8

Evacuation Zone Maps5-9

Transportation Analysis.....5-9

HURREVAC5-10

Post-Storm Hurricane Assessment5-14

PSA Process5-14

HES Website.....5-15

Other Post-Disaster Reports5-15

Activity 5:1—Using HES Products5-16

Lessons Learned.....5-16

Unit 6: Monitoring the Hurricane

Introduction6-1

Objectives6-1

Unit 6: Monitoring the Hurricane6-2

Monitoring the Storm.....6-3

Hurricane Forecasting Organizations.....6-3

Hurricane Liaison Team6-4

Hurricane Liaison Team Members6-4

NHC Advisory Products6-5

1. Tropical Storm Public Advisory—General Public6-5

2. Tropical Storm Forecast/Advisory6-7

3. Tropical Storm Discussions.....6-7

4. Tropical Cyclone Wind Speed Probabilities6-8

WFO Hurricane Local Statements6-8

Inland Tropical Storm/Hurricane Watches and Warnings6-9

Tracking Tropical Storm/Hurricane-Force Winds6-9

Hurricane Forecasting.....6-10

Three Main Sources of Errors6-11

Inaccuracies in Observations6-11

Probabilities and Margins of Error6-12

Errors in Forecasting Hurricane Track6-12

Track Errors and Evacuation Decisions6-13

Errors in Forecasting Hurricane Intensity6-13

HURREVAC as a Forecasting Display Tool..... 6-14
 Activity 6:1—Preparedness and Evacuation Planning 6-14
 Lessons Learned..... 6-15

Unit 7: Evacuation Decision Considerations

Introduction 7-1
 Objectives 7-1
 Methodology..... 7-1
 Unit 7: Evacuation Decision Considerations 7-2
 Decision-Making Process..... 7-3
 Protective Action Decision-Making..... 7-4
 Hurricane Evacuation Study (HES)..... 7-4
 HES Planning Process..... 7-5
 Forecast Factors 7-5
 Rule of Thumb..... 7-6
 Vulnerable Facilities 7-6
 Who is Most Vulnerable? 7-7
 Who Needs To Leave or Stay? 7-7
 In-County vs. Out-of-County Evacuations..... 7-8
 Risk Profile..... 7-8
 Risk-Profiling Questions..... 7-9
 Storm Probabilities and Direction..... 7-9
 Storm Intensity Factors 7-10
 Local Government Demographic and Storm Location Factors 7-10
 Evacuation Timing Considerations..... 7-11
 Regional Considerations 7-11
 Regional Communications 7-12
 Shelter Considerations..... 7-12
 Activity 7:1—Guided Discussion—Current Issues 7-13
 Lessons Learned..... 7-13

Unit 8: Re-entry

Introduction 8-1
 Objectives 8-1
 Methodology..... 8-1
 Unit 8: Re-entry 8-2
 Re-entry Guidelines 8-3
 Evacuation vs. Re-entry 8-3
 Re-entry Priority 8-4
 Safety Considerations 8-4
 Security Considerations 8-5
 Traffic 8-5
 Zones 8-6
 Public Information 8-6
 Hurricane Re-entry: Facts or Myths? 8-7
 Re-entry Emergency Support Functions (ESFs)..... 8-8
 Activity 8:1—Best Practices 8-9

Lessons Learned.....	8-9
Unit 9: Hurricane Readiness Checklist	
Introduction	9-1
Objectives	9-1
Methodology.....	9-1
Unit 9: Hurricane Readiness Checklist.....	9-2
Hurricane Readiness Checklist (HRC).....	9-3
Hurricane Readiness Checklist Sample.....	9-3
Pre-Season Action Considerations	9-4
120 Hours Before Landfall of Tropical Storm-Force Winds.....	9-4
72 Hours Before Landfall of Tropical Storm-Force Winds.....	9-5
48–36 Hours Before Landfall of Tropical Storm-Force Winds.....	9-5
24 Hours Before Landfall of Tropical Storm-Force Winds.....	9-6
Impact	9-6
Post-Landfall	9-7
Activity 9:1—Hurricane Readiness Checklist.....	9-7
Lessons Learned.....	9-8
Unit 10: Conclusion	
Introduction	10-1
Objectives	10-1
Methodology.....	10-1
Unit 10: Conclusion.....	10-2
Jurisdictional Plan	10-3
Takeaways.....	10-3
Resources Opportunities for Hurricane Planning.....	10-4
Training Opportunities.....	10-4
Course Review and Evaluation	10-5
Conclusion	10-5