NAVY TRAINING SYSTEM PLAN

FOR THE

MORIAH PROGRAM

N78-NTSP-A-50-0001A/A

SEPTEMBER 2002

MORIAH PROGRAM

EXECUTIVE SUMMARY

This Navy Training System Plan (NTSP) for the Moriah Program was developed by NAVAIR. This document provides the current manpower, personnel, and training concepts for the United States Navy (USN) and United States Marine Corps (USMC) to introduce and sustain the Moriah Program.

The Moriah Program consists of the Meteorology and Oceanography (METOC) and Wind systems. The METOC portion of Moriah is in the System Development and Demonstration phase of the Defense Acquisition System (DAS) awaiting Milestone C approval, projected for fourth quarter Fiscal Year (FY) 02. After Milestone C approval, the METOC portion of the Moriah Program will go into the Production and Deployment phase of the DAS. The Wind portion of Moriah is awaiting the release of the Request for Proposal, which is anticipated in late FY02.

The Moriah Program involves the integration of three emerging wind and meteorological systems into a single environmental conditions monitoring program that will apply new sensors, processors, and local area networks to provide a combined wind, meteorological, and oceanographic measuring and indicating system. Moriah will present airfield and battlegroup decision-makers with a unified picture of the ever-changing atmospheric conditions around a ship or shore station.

An operational and maintenance workload analysis indicates there will be no need to increase end-strength or change force structure in order to implement and support the Moriah Program. Personnel in the existing USN ratings of Aerographer's Mate (AG), Electronics Technician (ET), Quartermaster (QM), and Fire Controlman (FC) will perform system operation, and Interior Communications Electricians (IC) will perform maintenance. An Information System Technician (IT) will maintain network administration systems. The USMC Military Occupational Specialties (MOS) are MOS 6821 - Weather Observer and 6842 - Weather Forecaster for operation, and 6493 - Aviation Meteorological Equipment Technician for maintenance. Existing fleet manpower is adequate for all operational and maintenance tasking associated with the Moriah program.

The training concept to support Moriah provides for initial training during installation and Computer-Based Training (CBT) for follow-on training. A contractor, in conjunction with NAVAIR (Naval Air Warfare Center Aircraft Division, Lakehurst, New Jersey) will create the CBT that will be used on Navy ships and Navy and Marine Corps Air Stations. This CBT is planned to be available in FY04.

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LIST OF ACRONYMS

ACDS	Advanced Combat Direction System
ADMACS	Aviation Data Management and Control System
AFB	Air Force Base
AG	Aerographer's Mate
AIT	Alteration Installation Team
ASOS	Automated Surface Observing System
BIT	Built-In Test
CBT	Computer-Based Training
CG	Guided Missile Cruiser
CINCLANTFLT	Commander in Chief Atlantic Fleet
CINCPACFLT	Commander in Chief Pacific Fleet
CNET	Chief of Naval Education and Training
CNO	Chief of Naval Operations
CV	Aircraft Carrier
CVN	Aircraft Carrier Nuclear
DDG	Guided Missile Destroyer
DT	Developmental Test
ET	Electronics Technician
FC	Fire Controlman
FMS	Foreign Military Sales
FY	Fiscal Year
GCCS	Global Command and Control System
GFE	Government Furnished Equipment
HSI	Human Systems Integration
IC	Interior Communications Electrician
ICAN	Integrated Communications and Advanced Networks
IOC	Input-Output Controller
JMCIS	Joint Maritime Command Information System

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LIST OF ACRONYMS

LAN	Local Area Network
LHA	Helicopter Landing and Amphibious Aviation Assault Ship
LHD	Amphibious Assault Ship (Special Purpose)
LPD	Amphibious Assault Ship (Dock)
MCCDC	Marine Corps Combat Development Command
MET	Meteorological
METOC	Meteorological and Oceanographic
MOS	Military Occupational Specialty
MSD	Material Support Date
NA	Not Applicable
NAVAIRSYSCOM	Naval Air Systems Command
NAVPERSCOM	Naval Personnel Command
NAWCADLKE	Naval Air Warfare Center Aircraft Division Lakehurst
NTSP	Navy Training System Plan
NTTU	Navy Technical Training Unit
OPEVAL	Operational Evaluation
OPNAV	Office of the Chief of Naval Operations
OPO	OPNAV Principal Official
OT	Operational Test
PDA	Principal Development Activity
PDR	Program Design Review
PMA	Program Manager, Air
PMW	Program Manager, Warfare
PQS	Personnel Qualification Standards
QM	Quartermaster
RFP	Request For Proposal
SERVSCOLCOM	Service Schools Command
SPAWARSYSCOM	Space and Warfare Systems Command
SST	Sea-Sky Temperature
SWIT	Sea Water Intake Temperature

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LIST OF ACRONYMS

TBD	To Be Determined
TECHEVAL	Technical Evaluation
TMCR	Technical Manual Contract Requirement
TSA	Training Support Agency
TTE	Technical Training Equipment
USMC	United States Marine Corps
USN	United States Navy
VRT	Voyage Repair Team
WMIS	Wind Measuring and Indicating System

MORIAH PROGRAM

PREFACE

This Approved Navy Training System Plan (NTSP) updates the Draft Moriah NTSP, N88-NTSP-A-50-0001A/D, dated December 2001, and complies with guidelines set forth in the Navy Training Requirements Documentation Manual, Office of the Chief of Naval Operations (OPNAV) Publication P-751-1-9-97.

This iteration deletes all references to the Shipboard Meteorological and Oceanographic Observation System Replacement (SMOOS(R)) in accordance with a comment received from Space and Warfare Systems Command (SPAWARSYSCOM) Code 04H-4.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. Nomenclature-Title-Acronym. Moriah Program

2. Program Element. 0604512N

B. SECURITY CLASSIFICATION

1. System Characteristics .... Unclassified
2. Capabilities .... Unclassified
3. Functions .... Unclassified

C. Manpower, Personnel, and Training Principals

OPNAV Principal Official (OPO) Program Sponsor .... CNO (N962)

OPO Resource Sponsor .... CNO (N962)

Developing Agency .... NAVAIRSYSCOM (PMA251)
SPAWARSYSCOM (PMW155)

Training Agency .... CINCLANTFLT
CINCPACFLT
CNET

Training Support Agency .... NAVAIRSYSCOM (PMA205)

Manpower and Personnel Mission Sponsor .... CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)

Director of Naval Training .... CNO (N795)

Marine Corps Force Structure .... MCCDC (C53)

D. SYSTEM DESCRIPTION

1. Operational Uses. The Moriah Program will replace the wind speed and direction sensors and associated displays on all ships and United States Navy (USN) and United States

Marine Corps (USMC) Air Stations. It will provide a single METOC sensor suite consistent across all ship types, and will include all required METOC observations. The sensor subsystem of Moriah will measure all METOC conditions including wind speed and direction, barometric pressure, air temperature, sea surface temperature, relative humidity, visibility, insolation (incoming solar radiation), and cloud height. These in situ (local) meteorological measurements will be used for calculations of vertical profile and evaporation ducts. The sensors will provide data to the automated data acquisition, processing, and distribution subsystems. The data acquisition system will acquire data from its sensors and from interfaces with other data acquisition systems such as ship navigation systems, and provide formatted data to shipboard systems and off-board locations. The capability to store data will be provided in both readily accessible formats for a minimum of 24 hours and in an archived format for longer-term storage.

2. **Foreign Military Sales.** No Foreign Military Sales (FMS) are planned at this time.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. Over the past several years, individual demonstrations and validations were performed on Moriah systems and components to reduce risk to the Moriah Program. The three emerging systems that make up Moriah were given individual demonstrations and validations of their systems and components. Developmental Test (DT) and Operational Test (OT) for the Wind side of Moriah are not scheduled since the Request For Proposal (RFP) has not been signed and released yet. DT and OT are expected to be accomplished in Fiscal Year (FY) 03 on a ship To Be Determined (TBD). For the METOC side of Moriah, DT and OT will occur aboard the USS Coronado (AGF-11) beginning in first quarter FY03. After completion of DT and OT, Technical Evaluation (TECHEVAL) and Operational Evaluation (OPEVAL) will follow. TECHEVAL is expected to require less than thirty days and OPEVAL is expected to take thirty days. Additional information on DT, OT, TECHEVAL, and OPEVAL will be included in updates to this NTSP.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The Moriah Wind System will replace the AN/UMQ-5 Wind Speed and Direction System installed at USN and USMC Air Stations. The Wind Measuring and Indicating System (WMIS) installed on ships and the Moriah METOC will replace the Shipboard Environmental Assessment/Weapon System Performance (SEAWASP) system.

G. DESCRIPTION OF NEW DEVELOPMENT

1. **Functional Description.** For all ship types, Moriah will provide a combined wind, meteorological, and oceanographic measuring and indicating system of the environmental conditions around the ship and in the battlegroup. Moriah will provide continuous data for display and direct digital or analog input to ship systems. Moriah will provide continuous output of the parameters measured by the sensors and processed by the Moriah central processor in standard units of measure as required by the end users (systems and people). These units of measure and the algorithms or formulas used to convert base output data will be identified in

appropriate system specification documents. Moriah will use open system architecture to reduce the integration effort of additional sensors.

Moriah will have the capability to select valid data and process that data to provide system performance parameters. Moriah will be capable of providing data for storage on multimedia mass storage devices. These interfaces, including system nomenclature, location on ship, required data format, and required sampling frequency to meet user-defined update rates will be iterated in a separate interface specification document.

Moriah will provide multiple display types with different levels of capability to include stand-alone continuous sensor information, aircraft launch and recovery decision aids, and control functions and maintenance diagnostics. Displays will be capable of displaying both digital and analog graphics and will be usable both during daylight and during nighttime reduced light conditions. Moriah will be capable of outputting National Television Standard C for ship's closed circuit television systems.

In addition to the above shipboard requirement, the sensor suites procured by the Moriah Program will also be used to satisfy shore-based installation requirements as a partial replacement for augmentation to the Automated Surface Observing System (ASOS) and as a replacement for the AN/UMQ-5 Wind Speed and Direction System. The ASOS was a joint program of the National Oceanographic and Atmospheric Agency, USN, Department of Transportation, and Federal Aviation Administration, with the National Weather Service as the lead procurement agency. ASOS is installed at USN and USMC Air Stations in the continental United States and abroad. Certain sensors may require replacement in existing installations. Other Air Stations that did not receive ASOS may have a current requirement that can be satisfied by Moriah.

The wind speed and direction subsystem of Moriah will satisfy the requirements to replace the AN/UMQ-5, as well as augmentation for end-of-runway requirements submitted by the Type Commanders where installation costs are not prohibitive. Replacing the AN/UMQ-5 with Moriah will be advantageous in that it will allow all USN wind systems to be uniform, saving maintenance and procurement costs.

The Moriah system consists of five major components as subsystems:

- ° Wind sensing
- ° Data processing
- ° Data distribution
- ° Data display

The system is designed to be modular so that it may interface with various types of displays and sensing equipment as well as with existing or legacy ship systems and wind system components when required. The following paragraphs contain a brief description of each component or subsystem and its basic function.

a. Wind Sensors for Moriah Wind. The Moriah Wind System has been designed to use new sensor technology while maintaining backward compatibility with existing WMIS detectors based on older synchro technology that have a long service history in the fleet. The Moriah system also has the ability to interface with new solid state wind sensors such as those based on sonic measurement technology. These types of sensors require little or no preventive maintenance and are capable of transmitting wind speed and direction data in a digital format (such as RS-422). The new wind sensors will be mounted in approximately the same locations as the existing detectors (port, starboard, and forward) so that no revalidation of aircraft launch and recovery envelopes will be required. Wind data (either synchro or digital) from all sensors will be routed to both Moriah processors.

b. Data Processing for Moriah Wind. The data processing component of the Moriah Wind System acquires and processes all of the data critical to the launch and recovery tasks. Due to the safety of flight nature of these functions, it is planned that the core Moriah processing function will be executed within two self-checking central processing units.

c. Data Distribution. The shipboard data distribution system is the Integrated Communications and Advanced Networks (ICAN). It will be used to transmit Moriah information to various displays throughout the ship. It is planned that each Moriah processor will connect to a separate ICAN Input-Output Controller (IOC) via Ethernet. However, only the processor designated as primary will be transmitting information to its respective IOC for distribution.

d. Data Displays for Moriah Wind. Multiple display types will be available to support the differing requirements of individual watch-stations. All high-end displays will be connected to IOC local to their particular location via Ethernet. Several high-end displays may be connected to one IOC if necessary. High-end displays will display information such as: true wind speed and direction, relative wind speed and direction, crosswind and/or headwind, ship's speed and course, launch and recovery bulletins, fox corpen data[1], limited meteorological data, etc. Low-end displays will also be connected to local IOCs or directly to the Moriah processors via an RS-422 digital serial interface. As with the high-end displays, several low-end displays may be connected to one IOC if necessary. Low-end displays will display either relative wind speed and direction or crosswind and headwind information.

2. Physical Description. Physical descriptions are not available at this time. As descriptive information becomes available, it will be included in updates to this NTSP.

3. New Development Introduction. The Moriah Program equipment will be introduced as new production equipment based upon the Moriah operational and support concepts, with heavy reliance on Non-Developmental Item (NDI), Commercial Off-The-Shelf (COTS), and

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1 Fox corpen data was previously calculated on a slide-rule. It is data used while landing an aircraft. It would recommend a ship's course to steer to get the correct wind speed and direction. In the Moriah system it will be calculated automatically and displayed. However, it is only a recommendation for perfect conditions.

Government Off-The-Shelf (GOTS) hardware, software, and firmware, repackaged for the shipboard operating environment.

4. Significant Interfaces. Moriah will interface with other systems through designated circuits or local networks for data acquisition and display, where applicable. Examples of other systems to be interfaced include the Joint Maritime Command Information System (JMCIS), Global Command and Control System (GCCS), ICAN, Aviation Data Management and Control System (ADMACS), Advanced Combat Direction System (ACDS), and Sonar Local Area Network (LAN). Data rates and formats will be compatible with network interface requirements. The Interface Specification document will define the top-level interface requirements and will be updated as interfaces are added, changed, or deleted.

5. New Features, Configurations, or Material. Not Applicable (NA)

H. CONCEPTS

1. Operational Concept. Moriah will be activated during all underway periods for 24 hours per day. Moriah will be fully mission capable in all weather conditions (tropical to arctic), heavy seas with wave heights up to 20 feet, and wind speeds up to 125 knots. Moriah will continuously sample the environmental battle-space and will display this information, along with direct digital and synchro input to weapons systems. Additionally, the data will be archived and disseminated in Naval message format. Moriah Wind and METOC will both have a flexible open architecture. Both will be modular in design and capable of being deployed in a variety of configurations that will address the specific requirements of each particular user community.

Personnel from the existing USN ratings Aerographer's Mate (AG), Electronics Technician (ET), Quartermaster (QM), and Fire Controlman (FC) will perform operation; Interior Communications Electrician (IC) personnel will be the maintainers. An Information System Technician (IT) will be used to maintain the network.

2. Maintenance Concept. Moriah equipment will incorporate a self-contained diagnostic and Built-In Test (BIT) system, continuity or systems degradation alarms, redundant paths for continuous operations in a combat or damage control environment, and operator reconfiguration capability without impacting system operations. Ancillary equipment such as wind direction and speed detectors, transmitters, and indicators are also being investigated for upgrade. At this time there is no indication that any change to these devices will significantly affect the Moriah maintenance concept.

The USMC Military Occupational Specialties (MOS) are:

For operation........ MOS 6821, Weather Observer
MOS 6842, Weather Forecaster

For maintenance... MOS 6493, Aviation Meteorological Equipment Technician

a. Organizational. Organizational level maintenance will be performed by USN IC and by USMC MOS 6493, Aviation Meteorological Equipment Technician personnel. Organizational level maintenance will include self-contained diagnostic tests and BIT; if the unit is not working properly, the unit under test will be removed and replaced.

                (1) Preventive Maintenance. Preventive maintenance will consist of periodic checks, filter replacement, and corrosion control, and will be determined through Reliability-Centered Maintenance (RCM) analysis.

                (2) Corrective Maintenance. Corrective maintenance will consist of self-contained diagnostic tests and BIT as required, with removal and replacement of defective units as necessary.

        b. Intermediate. No intermediate level maintenance will be required. All failed units will be returned to the vendor for repair or disposed of by ship's force.

        c. Depot. The vendor will provide depot level maintenance.

        d. Interim Maintenance. The vendor will provide interim maintenance.

        e. Life Cycle Maintenance Plan. There will be no mandatory overhaul period required for the Moriah systems.

     3. Manning Concept. There will be no increase in end-strength or change in force structure as a result of the Moriah Program. Current fleet manpower is adequate to perform all tasking required by the Moriah Program.

        a. Estimated Maintenance Man-Hours per Operating Hour. The basic architecture of the Moriah system is still undetermined. Consequently, it is too early to predict the estimated Maintenance Man-Hours per Operating Hour. The requirement is for no maintenance action to exceed two hours. At this time, it appears that this is achievable. Information listed below was extracted from the Draft Moriah System/Segment Specification.

PARAMETER	THRESHOLD	OBJECTIVE
Operational Availability	0.969	0.981
Mean Time Between Operational Maintenance Failures	4,320 hours	7,000 hours
Mean Corrective Maintenance Time per Operational Mission Failure	2 hours	1 hour
Preventive Maintenance	Less than 10 hours per quarter	

      b. Proposed Utilization. The Moriah system will be activated during all underway periods for 24 hours per day. The Moriah system will also be operated at USN and USMC Air Stations for 24 hours per day.

      c. Recommended Qualitative and Quantitative Manpower Requirements. Manpower currently exists in appropriate quantities in both the USN and USMC. Operational and maintenance functions will be assigned to existing USN and USMC personnel at the activities receiving the Moriah system.

      4. Training Concept. A contractor, in conjunction with NAVAIR [Naval Air Warfare Center Aircraft Division, Lakehurst (NAWCADLKE), New Jersey] will create Computer-Based Training (CBT) that will be used on Navy ships and USN and USMC Air Stations as Onboard Training to develop the skills of personnel operating and maintaining Moriah equipment. This has been judged to be the most efficient and cost-effective scenario. At this point in the acquisition process, the contract for CBT development has not yet been awarded. No formal follow-on training is anticipated at this time. The onboard CBT is planned to be available in FY04.

      There will also be an introduction to the Moriah system included in the AG "A" School, USMC Weather Observer School, and USMC Weather Forecaster School by Navy Technical Training Unit (NTTU), Keesler Air Force Base (AFB), Biloxi, Mississippi.

      a. Initial Training. Alteration Installation Teams (AIT), Voyage Repair Teams (VRT), and shipyard personnel will provide initial training during installation of the particular Moriah system. This training is considered adequate until FY04 (pending availability of the onboard CBT).

      (1) Operator. Initial training for operators will be provided by AITs, VRTs, and shipyard personnel during Moriah equipment installation and checkout.

      (2) Maintenance. Initial training for maintainers will be provided by AITs, VRTs, and shipyard personnel during Moriah equipment installation and checkout. Initial training will include:

        ° Test and check of the Moriah system
        ° BIT procedures
        ° Cleaning
        ° Filter changing
        ° Corrosion control
        ° Removal and replacement of the failed unit

      Initial training will be provided to USN IC personnel and USMC MOS 6493, Aviation Meteorological Equipment Technician.

b. Follow-on Training. There will be no operator or maintainer follow-on training. Fleet training requirements will be satisfied via onboard proficiency training as shown in Paragraph I, Onboard (In-Service) Training.

c. Student Profiles

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
IC	° A-623-0105, Interior Communications Electrician Class A
ET	° A-100-0138, Electronics Technician Core "A" School ° A-100-0140, Electronics Technician Strand "A" School
AG	° C-420-2010, Aerographer's Mate "A" School
MOS 6493	° A-100-0138, Electronics Technician Core "A" School ° A-100-0140, Electronics Technician Strand "A" School ° C-198-3899, Meteorological Equipment Maintenance Class C1 USMC
MOS 6821	° E3AQR1W031, Basic Weather
MOS 6842	° E3AQR1W031, Basic Weather ° E3AAR1W071, Meteorological and Oceanographer Analyst/Forecaster

d. Training Pipelines. NA

I. ONBOARD (IN-SERVICE) TRAINING

1. Proficiency or Other Training Organic to the New Development. Proficiency training will be provided to operator and maintainer personnel as onboard training and beginning in FY04, via contractor-developed CBT. On-the-Job Training will also be provided as required to enhance the skills and knowledge of individuals.

2. Personnel Qualification Standards. Pending a decision, if Personnel Qualification Standards (PQS) will be required, it will be provided by the PQS Development Center. PQS requirement information will be updated in this NTSP, as it becomes available.

3. Other Onboard or In-Service Training Packages. NA

J. LOGISTICS

1. Manufacturer and Contract Numbers. The Moriah Wind production systems integration and manufacturing contract will be a competitively awarded firm fixed price contract for the various production lots. Using the systems performance specification, NAWCADLKE will award a contract to one production system contractor who will integrate, manufacture, and deliver Moriah production systems to the USN for shipboard installation. Information on the Moriah Wind contract will be included in updates of this NTSP.

The Moriah METOC production systems integration and manufacturing contract will be a competitively awarded firm fixed price contract for the various production lots. Using the systems performance specification, SPAWARSYSCOM will award a contract to one production system contractor who will integrate, manufacture, and deliver Moriah production systems to the USN for shipboard installation. Moriah METOC contract information will be included in future editions of this NTSP.

Shipboard installation of the production systems will not be included in the production contract, but will be contracted separately for various sources, including AITs, VRTs, and shipyard personnel. Interface Control Documents that identify the Moriah configuration and data interfaces for each ship class will be used as the basis for all installations. As more specific information becomes available, it will be included in updates to this NTSP.

2. Program Documentation. Program documentation currently consists of:

- ° Moriah Operational Requirements Document
- ° Memorandum of Agreement for Moriah
- ° Acquisition Strategy for Moriah
- ° Minutes of the Moriah Preliminary Design Review (PDR)
- ° System Specification

As additional documentation becomes available, it will be included in updates to this NTSP.

3. Technical Data Plan. Technical documentation, including Maintenance Instruction Manuals, Maintenance Requirements Cards, User Logistic Support Summary, Integrated Logistic Support Plan, etc., will be provided by the contractor upon system installation and checkout. Technical Manual Contract Requirement (TMCR) Number 56-99 has been issued by Naval Air Technical Data and Engineering Service Command (NATEC). The TMCR is outdated and will be revised prior to contract award. As additional technical data information becomes available, it will be included in updates to this NTSP.

4. Test Sets, Tools, and Test Equipment. Only Technical Training Equipment (TTE) will be required at the organizational maintenance level. Special Purpose Electronic Test Equipment (SPETE) may be required at the depot (if organic).

5. Repair Parts. An In-Service Engineering Agent will provide interim spare parts support as Moriah is provisioned into the Navy Supply System. The Moriah Wind Material Support Date (MSD) is estimated to occur in FY07. The MSD for METOC has not been established.

6. Human Systems Integration. A Human Systems Integration (HSI) program will be organized to achieve the effective integration of personnel factors into the design of the system. The HSI effort will include, but not necessarily be limited to, active participation in the following three major interrelated areas of system development: analysis, design and development, and test and evaluation.

K. SCHEDULES. Office of the Chief of Naval Operations (N096) began funding the procurement of the METOC portion of Moriah for all types of ships (approximately 218 ships) and 35 USMC and USN Air Stations in FY01. Separate acquisition strategies address N85, N86, and N88 procurement of the Wind portion of Moriah for their respective ship types (approximately 151 ships). The RFP for Moriah Wind will be issued in FY02. Within the Moriah program, the two sub-components will be on slightly different timelines. Since Moriah Wind is advanced technology, it will be fielded first.

1. Installation and Delivery Schedules. Moriah consists of both METOC and Wind components. Since the contracts have not been signed, no delivery schedule exists at this time for the Moriah Wind Systems. The delivery schedule for Moriah Wind will be included in updates to this NTSP. There are four versions of the Moriah Wind System.

a. Version 1. Version 1 of the Moriah Wind System consists of up to three sensors, 22 low-end displays, three high-end displays, and one processor. Version 1 will be installed in Aircraft Carrier Nuclear (CVN), Helicopter Landing and Amphibious Aviation Assault Ship (LHA), Amphibious Assault Ship (Special Purpose) (LHD), and Amphibious Assault Ship (Dock) (LPD) ships.

TYPE SHIP	QTY
CVN	11
LHA and LHD	12
LPD	5

b. Version 2. Version 2 of the Moriah Wind System consists of up to two sensors, 10 low-end displays, one high-end display, and one processor. Version 2 will be installed in Guided Missile Cruiser (CG), and Guided Missile Destroyer (DDG) ships.

TYPE SHIP	QTY
CG 47	27
DDG 51	37

c. Version 3. Version 3 of the Moriah Wind System consists of one sensor, 10 low-end displays, zero high-end displays, and one processor. Version 3 will be installed in many types of ships as listed below:

TYPE SHIP	QTY
LSD 41	8
LSD 49	4
AGF	2
AOE 1	4
AOE 6	4
ARS	4
LCC	2
MCM	14
MCS	1
MHC	12
PC	8
T-AE 25	8
T-AFS	6
T-AGM 23	1
T-AGS 26	7
T-AH 19	2
T-AKR 287	12
T-AO 187	12
T-ARC 7	1

d. Version 4. Version 4 of the Moriah Wind System consists of one sensor, zero low-end displays, one high-end display, and one processor. Version 4 will be installed at USN and USMC shore activities.

e. **Moriah METOC System.** The Moriah METOC System consists of three configurations.

        1. Configuration B. Configuration B consists of:

- ° Meteorological (MET) Sensor Pole Function
- ° SST Sensor Box Function
- ° Sea Water Intake Temperature (SWIT) Sensor Box Function
- ° Junction Box Function
- ° METOC Processor Box Function
- ° Wind Data Converter Function

        2. Configuration C. Configuration C consists of:

- ° MET Sensor Pole Function
- ° SST Sensor Box Function
- ° SWIT Sensor Box Function
- ° Junction Box Function
- ° METOC Processor Box Function
- ° Wind Interface Function
- ° Ceilometer Function
- ° Visibility-Precipitation Function
- ° Weather Data Repeater Function

        3. Configuration F. Configuration F consists of:

- ° MET Sensor Pole Function
- ° SST Sensor Box Function
- ° Junction Box Function
- ° METOC Processor Box Function

The Moriah METOC System Installation Schedule as presented by Program Manager, Warfare (PMW) 155 is listed below by FY. One Moriah system will be installed per ship.

MORIAH METOC SYSTEM INSTALLATION SCHEDULE							
	FY01	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**
SHIPS:	AGF 11	CVN 71	ARS 50	AGF 3	CG 47	AOE 10	AKR 300
		LCC 19	CG 62	AH 19	CG 49	ARC 7	AKR 310
		LCC 20	CG 71	AH 20	CG 52	AS 40	AKR 311
		LHA 5	CVN 72	AOE 6	CG 55	CG 63	AKR 312
		LHD 5	CVN 73	CG 51	CG 56	CG 65	ARS 51
		LHD 6	CVN 75	CG 64	CG 57	CG 73	AS 39
		MCS 12	DDG 83	CG 68	CG 70	DDG 53	CG 66
			LHA 2	AGF 3	CVN 74	DDG 75	CG 69
			LHA 4	AH 19	DDG 52	DDG 86	CG 72
			LHD 7	AH 20	DDG 54	DDG 91	DDG 61
				AOE 6	DDG 56	DDG 92	DDG 62
				CG 51	DDG 57	DDG 93	DDG 63
				CG 64	DDG 58	DDG 96	DDG 68
				CG 68	DDG 60	LHA 1	DDG 71
				CV 65	DDG 64	LHD 3	DDG 84
				CVN 69	DDG 65		DDG 90
				DDG 51	DDG 70		DDG 94
				DDG 55	DDG 72		LHD 5
				DDG 67	DDG 76		LSD 48
				DDG 74	DDG 79		LSD 50
				DDG 78	DDG 82		
				DDG 81	DDG 87		
				LHD 2	DDG 88		
				LHD 4	LHA 3		

2. **Ready For Operational Use Schedule.** All Moriah Program equipment will be Ready For Operational Use upon completion of installation and checkout by the installation team.

3. **Time Required to Install at Operational Sites.** It is expected to take eight to 10 weeks to install the Moriah Wind System on a CVN.

4. **Foreign Military Sales and Other Source Delivery Schedule.** No FMS are planned at this time.

5. **Training Device and Technical Training Equipment Delivery Schedule.** It is anticipated that TTE will be located at Keesler AFB and Great Lakes Naval Training Center, Great Lakes, Illinois. TTE will consist of one Moriah system. A delivery date and the exact

equipment required will be determined at a later date. Shipboard TTE (for initial training) will be the actual equipment installed.

L. GOVERNMENT-FURNISHED EQUIPMENT AND CONTRACTOR-FURNISHED EQUIPMENT TRAINING REQUIREMENTS. TBD

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Minutes of the Moriah Program Pre-PDR	NA	PMA251	May 98
Acquisition Strategy for Moriah	NA	N096	Under review
Operational Requirements Document	512-96-99	N096	Draft May 01
Moriah System Specification	NA	PMA251	Under Review
Moriah Need Statement	M067-096-95	PMA251	Aug 95
Memorandum Of Agreement For Moriah	NA	N096	Approved Feb 98

PART II - BILLET AND PERSONNEL REQUIREMENTS

The following elements are not affected by the Moriah Program and, therefore, are not included in Part II of this NTSP:

II.A.   Billet Requirements

    II.A.1.a.   Operational and Fleet Support Activity Activation Schedule

    II.A.1.b.   Billets Required for Operational and Fleet Support Activities

    II.A.1.c.   Total Billets Required for Operational and Fleet Support Activities

    II.A.2.a.   Operational and Fleet Support Activity Deactivation Schedule

    II.A.2.b.   Billets to be Deleted in Operational and Fleet Support Activities

    II.A.2.c.   Total Billets to be Deleted in Operational and Fleet Support Activities

    II.A.3.   Training Activities Instructor and Support Billet Requirements

    II.A.4.   Chargeable Student Billet Requirements

    II.A.5.   Annual Incremental and Cumulative Billets

II.B.   Personnel Requirements

    II.B.1.   Annual Training Input Requirements

Note: Since there is no change to current manpower requirements and no formal classroom training required by the Moriah Program, none of the elements in Part II are applicable.

PART II - BILLET AND PERSONNEL REQUIREMENTS

The following elements are not affected by the Moriah Program and, therefore, are not included in Part II of this NTSP:

II.A.   Billet Requirements

   II.A.1.a.   Operational and Fleet Support Activity Activation Schedule

   II.A.1.b.   Billets Required for Operational and Fleet Support Activities

   II.A.1.c.   Total Billets Required for Operational and Fleet Support Activities

   II.A.2.a.   Operational and Fleet Support Activity Deactivation Schedule

   II.A.2.b.   Billets to be Deleted in Operational and Fleet Support Activities

   II.A.2.c.   Total Billets to be Deleted in Operational and Fleet Support Activities

   II.A.3.   Training Activities Instructor and Support Billet Requirements

   II.A.4.   Chargeable Student Billet Requirements

   II.A.5.   Annual Incremental and Cumulative Billets

II.B.   Personnel Requirements

   II.B.1.   Annual Training Input Requirements

Note: Since there is no change to current manpower requirements and no formal classroom training required by the Moriah Program, none of the elements in Part II are applicable.

PART III - TRAINING REQUIREMENTS

The following elements are not affected by the Moriah Program and, therefore, are not included in Part III of this NTSP:

III.A.2.   Follow-on Training

    III.A.2.c.   Unique Courses

III.A.3.   Existing Training Phased Out

III.A.1. INITIAL TRAINING REQUIREMENTS

      a. Initial Training. AIT, VRT, and shipyard personnel will provide initial operator training during installation of the Moriah system.

      (1) Operator. Moriah operator Initial training will be provided during installation and check out by the contractor. Initial training will consist of test and check of the Moriah system and operating procedures to include:

      ° Real-time and archival data extraction and analysis
      ° Report generation and formatting for transmission in Navy Message format
      ° Cleaning
      ° Filter changing

      Contractor training will be provided to USN AG, ET, QM, and FC personnel, and USMC MOS 6821 - Weather Observer and MOS 6842 - Weather Forecaster, upon installation.

      (2) Maintenance. Moriah maintenance initial training will be provided during installation and check out by the contractor. Initial training will include:

      ° Test and check of the Moriah system
      ° BIT procedures
      ° Cleaning
      ° Filter changing
      ° Corrosion control
      ° Removal and replacement of the failed unit

      Contractor training will be provided to IC personnel and USMC MOS 6493 - Aviation Meteorological Equipment Technician, upon installation.

III.A.2. FOLLOW-ON TRAINING

III.A.2.a. EXISTING COURSES

Moriah operator training will be introduced in course *C-420-2010, Aerographer's Mate Class A1* at Keesler AFB and in course *A-623-0105, Interior Communications Electrician Class A* at Service Schools Command (SERVSCOLCOM), Great Lakes. Additionally Moriah operator training will be introduced in USMC Weather Observer and Weather Forecaster training courses.

III.A.2.b. PLANNED COURSES

Moriah CBT will be developed and available for onboard training in FY04.

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

The following elements are not affected by the Moriah Program and, therefore, are not included in Part IV of this NTSP:

IV.A.   Training Hardware

    IV.A.2.   Training Devices

IV.B.   Courseware Requirements

    IV.B.1.   Training Services

IV.C.   Facility Requirements

    IV.C.1.   Facility Requirements Summary (Space/Support) by Activity

    IV.C.2.   Facility Requirements Detailed by Activity and Course

    IV.C.3.   Facility Project Summary by Program

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

IV.A. TRAINING HARDWARE

IV.A.1. TTE / GPTE / SPTE / ST / GPETE / SPETE

CIN, COURSE TITLE:　C-420-2010, Aerographer's Mate Class A1
CIN, COURSE TITLE:　C-420-2021, Aerographer's Mate Basic for USMC
TRAINING ACTIVITY:　NTTU Keesler AFB
LOCATION, UIC:　Biloxi, Mississippi, 39534

ITEM NUMBER	EQUIPMENT / TYPE OR RANGE OF REPAIR PARTS	QTY REQUIRED	DATE REQUIRED	GFE CFE	STATUS
TTE					
001	Moriah System	*1 each	90 days prior to IOC	GFE	Pending

CIN, COURSE TITLE:　A-623-0105, Interior Communications Electrician Class A
TRAINING ACTIVITY:　SERVSCOLCOM
LOCATION, UIC:　Naval Training Center, Great Lakes, 30626

ITEM NUMBER	EQUIPMENT / TYPE OR RANGE OF REPAIR PARTS	QTY REQUIRED	DATE REQUIRED	GFE CFE	STATUS
TTE					
001	Moriah System	*1 each	90 days prior to IOC	GFE	Pending

* Each school will receive a set of Moriah Wind and Moriah METOC.

IV.B.2. CURRICULA MATERIALS AND TRAINING AIDS

CIN, COURSE TITLE: Moriah Operation and Maintenance CBT
TRAINING ACTIVITY: NA
LOCATION, UIC: All ships and shore activities where Moriah is installed

TYPES OF MATERIAL OR AID	QTY REQD	DATE REQD	STATUS
Moriah Operation and Maintenance CBT Operating Capability	*1 set	90 days prior to Initial	Pending

* Each ship and shore station will receive a set of Moriah Wind or Moriah METOC as applicable.

IV.B.3. TECHNICAL MANUALS

CIN, COURSE TITLE:	C-420-2010, Aerographer's Mate Class A1
CIN, COURSE TITLE:	C-420-2021, Aerographer's Mate Basic for USMC
TRAINING ACTIVITY:	NTTU Keesler AFB
LOCATION, UIC:	Biloxi, Mississippi 39534

TECHNICAL MANUAL NUMBER, TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
Moriah Maintenance Manual (Portable Document Format)	Digital	1 set	90 days prior to IOC	Pending

CIN, COURSE TITLE:	A-623-0105, Interior Communications Electrician Class A1
TRAINING ACTIVITY:	SERVSCOLCOM
LOCATION, UIC:	Naval Training Center, Great Lakes, 30626

TECHNICAL MANUAL NUMBER, TITLE	MEDIUM	QTY REQD	DATE REQD	STATUS
Moriah Maintenance Manual (Portable Document Format)	Digital	1 set	90 days prior to IOC	Pending

COG CODE	MPT MILESTONES	DATE	STATUS
PDA	Conducted Analysis of Manpower Personnel and Training requirements	Feb 99	Completed
DA	Distributed Draft NTSP for Review	Mar 00	Completed
PDA	Promulgated Integrated Logistics Support Master Plan	Sep 00	Completed
PDA	Submitted Proposed NTSP to OPNAV	Sep 00	Completed
DCNO (MPT)	Approved NTSP	Dec 00	Completed
DA	Updated NTSP	Dec 01	Completed
DA	Distributed Draft NTSP for Fleet Review	Jan 02	Completed
PDA	Release Request For Proposal	FY02	Completed
PDA	Submitted Proposed NTSP to OPNAV	Jun 02	Completed
TSA	Begin Initial Training (concurrent with installations)	Mar 03	Pending
TSA	Deliver Curricula Materials (CBT)	FY04	Pending
PDA	Begin Fleet Introduction	FY05	Pending
PDA	Attain MSD for Moriah Wind	FY07	Pending
PDA	Attain Navy Support Date for Moriah Wind	FY08	Pending

DECISION ITEM OR ACTION REQUIRED	COMMAND ACTION	DUE DATE	STATUS
Contract award for Moriah System CBT	PMA205 / NAWCADLKE		Pending
Replacement for Windbirds / Sensors	NAWCADLKE		Pending

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NAME / FUNCTION / ACTIVITY, CODE / INTERNET EMAIL	TELEPHONE NUMBERS	
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PART VII - POINTS OF CONTACT

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