

# UNCLASSIFIED

EXHIBIT R-2, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & Title	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	To Complete	Total Program
X2341 METOC Data Acquisition	8,353	7,517	8,669	8,892	9,100	10,276	10,501	10,735	CONT.	CONT.
X2342 METOC Data Assimilation and Modeling	9,590	10,292	12,289	12,702	13,083	12,514	12,814	13,127	CONT.	CONT.
X2343 Tactical METOC Applications	6,729	6,522	7,707	7,817	7,975	8,457	8,657	8,858	CONT.	CONT.
X2344 Precise Timing and Astrometry	1,157	1,312	1,444	1,474	1,498	1,525	1,557	1,590	CONT.	CONT.
TOTAL	25,829	25,643	30,109	30,885	31,656	32,772	33,529	34,310	CONT.	CONT.

R-1 Shopping List - Item No TBD (1) of TBD (32)

Exhibit R-2, RDT&E Budget Item Justification

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EXHIBIT R-2, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

## (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Air Ocean Tactical Applications (AOTA) Program Element is specifically tailored to emphasize techniques which expand knowledge and improve understanding of the meteorological and oceanographic (METOC) environment and its impact on combat systems performance. AOTA focuses on shallow water and other harsh environments, and regional conflict and crisis response scenarios. Projects in this program element develop atmospheric and oceanographic data assimilation techniques, forecast models, data base management systems and associated software for use in both mainframe and tactical scale computers. Global Geospatial Information and Services efforts within this program address the bathymetric and gravimetric needs of the Navy. Also developed are algorithms to process remotely sensed satellite data for integration into other systems and tactical applications. In addition, the projects provide for demonstration and validation of specialized METOC instrumentation and measurement techniques, new sensors, communications and interfaces. Included are techniques to assess, predict and enhance the performance of current and proposed undersea surveillance, tactical and mine warfare and weapons systems. AOTA METOC products are tailored for, and will be incorporated into the Global Command and Control System/Maritime (GCCS/M) and/or onboard combat systems to provide accurate operational system performance predictions. These METOC products will also be incorporated into fleet trainers to provide realistic environments in support of warfare simulations. Finally, this project upgrades the accuracy of the U.S. Naval Observatory's Master Clock system; develops near-real-time earth orientation predictions; develops very precise determination of positions of both faint and bright stars; and supports satellite tracking and space debris studies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates hardware for experimental test related to specific ship or aircraft applications.

R-1 Shopping List - Item No TBD (2) of TBD (32)

Exhibit R-2, RDT&E Budget Item Justification

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N  
PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT NUMBER: X2341  
PROJECT TITLE: METOC Data Acquisition

PROJECT NUMBER & Title	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	To Complete	Total Program
X2341 METOC Data Acquisition	8,353	7,517	8,669	8,892	9,100	10,276	10,501	10,735	CONT.	CONT.

Note: This project is the consolidation of projects X0118, X1987, X0514 and the Data Collection/Inversion portion of X0120.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The major thrust of the meteorology and oceanography (METOC) Data Acquisition Project is to develop, demonstrate, and validate METOC data collection methods and sensors, and to evolve the ability to provide timely and accurate METOC data and products to the Tactical Commander. As the emphasis on Naval Warfare has evolved from blue water operations to the littoral and hinterland battlespace, METOC data requirements have likewise evolved. The littoral and hinterland regions are extremely dynamic and complex, characterized by strong and highly variable oceanographic and atmospheric conditions. As a result, the need to accurately characterize these parameters is more crucial than ever in planning and executing Amphibious Warfare, Mine Warfare, Special Operations, Anti-Submarine Warfare, and Strike Warfare operations. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are inadequate to support these warfare areas in the littoral and hinterland regions. Current operational sensors, such as the standard balloon launched radiosonde, are deployed from platforms which are frequently located great distances from the area of interest. The principal challenge is to provide a means for the collection and dissemination of METOC data in highly variable and dynamic littoral environmental conditions or in denied, remote or inaccessible areas over extended periods of time. The principal goals of this project are to: 1) Provide the means to rapidly and automatically acquire a broad array of METOC data using both off-board and on-board sensors; 2) provide an on-scene assessment capability for the tactical commander; 3) provide the tactical commander with real-time METOC data and products for operational use; 4) demonstrate and validate the use of tactical workstations and desktop computers for processing and display of METOC data and products using latest networking technologies; 5) demonstrate and validate techniques which employ data compression, connectivity and interface technologies to ingest, store, process, distribute and display these METOC data and products; 6) develop new charting and bathymetric survey techniques necessary to reduce the existing 300 ship year shortfall in coastal hydrographic survey requirements; and, 7) develop an expanded database for predictive METOC models in areas of potential interest.

R-1 Shopping List - Item No TBD (3) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2341)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2341

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: METOC Data  
Acquisition

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1998 ACCOMPLISHMENTS:

- (U) (\$1,839) Performed assessment of temporal/spatial variability of littoral environments, and assessed various inversion and assimilation techniques to obtain ocean/atmosphere temporal/spatial variability of littoral environments. Continued Integration of MEASURE Interface Processor (MIP) into airborne unmanned vehicles (UAV's). Developed Battlespace characterization techniques to measure environmental data in-situ and transmit to Fleet assets.
- (U) (\$868) Continued Airborne Combat Data Collection via fleet assets.
- (U) (\$820) Continued sensor developments for ROV/AUV assume incremental vehicle size reductions requiring yearly sensor miniaturization.
- (U) (\$346) Continued sensor integration and development of UAV sensors in Pioneer Vehicle.
- (U) (\$600) Continued hinterland clandestine micro sensor.
- (U) (\$304) Completed A-sized self mooring clandestine buoy.
- (U) (\$574) Take delivery of RMS vehicle. Continued instrumentation design and began demonstration and validation of joint RMS vehicle for remote littoral bathymetry/mine hunting.
- (U) (\$712) Continued development of airborne laser bathymetry techniques from fixed wing aircraft for crisis response.
- (U) (\$617) Continued information management and DMAP functions.

R-1 Shopping List - Item No TBD (4) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2341)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2341

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: METOC Data Acquisition

- (U) (\$611) Continued development of data connectivity with the JSOW and Aegis C2 systems. Began data connectivity with next-generation Tomahawk and Mine Countermeasures mission planning systems.
- (U) (\$300) Continued test and evaluation of non-developmental items in support of data connectivity visualization, interfaces and C2 systems.
- (U) (\$729) Began development of next-generation SMOOS(R)/MORIAH sensors.
- (U) (\$33) Developed and updated Naval Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) implementation guidance. Developed and updated Naval C4ISR mission to incorporate an overarching operational, systems, technical and information architecture. Conducted associated C4ISR analyses and studies.

2. (U) FY 1999 PLAN:

- (U) (\$900) Continue Airborne Combat Data Collection via fleet assets.
- (U) (\$976) Continue sensor developments for ROV/AUV, and Initiate sensor integration and development of UAV sensors in Tier II Plus Vehicles.
- (U) (\$377) Complete hinterland clandestine micro sensors.
- (U) (\$1,054) Continue assessments of temporal and spatial variability of littoral environments for acoustic data inversion.
- (U) (\$850) Initiate dem/val of METOC Air, Surface, Undersea Reconnaissance Equipment (MEASURE), and continue development of next-generation sensors for SMOOS(R)/MORIAH..

R-1 Shopping List - Item No TBD (5) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2341)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2341

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: METOC Data Acquisition

- (U) (\$800) Complete data connectivity with the Aegis C2 system and the Mine Countermeasures mission planning system. Continue development of data connectivity with the next generation Tomahawk mission planning system and the Global Command and Control System/Maritime (GCCS/M).
- (U) (\$375) Complete test and evaluation of non-developmental items in support of data connectivity visualization, interfaces and C2 systems.
- (U) (\$375) Begin development of advanced aerosol measurement techniques.
- (U) (\$542) Continue instrumentation demonstration and validation of joint RMS vehicle for remote littoral bathymetry/mine hunting.
- (U) (\$627) Complete development of airborne laser bathymetry techniques from fixed wing aircraft for crisis response.
- (U) (\$641) Continue information management and DMAP functions.

### 3. (U) FY 2000 PLAN:

- (U) (\$950) Continue Airborne Combat Data Collection via fleet assets.
- (U) (\$1,696) Continue sensor developments for ROV/AUV, and continue sensor integration and development of UAV sensors in Tier II Plus Vehicles.
- (U) (\$1,150) Continue assessments of temporal and spatial variability of littoral environments for acoustic data inversion.

R-1 Shopping List - Item No TBD (6) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2341)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2341

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: METOC Data Acquisition

- (U) (\$1,480) Continue development of next-generation sensors for MEASURE, SMOOS(R)/MORIAH and aerosol measurements.
- (U) (\$1,588) Continue development of data connectivity with the next generation Tomahawk mission planning system and GCCS/M. Begin development of data connectivity with the next generation Tactical Air Mission Planning System (TAMPS 7.0)
- (U) (\$1,005) Complete instrumentation demonstration and validation of joint RMS vehicle for remote littoral bathymetry/mine hunting.
- (U) (\$800) Continue information management and DMAP functions.

B. (U) PROGRAM CHANGE SUMMARY:

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding: FY 1998: (+\$8,353K) FY-00 comparability adjustments.

FY 1999: (-\$18K) Revised economic assumptions, (-\$5K) civilian personnel under-execution, (-\$86K) contract advisory and assistance services, and (-\$900K) FY-99 Congressional cut for excessive budget growth.

FY 2000: (+\$33K) NWCF rates, (+\$11K) civilian pay rates, (-\$125K) non pay inflation, (-\$2K) working capital - NAWC, and (-\$8K) inflation reduction.

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system

R-1 Shopping List - Item No TBD (7) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2341)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2341

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: METOC Data  
Acquisition

engineering to receive data from DMSP onboard selected ships and shore sites.

D. (U) ACQUISITION STRATEGY: Not applicable

R-1 Shopping List - Item No TBD (8) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2341)

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Exhibit R-3 Cost Analysis (page 1)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/BA5				PROGRAM ELEMENT: 0603207N				PROJECT NAME AND NUMBER: X2341 METOC DATA ACQUISITION				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WX	NRL	0	3,041	N/A	4,008	N/A	N/A	N/A	CONT	CONT	
	WX	NAWC-AD Lake	0	770	N/A	350	N/A	N/A	N/A	CONT	CONT	
	CP	SSA	0	1,500	N/A	1,500	N/A	N/A	N/A	CONT	CONT	
	N/A	MISC	0	1,681	N/A	2,186	N/A	N/A	N/A	CONT	CONT	
Subtotal Product Development			0	6,992	NA	8,044	NA	N/A	N/A	CONT	CONT	
Remarks:												
Support	CP	SSA	0	525	N/A	625	N/A	N/A	N/A	CONT	CONT	
Subtotal Support			0	525	N/A	625	N/A	N/A	N/A	CONT	CONT	
Remarks												
Exhibit R-3 Cost Analysis (page 2)								Date: February 99				

R-1 Shopping List - Item No TBD (9) of TBD (32)

Exhibit R-3, Project Cost Analysis

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APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/BA5			PROGRAM ELEMENT: 0603207N					PROJECT NAME AND NUMBER: X2341				
METOC DATA ACQUISITION												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks												
Subtotal Management												
Remarks												
Total Cost			0	7,517	N/A	8,669	N/A	N/A	N/A	CONT	CONT	
Remarks												

R-1 Shopping List - Item No TBD (10) of TBD (32)

Exhibit R-3, Project Cost Analysis

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2342

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: METOC Data Assimilation  
and Modeling

- (U) (\$675) Completed development of capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources using 3D variational techniques. Began to apply 4D variational techniques.
- (U) (\$1,305) Completed development of expert systems for satellite oceanographic and atmospheric feature analysis, and began development of SSM/IS atmospheric algorithms.
- (U) (\$1,180) Completed transition of Ocean Color sensor and scatterometer data operational capability. Completed development and began transition of new algorithms for SAR and altimetry data. Continued development and transition of new algorithms for Ocean Color sensors and scatterometer.
- (U) (\$175) Began evaluation of aviation impact variables satellite product.
- (U) (\$225) Completed airborne vs. satellite validation of SAR ocean feature analysis.
- (U) (\$325) Continued fleet exercise participation for validation of algorithms.
- (U) (\$668) Completed development of surf/tide models. Continued development of coastal and enclosed basin tactical scale oceanographic models for selected geographical locations in response to emergent requirements.
- (U) (\$500) Began development of a shipboard shallow water ocean circulation model and an automated graphical application for tactical data visualization.
- (U) (\$132) Developed and updated Naval Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) implementation guidance. Developed and updated Naval C4ISR mission to incorporate an overarching operational, systems, technical and information architecture. Conducted associated C4ISR analyses and studies.

R-1 Shopping List - Item No TBD (13) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2342)

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Exhibit R-3 Cost Analysis (page 1)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/5A5				PROGRAM ELEMENT:0603207N				PROJECT NAME AND NUMBER: X2342 METOC ASSIMILATION AND MODELING				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WX	NRL	0	7,070	N/A	8,709	N/A	N/A	N/A	CONT	CONT	
	WX	NAWC-WD, PM	0	380	N/A	400	N/A	N/A	N/A	CONT	CONT	
	N/A	MISC	0	2,717	N/A	3,030	N/A	N/A	N/A	CONT	CONT	
Subtotal Product Development			0	10,167	N/A	12,139	N/A	N/A	N/A	CONT	CONT	
Remarks:												
Support	CP	SSA	0	125	N/A	150	N/A	N/A	N/A	CONT	CONT	
Subtotal Support			0	125	N/A	150	N/A	N/A	N/A	CONT	CONT	
Remarks												

R-1 Shopping List - Item No TBD (18) of TBD (32)

Exhibit R-3, Project Cost Analysis

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Exhibit R-3 Cost Analysis (page 2)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/5A5				PROGRAM ELEMENT:0603207N				PROJECT NAME AND NUMBER: X2342 METOC ASSIMILATION AND MODELING				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks												
Subtotal Management												
Remarks												
Total Cost			0	10,292	N/A	12,289	N/A	N/A	N/A	CONT	CONT	
Remarks												

R-1 Shopping List - Item No TBD (19) of TBD (32)

Exhibit R-3, Project Cost Analysis

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4      PROGRAM ELEMENT: 0603207N      PROJECT NUMBER: X2343  
PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications      PROJECT TITLE: Tactical METOC Applications

## 2. (U) FY 1999 PLAN:

- (U) (\$815) Complete development of surface to air and surface to surface EO model. Continue development of AREPS.
- (U) (\$2,242) Incorporate prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Maximize littoral operation support by ensuring interoperability of system via existing Fleet communication mechanisms.
- (U) (\$1,363) Complete development of initial sensor prediction capabilities for acoustic and non-acoustic sensors scheduled to be installed on Fleet combatants. Apply advanced COTS visualization techniques to facilitate operator understanding of complex littoral environmental effects on sensor performance. Integrate into appropriate platform ADM's. Perform at-sea evaluation of new capabilities.
- (U) (\$1,050) Integrate platform vulnerability assessment TDA into surface ship, submarine and air ADM's to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluate functionality during at-sea tests.
- (U) (\$1,052) Incorporate additional environmental sensor interface capabilities to allow for real time monitoring and measurement of key environmental parameters in support of the Oceanographer of the Navy's Battlespace METOC Data Acquisition, Assimilation and Applications strategy. Implement in the platform ADM's and evaluate at-sea.

## 3. (U) FY 2000 PLAN:

- (U) (\$915) Continue development of AREPS and begin development of next generation Electro-optical decision aids.
- (U) (\$2,777) Continue to incorporate prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Continue to maximize littoral operation support by ensuring interoperability of system via existing Fleet communication mechanisms.

R-1 Shopping List - Item No TBD (22) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2343)

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EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

Date: February 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0603207N

PROJECT NUMBER: X2343

PROGRAM ELEMENT TITLE: Air/Ocean Tactical Applications

PROJECT TITLE: Tactical METOC  
Applications

D. (U) ACQUISITION STRATEGY: Not applicable.

R-1 Shopping List - Item No TBD (24) of TBD (32)

Exhibit R-2a, RDT&E Budget Item Justification (X2343)

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Exhibit R-3 Cost Analysis (page 1)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/BA5				PROGRAM ELEMENT:0603207N				PROJECT NAME AND NUMBER: X2343 METOC APPLICATIONS				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WX	NUWC	0	675	N/A	725	N/A	N/A	N/A	CONT	CONT	
	WX	SSC SD	0	360	N/A	360	N/A	N/A	N/A	CONT	CONT	
	WX	NRL	0	300	N/A	300	N/A	N/A	N/A	CONT	CONT	
	CP	IPD	0	3,123	N/A	4,000	N/A	N/A	N/A	CONT	CONT	
	CP	LOCKHEED	0	500	N/A	553	N/A	N/A	N/A	CONT	CONT	
	N/A	MISC	0	1,264	N/A	1,469	N/A	N/A	N/A	CONT	CONT	
Subtotal Product Development			0	6,222	N/A	7,407	N/A	N/A	N/A	CONT	CONT	
Remarks:												
Support	CP	IPD	0	300	N/A	300	N/A	N/A	N/A	CONT	CONT	
Subtotal Support			0	300	N/A	300	N/A	N/A	N/A	CONT	CONT	
Remarks												

R-1 Shopping List - Item No TBD (25) of TBD (32)

Exhibit R-3, Project Cost Analysis

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Exhibit R-3 Cost Analysis (page 2)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/BA5				PROGRAM ELEMENT:0603207N				PROJECT NAME AND NUMBER: X2343 METOC APPLICATIONS				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks												
Subtotal Management												
Remarks												
Total Cost			0	6,522	N/A	7,707	N/A	N/A	N/A	CONT	CONT	
Remarks												

R-1 Shopping List - Item No TBD (26) of TBD (32)

Exhibit R-3, Project Cost Analysis

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Exhibit R-3 Cost Analysis (page 1)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/BA5				PROGRAM ELEMENT: 0603207N				PROJECT NAME AND NUMBER: X2344 PRECISE TIMING AND ASTROMETRY				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WX	NAVAL OBSERV	0	1,312	N/A	1,444	N/A	N/A	N/A	CONT	CONT	
Subtotal Product Development			0	1,312	N/A	1,444	N/A	N/A	N/A	CONT	CONT	
Remarks:												
Subtotal Support												
Remarks												

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Exhibit R-3 Cost Analysis (page 2)								Date: February 99				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, N/BA5				PROGRAM ELEMENT: 0603207N				PROJECT NAME AND NUMBER: X2344 PRECISE TIMING AND ASTROMETRY				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY98 +PY Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal T&E												
Remarks												
Subtotal Management												
Remarks												
Total Cost			0	1,312	N/A	1,444	N/A	N/A	N/A	CONT	CONT	
Remarks												

R-1 Shopping List - Item No TBD (32) of TBD (32)

Exhibit R-3, Project Cost Analysis

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