USW Electromagnetic Systems Department Overview

Presented to:
National Contract Management Association (NCMA)
RI Industry Day
14 June 2016
Serve as the Navy's principal activity for developing, acquiring, installing, modernizing and maintaining the world's most capable USW Electromagnetic systems including Antennas, Periscopes, Electronic Warfare, Communications, Electro-Optics Systems, and Electromagnetic Compatibility. As well as provide electromagnetic capability to unmanned systems that support undersea warfare including UXV, USW Networks, and Distributed USW Systems and Sensors.
USW Electromagnetic Systems Department

Our People

Scientists and Engineers 81%

Electronics Engineers 73%

Mechanical Engineers 13%

Computer/General Engineers 12%

Physicists 5%

Admin and Clerical 7%

Technicians 12%

Total – 317

Scientists & Engineers - 257

CODE 34 ADVANCED DEGREES

10 - PhDs
83 - Masters Degrees

Data as of 30 April 2016
USW Electromagnetic Systems Department
Product Areas

IMAGING
- Integrated Submarine Imaging System (ISIS)
- Photonics Mast
- SUBIS Imaging
- Type 8 Mod 4 IR
- In-Service Periscopes
- National Maintenance
- Panoramic Periscope
- PATRIOT
- TOPGATE
- Imaging Sensor Development (ONI)

ELECTRONIC WARFARE
- AN/BLQ-10 ESM
- ISCRS/ICADF
- Type 18I Antenna
- Surveillance Sensors
- In-Service ESM
- Signature Reduction
- Periscope Automatic Direction Finder
- Early Warning Receivers
- UUV Sensors
- Information Warfare
- End-to-End Assessments

COMMUNICATIONS
- Submarine Comms TDA
- Submarine Radio Room Integration & Test
- Submarine SATCOM
- Internet Protocol Transition
- Submarine Comms Technology
- USW FORCEnet
- Electromagnetic Compatibility
- Advanced Submarine Sail
- C4ISR Systems Engineering
- UUV Communications
- Undersea Constellation
- Virtual Submarine

ANTENNAS
- Multifunction Mast (OE-538)
- SubHDR (OE-562A)
- Navy Protected (EHF) and Wideband (X & GBS) MILSATCOM
- Navy EHF Satellite Program (NESP)
- Submarine Antennas
- Submarine Antenna Technology
- Comms at Speed & Depth
- Off-Board Sensors

DISTRIBUTION STATEMENT A: Approved for Public Release; distribution is unlimited
Imaging & Periscope Systems

Department Roles & Major Tasks:
• In-Service Engineering Agent (ISEA)
• Acquisition Engineering Agent (AEA)
• Technical Direction Agent (TDA)
• Software Support Activity
• National Maintenance Center (I-Level/Periscope Repairs)
• Depot Management
• Periscope Upgrades Development, Integration & Test
• Installations
• Procurement of Major Systems
• System Risk Analysis

Current Contracts (Services/Hardware):
• Engineering Development
• Reliability/Maintainability
• Installations
• Fleet Technical Assists
• Training
• CM/ILS
• Test & Evaluation
• System Integration & Test
• Repair & Restoration
• Program Management Support

Major Systems Supported:
• All in-service Periscopes
• Photonics, Photonics Mast Variant
• Submarine Imaging System (SUBIS)
• Type 8 Mod 4 IR
• Integrated Submarine Imaging System (ISIS)
• PeriViz
• PATRIOT
• CLUSTER BIGHT
• TOPGATE
• HUD
• Low Profile Photonics Mast (LPPM)
Electronic Warfare Systems

Major Systems Supported:
- AN/BLQ-10 variants for all Platforms
- Improved Communications Acquisition Direction Finding (ICADF)
- Embedded National Tactical Receiver (ENTR)
- Low Probability of Intercept (LPI) Receiver
- Automated Specific Emitter Identification
- Remote Log-in /Rapid Reprogramming
- Direction Finding Subsystems
- Early Warning Receivers
- RF/Signal Distribution Subsystems
- EW Capability & Technology Insertion
- Photonics ESM Performance Improvements (PEPI)
- Multi-Function Modular Mast (MMM) & Payloads
- Integrated Electronics Mast (IEM)
- Flared Base Group (FBG) Antenna
- PATRIOT Phase B RADAR
- EW Antennas
- Low Radar Cross Section Masts
- Special Support Equipment

Department Roles & Major Tasks:
- In-Service Engineering (ISEA)
- Acquisition Engineering (AEA)
- Technical Design Agent (TDA)

Current Contracts (Services/Hardware):
- Program & Risk Management
- Systems Engineering
- Field Engineering
- System Integration
- Test and Evaluation
- Information Assurance/Software Integration Testing
- Reliability & Obsolescence Engineering
- Tactical Software Support Center (TSSC)
- Environmental Qualification Testing (EQT)
- Performance Analysis
- RF Groom & Certification and System Operational Verification Test
- AN/BLQ-10, ICADF, Antenna Installation Support
- New Construction/ Shipyard On-Site Engineering
- Antenna Procurement, Integration & Repairs
- Modernization Planning Support
- EW & RADAR Fleet Support, Hotline, CASREP & Technical Assists
- EMI/EMC testing, Surveys, & improvements
- EW and RADAR Configuration Management
- Foreign Military Sales (FMS) Engineering Support

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**Next Generation Architecture**

**Department Roles & Major Tasks:**
- Design Agent
- Lead System Integrator

**Major Systems Supported:**
- AN/BLQ-10B Next Generation Architecture (NGA) New Construction (SSN794 and later)
- NGA Technology Insertion 2016 (TI-16) Modernization Systems

**Current Contracts (Services/Hardware):**
- EW Design Support Services
- EW Integration Services
- EW Laboratory Support Services
- Engineering, Technical, and Programmatic Services

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Submarine Communications Systems

Major Systems Supported:
• Common Submarine Radio Room (CSRR)
• Submarine Automated Digital Network System (ADNS)
• CANES Upper (Security) Enclaves

Department Roles & Major Tasks:
• Common Submarine Radio Room (CSRR)
  – Design, Integration and Test Agent
  – Technical Design Agent (TDA)
• USW Communications & Networking
  – Automated Digital Network System (ADNS) Design & Test
  – CANES Upper (Security) Enclaves Design, Test, and Install Support
  – Undersea Communications & Networks R&D and prototype

Current Contract (Services/Material):
• Systems Engineering, Integration, Testing, Lab Facility, Cyber, Logistic Engineering & Program Support
• Mechanical Design, Fabrication, Drawings, and EQT

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Department Roles & Major Tasks:
- In-Service Engineering Agent/Support (ISEA)
- Acquisition Engineering Agent/Support (AEA)
- Technical Design Agent/Support (TDA)
- Procurement of Major Systems
- Prototyping/Research & Development
- Development of Upgrades
- National Maintenance

Major Systems Supported:
- Multi-function mast antennas
- High Data Rate (HDR) mast
- RF Distribution and Control System (RFDACS)
- Towed Communications Buoy Antenna Systems
- Expendable communications & emergency buoys

Current Contracts (Services/Hardware):
- RFDACS Systems
- Engineering
- System Integration & Test
- Test & Evaluation
- Reliability/Maintainability
- CM/ILS
- Fleet Technical Assists
- Repair & Restoration
- Program Management Support
Satellite Communications (SATCOM) Systems

Current Contracts (Services/Hardware):
• Navy SATCOM Design, Engineering, and Program Support (Systems Engineering and Communications Management Training)
• Engineering Support for the SESIF, SubHDR NMC, and Navy MILSATCOM Systems (OJT, PM Support, ILS, Fleet Support, & HW Repair)
• Various SubHDR Mast Line Replaceable Unit (LRU) Repair and Procurement Contracts

Major Systems Supported:
• Navy Multiband Terminal (NMT)
• Legacy Extremely High Frequency (EHF) SATCOM Systems
• TDMA Interface Processor (TIP) and Advanced TIP (ATIP)
• Submarine High Data Rate (SubHDR) Mast
• Submarine Global Broadcast System (GBS) Receive Suites
• Future MILSATCOM Programs

Department Roles & Major Tasks:
• NMT Technical Director & Lead Engineer (LE)
• ATIP and Submarine GBS LE
• Submarine EHF SATCOM Integration Facility (SESIF) for NMT Pre-installation Test and Checkout (PITCO) & Software Regression Tests
• SubHDR National Maintenance Center (NMC) for Mast Troubleshooting, Repair, & Restoration
• On-the-job training (OJT) & Communications Management Training (CMT) for Protected (EHF) and Wideband (X, Ka, & GBS) Submarine, Ship, and Shore Navy MILSATCOM
• System Design, Production, and Test & Evaluation oversight

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Major Systems Supported:
- Mission-Specific Sensors
- Contacts of mission interest management
- Intelligence Community networks and mission data recording
- Intelligence, Surveillance & Reconnaissance (ISR) Sensors
  - Electro-Optical/Infrared (EOIR), EW Antennas, Sonar, Environmental
- Covert Communications
- Submarine Counter Measures
- Mission Planning
- Electromagnetic Vulnerability Management

Department Roles & Major Tasks:
- Electromagnetic Special Projects*
- Maritime Sensors Special Projects*

* Perform Acquisition Engineering (AEA), In-Service Engineering (ISEA), and Technical Design Agent (TDA) tasks

Current Contracts (Services/Hardware):
- Performance Analysis and Tradeoff Studies
- Hardware and Software engineering
- System Integration and Testing
- Temporary Alteration (TEMPALT) and Ship Alteration (SHIPALT) data package creation
- TEMPALT & SHIPALT installation and removals
- Program Management
- Equipment repair and refurbishment, modernization planning
- Fleet Technical Assists

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**What We Buy**

- Contractor Labor Demand is projected to increase across FY17/FY18/FY19
  - Approximate 576 Contractors onsite/offsite support Code 34
  - 31% are Engineering Support
  - 40% are Technician Support
  - 13% are Administrative Support
  - 5% are Clerical Support
  - 11% are Business Support

- Funding is also projected to increase
  - $129 M of Direct Cite planned in FY16 (i.e., Contracting $)
# Projected Contracts

<table>
<thead>
<tr>
<th>Contract #</th>
<th>Title</th>
<th>Current Contract Value (w options)</th>
<th>Incumbent</th>
<th>Seaport</th>
<th>Follow-On</th>
<th>Current Contract Type</th>
<th>Expected RFP Release</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW</td>
<td>COMMS Engineering, Testing, Lab Services</td>
<td>n/a</td>
<td>various</td>
<td>Y</td>
<td>Y/Partial</td>
<td>CPFF</td>
<td>July 2016</td>
<td>SBSA</td>
</tr>
<tr>
<td>NEW</td>
<td>COMMS Mechanical Eng., Fabrication, &amp; EQT Services</td>
<td>n/a</td>
<td>various</td>
<td>Y</td>
<td>Y/Partial</td>
<td>CPFF</td>
<td>July/Aug 2016</td>
<td>SBSA</td>
</tr>
<tr>
<td>NEW</td>
<td>Antenna Engineering and RFDACS Engineering Services</td>
<td>n/a</td>
<td>various</td>
<td>Y</td>
<td>Y/Partial</td>
<td>CPFF</td>
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<td>SBSA</td>
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## Projected Contracts (Con’t)

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<th>Expected RFP Release</th>
<th>Strategy</th>
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<tr>
<td>04-D-4032 N403</td>
<td>Accelerated Support Program Engineering Services</td>
<td>$21M</td>
<td>DDL Omni</td>
<td>Y</td>
<td>Y</td>
<td>CPFF</td>
<td>Sept/Oct 2016</td>
<td>TBD (Sources Sought)</td>
</tr>
<tr>
<td>04-D-4109 N414</td>
<td>Acoustic Accelerated Support Program Technical Services</td>
<td>$39.5M</td>
<td>Purvis</td>
<td>Y</td>
<td>Y</td>
<td>CPFF</td>
<td>Aug 2016</td>
<td>TBD (Sources Sought)</td>
</tr>
<tr>
<td>04-D-4122 N433</td>
<td>SIGINT, ACINT ENG Support</td>
<td>$10.8M</td>
<td>Seacorp</td>
<td>Y</td>
<td>Y</td>
<td>CPFF</td>
<td>Sept/Oct 2016</td>
<td>TBD (Sources Sought)</td>
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<th>Expected RFP Release</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW</td>
<td>Program and Financial Spt</td>
<td>TBD</td>
<td>Various</td>
<td>Y</td>
<td>N</td>
<td>Will be CPFF</td>
<td>Nov 2016</td>
<td>SBSA</td>
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<tr>
<td>10-D-003A</td>
<td>TEMPALT SHIPALT ENG Support</td>
<td>$8.4M $7.7M</td>
<td>DDL Omni</td>
<td>Y</td>
<td>Y</td>
<td>CPFF</td>
<td>July 2016</td>
<td>TBD (Sources Sought)</td>
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<tr>
<td>10-D-003B</td>
<td>USED废弃ENG Support</td>
<td>n/a</td>
<td>n/a</td>
<td>Y</td>
<td>N</td>
<td>CPFF</td>
<td>Nov 2016</td>
<td>SBSA</td>
</tr>
<tr>
<td>04-D-4012</td>
<td>SUBSAFE and Non-SUBSAFE Support for Operator and Intermediate Level Maint</td>
<td>$10.8M</td>
<td>GDIT</td>
<td>Y</td>
<td>Y</td>
<td>CPFF</td>
<td>Nov/Dec 2016</td>
<td>TBD (Sources Sought)</td>
</tr>
<tr>
<td>N439</td>
<td>CM/ILS Support</td>
<td>$10.7M</td>
<td>ICI</td>
<td>Y</td>
<td>Y</td>
<td>CPFF</td>
<td>March 2017</td>
<td>TBD (Sources Sought)</td>
</tr>
<tr>
<td>04-D-4122</td>
<td>EW Design</td>
<td>$30.5M</td>
<td>Seacorp</td>
<td>Y</td>
<td>Y</td>
<td>CPFF/FFP</td>
<td>Nov/Dec 2016</td>
<td>TBD</td>
</tr>
</tbody>
</table>
USW Electromagnetic Systems Department Summary

- Based on Annual Business Plan data & direct program tasking, there IS an opportunity/need for contracting in support of Code 34
- Code 34’s Business Model shows approximately 59% of total Code 34 direct program funding is outsourced annually (this continues to increase as we look to the future)

<table>
<thead>
<tr>
<th>FY16 Planned</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$89 M</td>
<td>Reimbursable</td>
</tr>
<tr>
<td>$129 M</td>
<td>Direct Cite</td>
</tr>
<tr>
<td>$218 M</td>
<td>Total</td>
</tr>
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</table>

Code 34 maintains a strong business partnership with industry