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REV	DESCRIPTION	DATE	APPROVED
-	RELEASED AS REVISION -	07/11/14	
A	CORRECTED TYPOGRAPHICAL ERROR FOR MINIMUM HOURS IN THE CABLE HANDLING, PENETRATION, AND REPAIR/MODIFICATION TRAINING MODULE.	07/17/14	
B	VARIOUS UPDATES THROUGHOUT ENTIRE DOCUMENT	01/3/19	
C	UPDATE TO REV B	09/11/20	9/15/2020 X C.Good Christopher Good FO CHENG Signed by: GOOD.CHRISTOPHER.A.1280374500

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REV STATUS OF SHEETS																					
REV	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
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	CHECKED	R. HOTT	06/23/14
P DO NOT SCALE DRAWING	PREPARED	M. BROWN	06/20/14
MATERIAL:	ACCEPTED FOR NAVSEA	R. THROM	07/11/14
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DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D.C. 20362-5101

NAVY SHIPBOARD FIBER OPTIC TRAINING CERTIFICATION PROGRAM

SIZE	CAGE	ESWBS	DRAWING NO.	REV
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FOREWARD

1. This NAVSEA Drawing provides detailed information and guidance about the Navy Shipboard Fiber Optic Training Certification Program. The Navy Shipboard Fiber Optic Training Certification Program provides the requirements for and certifies training organizations to provide training of Navy Shipboard installation methods and procedures and the use of Navy qualified/approved fiber optic components for such installations. Naval Surface Warfare Center Dahlgren Division (NSWCDD) Fiber Optics Section, the Navy's Fiber Optic Technical Direction Agent (TDA), is the certifying organization.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this NAVSEA Drawing should be addressed to: Department of Navy, Naval Surface Warfare Center, Dahlgren Division, ATTN: Fiber Optics Section, 17214 Avenue B Suite 126, Dahlgren, VA 22448-5147 or emailed to DLGR_NSWC_FO_ENG@NAVY.MIL.

CONTENTS

1. INTRODUCTION

The use of fiber optics aboard Navy ships is on the rise. The requirements (i.e., components and installation methods) levied upon systems using fiber optics in the shipboard environment, including the fiber optic cable plant (FOCP), differs from the requirements for typical commercial fiber optic applications. As such, it is imperative that strict adherence to Navy standards-based methods and procedures and the use of Navy qualified/approved fiber optic components for shipboard fiber optic installation efforts be observed.

To help ensure that the personnel that are performing, supervising, or inspecting the installations of fiber optics aboard Navy ships (i.e., New Construction, Intermediate and Depot levels) are using Navy standards-based methods and procedures, and are using Navy qualified/approved fiber optic components, it is important that these personnel receive the appropriate training. This training encompasses the use of Navy standards-based methods and procedures, and Navy qualified/approved fiber optic components for shipboard fiber optic installation efforts, as opposed to training encompassing the use of non-approved commercial installation practices and non-approved commercial-off-the-shelf (COTS) components for fiber optics.

To address this training need, this NAVSEA Drawing describes the Navy Shipboard Fiber Optic Training Certification Program and provides the requirements for training organizations to be certified by the Naval Surface Warfare Center Dahlgren Division (NSWCDD) Fiber Optics Section, the Navy Fiber Optic Technical Direction Agent (TDA). Training organizations certified under the Navy Shipboard Fiber Optic Training Certification Program will be placed on a Certified Fiber Optics Trainer List (CFOTL). The CFOTL is intended to guide shipbuilding, alteration and installation teams (AITs), and other organizations in choosing a training organization to train their employees on Navy Shipboard Fiber Optics. Any training organization included on the CFOTL is acceptable for training fiber optics in accordance with Navy standards, thus providing high confidence that the trainees are receiving accurate Navy shipboard fiber optic training on current methods and procedures, and on Navy qualified/approved fiber optic components.

The following sections define the Navy Shipboard Fiber Optic Training Certification Program and the associated processes, procedures, and requirements for an organization to become certified to train Navy Shipboard Fiber Optics to fiber optic installers, supervisors, and quality assurance (QA) inspection personnel.

2. APPLICABLE DOCUMENTS

2.1 General.

The documents listed in this section are specified in Sections 3, 4, 5, and 6 of this NAVSEA Drawing. While every effort has been made to ensure the completeness of this list, drawing users are cautioned that they must meet all specified requirements documents cited in Sections 3, 4, 5, and 6 of this drawing, whether or not they are listed in this section.

2.2 Government documents.

2.2.1 Specifications, standards and handbooks.

The following specifications, standards and handbooks form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-2042 - Fiber Optic Cable Topology Installation, Standard Methods for Naval Ships

MIL-STD-2052 - Fiber Optic Systems Design

MIL-HDBK-2051 - Military Handbook, Fiber Optic Shipboard Cable Topology Design Guidance

MIL-STD-1678 - Fiber Optic Cabling Systems Requirements and Measurements

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available online at https://quicksearch.dla.mil/ or from the Standardization Documents Order Desk, 700 Robbins Ave, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents.

The following other Government documents form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE DRAWINGS

NAVSEA DRAWING 6877804 - Jumpers, Test Equipment Fiber Optic

POLICY LETTERS, ENGINEERING REPORTS, METHOD UPDATES, and APPROVED PARTS, TOOLS, AND EQUIPMENT LISTS

NSWCCD-SSES ltr 9504 Ser 9542/09, 30 MAY 1997, Subj: Criteria for Shipboard Usage of Military Fiber Optic Components

NSWCCD-SSES ltr 9504 Ser 9542/11, 30 MAY 1997, Subj: Shipboard Applications Proper Measurement of Cable Assembly Link Loss

NSWCCD-SSES ltr 9504 Ser 96315/055, 28 APR 2000, Subj: Mismatching, Mating, Polishing, and Proper Application of MIL-SPEC ST and COTS Connectors

NSWCCD-SSES ltr 9504 Ser 96315/021, 1 APR 2003, Subj: Approaches to Fiber Optic Cable/Harness Replacement/Repair

NSWCDD ltr 3910 B35-GDB, 08 FEB 1984, Subj: Requirements for Usage of Commercial Off-The-Shelf (COTS) Cable

NSWCDD ltr 3910 B35-GDB, 08 FEB 1984, Subj: Usage of Commercial Off-The-Shelf (COTS) Fiber Optic Components

NSWCDD ltr 3910 Ser W23/012, 17 May 2010, Subj: Clarification about the History and Use of the Navy Fiber Optic Power (Loss) Budget 3dB Safety Margin

NSWCDD ltr 3910 Ser W23/011, 2 Jun 2010, Subj: Policy to Invoke MIL-STD-2052A for Fiber Optic System Design

NSWCDD ltr 3910 Ser W23/014, 16 Jun 2010, Subj: Policy to Invoke Use of Patch Cords with 1000Base-LX over Multimode Fiber

Navy Recommended Components Parts List

Navy Approved Test Equipment List

Navy Approved Tools List

(Copies of documents should be obtained from the contracting activity or as directed by the contracting officer.)

2.3 Non-Government publications.

The following documents form a part of this NAVSEA Drawing to the extent specified herein. Unless otherwise specified the issues of these documents are those cited in the solicitation or contract.

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

TIA-440 - Fiber Optic Terminology

(Copies of this document are available from http://global.ihs.com.)

2.4 Order of precedence.

In the event of a conflict between the text of this NAVSEA Drawing and the references cited herein, the text of this drawing takes precedence. Nothing in this drawing, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. ACRONYMS AND DEFINITIONS

Sections 3.1, 3.2 and 3.3 define the acronyms, general fiber optic terms, and drawing-specific terms used throughout this NAVSEA Drawing.

3.1 Acronyms.

The acronyms used in this NAVSEA Drawing are defined as follows:

AIT	Alteration and Installation Team
BB	Ball Bearing
BOF	Blown Optical Fiber
CAP	Curriculum Assessment Package
CFI	Customer Furnished Information
CFOTL	Certified Fiber Optics Trainer List
COTS	Commercial off the Shelf
DAP	Demonstration Assessment Package
DOD	Department of Defense
FMA	Fleet Maintenance Activity
FOCP	Fiber Optic Cable Plant
FOICB	Fiber Optic Interconnection Box
GPETE	General Purpose Electronic Test Equipment
IAW	In Accordance With
ISEA	In-Service Engineering Agent
MCP	Multiple Cable Penetrator
MIPR	Military Interdepartmental Purchase Request
MM	Multi-Mode
MQJ	Measurement Quality Jumper
MT	Multi-Terminus
NAVSEA	Naval Sea Systems Command
NSWCDD	Naval Surface Warfare Center Dahlgren Division
OAP	Organization Assessment Package
OFCC	Optical Fiber Cable Component
OSR	On-Site Representative
PDF	Portable Document Format
POC	Point of Contact
QA	Quality Assurance
QPL	Qualified Products List
RMC	Regional Maintenance Center
SM	Single Mode
SME	Subject Matter Expert
SOW	Statement of Work
ST	Single Terminus
SUPSHIP	Supervisory of Shipbuilding
TDA	Technical Direction Agent
TIA	Telecommunications Industry Association
TPO	Technical Partnering Office
TRB	Tube Routing Box
WFPP	Work for Private Party

3.2 General fiber optics terms.

Definitions for general fiber optics terms used in this NAVSEA Drawing are in accordance with TIA-440.

3.3 Drawing-specific terms.

Definitions for other terms as they are used in this NAVSEA Drawing are given in the following paragraphs.

3.3.1 Certified Fiber Optic Trainer List (CFOTL).

A list generated and maintained by the NSWCDD Fiber Optics Section. This list is intended to guide all concerned parties in selecting a Navy Shipboard Fiber Optic Trainer that has demonstrated technical capability to successfully train Navy Shipboard Fiber Optics in accordance with the specified requirements herein.

3.3.2 Curriculum Assessment Package (CAP).

This package of information is submitted to the NSWCDD Fiber Optics Section by an organization seeking to have their fiber optic training program certified. The content of this package is described in Section 6.2 of this NAVSEA Drawing.

3.3.3 Demonstration Assessment Package (DAP).

This package of information is submitted to the NSWCDD Fiber Optics Section by an organization seeking to have their fiber optic training program certified. The content of this package is described in Section 6.3 of this NAVSEA Drawing.

3.3.4 Fiber Optic Installer.

Any person that currently is or has the potential to perform Navy Shipboard fiber optic installations. These personnel include (but not limited to) installers/technicians employed by: Ship Builders, SUPSHIP, and Government/Contracted Installation/Repair Teams, AITs, Ship/Planning Yards, OSRs, RMCs, FMAs, ISEAs, and Industrial Activities.

3.3.5 Fiber Optic Supervisor.

Any person that currently is or has the potential to supervise Navy Shipboard fiber optic installations. These personnel include (but not limited to) supervisors employed by: Ship Builders, SUPSHIP, and Government/Contracted Installation/Repair Teams, AITs, Ship/Planning Yards, OSRs, OSICs, AIT Managers, RMCs, FMAs, ISEAs, and Industrial Activities.

3.3.6 Fiber Optic Quality Assurance (QA) Inspector.

Any person that currently is or has the potential to perform Navy Shipboard fiber optic QA inspections. These personnel include (but not limited to) QA Inspectors employed by: Ship Builders, SUPSHIP, and Government/Contracted Installation/Repair Teams, AITs, Ship/Planning Yards, OSRs, OSICs, AIT Managers, RMCs, FMAs, ISEAs, and Industrial Activities.

3.3.7 Fiber Optic Cable Puller.

Any person that will ONLY be pulling fiber optic cables and completing initial equipment entry for Navy Shipboard applications. These personnel are not allowed to conduct any other fiber optic work other than the actions required to install cable within the cableways and penetrate equipment via MCP or nylon stuffing tube. These persons are not permitted to perform any fiber optic installation method not specified in 5.2.1.2.1

3.3.8 Individual Content-Focused Training Modules.

These modules are created and provided by the Certified Organization and are in accordance with the training curriculum requirements, as specified in Section 5 of this NAVSEA Drawing.

3.3.9 Industrial Activity.

An organization responsible for performing new construction, alterations, or repairs of ships, whether private or public. This includes Naval shipyards, private shipyards, shipbuilders, vendors, Naval Aviation Depots, Naval Ship Repair Facilities, and other Naval Repair/Technical Activities (e.g., Naval Underwater Weapons Center, Naval Ships Weapons Center, etc.).

3.3.10 Organization Assessment Package (OAP).

This package of information is submitted to the NSWCDD Fiber Optics Section by an organization seeking to have their fiber optic training program certified. The content of this package is described in Section 6.1 of this NAVSEA Drawing.

4. TRAINING CERTIFICATION PROCESS

Organizations desiring to train Navy shipboard fiber optics shall be certified by the Navy Fiber Optic Technical Direction Agent (TDA) at NSWCDD. A process block diagram for the certification process is provided in Figure 1. The four major stages in the certification process are the training organization assessment, an assessment of the training curriculum, a training demonstration and associated assessment, and possible certification of the training organization. The following provides a description of these stages of the training certification process.

4.1 Organization Assessment.

Organizations entering the training certification process shall submit an Organization Assessment Package (OAP) to the NSWCDD Fiber Optics Section. The organization assessment will be performed by the Navy Fiber Optic TDA. The required contents of the OAP are described in Section 6.1 of this NAVSEA Drawing. The Navy Fiber Optic TDA will perform an assessment of the OAP against the requirements defined in Section 5.1 of this NAVSEA Drawing and will either accept or reject the package. If the OAP is rejected, the organization applying will be notified of the assessment rejection and the reasons for that rejection. An organization that is rejected may choose to re-enter the training certification process by submitting an updated OAP. If the OAP is accepted, the organization applying will be notified of the assessment results and will be provided with the information and Work for Private Party (WFPP) templates needed to initiate the next stage in the training certification process, the curriculum assessment (described in Section 4.2 of this NAVSEA Drawing). For government organizations, a Military Interdepartmental Purchase Request (MIPR) will be performed instead of a WFPP since a MIPR is a method for transferring funds amongst U.S. military organizations.

4.2 Curriculum Assessment.

The curriculum assessment is the second major step in the training certification process. If the perspective organization would like to continue with the training certification process, following an acceptable OAP assessment, the organization shall submit a Statement of Work (SOW), completed Data Admin Form, and Statement of Commercial Non-Availability Letter to the Technical Partnering Office (TPO) to initiate the WFPP process for establishing a WFPP Agreement. The requirements for establishing a WFPP Agreement with NSWCDD are described in Appendix A of this NAVSEA Drawing. The WFPP Agreement established between the perspective organization and NSWCDD provides the vehicle for the Navy Fiber Optic TDA to perform the curriculum assessment (Task 1 of the Agreement). Once a WFPP Agreement is established and funding has been received by NSWCDD from the organization to perform the curriculum assessment, the organization shall submit a Curriculum Assessment Package (CAP), as Customer Furnished Information (CFI) under the WFPP Agreement, to the NSWCDD Fiber Optics Section. The required contents of the CAP are

described in Section 6.2 of this NAVSEA Drawing. The Fiber Optic TDA will perform an assessment of the CAP against the requirements defined in Section 5.2 of this NAVSEA Drawing and will either accept or reject the package. If the CAP is rejected, the organization applying will be notified of the assessment rejection and the reasons for that rejection. An organization that is rejected may choose to re-enter the training certification process by submitting a new SOW to the TPO to initiate the process for establishing an Amendment to the existing WFPP Agreement. Once the Amendment is established and funding has been received by NSWCDD from the organization requesting the curriculum assessment, the organization shall submit an updated CAP, as CFI, to the NSWCDD Fiber Optics Section. If the CAP is accepted, the organization applying will be notified of the assessment results and will be provided with the information needed to proceed to the next stage in the training certification process, the demonstration assessment (described in Section 4.3 of this NAVSEA Drawing). For government organizations, coordination with the TPO and WFPP related items are not required, however submission of the information identified in Section 6.2 is still required but will be coordinated directly between the Navy Fiber Optic TDA and the prospective organization. Once funds are received via the MIPR, the Navy Fiber Optic TDA will schedule the review of the information submitted and the prospective organization will be notified of the assessment results upon completion of the curriculum assessment.

4.3 Demonstration Assessment.

The demonstration assessment is the third major step in the training certification process. The WFPP Agreement established between the perspective organization and NSWCDD provides the vehicle for the Navy Fiber Optic TDA to perform the demonstration assessment (Task 2 of the Agreement). If the perspective organization would like to continue with the training certification process, following an acceptable curriculum assessment, the organization shall provide funding to NSWCDD to perform the demonstration assessment and submit a Demonstration Assessment Package (DAP), as CFI under the WFPP Agreement, to the NSWCDD Fiber Optics Section. The required contents of the DAP are described in Section 6.3 of this NAVSEA Drawing. The organization seeking certification will conduct a training demonstration and the Fiber Optic TDA will administer the instructor examinations, perform an assessment of the training demonstration (and associated DAP) against the requirements defined in Section 5.3 and Section 5.4 of this NAVSEA Drawing, and will either accept or reject the training demonstration (and associated DAP). Any desired instructor not present at the Demonstration Assessment shall have the required statement of paragraph 5.1.4.3 reviewed by the Navy Fiber Optic TDA and pass the Navy Fiber Optic TDA supplied proctored exam via the approved organizational process provided to satisfy paragraph 5.1.2.8 before performing instruction.

If the training demonstration (and associated DAP) results in a rejection, the organization applying will be notified of the assessment rejection and the reasons for that rejection. An organization that is rejected may choose to re-enter the training certification process by submitting a new SOW to the TPO to initiate the process for establishing an Amendment to the existing WFPP Agreement. Once the Amendment is established and funding has been received by NSWCDD from the organization requesting the demonstration assessment, the organization shall submit an updated DAP, as CFI, to NSWCDD Fiber Optics and perform another training demonstration. If the training demonstration (and associated DAP) is acceptable, the organization applying will be notified of the assessment results and the process for issuing certification to the organization will be initiated. For government organizations, coordination with the TPO and WFPP related items are not required, however submission of the information identified in Section 6.3 is still required but will be coordinated directly between the Navy Fiber Optic TDA and the prospective organization. Once funds are received via the MIPR, the Navy Fiber Optic TDA will schedule the training demonstration and the prospective organization will be notified of the assessment results upon completion of the demonstration and instructor examination.

4.4 Certification of Organization.

For the perspective organization that has met all the requirements for the certification process, the final step is for the Navy Fiber Optic TDA to certify the organization and to place them on the Certified Fiber Optic Trainers List (CFOTL). The process of certifying the organization includes recording and verifying organizational, curriculum, and instructor information from the previously provided assessment packages and recording the date of certification, to be used for future re-certification. The organization will be issued a notification letter indicating NAVSEA Certification for Navy Shipboard Fiber Optic Training.

Note, incorrect information or information that can mis-represent the prospective training organization, its personnel, or its services, will result in the failure of the assessment or revocation of its certification.

Organizations that have been certified by the Navy Fiber Optic TDA to train Navy Shipboard Fiber Optics shall abide by the following:

4.4.1 Training Organization Certification Expiration.

Organizations will be certified and included on the Certified Fiber Optics Trainers List (CFOTL) for **five (5) years** and will remain on the list for the full time unless the NSWCDD Fiber Optics Section deems the organization incapable of providing proper training based on an investigation of training curriculum, material, instructors, customer feedback, and/or trainee surveys. It is recommended that the training organizations begin coordinating the certification renewal process 6 months prior to the certification expiration date with the NSWCDD Fiber Optics Section to provide time for the certification renewal process. Training certification renewal shall be the responsibility of the Certified Training Organization.

4.4.2 Training Organization Certification Renewal and Update Process.

Organizations seeking to renew or update their training organization certification shall follow the certification process outlined above. The renewal process will initiate at the Curriculum Assessment stage (Section 4.2) of the training organization certification process.

4.4.3 Training Organization Changes.

If changes are made to any training material/personnel (e.g., Instructors, Curriculum, Student Handbooks, Instructor Guides, Fiber Optic Components, Tools, etc.), the organization will be listed as UNDER REVIEW on the Certified Fiber Optics Trainers List (CFOTL) to indicate that changes are being made by the training organization. Organizations seeking Navy shipboard fiber optic training will still be able to receive training by the training organization UNDER REVIEW as long as the changes are not detrimental (e.g., deviation from the most recent version of MIL-STD-2042, MIL-STD-2052, NAVSEA Drawings, etc.) to the Navy shipboard fiber optic training provided to customers.

Upon final review and approval of changes made to training organization, the UNDER REVIEW status will be removed from the CFOTL. If upon final review the changes made by the training organization are deemed unacceptable by the NSWCDD Fiber Optics Section, the training organization will be removed from the CFOTL until the training organization complies with all the NSWCDD Fiber Optics Section established requirements and expectations.

4.4.4 Training Certification Program Changes.

When changes are made to the Navy Shipboard Fiber Optic Training Certification Program, the NSWCDD Fiber Optics Section will notify all organizations on the Certified Fiber Optics Trainers List (CFOTL) of the program revision. Changes to the program of a HIGH PRIORITY category shall require the training organization to address the revision updates in their training program within **six (6) months** from the date of the revision and

the training organization will be listed as UNDER REVIEW on the CFOTL. Upon review and approval of the changes made by training organization to address the program revision, the UNDER REVIEW status will be removed from the CFOTL. If, upon review, the changes made by the training organization are deemed unacceptable by the NSWCDD Fiber Optics Section, the training organization will be removed from the CFOTL until the training organization complies with the revision updates. Changes to the program of a LOW PRIORITY category shall require the training organization to address the revision updates during its normal renewal and update process (Section 4.4.2).

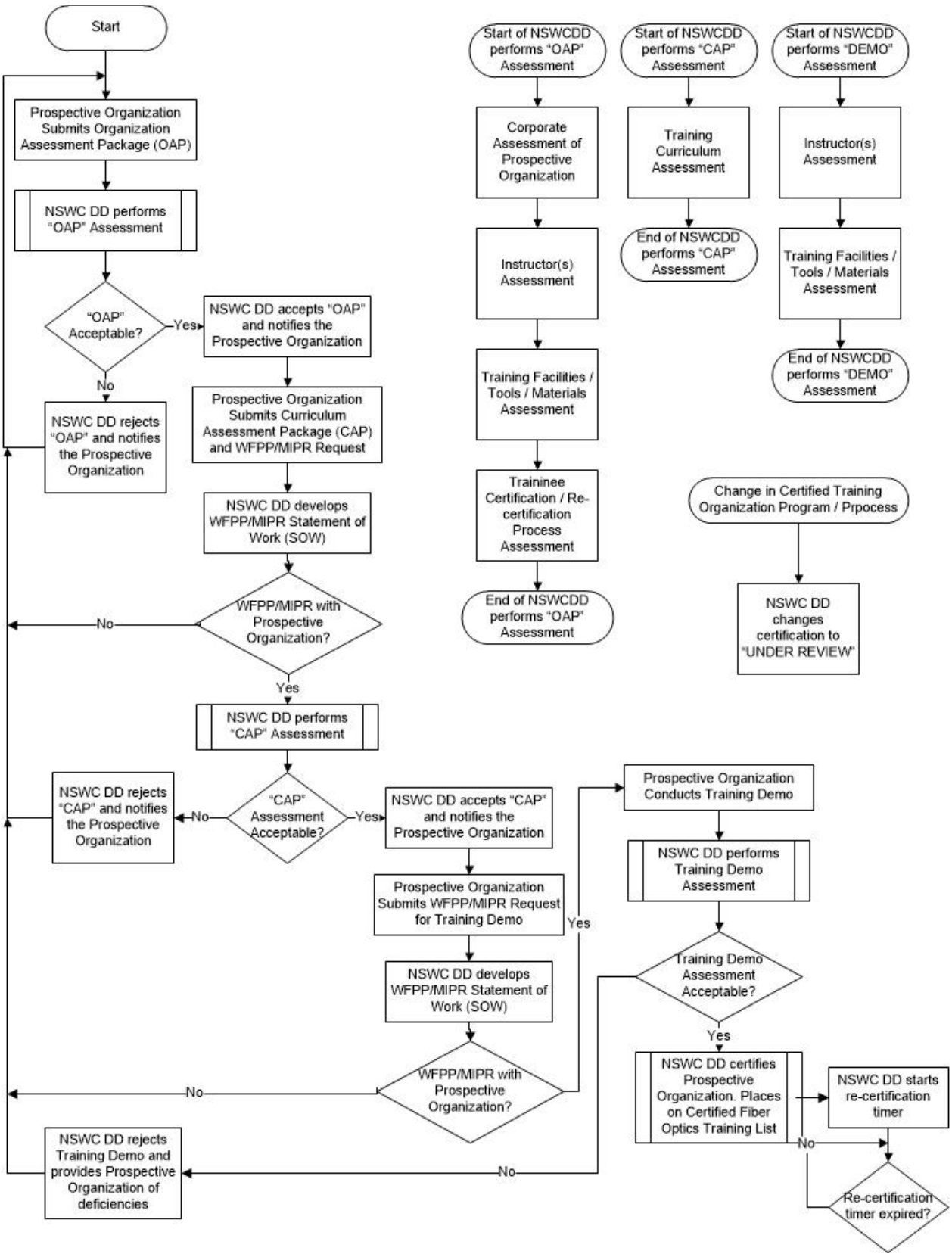

Figure 1. Training Certification Process Block Diagram

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5. REQUIREMENTS

The following outlines the requirements for organizations seeking certification. This section identifies organizational requirements, training curriculum requirements, and demonstration requirements. A non-government organization seeking certification shall be required to enter into a Work For Private Party (WFPP) agreement with NSWCDD and a government organization seeking certification shall transfer funds via a MIPR to NSWCDD as described in Section 4. This section also identifies requirements that the organization seeking certification must meet once certified.

5.1 Organizational Requirements.

Perspective organizations shall meet the following:

5.1.1 Primary Point of Contact (POC).
Organizations shall provide a primary point of contact for the certification effort. The POC information shall include: Name, Phone, Email, and United States Postal Address. In the event that the organization's POC changes, NSWCDD Fiber Optics Section shall be notified.

5.1.2 Organization Background.
Organizations shall provide the following company information:

5.1.2.1 Name of the organization
5.1.2.2 Address of the organization headquarters
5.1.2.3 List of all training locations (with addresses)
5.1.2.4 General financial standing (e.g., small business, number of employees)
5.1.2.5 Organization certifications (e.g., ISO)
5.1.2.6 High-level description of all previous training activities
5.1.2.7 A detailed description of the internal methods and requirements the organization utilizes to determine an employee is ready to be a fully independent instructor.
5.1.2.8 A detailed description of the process the organization will follow to maintain security and integrity of the Fiber Optic TDA supplied instructor exam during the exam proctoring process.

5.1.3 Overview of Training Curriculum.
Organizations shall provide a list of training courses/modules to be offered, locations for training, hours per course/module, and mapping of instructors to courses/modules.

5.1.4 Instructor Credentials.

5.1.4.1 Organizations shall provide a list of all potential instructors

5.1.4.2 All instructors shall have a minimum of **two (2) years** of experience (e.g., training, installation, supervising, inspecting) with Navy shipboard fiber optics
5.1.4.3 Organizations shall provide a statement demonstrating how the instructor meets Section 5.1.4.2 and that the instructor has completed the process described in 5.1.2.7.

5.1.5 Training Organization Support Equipment.

5.1.5.1 Organizations shall provide all support equipment and components for use by trainees.

5.1.5.2 Fiber optic components, fiber optic tools, and measurement quality jumpers (MQJs) shall be provided by the training organization and shall be in accordance with (IAW) the latest revision of the applicable references in Section 2 of this NAVSEA Drawing and any other identified reference provided by NSWCDD Fiber Optics Section.

5.1.5.3 Fiber optic test equipment shall be provided by the training organization and shall be IAW the shipboard General Purpose Electronic Test Equipment (GPETE) or equal as specified in the latest revision of the applicable references in Section 2 of this document and any other identified reference provided by NSWCDD Fiber Optics Section.

5.2 Training Curriculum Requirements.

Organizations desiring to be a Certified Navy Shipboard Fiber Optic Trainer shall meet the following requirements:

5.2.1 The training curriculum shall accommodate training courses for the certification and recertification for the following trainee classifications:

A. Fiber Optic Installers
B. Fiber Optic Supervisors (of installers) and Quality Assurance (QA) Inspectors

5.2.1.1 The training organization shall certify Fiber Optic Installers at the Module level.

5.2.1.2 Fiber Optic Installer certification training shall include the following:

A. CORE module.
B. Classroom lectures/demonstrations for all associated training modules. All classroom lectures/demonstrations may be provided over remote/virtual means to minimize face-to-face required time.
C. Hands-on lab with qualified/approved fiber components and tools for all associated training modules. This portion of the training shall take place in person.
D. Lessons learned from Navy Shipboard Fiber Optic installations for all associated training modules. Lessons learned shall be provided or approved by the NSWCDD Fiber Optics Section.
E. Interfacing with non-fiber optic installation activities and the impact of their installations on fiber optic installations (e.g., Cable banding, cable routing, installations affecting access to FOCP boxes, etc.) for all associated training modules.

NOTE: Personnel who successfully complete all Fiber Optic Installer modules (to include the CORE Module) can receive a Supervisor and QA certification also.

5.2.1.2.1 Fiber Optic Cable Puller Subset – Due to the volume of trainees with limited and focused Navy Shipboard fiber installation work as defined in Section 3.3.7 a subset of installer training is defined below for trainees identified as exclusively Fiber Optic Cable Pullers. The Fiber Optic Cable Puller certification training subset shall provide the following:

A. CORE module.
B. Topics B-G from 5.2.6.1
C. Classroom lectures/demonstrations for the following specific methods from MIL-STD-2042: Method 1A1, 1B1, 2A1, 2B2, 2B3, 2G1, 2H2, 2H3, 2J1, 3A1, and 3B1.

D. Hands-on lab with qualified/approved fiber components and tools for all associated training methods.
E. Lessons learned from Navy Shipboard Fiber Optic Cable Pullers for all associated training modules and methods. Lessons learned shall be provided or approved by the NSWCDD Fiber Optics Section.

5.2.1.2.2 As this requirement is a combination of the CORE module with a subset from other modules a minimum required time is provided for this training path. The minimum time required for Cable Puller training shall be not less than 16 hours.

5.2.1.3 Fiber Optic Supervisor and Quality Assurance (QA) certification training shall provide the following:

A. CORE module.
B. Classroom lectures/demonstrations for all training modules. All classroom lectures/demonstrations may be provided over remote/virtual means to minimize face-to-face required time.
C. Lessons learned from Navy Shipboard Fiber Optic installations for all associated training modules. Lessons learned shall be provided or approved by the NSWCDD Fiber Optics Section.
D. Interfacing with non-fiber optic installation activities and the impact of their installations on fiber optic installations (e.g., Cable banding, cable routing, installations affecting access to FOCP boxes, etc.) for all training modules.

NOTE: Certification for supervisor and QA inspector requires classroom lecture/demonstration training in all modules, but does not require hands-on training.

5.2.1.4 Fiber Optic Installer recertification training shall provide the following:

A. CORE module refresher.
B. Abbreviated refresher classroom lectures/demonstrations for all associated training modules to include any updates to module curriculum and ensure the trainee is prepared for the written examination.
C. Appropriate hands-on lab with qualified/approved fiber components and tools for all associated training modules to include any updates to module curriculum
D. Lessons learned from Navy Shipboard Fiber Optic installations for all associated training modules. Lessons learned shall be provided or approved by the NSWCDD Fiber Optics Section.

5.2.1.4.1 Fiber Optic Cable Puller trainee recertification training shall provide the following:

A. CORE module refresher.
B. Appropriate classroom lectures/demonstrations for all associated training methods to include any updates to Fiber Optic Cable Puller curriculum and ensure the trainee is prepared for the written examination.
C. Appropriate hands-on lab with qualified/approved fiber components and tools for all associated training methods to include any updates to the Fiber Optic Cable Puller curriculum.
D. Lessons learned from Navy Shipboard Fiber Optic installations for all associated training modules. Lessons learned shall be provided or approved by the NSWCDD Fiber Optics Section.

5.2.1.5 Fiber Optic Supervisor and Quality Assurance (QA) recertification training shall provide the following:

A. CORE module refresher.
B. Abbreviated refresher classroom lectures/demonstrations for all associated training modules to include any updates to module curriculum and ensure the trainee is prepared for the written examination.
C. Lessons learned from Navy Shipboard Fiber Optic installations for all associated training modules. Lessons learned shall be provided or approved by the NSWCDD Fiber Optics Section.

NOTE: Recertification for supervisor and QA inspector requires abbreviated refresher classroom lecture/demonstration training in all modules, but does not require hands-on training.

5.2.2 All training materials (i.e., Curriculum, Outlines, Student Handbooks, Student Workbooks, Instructor Guides, Student Test, Test Answers, Presentations, and Supplemental Videos) shall be in accordance with (IAW) the latest revision of the applicable references in Section 2 of this NAVSEA Drawing and any other identified reference provided by the NSWCDD Fiber Optics Section.

5.2.3 The training curriculum shall provide the following modules:

5.2.3.1 CORE
5.2.3.2 Navy Shipboard Blown Optical Fiber (BOF) Methods and Components
5.2.3.3 Cable Handling, Penetration, and Repair/Modification
5.2.3.4 FOICB/TRB Forming, Routing, Shaping
5.2.3.5 Fiber Optic Termination – Single Ferrule (Light Duty)
5.2.3.6 Fiber Optic Termination – Multi-Terminus (Heavy Duty)
5.2.3.7 Fiber Optic Termination – Fusion Splicing
5.2.3.8 Optical Testing

The identified training modules may be combined into one or multiple training courses; however, the flexibility must remain to accommodate specific trainee requirements.

5.2.4 CORE module.

5.2.4.1 The CORE module shall include the following topics, at a minimum:

A. Introduction to and history of Navy Shipboard Fiber Optics
B. Visual Inspection of Fiber Optic Components
C. Information regarding Qualified Products List (QPL) Components
D. Information regarding the Navy Recommended Fiber Optic Component Parts List, Test Equipment List, and Tools List
E. Information regarding the Navy Fiber Optic website
F. Adherence to all applicable references in Section 2 of this NAVSEA Drawing for fiber optic installations
G. Safety requirements when handling fiber optics

5.2.4.2 The curriculum for the CORE module shall adhere to:

A. MIL-STD-2042 Base Specification
B. MIL-STD-2042 Part 2, Method 2D1 (information only)
C. MIL-STD-2042 Part 5, Method 5C1 (information only)
D. MIL-STD-2042 Part 6, Method 6A1, 6M1
E. MIL-STD-2052
F. MIL-HDBK-2051

G. Navy Recommended Fiber Optic Components Parts List, Test Equipment List and Tools List
H. Policy letters relating to fiber optic system design
    i. NSWCDD ltr 3910 Ser W23/011, 2 Jun 2010, Subj: Policy to Invoke MIL-STD-2052A for Fiber Optic System Design
    ii. NSWCDD ltr 3910 Ser W23/012, 17 May 2010, Subj: Clarification about the History and Use of the Navy Fiber Optic Power (Loss) Budget 3dB Safety Margin
    iii. NSWCDD ltr 3910 Ser W23/014, 16 Jun 2010, Subj: Policy to Invoke Use of Patch Cords with 1000Base-LX over Multimode Fiber

5.2.4.3 The CORE module shall be provided in all individual content-focused training courses except when multiple modules are taken at one time or when all personnel attending the course have a current, unexpired certification for the CORE module.

5.2.4.4 The minimum time required for the CORE module shall be not less than four (4) hours.

5.2.5 Navy Shipboard Blown Optical Fiber (BOF) Methods and Components module. The BOF module is intended to train personnel on how to install, repair, and test BOF in a Navy shipboard environment.

5.2.5.1 The Navy Shipboard Blown Optical Fiber (BOF) Methods and Components module shall include the following topics, at a minimum (Note: This module does not require blown optical fiber manufacturer-specific installation procedures. Shipboard installation of blown optical fiber shall be in accordance with manufacturer-specific instructions. Training associated with manufacturer-specific installations shall be coordinated via the manufacturer or their designated representative.):

A. Cable Handling and Penetration
B. Forming, Routing, Shaping
C. 8mm BOF Tube to 5mm BOF Tube Transition within Protective Enclosures
D. 5mm BOF Tube Attachment to Splice Trays
E. Use of single-tube BOF cable
F. Cable saddle requirement
G. FOICB and TRB Density Requirements
H. Tube Furcation (Note: The training for MIL-STD-2042 Method 2E1 shall be included for informational purposes in the classroom instruction but does not require hands-on training.)
I. Testing
    i. Ball Bearing (BB) Test
    ii. Cable Pressurization Test
    iii. Cable Seal Verification Test
J. Tube End Sealing
K. Repair / Modification
    i. Cable Jacket Repair
    ii. Cable Splicing
    iii. Cable Furcation

5.2.5.2 The curriculum for the Navy Shipboard Blown Optical Fiber (BOF) Methods and Components module shall adhere to:

A. MIL-STD-2042 Part 1, Methods 1B1, 1C1, 1C2, 1D1
B. MIL-STD-2042 Part 2, Methods 2E1, 2F1, 2F2, 2F3, 2F4, 2G1, 2H1 (DEMO ONLY), 2H2, 2H3, 2I1, 2I2, 2I3, 2J1, 2L1, 2M1
C. MIL-STD-2042 Part 6, Methods 6H1, 6I1, 6J1

5.2.5.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the Blown Optical Fiber (BOF) module shall be not less than twenty-eight (28) hours.

5.2.6 Cable Handling, Penetration, and Repair / Modification module. The Cable Handling, Penetration, and Repair/Modification module is intended to train personnel on how to properly handle, penetrate, repair, and modify fiber optic cables in a Navy shipboard environment.

5.2.6.1 The Cable Handling, Penetration, and Repair / Modification module shall include the following topics, at a minimum:

A. FOICB and TRB Density Requirements
B. Conventional and BOF Cable Handling
C. Cable Saddle Requirement
D. Intended Use for Single-Tube BOF Cable
E. Conventional and BOF Cable Penetration
    i. Nylon Stuffing Tubes
    ii. Metal Stuffing Tubes
    iii. Multiple Cable Penetrators (MCPs)
F. Conventional and BOF Cable Jacket Repair
G. BOF Cable Splicing
H. BOF Cable Furcation

5.2.6.2 The curriculum for the Cable Handling, Penetration, and Repair / Modification module shall adhere to:

A. MIL-STD-2042 Part 1, Methods 1B1, 1C1, 1C2, 1D1
B. MIL-STD-2042 Part 2, Methods 2A1, 2B1 (Demo Only), 2B2, 2B3, 2G1, 2H1 (Demo Only), 2H2, 2H3
C. MIL-STD-2042 Part 3, Methods 3A1, 3B1
D. Policy letters relating to fiber optic system design
    i. NSWCCD-SSES ltr 9504 Ser 9542/09, 30 MAY 1997, Subj: Criteria for Shipboard Usage of Military Fiber Optic Components
    ii. NSWCCD-SSES ltr 9504 Ser 96315/055, 28 APR 2000, Subj: Mismatching, Mating, Polishing, and Proper Application of MIL-SPEC ST and COTS Connectors
    iii. NSWCDD ltr 3910 B35-GDB, 08 FEB 1984, Subj: Requirements for Usage of Commercial Off-The-Shelf (COTS) Cable
    iv. NSWCCD-SSES ltr 9504 Ser 96315/021, 1 APR 2003, Subj: Approaches to Fiber Optic Cable/Harness Replacement/Repair

5.2.6.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the Cable Handling, Penetration, and Repair / Modification module shall be not less than sixteen (16) hours.

5.2.7 FOICB / TRB Forming, Routing, Shaping module. The FOICB / TRB Forming, Routing, Shaping module is intended to train personnel on how to properly form, route, and shape fiber optic cables within FOICBs and TRBs in a Navy shipboard environment.

5.2.7.1 The FOICB / TRB Forming, Routing, Shaping module shall include the following topics, at a minimum:

A. FOICB and TRB Density Requirements
B. Conventional Cable
    i. Cable and OFCC End Sealing
C. BOF
    i. BOF Tube End Sealing

ii. 8mm BOF Tube to 5mm BOF Tube Transition within Protective Enclosures

5.2.7.2 The curriculum for the FOICB / TRB Forming, Routing, Shaping module shall adhere to:

A. MIL-STD-2042 Part 1, Methods 1A1, 1E1
B. MIL-STD-2042 Part 2, Methods 2C1, 2C2, 2I1, 2I2, 2I3, 2J1, 2K1, 2K2, 2K3, 2L1

5.2.7.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the FOICB / TRB Forming, Routing, Shaping module shall be not less than eight (8) hours.

5.2.8 Fiber Optic Termination – Single Ferrule (Light Duty) module. The Fiber Optic Termination – Single Ferrule (Light Duty) module is intended to train personnel on how to properly install and repair fiber optic single ferrule connectors in a Navy shipboard environment.

5.2.8.1 The Fiber Optic Termination – Single Ferrule (Light Duty) module shall include the following topics, at a minimum:

A. ST, LC, SC Type Connector
B. Fiber Optic Connector Inspection and Cleaning

5.2.8.2 The curriculum for the Fiber Optic Termination – Single Ferrule (Light Duty) module shall adhere to:

A. MIL-STD-2042 Part 5, Methods 5B1, 5B2, 5B3, 5D3
B. MIL-STD-2042 Part 6, Method 6M1
C. Policy letters relating to fiber optic system design
   i. NSWCCD-SSES ltr 9504 Ser 96315/055, 28 APR 2000, Subj: Mismatching, Mating, Polishing, and Proper Application of MIL-SPEC ST and COTS Connectors
   ii. NSWCDD ltr 3910 B35-GDB, 08 FEB 1994, Subj: Usage of Commercial Off-The-Shelf (COTS) Fiber Optic Components

5.2.8.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the Fiber Optic Termination – Single Ferrule (Light Duty) module shall be not less than twelve (12) hours.

5.2.9 Fiber Optic Termination – Multi-Terminus (Heavy Duty) module. The Fiber Optic Termination – Multi-Terminus (Heavy Duty) module is intended to train personnel on how to properly install and repair fiber optic multi-terminus connectors in a Navy shipboard environment.

5.2.9.1 The Fiber Optic Termination – Multi-Terminus (Heavy Duty) module shall include the following topics, at a minimum:

A. Multi-Terminus (MT)
B. Heavy Duty Connector Mechanical Pull Test
C. Fiber Optic Connector Inspection and Cleaning

5.2.9.2 The curriculum for the Fiber Optic Termination – Multi-Terminus (Heavy Duty) module shall adhere to:

A. MIL-STD-2042 Part 5, Methods 5A1, 5A2, 5A3, 5A4, 5A5, 5A6, 5D1
B. MIL-STD-2042 Part 5, Method 5D2 (information only)
C. MIL-STD-2042 Part6, Method 6M1
D. Policy letters relating to fiber optic system design

i. NSWCCD-SSES ltr 9504 Ser 96315/055, 28 APR 2000, Subj: Mismatching, Mating, Polishing, and Proper Application of MIL-SPEC ST and COTS Connectors
ii. NSWCCD-SSES ltr 9504 Ser 96315/038, 13 JUN 2003, Subj: Approaches to Cleaning Ferrule End Faces, Fiber Optic Connectors and Termini

5.2.9.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the Fiber Optic Termination – Multi-Terminus (Heavy Duty) module shall be not less than sixteen (16) hours.

5.2.10 Fiber Optic Termination – Fusion Splicing module. The Fiber Optic Termination – Fusion Splicing module is intended to train personnel on how to properly perform fiber optic fusion splicing and install Navy Shipboard qualified fiber optic fusion splicing components in a Navy shipboard environment.

5.2.10.1 The Fiber Optic Termination – Fusion Splicing module shall include the following topics, at a minimum:
A. Fusion Splicing
B. 5mm BOF tube attachment to splice trays

5.2.10.2 The curriculum for the Fiber Optic Termination – Fusion Splicing module shall adhere to:
A. MIL-STD-2042 Part 5, Method 5C2
B. MIL-STD-2042 Part 2, Methods 2K1, 2K2, 2K3, 2M1

5.2.10.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the Fiber Optic Termination – Fusion Splicing module shall be not less than eight (8) hours.

5.2.11 Optical Testing module. The Optical Testing module is intended to train personnel on how to properly test fiber optic links in a Navy shipboard environment.

5.2.11.1 The Optical Testing module shall include the following topics, at a minimum:
A. Cable Assembly Link Loss Test
B. Cable Attenuation Test
C. Cable Continuity Test
D. Cable Topology End-to-End Attenuation Test
E. Cable Assembly Return Loss Test
F. Cable Topology End-to-End Return Loss Test
G. Fiber Optic Connector Inspection and Cleaning
H. MQJ Selection Test
i. MMF
ii. SMF

5.2.11.2 The curriculum for the Optical Testing module shall adhere to:
A. MIL-STD-2042 Part 6, Methods 6B1, 6C1, 6D1, 6E1, 6E2, 6F1, 6K1, 6L1, 6M1

B. NAVSEA DRAWING 6877804
C. Policy letters relating to fiber optic system design
i. NSWCCD-SSES ltr 9504 Ser 9542/11, 30 MAY 1997, Subj: Shipboard Applications Proper Measurement of Cable Assembly Link Loss

5.2.11.3 The minimum time, both classroom and hands-on, required for fiber optic installer certification for the Optical Testing module shall be not less than twelve (12) hours.

5.3 Demonstration Requirements.

Perspective organizations shall meet the following:

5.3.1 Training Demonstration

Organizations shall provide a training demonstration, to include all modules (or sub-modules), using appropriate training materials and fiber optic components. The training location shall be determined by the perspective organization.

5.3.1.1 Training facility location where NSWCDD Fiber Optics Section will assess the training demonstration (Note: Training organization shall arrange training demonstration location at facility). Access information for NSWCDD Fiber Optics Section personnel when visiting training facility is also required.

5.3.1.2 Demonstration. Organizations shall perform the following training modules for assessment by the NSWCDD Fiber Optics Section:

A. CORE module
B. Cable Handling, Penetration, and Repair/Modification module (Cable Handling, Pulling, Installation Only)
C. FOICB/TRB Forming, Routing, Shaping module
D. Fiber Optic Termination – Multi-Terminus (Heavy Duty) module
E. Optical Testing module (Cable Assembly Link Loss Testing and Cable Attenuation Only)

5.3.1.3 Upon request, prior to or during the demonstration, organizations shall perform additional training modules.

5.3.1.4 Training organization shall provide all course books, tools, and support equipment for the demonstration.

5.3.1.5 Upon request by NSWCDD Fiber Optics Section, Demonstration Video CD or DVD of organization providing training shall be provided.

5.3.2 Instructor Exam

An Instructor Exam will be administered by NSWCDD Fiber Optics Section and will assess the perspective instructor’s knowledge of Navy standards-based methods and procedures and on Navy qualified/approved fiber optic components for shipboard fiber optic installation efforts.

5.3.2.1 Instructors present for the Demonstration Assessment shall complete an Instructor Exam at the time of the demonstration.

5.3.2.2 Any desired instructor not present at the Demonstration Assessment shall have the required statement of paragraph 5.1.4.3 reviewed by the Navy Fiber Optic TDA and pass the Navy Fiber Optic TDA supplied proctored exam, via the approved organizational process provided, to satisfy paragraph 5.1.2.8 before performing instruction.

5.3.2.3 All perspective instructors shall be required to score **90%** or better on this exam.

5.3.2.4 The Instructor Exam shall be an “individual”, “open book” examination.

5.4 Certified Organization Requirements.

Organizations that have been certified by the Navy's Fiber Optic Technical Direction Agent (TDA) are certified based on the training organization's ability to meet the requirements in Sections 5.1, 5.2 and 5.3 of this NAVSEA Drawing. Details relating to the certification process are provided in Section 4.4 of this NAVSEA Drawing. Organizations that have been certified by the Navy's Fiber Optic TDA will be provided a signed NAVSEA Letter indicating certification and the expiration of certification. Delivery of the certification letter will be a Secure PDF provided via Digitally Signed Email. Once certified, these training organizations shall meet the following:

5.4.1 Organizations shall notify NSWCDD prior to taking any actions that could impact the training organization's certification. Specifically, changes to the training curriculum, changes in the training personnel, changes in tools / equipment. Section 4.4.3 of this NAVSEA Drawing provides a discussion of the change process.

5.4.2 Training organization certification renewal shall be the responsibility of the certified training organization.

5.4.2.1 Training organization certification renewal shall be completed prior to the 5-year anniversary of the training organization certification. Section 4.4.2 of this NAVSEA Drawing provides a discussion of this renewal process. Temporary extensions of 5 year period may be considered, where all materials and funding have been completed prior to the 5 year anniversary of certification and additional time is needed for review and/or correction of materials by training activity or NSWC Dahlgren.

5.4.2.2 Training organization certification renewal due to HIGH PRIORITY revision changes to the Navy Shipboard Fiber Optics Certification Training Program shall be completed within **six (6) months** from the date of the revision. Section 4.4.4 of this NAVSEA Drawing provides a discussion of this renewal process.

5.4.3 The training organization shall provide the certification of the fiber optic installer, fiber optic supervisor, and the fiber optic QA inspector classifications upon request. The training certification of each classification shall be valid for **three (3) years**.

5.4.4 In order to certify a trainee, the training organization shall:

5.4.4.1 Administer a written exam to all trainees that covers the material from each module(s). A score of at least **80%** on the written exam is required for certification. Written examinations shall be administered in person.

5.4.4.2 Administer a practical exam (i.e., hands-on demonstration of methods from associated module(s)) for fiber optic installer classification trainees. A score of **SATISFACTORY** on the practical exam is required for certification. Practical examinations shall be administered in person.

5.4.4.3 Administer a feedback survey to the trainee. Feedback surveys shall be submitted to NSWCDD Fiber Optics Section via email no later than (NLT) 30 business days after request from NSWCDD Fiber Optics Section. Surveys shall be submitted via agreed upon file format (e.g., Excel, PDF, Word, etc).

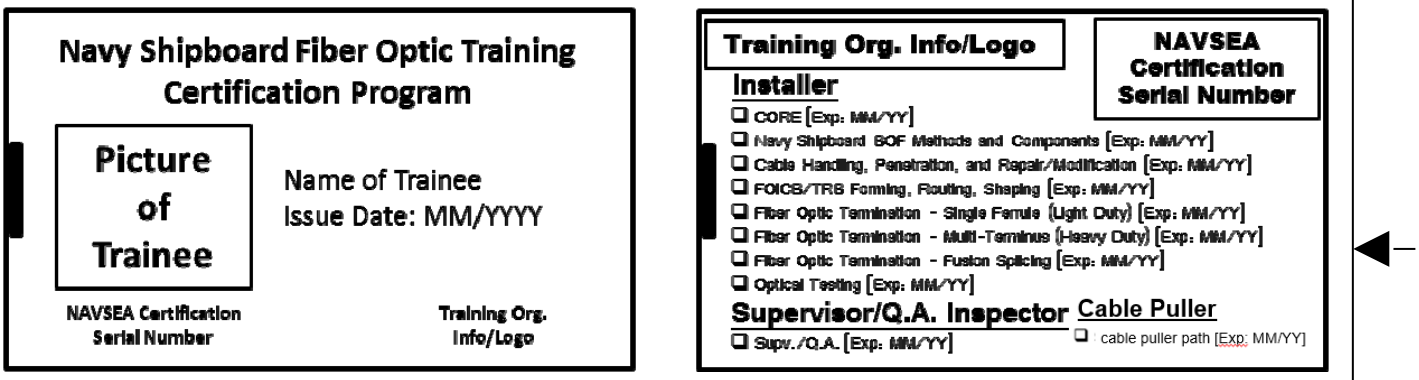
5.4.5 The training organization shall provide the recertification of the fiber optic installer, fiber optic supervisor, and the fiber optic QA inspector classifications upon request. The training organization shall:

5.4.5.1 Provide the recertification of trainees that have been certified by their training organization.

5.4.5.2 Provide the recertification of trainees that have been certified by other Navy Fiber Optic TDA certified training organizations.

5.4.5.3 Provide trainee recertification in accordance with the requirements identified in MIL-STD-1678, Part 1, Requirement 1306.

5.4.6 The training organization shall provide each individual trainee a certification card (e.g., approximately 3.5 inches x 2 inches) indicating they have taken and passed Navy shipboard fiber optic training. The training modules taken by the trainee, the certification expiration date(s), the Navy Fiber Optic TDA certified training organization, a picture of the trainee (optional), the name of the trainee, the issue date of the card, and the training organization's NAVSEA certification serial number shall be identified on the certification card. See Figure 2 for an example of a trainee certification card.



FRONT **BACK**

Figure 2. Trainee Certification Card Example.

5.4.7 The training organization shall provide to NSWCDD Fiber Optics Section a list of trainees that have been certified. This list shall be provided quarterly throughout the calendar year or upon request from NSWCDD Fiber Optics Section. The list shall be in comma separated format. The list shall contain the following for each trainee:

A. Certifying Organization Name
B. Trainee Name
C. Trainee Organization
D. Trainee Phone Number (Optional)
E. Trainee Email Address (Optional)
F. Training Module Name
G. Certifying Instructor Name
H. Training Classification

I. Training Module Date Completed
J. Training Module Expiration Date
K. Certifying Organization Specific Trainee Identifier (if applicable)

5.4.8 Upon approval from NSWCDD Fiber Optics Section, the training organization may bundle modules together to meet individual customer requirements. When bundling modules together, it is permitted to reduce the total amount of hours of training where individual content-focused modules overlap with information or methods. It is not required for the training organization to instruct the same information or methods more than once when bundling modules together. For example, consider the scenario in Table 1 below as an example:

Table 1. – Training Scenario Example

Provided Separately	
Navy Shipboard BOF Methods and Components	**Cable Handling, Penetration, and Repair/Modification**
Required Methods	*Required Methods*
MIL-STD-2042 Part 1, Methods 1B1, 1C1, 1C2, 1D1	*MIL-STD-2042 Part 1, Methods 1B1, 1C1, 1C2, 1D1*
MIL-STD-2042 Part 2, Methods 2E1, 2F1, 2F2, 2F3, 2F4, 2G1, 2H1, 2H2, 2H3, 2I1, 2I2, 2I3, 2J1, 2L1, 2M1	*MIL-STD-2042 Part 2, Methods 2A1, 2B1, 2B2, 2B3, 2G1, 2H1, 2H2, 2H3*
MIL-STD-2042 Part 6, Methods 6H1, 6I1, 6J1	*MIL-STD-2042 Part 3, Methods 3A1, 3B1*
Bundled Together	
Navy Shipboard BOF Methods and Components / Cable Handling, Penetration, and Repair/Modification	
Required Methods	
MIL-STD-2042 Part 1, Methods 1B1, 1C1, 1C2, 1D1 *MIL-STD-2042 Part 2, Methods 2A1, 2B1, 2B2, 2B3, 2E1, 2F1, 2F2, 2F3, 2F4, 2G1, 2H1, 2H2, 2H3, 2I1, 2I2, 2I3, 2J1, 2L1, 2M1* *MIL-STD-2042 Part 3, Methods 3A1, 3B1* *MIL-STD-2042 Part 6, Methods 6H1, 6I1, 6J1*	

NOTE: The above example would reduce total training hours since duplicative instruction would be eliminated (e.g., 36 methods vs. 28 methods). The above scenarios and other scenarios like it could be considered by training organizations as well to meet individual customer requirements.

5.4.9 The approval to bundle training modules does not alleviate the requirement for training organizations to provide individual content-focused modules separately per customer requests.

6. ASSESSMENT CRITERIA

The information below is provided to detail the assessment of organizations seeking certification under the Navy Shipboard Fiber Optic Training Program. Candidate organizations will be assessed three separate times, as described in Section 4 of this NAVSEA Drawing.

6.1 Organization Assessment Package (OAP).

The Organization Assessment Package (OAP) shall be used to validate the organizational requirements, identified in Section 5.1, for the candidate organization. The OAP shall be provided to NSWCDD Fiber Optics Section. The contents of the OAP shall address all requirements in Section 5.1. Failure to address all requirements will result in an assessment rating of UNACCEPTABLE. An ACCEPTABLE rating for the OAP will permit the candidate organization to advance in the Training Certification Process.

6.2 Curriculum Assessment Package (CAP).

The Curriculum Assessment Package (CAP) shall be used to validate the training curriculum requirements, identified in Section 5.2, for the candidate organization. The CAP shall be provided to the NSWCDD Fiber Optics Section following the initiation of the WFPP agreement or MIPR between the candidate organization and the NSWCDD Fiber Optics Section, as discussed in Section 4. The contents of the CAP shall address all requirements in Section 5.2 and provide supporting documentation identified below. Failure to address all requirements will result in an assessment rating of UNACCEPTABLE. An ACCEPTABLE rating for the CAP will permit the candidate organization to advance in the Training Certification Process.

When addressing the requirements in Section 5.2, the supporting documentation required in the CAP shall include:

6.2.1 Training Curriculum. Organizations shall provide detailed information about the training courses/modules offered and the hours per course/module.

6.2.2 All associated training material (i.e., Curriculum, Outlines, Student Handbooks, Student Workbooks, Instructor Guides, Student Test, Test Answers, Presentations, and Supplemental Videos).

6.2.3 Mapping of identified training material to each course attendee (e.g., Trainee receives 1 Outline, 1 Student Handbook, 1 Student Workbook; Course receives 2 supplemental videos, etc.).

6.2.4 Mapping of instructors to training courses/modules.

6.2.5 Detailed information (i.e. Manufacturer, Part Number, Manufacturer Cage Code, Quantity) regarding all fiber optic components, test equipment, tools, and MQJs used for training.

6.3 Demonstration Assessment Package (DAP).

The Demonstration Assessment Package (DAP) shall be used to validate the training demonstration requirements, identified in Section 5.3, and the certified organization

requirements, identified in Section 5.4, for the candidate organization. The DAP shall be provided to the NSWCDD Fiber Optics Section following the initiation of the WFPP agreement or MIPR between the candidate organization and the NSWCDD Fiber Optics Section, as discussed in Section 4. The contents of the DAP shall address all requirements in Section 5.3 and 5.4 and provide supporting documentation identified below. Failure to address all requirements will result in an assessment rating of UNACCEPTABLE. An ACCEPTABLE rating for the DAP will permit the certification of the candidate organization.

When addressing the requirements in Section 5.4, the supporting documentation required in the DAP shall describe how the candidate organization will meet each requirement.

APPENDIX A

Work for Private Party (WFPP) Agreement

Non-government organizations that are participating in either the curriculum assessment process or the demonstration assessment process will be required to enter into a Work for Private Party (WFPP) Agreement with NSWCDD (For government organizations, a Military Interdepartmental Purchase Request (MIPR) will be performed instead of a WFPP since a MIPR is a method for transferring funds amongst U.S. military organizations.) A WFPP Agreement provides a vehicle for the Navy Fiber Optic TDA at NSWCDD to assess the training program of the training organization (private party) seeking certification. This appendix discusses the WFPP process and provides sample templates. The information within this appendix is subject to change without notice.

A.1 Background

A number of laws and policies have been implemented to broaden the authority of defense activities to partner with private parties. These laws and policies offer opportunities for NSWCDD to reduce operating and ownership costs, enhance commercialization of dual-use technologies, and increase private sector access to defense-unique capabilities. The following Statute authorizes NSWCDD to work with private parties to fulfill the requirements of the Navy Shipboard Fiber Optic Training Certification Program:

> 10 U.S. CODE §2563 provides authority and establishes conditions under which NSWCDD may sell articles and services to private parties when the article or service is not available from a U.S. commercial source in the quality, quantity, or timeframe required by the customer

A.2 Initiating the 10 U.S. CODE §2563 WFPP Process

Sections A.2.1 and A.2.2 document the work flow process and the standard templates to be utilized by the training organization (private party) to initiate the WFPP process. All requirements for 10 U.S. CODE §2563 agreements shall be coordinated through the Technical Partnering Office (TPO).

A.2.1 10 U.S. CODE §2563 Flow Process

The following is the 10 U.S. CODE §2563 Agreement flow process where each step of the process is color coded so that the entity responsible for the current action is identified. This flow only depicts the request for certification from the Commander, NSWC since 10 U.S. CODE §2563 agreements put in place by NSWCDD are normally less than $1 million dollars. There are 4 entities responsible for actions in this process, the TPO, Technical Department, Private Party, and Legal Counsel. However, these agreements are routed through Security prior to being provided to the Private Party for review and signature. Before an agreement is put in place, a WAW package must be prepared and the effort must be accepted by the NWM. No work may be performed under a 10 U.S. CODE §2563 Agreement until the Private Party and Commander, NSWCDD have signed the agreement and funding has been received by NSWCDD from the Private Party. Therefore, a Request for Authority letter is prepared and sent to the Commander, NSWC to receive certification of non-competition. This certification allows the Commander, NSWCDD to sign the agreement.

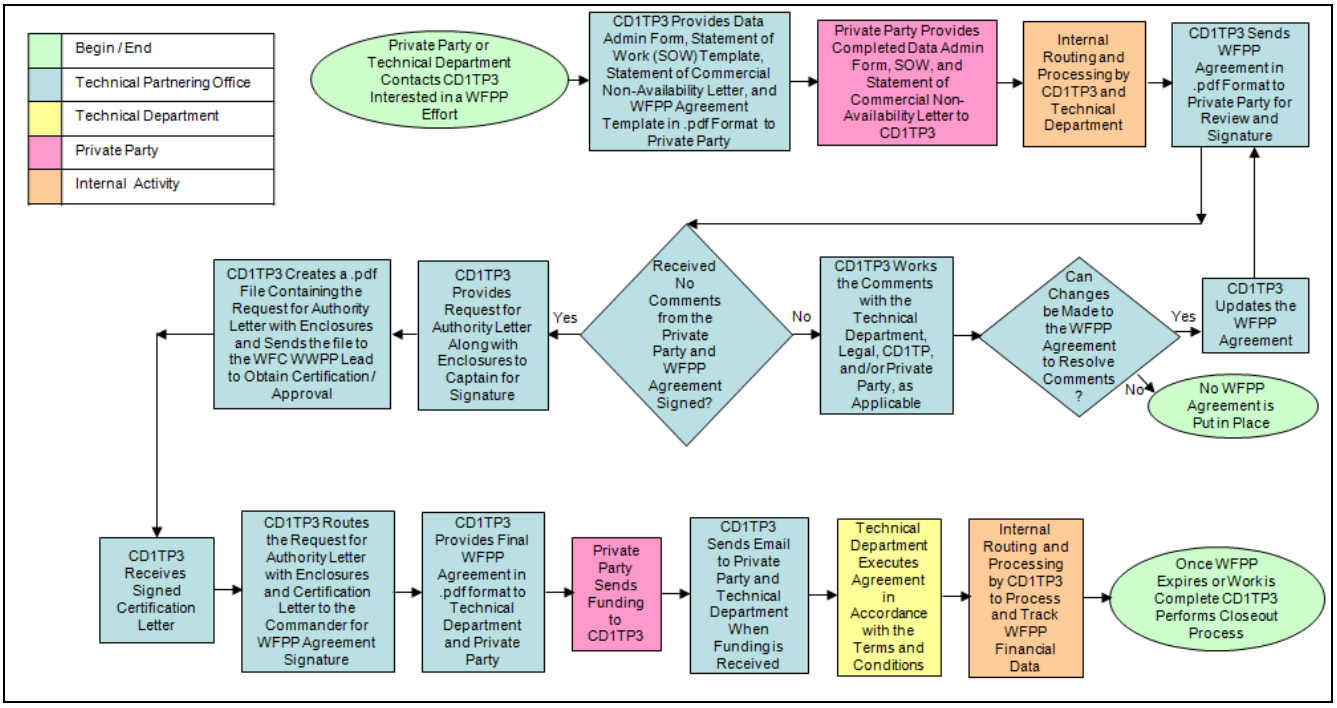


Figure A1. Example 10 U.S. CODE §2563 Agreement Flow Process

A.2.2 Standard Templates to be Utilized by Training Organization

The following are the templates to be used by the training organization (private party) to initiate the 10 U.S. CODE §2563 WFPP process.

A.2.2.1. Statement of Work (SOW) Template

When a Private Party or Technical Department contacts the TPO interested in a WFPP effort, the following SOW template is provided to the Private Party by the TPO for use in developing a SOW. A SOW is needed from the Private Party describing the work that the Private Party would like for NSWCDD to perform and the expected deliverables. Receiving this SOW from the Private Party initiates the 10 U.S. CODE §2563 Agreement (in progress) process.

STATEMENT OF WORK FORMAT

BACKGROUND: [Provide a brief background of program status and why work needs to be performed.]

ABSTRACT OF PROPOSED TASK: [Provide a high-level description of the work desired by the private party to be performed by NSWCDD.]

TASK 1 Curriculum Assessment

[Provide a description of tasking to be performed by NSWCDD under this task.]

Required Customer Furnished Information (CFI)/Customer Furnished Equipment (CFE)/Customer Furnished Personnel (CFP): [Private Party] shall provide the following CFI/CFE/CFP to NSWCDD:

a. Curriculum Assessment Package (CAP) that includes the following:

(1) All associated training material (e.g, outlines, student handbooks, student workbooks, instructor guides, student tests, test answers, presentations, supplemental videos, etc.) and mapping of identified training material to each course attendee (e.g., Trainee receives 1 outline, 1 student handbook, 1 student workbook; Course receives 2 supplemental videos, etc.).

(2) Mapping of instructor to training courses/modules

(3) Detailed information (i.e., manufacturer, part number, quantity) regarding all fiber optic components, test equipment, tools, and MQJs used for training

(4) Duration of Navy Shipboard Fiber Optic training courses/modules

[Define any other specific CFI (Customer Furnished Information), CFE (Customer Furnished Equipment), or CFP (Customer Furnished Personnel) that will be provided by the private party in order to accomplish this task.]

Schedule of Task: [Provide any specific start and stop dates for this task.]

Deliverables: [Identify any expected deliverables for this task and reference any expected quality standards to be followed.]

TASK 2 Demonstration Assessment

[Provide a description of tasking to be performed by NSWCDD under this task.]

Required CFI/CFE/CFP: [Private Party] shall provide the following CFI/CFE/CFP to NSWCDD:

a. Demonstration Assessment Package (DAP) that includes the following:

(1) Training facility location where NSWCDD will assess the training demonstration ([Private Party] shall arrange training demonstration location at facility.)

(2) All course books, tools, and support equipment for demonstration

(3) Upon request by NSWCDD, demonstration video CD or DVD of [Private Party] training Shipboard Fiber Optics

[Define any specific CFI (Customer Furnished Information), CFE (Customer Furnished Equipment), or CFP (Customer Furnished Personnel) that will be provided by the private party in order to accomplish this task.]

Schedule of Task: [Provide any specific start and stop dates for this task.]

Deliverables: [Identify any expected deliverables for this task and reference any expected quality standards to be followed.]

Figure A2. Statement of Work Template

A.2.2.2 Data Admin Form

When a Private Party or Technical Department contacts the TPO interested in a WFPP effort, the following Data Admin Form is provided with the SOW template to the Private Party by the TPO for completion by the Private Party. This information is needed and used by the TPO when creating a 10 U.S. CODE §2563 Agreement.

REQUIRED DATA	CUSTOMER INPUT
Company Name	
Company Acronym or Abbreviation	
Mailing Address 1	
Mailing Address 2	
City	
State	
Zip	
Technical Point of Contact (TPOC)	
TPOC Phone	
TPOC Fax	
TPOC Cell (if available)	
TPOC E-Mail	
Agreement Administrator (AA)	
AA Phone	
AA Fax	
AA Cell (if available)	
AA E-Mail	
Associated Government Contract? Yes/No	
Government Contract Number	
Program Office	
Program Name	
Classification of Work (Unclassified/Classified) If classified, what level?	

Figure A3. Data Admin Form Template

A.2.2.3 Statement of Commercial Non-Availability Letter Template

When a Private Party or Technical Department contacts the TPO interested in a WFPP effort, the following Statement of Commercial Non-Availability Letter template is provided with the SOW template and Data Admin Form to the Private Party by the TPO. The Private Party is asked to complete the template, place it on its letterhead, sign the letter, and provide the signed letter to the TPO. This letter is an enclosure to the Request for Authority letter and is required by NSWC, Commander to make the certification of non-competition. The information in the letter confirms there is no commercial source available to provide the goods or perform the services in the required quantity or quality or within the time required.

NON-AVAILABILITY FROM U.S. COMMERCIAL SOURCES
DETERMINATION

[Date]

NAVAL SURFACE WARFARE CENTER, DAHLGREN DIVISION
Melody S. Ryan
CD1TP3/NSWCDD Technical Partnering Office
17632 DAHLGREN RD Suite 201
DAHLGREN VA 22448-5154

Subject: Certification of Non-Competition

Dear Ms Ryan,

[Company Name] is currently working under the [Contract Effort] that would benefit from the unique technical capabilities and expertise of Naval Surface Warfare Center, Dahlgren Division (NSWCDD). [Company Name] would like to obtain support from NSWCDD in accordance with the requirements of 10 U.S. CODE §2563.

It is our goal to retain NSWCDD expertise in areas where we find that NSWCDD is the only viable provider available with the knowledge, skills and expertise to meet our quantity, quality, and schedule requirements. As set forth in our proposed statement of work, these critical areas include:

[Add a description of what tasks need to be accomplished/services provided.]

To the best of our knowledge and belief, we hereby certify that no known U.S. commercial source is available for performing and providing the required expertise. Our company believes the procurement of these unique capabilities and services from NSWCDD will be in the best interest of the [Contract].

Should there be any questions regarding this correspondence please direct them to the undersigned at [Phone Number].

Sincerely,

[Name]
[Title]

Figure A4. Certification of Non-Competition Template

A.2.3 Information Required from the Navy Fiber Optic TDA (Technical Department)

When a SOW is received from a Private Party by the TPO, the SOW and the Technical Response template are provided by the TPO to the Navy Fiber Optic TDA (Technical Department) for use in developing a Technical Response. A Technical Response is needed from the Technical Department to identify the work that the Technical Department will perform for and the deliverables the Technical Department will provide to the Private Party. This Technical Response will be an updated SOW and will become Section 13 of the 10 U.S. CODE §2563 Agreement.

When a SOW is received from a Private Party by the TPO, the SOW and the Cost Estimate template are provided by the TPO to the Technical Department for use in developing a Cost Estimate. A Cost Estimate is needed from the Technical Department to identify the resources that will be used and needed by the Technical Department to perform the work for the Private Party. This Cost Estimate will become an attachment to the 10 U.S. CODE §2563 Agreement.

When a SOW is received from a Private Party by the TPO, the SOW and the Risk Assessment template are provided by the TPO to the Technical Department for use in developing a Risk Assessment. The Technical Department is asked to complete the template and provide it to the TPO for completion of paragraph 6. Once the TPO has completed paragraph 6, the Risk Assessment is provided to the Technical Department to obtain the Department Head's signature. Once the Department Head signs and the assessment is returned to the TPO, the TPO signs and obtains the Commander, NSWCDD's signature. This assessment is an enclosure to the Request for Authority letter and is required by NSWC, Commander to make the certification of non-competition.

A.2.4 10 U.S. CODE §2563 Agreement

When a Technical Response and Cost Estimate are received from the Navy Fiber Optic TDA (Technical Department) by the TPO, the TPO creates a 10 U.S. CODE §2563 Agreement. Information provided by the Private Party via the Data Admin Form (see Section A.2.2.2) is used to populate Private Party information within the 10 U.S. CODE §2563 Agreement. The Technical Response (see Section A.2.3) provided by the Technical Department is inserted as Section 13 of the 10 U.S. CODE §2563 Agreement. The Technical Response may be edited by the TPO for clarification. The Cost Estimate (see Section A.2.3) provided by the Technical Department is inserted as Attachment (1) to the 10 U.S. CODE §2563 Agreement. The Cost Estimate may be updated by the TPO to ensure all costs are taken into account.