

FIBER OPTIC TESTING ENHANCEMENT FOR COST REDUCTION FOLLOW-ON

Improvement to FO Testing for significant manpower and schedule reduction benefits

Project Update
03/23/2021

Presented by:
Dan Morris (KITCO Fiber Optics)



FIBER OPTIC TESTING ENHANCEMENT FOR COST REDUCTION FOLLOW-ON

NSRP Project Task Order:	2019-472
KITCO Project:	NSRP-2019-472
Sponsor:	Advanced Technology International 315 Sigma Drive Summerville SC 29486
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Contractor:	KITCO Fiber Optics 5269 Cleveland Street Virginia Beach, VA 23462
Principal Investigator:	Dan Morris (757) 216-2220 dan.morris@kitcofo.com
KITCO Fiber Optics Contracts:	Holly Andrews (757) 216-2301 holly.andrews@kitcofo.com
Project Manager:	Felipe Guadalupe 757 216-2226 felipe.guadalupe@kitcofo.com
Project Technical Rep (PTR):	Jason Farmer (228) 935-7573 jason.farmer@hii-ingalls.com
Data Category B:	Data developed partially with funding from project participants that was not charged to a government contract and partially with government funding.
Distribution Statement:	Limited Distribution Authorized to U.S. Shipyards, NSRP Program Representatives, and Government Agencies.

Project Overview

This project will focus on the validation of the previous project laboratory findings through evaluation of optical testing on a new construction VCS submarine, **USS New Jersey (SSN-796)**. The intent is to investigate the potential for Fiber Optic Testing Enhancement for Cost Reduction by evaluating the commercial practice of using an Optical Time Domain Reflectometer (OTDR) to replace the Optical Loss test Set (OLTS) and Optical Return Loss Meter (ORLM) in performance of MIL-STD-2042 Part 6 required shipboard installations tests that must be performed at various stages during the construction process, minimizing the number of tests and the time to perform the separate testing. In addition, the OTDR test results will provide enhanced data that is not currently captured resulting in reduced time for system acceptance and identification of potential faults for expedited troubleshooting and repair during construction.

Project Status Summary

- Project suspended through March 2021 due to COVID-19.
- It is anticipated that project will make four (4) three (3) day visits to NNS between Starting April 2021 and may last thru September 2021.
- Requested additional funding due to delay. Waiting on status of funding.
- NSRP project funding for NSWC Dahlgren has expired. ATI found additional funding that is being re-allocated to support this project.
- NSRP Task Order 2019-472-001 Mod 2 has been submitted.
- NNS project personnel have changed. The new Fiber Foreman is Jeff Lekrone replaced Natarsha Whitworth. Joe Harris is the electrical Lead General Foreman replaced Mark Allen.
- Based on the latest forecasted schedule, NNS has indicated we will not likely be ready for testing on New Jersey until June at this point. The new project personnel need time to review all the material and see if they have any questions. They are also looking for other fiber leads we may be able to test.

Project Schedule

	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20
1) Kick-Off Meeting and Project Plan Development															
2) Procurement of Test Equipment and Materials															
3) Testing of FO Circuit Leads onboard SSN-794										Suspended					
4) Testing Result Comparison Analysis										Suspended					
5) Project Suspended															

2021 Schedule

	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21
1) Project Suspended												
2) Restart Project												
3) Procurement of Test Equipment and Materials												
4) Testing of FO Circuit Leads onboard SSN-796												
5) Testing Result Comparison Analysis												

Procured Equipment

Procured Equipment List			
Manufacturer	Description	QTY	Date
EXFO-945	Light Source, SM & MM (with EF Launch)/Power Meter /ORLM	2	21-Feb-20
EXFO iOLM	OTDR, SM and MM (with EF Launch)/Power Meter	2	20-Mar-20

The Two (2) MAX-OLSTNAVY-NSRP1 (EXFO-945) were delivered on 02/27/2020 to NSWC Dahlgren Division, Code A31 for evaluation

*Not Yet Procured Equipment List					
M85045/16-01 (MM)			M85045/16-02 (SM)		
Part #	Description	QTY	Part #	Description	QTY
KFO 60810-EXP	MQJ ST/4 CH Recpt 1 meter 6877804-08	2	KFO 60830-EXP	MQJ ST/4 CH Recpt 1 meter 6877804-08SME	2
KFO 60510	MQJ ST/ST 1 meter 6877804-05	4	KFO 60530	MQJ ST/ST 1 meter 6877804-05SME	4
0705-5610	MQJ ST/LC 1 Meter 6877804-15	4	KFO-11923	MQJ ST/LC 1 Meter 6877804-15SME	4
N/A	MQJ ST/4CH Recpt 50 meter (Special Cable)	2	N/A	MQJ ST/4CH Recpt 50 meter (Special Cable)	2
N/A	MQJ ST/8 CH Recpt 50 meter (Special Cable)	2	N/A	MQJ ST/8 CH Recpt 50 meter (Special Cable)	2

***Note: The not yet procured equipment is awaiting configuration verification based on HII-NNS input regarding all planned project test links**

Project Outstanding Tasks

Tasks/Items that still need to be accomplished include:

- Identification of potential additional paths (to include fiber and connector configurations)
- Presentation of this information to NSWCCD to verify their concurrence that the FO paths identified will allow for appropriate analysis of test result data in order to draw acceptable conclusions
- Identification of project required MQJ's and test leads
- Procurement of required test leads
- Identification of reasonable and acceptable project site visits dates to conduct the required testing (assumes 3 to 4 visits of 3 to 4 days each)
- Verification that all parties can support such dates and MQJs will be ready
- Actual site visits for project testing – Project team records project test data (assumes 3 to 4 visits of 3 to 4 days each)
- Testing by NNS of the same paths and transference of test data to compare to project test data
- Analysis of project data
- Final report drafting
- Review by all team members
- Final report finalization

Current Deliverables Schedule

Deliverable Schedule		
Deliverable	Team Member(s)	Due Date
Project/Test plan & Schedule	KITCO Fiber Optics - Dan Morris	11/15/2019
Quarterly Report #1	KITCO Fiber Optics - Dan Morris	12/15/2019
List of Material Procured	KITCO Fiber Optics - Dan Morris	12/1/2019
Project Status Brief to ETP	KITCO Fiber Optics - Dan Morris HII-NNS - Dave White/Dave Ellis	~12/10/2019
Quarterly Report #2	KITCO Fiber Optics - Dan Morris	3/15/2020
Project Status Brief to ETP	KITCO Fiber Optics - Dan Morris/Felipe Guadalupe HII-NNS - Dave Ellis	~3/10/2020
Project Suspended due to COVID-19		
Quarterly Report #3	KITCO Fiber Optics - Dan Morris/Felipe Guadalupe	4/15/2021
Quarterly Report #4	KITCO Fiber Optics - Dan Morris/Felipe Guadalupe	7/15/2021
Summary Report of all Project Visits and Tests conducted	KITCO Fiber Optics - Dan Morris/Felipe Guadalupe	9/1/2021
Final Report with Recommendation	KITCO Fiber Optics - Dan Morris/Felipe Guadalupe	10/31/2021

- The Base TOA (2019-472) was executed on 09/17/2019. MOD 1 updated POP to 10/11/2019 – 09/15/2020 and MOD 2 updated POP to 02/15/2020 – 09/15/2020. **MOD 2 updated to extended POP from 9/17/2020 through 10/31/2021.**

Questions???

