



**Newport News  
Shipbuilding**

A Division of Huntington Ingalls Industries

**GENERAL DYNAMICS**  
Electric Boat

NDT Supplier Conference  
Newport News Shipbuilding and Electric Boat

March 19, 2019



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**Welcome**

Gary Zimak - NNS Director of Supplier Quality  
Nick Dombrowski - EB Director of Supplier Quality

- **Welcome – Gary Zimak**
  - **Introduction of Key Personnel & Speakers**
    - VP Quality – NNS (Ron Murray), EB – Ken Blomstedt
    - Director Quality – NNS (Gary Zimak), EB – Nick Dombrowski
    - Mike Reilley – Chief Engineering (NNS)
    - Kirk Scheel – Director of Welding and NDT Engineering (EB)
    - Joe Kramer – Manager Test Inspection (NNS)
    - Steve Ashton – Engineer IV, NDT Section (NNS)
    - Adam Sederholt – Supplier Quality Manager (EB)
    - Andrew Glazzard – NDT Engineering Supervisor (EB)
    - Paul Hebert – Manager of Welding & NDT Engineering (NNS)
    - Rudie Simpson – Manager Supplier Quality (NNS)
  - **Opening Remarks from**
    - Ron Murray NNS VP of Quality
    - Ken Blomstedt EB VP of Quality
  - **Review Agenda**

# Agenda

4

**7:30 AM – 8:30 AM**

Continental Breakfast

**8:30 AM – 9:00 AM**

Welcome –

Gary Zimak NNS Director of Supplier Quality

Nick Dombrowski EB Director of Supplier Quality

Ron Murray NNS VP Quality

Ken Blomstedt EB VP of Quality

**9:00 AM – 9:15 AM**

Videos from NNS and EB

**9:15 AM – 10:15 AM**

Objective of this Conference and Takeaways

**10:15 AM – 10:30 AM**

Break

**10:30 AM – 12:00 PM**

Review most recent NDT issues in the Supply base and within the Shipyards

Discuss Intrusive Supplier Assessment (ISA) / Supplier Technical Assessment (STAV) and what has been some of the outcomes of assessments to-date

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<b>12:00 PM – 1:00 PM</b>	Lunch
<b>1:00 PM – 1:30 PM</b>	Review of Specification Requirements
<b>1:30 PM – 2:00 PM</b>	Inspector Oversight Expectations / Changes
<b>2:00 PM – 2:30 PM</b>	Engineering Assessment - How Supplier Issues Impact Construction
<b>2:30 PM – 2:45 PM</b>	Break
<b>2:45 PM – 3:15 PM</b>	Compliance
<b>3:15 PM – 3:45 PM</b>	Closing Comments and Open Discussion
<b>3:45 PM – 4:00 PM</b>	Wrap-up

# Video's

[ACIBC](#)

<https://mynns/News/Pages/Posts.aspx?PostId=142>

[EB Video](#)

<I:\PROJECTS\O05 Supplier Quality\NDT Supplier Conference>

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- Awareness of NDT issues in the Supply Base
- Impact of NDT issues that affect Construction and the Navy
- Share the knowledge of what a healthy NDT program should look like
- Share specification requirements and advance notice of future potential changes
- Understanding of Compliance and Consequences
- What's in it for me
- Supply Base Leadership will take what they learned today and share with their respective Level III / Examiners and pursue next actions
- WHEN?? NOW!!

- NDT performance in the supply base is not where it needs to be
  - Following initial missile tube vendor failures 7 of 10 vendors evaluated for NDT experienced significant NDT findings during intrusive supplier assessments (ISAs) in 2018
- The rework associated with these findings has had significant impact to ship construction schedules
- Proper NDT is a critical aspect of a quality product
- We need your help to ensure continued delivery of quality products
- There is a lot more work coming to the supply base to support Submarine and Carrier Construction and we need the supply base to be ready for that work
  - Don't underestimate the challenge of ramping up a welding or NDT program to meet demand



- What does NDT mean to you?
- Why is NDT performed?
- Why is NDT important?
- What are the consequences of not having an effective NDT program?



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**Recent NDT Issues in the Supply Base and within the  
Shipyards & Results of ISA**

Kirk Scheel – Director Welding & NDT Engineering (EB)  
Joe Kramer – Manager Test Inspection (NNS)  
Adam Sederholt – Manager Supplier Quality (EB)

## US Navy: Welding Problem Found on Missile Tubes for New Subs

The U.S. Navy says there's a problem with welds on missile tubes that are going into new submarines.



## 'Substantial' Columbia-class Missile Tube Weld Fix Will Cost \$27 Million, Take a Year

By: [Ben Werner](#)  
November 7, 2018 1:06 PM



## 3 Virginia Attack Submarines Still Restricted as NAVSEA Investigates Questionable Welding, Rest of Fleet Cleared

By: [Sam LaGrone](#)  
August 18, 2015 6:15 PM • Updated: August 19, 2015 9:09 AM



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- Source of focus on NDT originates from the Missile Tube Supply Base
- Supply base experienced significant growth to ramp up production lines for complex products (New welders and inspectors)
- NDT oversight and expertise was limited for both in-house and contracted services
- Significant volume of work completed before NDT performance issue was detected
- Significant amount of rework required
- NDT failures not easily detectable without re-inspection program or significant amount of expertise
- NDT failures prevented detection of weld program weaknesses

- Collectively underestimated the current capability of supply base on its ability to perform NDT to meet expectations and requirements
- Underestimated complexity of component fabrication, risk associated with 1<sup>st</sup>-time execution, schedule constraints, availability of proficient work force for both welding and NDT
- Shipbuilding Community historically
  - reviewed and approved procedures
  - focused on process based audits
- Historical approach is not producing the required results to ensure that NDT is being performed to specification requirements
  - Does not take proactive, scalable approach that mitigates identified risks
- **Urgent Step change needed**

- Step change in Shipbuilder Supplier Management that focuses on supplier quality, to include:
  - ISA – Intrusive Supplier Audit
  - The shipbuilders have adopted and committed to a more intrusive auditing approach that focuses on the hardware and the performance of welding and NDT to detect and prevent problems
- Additional vendor oversight
  - Hiring a significant number of inspector, engineer and examiner personnel
- Establishing a Risk Management Group
  - Identifies critical suppliers and prioritizes future audit
- Increased communications to vendors to improve quality
- Improved follow up to ensure resolution of issues and deficiencies

- Conducted 12 Intrusive Supplier Audits (ISAs) since 4Q 2018
- Significant findings with NDT (VT, MT, PT, and UT) were identified in the following areas:
  - Inspector performance
  - Examiner performance
  - Certification records

- Little to no oversight
- Lack of a recovery protocol
- Inspectors are not given TPE's IAW the written practice
- Use of 5 year certification cycles
- Using the wrong or extra components when averaging test grades (practical for a level III)
- Using outside level III's without requiring a specific exam / certification by the prime contractor
- Recertification through continued satisfactory performance, no examination
- Not maintaining records for the current and preceding certification period
- Incomplete certification records (hours of training, experience, results of current exams, records of vision tests)
- Multi-level subcontracting (Not passing down requirements, No oversight of subcontractors)



- **Significant findings include:**

- Examiner performance

- Failure to identify and correct improper technique of Level II during evaluation
- Failure to properly interpret result of MT inspection during evaluation
- Excessive coaching provided during Level II evaluation
- Failure to audit Level II inspections within required periodicity

- Certification records:

- Certifications non-compliant to specification requirements
- Failure to produce certification records

- **Significant findings include:**

- Failure to identify relevant indications
- Use of non-compliant measuring devices for VT indications
- Failure to identify silicates prior to MT
- MT powder blown by mouth in lieu of blow ball
- Improper yoke overlap during MT inspection
- Inadequate lighting during NDT performance
- Use contaminated ('dirty') rags to clean surface prior to PT
- Improper application of Penetrant Dye
- Failure to evaluate non-relevant indications prior to classification
- Failure to identify UT scan would not provide adequate coverage (sketch versus joint configuration)

## Specific MT issues identified in past audits:

- Improper yoke angles
- Inadequate lighting
- Inadequate coverage (no yoke leg overlapping)
- Use of DC yokes on TP 1688 inspection
- Not understanding acceptance criteria / relevancy checks
  - Over inspecting
  - Treating MT indications as an aid for visual inspection
  - Inspecting over rejectable silicate / slag

## Specific PT issues identified in past audits:

- Inadequate precleaning
- Lack of coverage (penetrant not applied to entire test surface)
- Inadequate post cleaning (after penetrant dwell time and at completion of inspection)
- Inadequate lighting
- Not understanding acceptance criteria

## Specific UT issues identified in past audits:

- Incorrect calibration
- Inadequate surface preparation
- Lack of coverage
- Inattention to detail while performing scanning
- Incorrect application of acceptance criteria
- Inadequate documentation practices

- The emphasis has been on NDT performance issues
- NDT personnel have been challenged with identifying an inordinate amount of fabrication deficiencies
  - Specifications between welding and NDT are complementary
- NDT is not tasked with inspecting quality into the product, but rather to validate the product meets quality requirements



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# Lunch Break

[Thresher \(SUBSAFE Program Awareness  
Video "0:00-2:15"\)](https://mynns/orgs/O03/Pages/Training-Links.aspx)

[https://mynns/orgs/O03/Pages/Training-  
Links.aspx](https://mynns/orgs/O03/Pages/Training-Links.aspx)



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## **Specification Requirements**

Joe Kramer - Manager Test Inspection



- **Paragraph 1.6 – Nondestructive Test Personnel Certification**

- Develop a written practice using ASNT's SNT-TC-1A as minimum requirements except as modified herein.
- Alternative certification in accordance with MIL-STD-410, NAVSEA 250-1500 or MIL-STD-2132.
- Level III shall be tested by examinations administered by the employing activity, ASNT or other outside agency.
  - The specific exam shall be administered by the employing activity or outside agency.
  - When the basic and method exams are administered by ASNT passing grades shall be assigned a numerical score of 80%.
- The hours of training and experience may be reduced for personnel who perform one operation of a test method that consists of multiple operations. This reduction must be described in the written practice and noted in the certification record.
- The employing activity is responsible for the certification of all levels of nondestructive test personnel.
- Recertification is by examination and must be as comprehensive as initial certification, at intervals not greater than 3 years for Level I and Level II, and 5 years for Level III.
- Personnel shall be recertified by a practical examination if they have not performed tests in the method which they are certified for a period of nine months.
- All nondestructive test personnel must pass an annual vision test reading J1 letters on the standard Jaeger's test chart.

Specification deficiencies that arise by using SNT-TC-1A without considering modifications by TP 271

- Recertification based on continued satisfactory performance
- J-2 Vision test
- Recertification of inspectors every five years
- TPE's not being conducted (This section starts by explaining extension of certifications)

- There are usually less problems when utilizing these standards
- Requirements are well defined
- The standards include templates and proposed layouts for inspection procedures
- Level III certification is conducted in accordance with NSTR-99 exclusively by Bettis Atomic Power Laboratory

- What does good look like
- What do the shipbuilders do (not the bare minimum)
- Recognize that NDT is a human based process (requires constant maintenance & oversight)
- Key Questions for you to Consider
  - Have you met your examiner?
  - What oversight is provided when NDT is contracted?
  - Have you had an NDT issue in the past?
    - If not, . . .



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**Inspector Oversight Expectations / Changes**

Kirk Scheel – Director Welding and NDT Engineering (EB)

- NDT Level III / Examiner
  - The Individual Certified to test and certify inspectors to perform inspections
  - The Subject matter expert in the methods they are certified to
  - The Individual responsible for the NDT program (procedure, compliance, certification etc.)
  - The individual expected to evaluate an NDT failure and identify the necessary remedial actions (e.g. re-inspections, re-training, re-testing etc.)
- Examiners are Humans too - Not all created equal
- A healthy NDT program will have Examiners that are actively engaged with the inspectors to Maintain and oversight the NDT program
- Inspector
  - Perform as trained in accordance with procedure
  - Think about “why” and “how”
  - Ask for help from Examiner when unsure

**The purpose of this standard clause is to state the buyers minimum acceptable standards for conducting oversight of NDT personnel.**

- NDT may be reexamined any time at the discretion of the employer and have their certifications revoked for unsatisfactory performance.
- As a minimum, the activity's NDT oversight program shall consist of a combination of the following types of oversight performed by the activity's NDT Examiner/Level III or his qualified delegate:
  - » TPEs- performed within **6 months** of initial certification and annually thereafter and be as comprehensive as the practical exam. **Every 9 months** would meet maintenance requirements
  - » And / Or Audits- performed within **6 months** of initial certification and annually thereafter
  - » Re-inspections of previously accepted product at least once every certification cycle
  - » Re-certifications cannot be substituted for the above oversights
- Documentation- the above oversights to be included in the employer's written practice

- You have to consider the potential contributions that your NDT personnel can make in 1<sup>st</sup>-time quality efforts
- Design Phase – Factor Examiners in the product design process
  - Assess complexity of weld designs and accessibility issues
- Production Phase – Examiner or equivalent QA representative is reviewing NDT inspection results for adverse Production trends, engaging in causal analysis (e.g., welder proficiency or welding process controls)
- You ensure Production is acting on trend and causal analyses
- For Significant NDT-Related Issues – Ensure Examiner is engaged in the problem definition and resolution efforts





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**Engineering Assessment – How Supplier Issues  
Impact Construction**

Mike Reilley – NNS Director & Chief Engineer

- Shipbuilding Complexity & Environment
- Safety
- Quality
- Schedule
- Recent Examples
- What You Can Do!

- Systems & Equipment are “layered”, space is at a premium, & they are turned over as completed & tested
- Quality
  - Each NDT issue/discrepancy has to be individually disclosed to the Navy
  - Those that can’t be inspected must be analyzed for impact to ship’s operation and safety
  - Each case where inspections cannot be performed to specification requirements, Navy approval to waive is required
- Ships are “heel to toe” impacting footprint, testing, qualifications, crew training, certifications
- Navy is counting on delivery schedules, and the Navy makes operational & crew plans accordingly
- Recent Examples – Subcontractor’s Failure to Perform MT to Requirements

The US Navy is Counting on Us!!

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- 1<sup>st</sup> Time Quality
- Help us to deliver high quality products, safely, on time, and at or below cost
- Any missed or incorrect NDT can result in a significant risk to the ship
- NDT discrepancies receive a large amount of scrutiny by Navy and by NAVSEA technical communities
- Recent NDT process failures have impacted ship deliveries at NNS and EB and have received Congressional and Media attention
- NDT Re-inspections & Failures carry significant risk of major rework or re-welding

## First Time Quality



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# NNS Compliance Program

Gary Zimak  
NNS Compliance Program



**ethics  
& Compliance**

SHAPING THE CULTURE



**There is no level of performance that can outperform an ethics or compliance failure. - Mike Petters**

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# Compliance Program – Cycle



- Purpose:
  - To protect the public interest -- NOT to punish
  - Key concept of “present responsibility”
- Who can be suspended/debarred?
  - Individuals
  - Entities (e.g., corporations, partnerships, divisions or business units within an entity)
  - Parent and affiliates, if warranted
  - Prime contractors, subcontractors, or participants *at any tier*
- Current statistics and trends
  - FY2017: 463 companies and 1415 individuals excluded



- Mandatory
  - Clean Water Act
  - Clean Air Act
- Discretionary
  - Knowing failure to disclose to the government certain misconduct (e.g., credible evidence of a violation of a criminal conflict of interest law, false claim, or significant overpayment)
  - ***“any other cause of so serious or compelling a nature that it affects the present responsibility of the contractor or subcontractor”***
    - What is “present responsibility”
    - Discussion of specific examples

- **The ten mitigating factors under the FAR:**

1. Effective standards of conduct/internal controls at the time of the misconduct
2. Did the contractor disclose?
3. Has the contractor fully investigated **and** shared the results with the government?
4. Has the contractor fully cooperated?
5. Has the contractor made full restitution?
6. Has the contractor taken appropriate disciplinary action?
7. Has the contractor adopted remedial measures?
8. Has the contractor adopted new control procedures and ethics training programs?
9. Has there been adequate time to eliminate the circumstances that led to the misconduct?
10. Does management recognize the seriousness and have they implemented programs to prevent a recurrence?

**READ: A Demonstrable Ethical Culture**

- Compliance Office offers **help** to make NNS **more successful** at compliance and present responsibility
- Think about the **fraud triangle**
  - Are you applying “**accurate**” **pressure** in **setting the tone**?
  - Do you value following the process as much as the outcome?
- **Robust**, industry-leading, Annual Compliance Plan **owned** by the NNS employees
- Demonstrate **presently responsible** through evaluations, risk mitigations and program management

***“There is no level of performance that can outperform an ethics or compliance failure.”***

**– Mike Petters, President and Chief Executive Officer, Huntington Ingalls Industries**

## MARINELOG

Home News Shipyards Offshore Coastal Shipping Shipbuilding Contracts Events

### Prison term for former shipyard NDT inspector

### The Virginian-Pilot

PilotOnline.com

DEFENSE & SHIPYARDS

Business Defense & Shipyards

## Newport News ex-inspector gets 3 years for lying about welds

By Robert McCabe  
The Virginian-Pilot  
Aug 13, 2011

## Daily Press

### VALVES MAY BE FLAWED

June 2005: Employee sentenced to 33 months in federal prison, and ordered to pay \$4.2 million.



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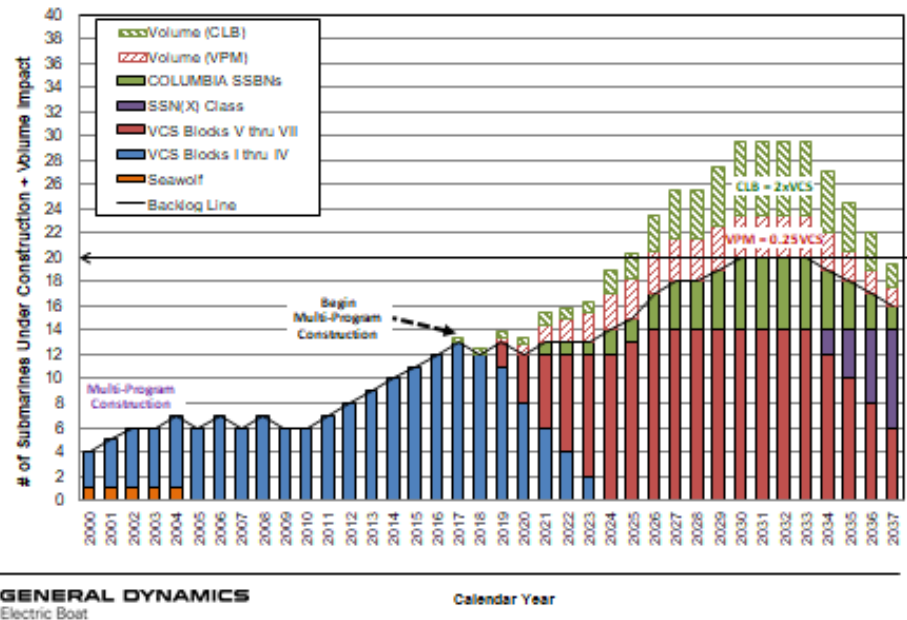
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What's in it for Me

Nick Dombrowski – EB Director Supplier Quality

- Increased product quality
- Increased confidence that product is compliant
- Improved weld program
- Mitigate risk to future non-compliances
- Be more competitive for future work

### # of Submarines & VCS Equivalences Under Construction



- Awareness of NDT issues in the Supply Base
- Share the knowledge of NNS/EB's expectation of what an NDT program should look like
- Compliance and Consequences
- Impact of NDT issues that affect Construction and the Navy
- Share specification requirements and provide opportunity to streamline
- Supply Base Leadership will take what they learned today and share with their respective Level III / Examiners and pursue next actions
- WHEN?? NOW!!
- Next steps

- Takeaways
- Gary Zimak & Nick Dombrowski give roll-up
- SUPSHIP-NN & SUPSHIP-GROTON give roll-up
- Open floor discussion
  - What did you hear?