



## In This Issue...

This issue of the Supplier Information Bulletin focuses on Continuous Improvement, a core part of our business. Continuous Improvement is a systematic approach to identify improvement opportunities and implement changes that can help an organization reach its strategic goals. Continuous Improvement can reduce costs, improve the quality of products and services, improve efficiency, increase employee engagement and improve safety. We'd like to take this opportunity to highlight a few significant improvement initiatives from both the shipyard and the supply base. It is imperative that we are continually challenging and refining our processes to ensure that we are collectively providing high quality products to the United States Navy on time, and at a fair and reasonable price, to support our nation's defense.

## Feedback

Please let us know what you think about this bulletin!

Send content suggestions and comments to Kayla Monahan (860.433.9814) at [EBSIB@gdeb.com](mailto:EBSIB@gdeb.com)

## Letter to the Suppliers

Effective and persistent use of Continuous Improvement tools and practices can enable an organization to dramatically improve their performance. This often requires self-criticism and courage to challenge the status quo. Continuous Improvement initiatives can lead to major breakthroughs and innovations that otherwise would not have been discovered. A culture of Continuous Improvement also has the benefit of empowering and engaging employees to identify opportunities for improvement in their daily work. When employees are empowered and engaged, it drives pride and ownership of their processes and products. This employee engagement is the foundation of any continuous improvement culture.

Continuous Improvement is directly aligned with Electric Boat's core values of safety, quality, cost, and schedule. The benefits of Continuous Improvement can significantly increase employee safety, improve first-time product quality, decrease cost, and enable more efficient processes to meet schedule commitments. Many Continuous Improvement efforts result in improved unit-over-unit learning. For example, at the ship-level, the Shipbuilders have decreased the VA-Class SSN build span from 84 months to 66 months. These Continuous Improvement efforts, in combination with design for affordability (DFA) changes, have also decreased the overall cost to build VIRGINIA Class submarines by over 15% in constant year dollars. These major schedule and cost improvements could not have been achieved without the hard work and dedication of the men and women in our submarine industrial base. We appreciate your continued efforts and collaboration.

As Electric Boat continues to cultivate a culture of Continuous Improvement, it is our expectation that our suppliers are instilling that same culture within their organizations and their critical sub-tier suppliers. This culture begins with an organization's leadership team by setting improvement goals that challenge employees and facilitate problem solving. We expect our supplier leadership to openly solicit ideas from their employees, foster an environment of innovation, and empower employees to pursue change. It is essential that Continuous Improvement is embedded in our processes, our culture and our products. The success of our future programs depends on our collective ability to rapidly improve our performance today.



*Jim Cassidy, Director of Subcontracts and Material Performance*

## CONTINUOUS IMPROVEMENT

### What We Value From Our Suppliers

*By T. Blair Decker, Vice President of Supply Chain, Material Conveyance and Strategic Sourcing*

Most every successful business in the world relies upon a network of suppliers providing goods and services that create value for both the first tier source as well as the consumer. Electric Boat relies on thousands of dedicated suppliers to help us generate value for our customers. Our customers include; the Country, the taxpayers, the Navy, our warfighters and our corporation's shareholders. Our reputation for each of these customers is dependent upon the voracity of our supplier selection process and then the associated performance of each of these industry partners.

The purpose of this article is to ensure that our supplier base, both existing and prospective, understands what Electric Boat values. While Webster will offer a variety of definitions for "value", the following seems to fit well for this discussion, "something (such as a principle or quality) intrinsically valuable or desirable". Electric Boat utilizes a variety of value evaluations in the process of making a source selection for all of the products or services we acquire. These values can range from "lowest price" in the simplest of our procurements up through and including a broad, robust matrix of values in a prescriptive, weighted approach to align the criteria with the desired end result.

As each of you begin to think about what lies ahead in 2018 and the generational shipbuilding opportunities which are now ratcheting up in earnest, one of our considerations must be to understand how each of us can add to or increase our value.

Some things to consider:

- Price – Have I priced my product in a manner that is fair to the taxpayer, provides me a fair return and represents an equitable sharing of risk between buyer and seller?
- Quality – Have I ensured that I understand the environment that my product will be used in and taken all appropriate steps to fully comply with imposed requirements?
- Schedule – Have I understood and properly planned production of the material to comply with the requested/contracted delivery date? Remember, the impact of late material shows up in labor and schedule performance.
- Safety – Did I, will I produce my material in a work environment that provides my employees the opportunity to leave work in the same condition they arrived?
- Capability – Have I only accepted work that I am fully confident that my people and facility can produce in accordance with contract requirements?
- Capacity – Recognizing the criticality of on time material, have I only accepted and committed to work that I can reasonably expect to delivery on schedule?
- Ethics – Do my employees recognize the responsibility they have to the warfighter to ensure that what and how we produce material and services is always is done in a manner in which we can look each other in the eye and be proud of what we have done?
- Reputation – Am I and my employees committed to maintaining an impeccable reputation for my Company and for Electric Boat by always recognizing my responsibility to do the right thing?
- Continuous Improvement – Am I continuously striving to improve people, product, performance and process for the benefit of my workforce and my customers?

These are just a few things to think about as we collectively strive to always provide the best value we can. Electric Boat takes its responsibility to be fully accountable for every supplier selection we make very seriously. It is what makes our company and product successful.

Remember, shipbuilding is a team sport, everyone performing their assigned role to the best of their ability while always remembering who we produce our product for and our never ending responsibility to ensure our brave and dedicated women and men who defend us every day never go into battle expecting a fair fight.

Thank you all for a successful 2017. The challenges and opportunities for 2018 will be many, I am fully confident we are up for the expectations.

## CONTINUOUS IMPROVEMENT IN THE SUPPLY BASE

### Quarterly Feature: Supplier Continuous Improvement Initiatives

In each quarterly issue of the Supplier Information Bulletin, we will feature a continuous improvement initiative from one of our suppliers. If you or your sub-tiers have any continuous improvement initiatives you wish to share in the SIB, please email a short paragraph detailing the initiative to [EBSIB@gdeb.com](mailto:EBSIB@gdeb.com)

#### Granite State Manufacturing

Granite State Manufacturing (GSM), a small business manufacturer in Manchester, NH, has made a major commitment to capacity growth to support the rapidly growing submarine and shipbuilding needs of the US Navy, General Dynamics, and Huntington Ingalls. In early 2017, GSM purchased an additional building with 130,000 sqft. of 45ft high assembly and fabrication space in nearby Nashua, NH that is already outfitted with 30T and 40T bridge cranes. Following a detailed expansion plan, 10,000 sqft of precision assembly space is already outfitted and is in use. An additional 15,000 sqft. of large welding fabrication space is being outfitted in 1Q2018 to help meet the growing capacity demand for Navy certified welding. During 2017, GSM has also added several new large machining centers, including a Doosan Vertical Turret Lathe (44in. dia.) and a Mazak Vertical Traveling Column, (27ft. capacity), with an additional large Kuraki Horizontal Boring Mill, and a Mori-Seiki high speed CNC lathe being delivered in January. Further manufacturing equipment purchases are planned to synchronize with the growth of programs. GSM is also addressing workforce development through collaborative apprenticeship programs it has established with two local community colleges, coordinated with the New Hampshire Department of Business and Economic Affairs (BEA). These programs will expand the available workforce by training welders and machinists to the skill sets required for submarine manufacturing.

By investing in new equipment, expanding facility capacity, and increasing the skilled workforce, Granite State Manufacturing is ensuring its organization has the capacity and skills needed to meet the increased demand of the rapidly growing submarine industry.

## CONTINUOUS IMPROVEMENT AT ELECTRIC BOAT

### Multi-Program Material Procurement

*By Brad Heil, Program Manager, Materials Management*

Electric Boat and Newport News Shipbuilding have jointly developed a multi-program material procurement strategy to coordinate procurement activities for the COLUMBIA, VIRGINIA and CVN programs. This program will be executed for common suppliers between Electric Boat and Newport News Shipbuilding to manage demand and reduce schedule risk across the three nuclear ship construction programs. The goal of this initiative is to ensure material is available to support successful execution of all three nuclear shipbuilding programs. Additionally, the initiative will benefit our suppliers by providing better insight into future demand, enabling early and efficient scheduling of work. Suppliers will receive coordinated Requests for Quotes (RFQs)

and may benefit from better pricing from their sub-tiers and more optimal scheduling. This initiative will allow our suppliers to build-up the proficiency of new workers and enable investment in facilities and personnel. Overall, this initiative will benefit our suppliers with a more streamlined procurement process and cost savings. With the demand of multiple programs, it becomes even more important for our suppliers to drive continuous improvement amongst their organizations to ensure successful execution of delivering two SSNs per year.



### Increasing Efficiency with V-PAC

*By Ed Wells, Manager of Materials Management*

The Vendor Packing List Application (V-PAC) is a feature in SPARS that enables the creation of a standardized packing list for supplier material. This application was deployed for use in the supply base to streamline the packing, shipping and payment process. V-PAC simplifies the material receiving process by automating the incoming material packing list to match purchase order information and ensure prompt material receipt and payment. With V-PAC, supplier parts are quickly and accurately received, thus enabling Electric Boat to get material into the manufacturing process faster and support supplier receipt of payments. Electric Boat can process 15 V-PAC deliveries in the time it takes to process one manual packing list with no errors. Parts received without a V-PAC barcode not only take longer to process, but can be impacted by handwriting errors which impacts material availability and can delay payments to our suppliers. Since its implementation, suppliers that have adopted use of this application have benefited from the streamlined process and quicker acknowledgement of received material. Electric Boat is actively working to add enhancements to this application to further improve the supplier packing and shipping process.

For our suppliers who are using V-PAC and receiving its benefits, we thank you for your support of this program. For suppliers with questions about V-PAC functionality, refer to the HELP Overview screen in SPARS V-PAC application, or contact the SPARS Administrators at [eb-spars@gdeb.com](mailto:eb-spars@gdeb.com)



# CONTINUOUS IMPROVEMENT AT ELECTRIC BOAT

## Source Inspection Improvements

*By JoAnne Russo, Manager of Supplier Quality*

### ***What does Standard Clause 37-3 mean to the supplier?***

For all material requiring final quality inspection by the Buyer prior to shipment in accordance with standard clause 37-3, it is the responsibility of the seller to assure all expectations of the contract have been met, prior to requesting final inspection by the Buyer (i.e. Electric Boat Source Inspection). Electric Boat Source Inspection (EBSI) is a contract compliance assurance organization responsible for assuring that Suppliers providing material to Electric Boat have complied with the specific product requirements as delineated within their purchase order (PO) requirements. This validation of conformance to contractual obligations is typically accomplished by witnessing tests and/or inspections and reviewing certifications required to be delivered by the PO. EBSI will perform a 100% review of all objective quality evidence (OQE) associated and required within the purchase order line item (POLI) reported as ready for EBSI and verify a sample of physical hardware attributes in accordance with internal procedure requirements. All OQE required by the contract shall be complete, collected and organized for EBSI to perform the quality assurance verifications in the most efficient and effective manner.

The term “certification package” is used to define the package of documents containing OQE associated and required within the PO, and presented to EBSI at the time of inspection. The certification package at the time it is presented to EBSI, will be considered complete and final. Any missing OQE will be documented on a Supplier Corrective Action Report (SCAR). The certification package will be rejected and material will not be authorized to ship. A copy of the applicable Electric Boat PO and any/all associated reference documents to the POLI, such as drawings and/or specifications, shall be presented to the inspector in addition to the certification package at the time of inspection.

### ***What process improvements have been made to Electric Boat Source Inspection?***

Supplier Quality recently performed a thorough evaluation of parts requiring final source inspection in an effort to ensure appropriate allocation of source inspection requirements. From this evaluation, 33% of the parts analyzed met the criteria to remove source inspection and subsequently inspect upon receipt of material in the shipyard. Additionally, this evaluation yielded a subset of parts where the source inspection requirement could be removed or waived. In addition to this evaluation, Supplier Quality is also piloting a Virtual Source Inspection program which will streamline the source inspection process by ensuring certification packages are reviewed and approved prior to scheduling source inspection at supplier facilities. Finally, Supplier Quality is implementing the use of a Supplier checklist to be completed to ensure all requirements are met prior to scheduling source inspection. These improvements aim to enhance the source inspection process by increasing the overall efficiency of inspections performed.



# CONTINUOUS IMPROVEMENT AT ELECTRIC BOAT

## Weld Procedure Review Improvement Program

*By Nicholas McDermott, Supervisor, Welding Engineering*

Electric Boat is a company that is focused on continuous improvement and values our suppliers. A source of frustration for many suppliers is the time it takes to get their welding procedure reviewed and approved by Electric Boat through the Vendor Procedure Approval Request (VPAR) process. Electric Boat has heard the comments of our suppliers and is improving our cycle time by making some major changes.

Welding engineering had previously been split into multiple groups based on the program that it supported. Now welding engineering is a functionally based department with a dedicated group guided by its own supervisor specifically for Vendor Support. This Vendor Support group is responsible for reviewing and approving supplier's welding procedures. By having the engineers who review procedures in a single group, it allows a more efficient utilization of each individual's expertise in different types of weld procedures. The vendor support group will also be responsible for dispositioning Vendor Information Requests (VIRs), supporting welder workmanship audits and Navy standard welding audits.

Electric Boat has taken other major actions to streamline weld procedure reviews. The supplier may have had their welding procedure qualification record previously approved by Huntington Ingalls – Newport News' (HII-NNS). Electric Boat recognizes these approvals with some restrictions. Electric Boat has also expanded this reciprocity program to include Bechtel Plant Machinery Inc. (BPMI) approvals as well. The weld procedure still has to be sent to Electric Boat for evaluation that HII-NNS' and BPMI's approval is recognized, but the supplier merely has to identify the previous authorization and provide a copy of the approval for Electric Boat to initiate the review.

Other ideas are being actively pursued and will be shared in upcoming newsletters. While Electric Boat is internally streamlining and improving the Welding Vendor Procedure Approval Request Process, it is important that suppliers continue to be diligent in prompt responses to turn around Electric Boat comments, and flow down of information to their sub-contractors. Electric Boat is committed to these changes and looks forward to a VPAR review process that is efficient and timely to meet our supplier's demanding schedules.

## Supplier Quality Technology Roadmap

Electric Boat's Supplier Quality Organization has tasked a research team to identify "cutting edge" emergent technologies to improve the efficiency and effectiveness of core functions such as inspection, supplier oversight, supplier development and engineering evaluations. The research is leveraging technology ideas from all applicable industries, including new technologies that some of our suppliers may currently utilize. If any of our suppliers wish to share their innovative technology uses, please email [EBSIB@gdeb.com](mailto:EBSIB@gdeb.com).

# CONTINUOUS IMPROVEMENT

## How To Get Started With Continuous Improvement

Continuous Improvement is often defined as an ongoing effort to improve products, services or processes. It involves utilizing critical thinking and decision making tools to eliminate waste and streamline work. Continuous improvement enables employees to solve complex problems in a collaborative environment. Continuous Improvement is essential for an organization to achieve flexibility and adaptability in processes and increase overall performance. Additionally, Continuous improvement can result in more engaged employees, lower employee turnover, more competitive products and services and better customer service.



### Continuous Improvement Methodologies

*Lean* and *Six Sigma* methodologies are commonly combined in Continuous Improvement to provide the most benefit to processes and employees. Electric Boat leverages both lean and six sigma methodologies on a daily basis to solve complex problems and drive change.

#### What is Lean?

Lean is an improvement and problem solving methodology that strives to reduce or eliminate activities that don't add value to the customer. Lean focuses on optimizing the flow of products and services by eliminating wasteful activities throughout value streams in a business. Wasteful activities are any that are not required to complete the process.

#### What is Six Sigma?

Six Sigma is a set of techniques intended to improve business processes by greatly reducing the probability that an error or defect will occur. This increase in performance and decrease in process variation lead to defect reduction and improvement in profits, employee morale, and quality of products or services.

### Steps to Adoption

Facilitating a culture of continuous improvement can often be a challenging endeavor. It may be difficult to engage employees or solicit improvement ideas. The Process Engineering group at Electric Boat offers the techniques listed below to assist with initiating continuous improvement within your organization.

1. **Continuous Improvement Representative** — Assign a continuous improvement representative for each area of the business. This ensures each area is receiving adequate attention and establishes a go-to person for all continuous improvement initiatives and questions.
2. **Suggestion Sheets** — Utilize employee continuous improvement suggestion sheets, employees can share their ideas openly and can yield extremely valuable improvement ideas.
3. **Project Demonstrations** — Serves as a forum for employees to share successes and lessons learned from improvement projects.
4. **Grassroots Meetings** — Establish a core group of continuous improvement leaders who meet at a regular cadence to drive improvement initiatives.
5. **Align Strategy to Organizational Goals** — Align continuous improvement initiatives with organizational goals to ensure employee led projects are effectively supporting the organization's strategic vision.

The techniques above, in combination with the set of lean six sigma tools available at the resources below, can effectively help drive a culture of change within your organization.

### Industry Links

- <https://www.lean.org/>
- <https://www.isixsigma.com/>
- <https://www.leanmethods.com/>

## SUPPLIER NEWS

# Preventing Business Email Compromises (BEC)

*By William F. Sullivan, Manager of Security, Industrial Security Compliance Office*

User awareness and training is a significant element in continuous improvement, as new process and procedures are implemented, making sure all are trained on the new process or procedure is a critical step to ensuring success. Similarly, keeping users up to date on the latest security threats to your business is a critical step.

Electric Boat's Industrial Security Compliance Office (ISCO) has been observing a significant increase in emails received with malware embedded in attachments. These incoming emails are from compromised supplier email accounts. These instances are generally the result of an individual falling prey to an earlier phishing email. In a phishing attempt the user receives a well-crafted email and is asked to log in to a site or enter their credential to decrypt some content. Once the user enters their name and password and hit the enter key, they got you. The compromised account can now be used by the hacker to review your email history, figure out who you've done business with and send an email with a malware attachment as you, and without you being any wiser to the compromise, until your phone starts ringing.

Electric Boat ISCO's initial response to finding such an incoming email is to protect our systems. Access to externally facing applications (SPARS) for the Supplier in question is secured. In some cases, blocking the host site from sending in any other emails may be done. Only once ISCO has received an attestation from the supplier that they have completed corrective actions, will the supplier's access to Electric Boat applications be re-enabled.

This threat is generally referred to as Business Email Compromise (BEC), a quick internet search will reveal a volume of data under this topic. Most significant of what you'll find on the internet is the FBI report on BEC which notes that since 2015 there has been a 1300% increase in reports of BEC, costing business billions of dollars.

Business should routinely review their security policies and procedures to ensure they reflect timely information. Particularly in the Cybersecurity areas, where threats, exploits, compromises are constantly evolving. Security alerts and bulletins can be used for emergent issues. Social engineering tests are also a way to verify that your training is effective for your users.

Additional information on this subject can be found at:

- <https://www.fbi.gov/news/stories/business-e-mail-compromise-on-the-rise>
- <https://www.ic3.gov/media/2016/160614.aspx>

## Reminders

- In order to be authorized access to Electric Boat facilities, the Buyer of record must have a current copy of your company's Certificate of Insurance (COI) before work is to begin. It is also recommended that your on-site crew retain a copy that can be produced or a waiver of liability (if applicable). Contact your Buyer prior to arrival with questions regarding insurance requirements or if you wish to verify that your current COI on record is valid. Failure to supply adequate proof of insurance can result in **refusal** to enter Electric Boat facilities. Please refer to you purchase order terms and conditions and the Electric Boat Supplier website at: [http://www.gdeb.com/suppliers/8\\_visiting\\_eb\\_contractors/attachments/contractor\\_insurance\\_requirements\\_rev10\\_10.pdf](http://www.gdeb.com/suppliers/8_visiting_eb_contractors/attachments/contractor_insurance_requirements_rev10_10.pdf)
- This time of year always reminds us to be vigilant in ensuring the proper welding preheat temperature is being established where required. Achieving the proper preheat is a NAVSEA requirement for both Electric Boat and its suppliers. This requirement builds confidence in the soundness of the weld metal and material properties of the joint. It is also important to be aware of your surroundings when welding and protect all welding from wind and inclement weather.