



THE PEER REVIEW PLAN THAT FOLLOWS FOR
THE “SUBSEA BOLTS PERFORMANCE AND
CRITICAL DRILL-THROUGH EQUIPMENT
FASTENER STUDY” HAS BEEN UPDATED
FROM PRIOR VERSIONS PREVIOUSLY
ACCESSIBLE ON THIS WEBSITE, TO CLARIFY
THAT THE RESEARCH HAD BEEN CLASSIFIED
AS ‘INFLUENTIAL,’ AND TO FURTHER EXPLAIN
THE PEER REVIEW PROCESS THAT IS USED BY
BSEE.



Peer Review Plan

Date: July 29, 2022

BSEE Funding Source or Author's Division: Office of Offshore Regulatory Programs
Emerging Technologies Branch
45600 Woodland Road
Sterling, VA 20166

Title: Evaluation of Technology Collaborative Program (TCP) Project 5011.

Subject and Purpose: The subject of this study is PEER REVIEW OF REPORT "SUBSEA BOLTS PERFORMANCE AND CRITICAL DRILL-THROUGH EQUIPMENT FASTENERSTUDY (SUBSEA BOLT STUDY)." This peer review aims to verify the scientific and technical merit of the assumptions, inputs, methodologies, and results. This study applies to the review of various industry standards of the alloy material used for bolting application for offshore drilling and in high pressure-high temperature (HPHT), corrosive environment.

Offshore oil and gas drilling and production operations are occasionally conducted in high pressure ($\geq 15,000$ psi) high temperature ($\geq 3500^\circ\text{F}$) (HPHT), and highly corrosive (H_2S , Cl , S and CO_2) conditions. These harsh environments pose operational challenges for equipment currently used by the oil and gas industry. The purpose of TCP 5011 (awarded in 2016) was to identify the gaps in these standards related to the bolting material, such as alloy steel, material properties, coatings, and cathodic protection, summarize the data, and provide guidance for this report.

Current regulations require that offshore oil and gas operators submit detailed information that demonstrates equipment can perform in the applicable offshore HPHT environment as specified in submitted applications for permit to drill (APD), applications for permit to modify (APM), and deep-water operations plans (DWOP) (30 CFR 250.804). BSEE has a need to determine whether or not operators' submissions are acceptable, and equipment is fit for service based upon proper modeling, safety factors, appropriate applicable standards, and whether appropriate design bases were applied. This peer review will evaluate and assess the TCP 5011 project results.

Impact of Dissemination: This study is considered by BSEE to be influential scientific information. This study's findings may have a direct bearing on the methods, industry standards, best practices, and material selection for equipment utilized for high pressure and high temperature offshore oil and gas operations. The study's results may suggest the need for revisions of respective industry standards and could affect how BSEE and industry interpret those standards. The results from this study are important for new projects in deeper waters offshore.

Disclaimer: The content of this peer review plan has been verified in compliance with the peer review handbook. For peer review contracts executed prior to peer review plan release, there may be differences in language used between the peer review plan and the executed contract.



Upon conclusion of the peer review, BSEE will post all possible contracted deliverables, tasks, data, analyses, and information, including the peer-review reporting, reports, and comments on BSEE's research records website: <https://www.bsee.gov/research-record>.

Timing of Review: July 2022 – June 2023 (Total peer review process of not more than 12 months is desired for this project.)

Manner of Review, Selection of Reviewers, and Nomination Process:

This peer review shall be conducted through the contract BSEE BPA Process. This process will provide for a panel of qualified subject matter experts (SMEs) selected by the agency in order to achieve an optimum level of expertise across the spectrum of issues. The SMEs will be required to maintain both balance and independence while minimizing any potential conflicts of interest. The public will not be consulted in the nomination of potential peer reviewers.

Primary criteria for peer reviewers include the following:

- Material science and engineering, corrosion background.
- Practical experience with metallic material testing and evaluation, metallography, material properties testing, microscopy, mechanical testing, corrosion testing and analyses, environmental testing, and analytical chemistry.
- Practical experience and knowledge of corrosion behavior including stress corrosion cracking (SCC) of nickel-based alloys, metallic material fatigue and fracture behavior.
- Practical experience with design of offshore equipment in high pressure and high temperature environments.

The secondary tier of criteria should include the following:

- No more than two persons from the oil and gas industry
- At least one from outside of the oil and gas industry

Reviewers may be selected from academia, industry, and federal government. The group of reviewers shall not include multiple reviewers from the same affiliation and shall strive to include various perspectives on the issue considered.

Expected Number of Reviewers:

Three reviewers, plus contractor oversight, and writing personnel.

Requisite Expertise:

- Subject Matter Experts with five years of experience in a relevant field and should also have some other strong credentials, e.g., a Ph.D. with a substantial publication or patent record specific to the evaluated technology, a young investigator award, or a strong pedigree (e.g., a Ph.D. from a high caliber institution or under a recognized leader in the field).
- Publications and Patents. Qualified experts often have many peer-reviewed journals and/or patents on the evaluated technology.
- Other evidence is that the person is a recognized expert in the field. Qualified experts have

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often managed a public policy program that has had a national impact, has a record of bringing innovations to the market or holds vital patents.

- In a relevant field, an advanced degree - Ph.D., Sc.D., D.Eng., MS, or MBA. Experts with only a bachelor's degree should have other experience and or a record of significant accomplishments indicating their expertise.
- Relevant awards. Qualified experts may have received a prestigious award such as the National Medal of Science, American Chemical Society National Award, Young Investigator Award, R&D 100 Award, or other awards specific to technology (e.g., Fuel Cell Seminar Award).
- Key Society Membership. Qualified experts may be members of a society like the National Academy of Sciences (NAS), the National Academy of Engineering (NAE), the American Physics Society, a National Laboratory Fellow, etc.

Opportunity for Public Comment:

At the time of this peer review plan's posting, the research report will be available on BSEE's Peer Review Public Posting website located here: <https://www.bsee.gov/what-we-do/research/peer-review>. BSEE welcomes public comment, especially from those with experience with subsea bolts. BSEE invites the public to comment within the 30-day window indicated on the website through the process described below, which is consistent with the guidance on the website:

- For comments pertaining to this peer review plan, send emails to: bsee_peerreviewplancomments@bsee.gov
- For comments pertaining to the research, send emails to: bsee_researchpubliccomment@bsee.gov

In the subject line list of a public comment email, please state: TCP 5011 SUBSEA BOLTS STUDY + the words "peer review plan" or "research" + the words "public comment."

- List out any comments, questions, feedback by number (ex. 1, 2, 3, etc.)
- If referencing any sources of published information, please list the complete source information in a recognized reference format (such as APA)
- Please include your name, contact information, and affiliation

The agency will provide public comments deemed significant and relevant to the peer reviewers to address during their review.

Agency Contact: Bipin Patel

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