



Peer Review Plan

Date: October 31, 2023

BSEE Funding Source or Author's Division: Environmental Enforcement Division
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Sterling, VA 20166
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Title: Evaluation of Technology Assessment Program (TAP) Project 792 – INTEGRITY MANAGEMENT PROCESS OF TENSION LEG PLATFORMS

Subject and Purpose: The subject of this study is PEER REVIEW OF REPORT " INTEGRITY MANAGEMENT PROCESS OF TENSION LEG PLATFORMS." The Tension Leg Platform (TLP) has been used in deep waters off the coasts of the United States, United Kingdom, and Atlantic Coast of Africa since the mid 1980's. The First TLP was installed in 1984 in the Central North Sea. At the time of this study, 67% or 19 TLPs are located in the Gulf of Mexico and fall under BSEE purview for inspections. These TLPs are placed in water anywhere from 1400 to 5200 feet of water depth.

The Key components that comprise a TLP are the hull, topsides, production riser, export risers, tendons, foundations, and the wellhead. The Tendon system is further comprised of hull-tendon porch, tendon top connector assembly, tendon tension monitoring system (TTMS), tendon main body, tendon bottom connector assembly, and tendon pile with receptacle. The design philosophy of a TLP is that the TLP tendons are considered to be a critical piece of equipment, and a failure of one piece of equipment will lead to the complete failure of the entire tendon.

The Integrity Management Process of Tension Leg Platforms set out to discover and answer what is Tendon Integrity Management, Tendon Life Extension, the Fatigue of "Uninspectable" Components, and the Understanding of the "Uninspectable" components. The Original Contractor identified the components of these systems as well outlined the standard design procedures for these tendons. From this, the Contractor summarized the data and provided guidance and insight for this report.

This peer review will evaluate and assess the testing methods, assumptions, data quality, the strengths of any inferences made, and the overall strengths and limitations of the report. Therefore, this peer review will evaluate and assess the TAP 792 project report.

Impact of Dissemination: BSEE considers this study is influential scientific information, which requires a robust evaluation that the scientific community and stakeholders will accept. This study's findings may directly impact the production methods, industry specifications, best practices, and selection for equipment utilized for high-pressure and high-temperature offshore oil and gas operations. The results from this study are essential for reviewing new projects in deeper waters for offshore operations.

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>.

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.



Timing of Review: August 29, 2023 – August 28, 2023 (Total peer review process of not more than 13 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:

- Mechanical Engineering, Material Science, Structural Engineering, Corrosion, etc.
- Practical experience and knowledge specific to the evaluated technology with metallurgical material properties, mechanical testing, finite element analysis(es) for evaluating fatigue design, structural design, metallic material fatigue and fracture behavior, etc.
- Practical experience and knowledge specific to tension leg platforms, including tendon tension monitoring systems (TTMS), structural fatigue, corrosion testing, metallic material fatigue, fracture behavior, etc.
- Practical experience with offshore Tension Leg Platforms (TLPs), etc.

The secondary tier of criteria should include the following:

- No more than two persons from the oil and gas industry and shall not include multiple reviewers from the same affiliation.
- At least one person 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 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.

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- 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 tension leg platforms. 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: "TAP 792 – INTEGRITY MANAGEMENT PROCESS OF TENSION LEG PLATFORMS" + 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: Joshua Toepfer

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