

GULF RESEARCH PROGRAM

Project Title: Measuring and Improving Blended Project-Safety Culture in Operations of Offshore Oil and Gas Facilities

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I. PROJECT SUMMARY (from proposal)

Trying to measure organizational commitment to safety represents a challenge. This challenge is particularly visible in highly fragmented industry segments such as offshore oil and gas where many of the standard activities are planned and executed by third-party contractors, hired part-time workers, and/or onshore-based specialized teams. In such environment, the question is not only how to measure the factors that contribute to and define safety culture, but also what safety culture are we trying to measure? Operators? Contractors? Specialized teams?

It is often presumed by many that once offshore facility is installed and commissioned it will run with minimal interference by the operating personnel. But this is a misconception: An offshore facility, in its operations phase, is more or less constantly subjected to interference activities i.e. “smaller” projects such as modification, maintenance, repairs and testing. Hence, offshore operations are analogous to project and therefore safety culture needs to be placed in the context of project culture.

This proposal developed by Texas A&M University as the lead organization, and Proactima from Norway as the partner institution highlights the following opportunities:

1. Develop an integrated representation of project and safety culture by identifying the common (converging and diverging) factors and the methods how to measure them.
2. Relate standardized and routinely collected project characteristics and artifacts to safety culture factors.

To this aim our research approach focuses on: 1) Structuring a new dataset that combines the existing longitudinal data on safety climate surveys, and other broad-based accident risk data collected by PSA Norway and the data collected from workshops on project culture and climate factors. and 2) Developing network-level models using this new data set to be able to assess and improve safety culture

on offshore facilities based on installation type and the characteristics of the program of scheduled activities.

II. PROJECT SUMMARY

The goal of this proposal was to develop a framework for measuring and improving safety in operations of oil & gas offshore facilities that considers the interactions between safety and project cultures. More specifically, the objectives of this research were as follows:

- Objective 1: Identify the impact of contractors, their project culture, as well as installation and work order characteristics on offshore safety climate;
- Objective 2: Identify, define, and assess the factors that contribute to both safety and project culture and their levels of dependency;
- Objective 3: Develop a model to link project characteristics and culture to factors that define safety culture; and
- Objective 4: Develop guidelines and tools for measuring and improving safety in operations of offshore facilities.

III. PROJECT RESULTS

Accomplishments

- Objective 1: Identify the impact of contractors, their project culture, as well as installation and work order characteristics on offshore safety climate; We have conducted a comprehensive literature review that included published reports and papers, we have accessed RNPP dataset from Norway and done preliminary identification of factors/questions that can be indicative of contractors' culture and project/installation characteristics, as well as had a number of preliminary conversations with industry representatives from the US and Norway. As a result, we were able to develop a preliminary list of safety and project factors (descriptors and related success factors) and structure this list for further validation using a Pentagon model.
- Objective 2: Identify, define, and assess the factors that contribute to both safety and project culture and their levels of dependency. Based on this information we were able to define and assess the factors, develop a network structure where project management and organizational safety factors are interlinked, as well as observe their "order of magnitude" level of dependency. Our assessment of the dependency was primary focused on structural dependency measures, not the actual level of impact.
- Objective 3: Develop a model to link project characteristics and culture to factors that define safety culture. We have developed a network model that links project culture to factors that define safety culture.
- Objective 4: Develop guidelines and tools for measuring and improving safety in operations of offshore facilities. Based on the results from discussion with established industry contacts we have developed an Microsoft Excel tool that can be used to facilitate the alignment between contractors and operators focusing on safety on a specific installation.

Implications

This study connects project and safety cultures across all project participants including different divisions within a single organization.

Education and Training

Number of students, postdoctoral scholars, or educational components involved in the project:

- K-12 students: 0
- Undergraduate students: 1
- Graduate students: 4
- Postdoctoral scholars: 0
- Citizen Scientists: 2
- Other Trainees: 0

IV. DATA AND INFORMATION PRODUCTS

This project produced data and information products of the following types:

- Data: Interview data and relationship matrix
- Information Products: safety culture tool and discussion cards

DATA

Data Management Report:

N/A

Relationships Between Data Sets:

N/A

Additional Documentation Produced to Describe Data:

N/A

Other Activities to Make Data Discoverable:

N/A

Sensitive, Confidential, or Proprietary Data:

N/A

INFORMATION PRODUCTS

Information Products Report:

Produced an industry tool, relationship matrix, and discussion cards (See GRIIDC uploads)

Citations for Project Publications, Reports and Monographs, and Workshop and Conference Proceedings:

N/A

Additional Documentation Produced to Describe Information Products:

N/A

Other Activities to Make Information Products Accessible and Discoverable:

N/A

Confidential, Proprietary, Specially Licensed Information Products:

N/A

V. PUBLIC INTEREST AND COMMUNICATIONS

Most Exciting or Surprising Thing Learned During the Project

People are fully aware of the issues but did not know how to start the discussion.

Outcomes Achieved During the Project

We have started working on discussion cards which is an extension of the project.

Communications, Outreach, and Dissemination Activities of Project

Yes. We won the best presentation award at the 2021 Deepwater Operations / Topside conference in Galveston. We did a number of presentations at OTC, IDAC, COS board, COS companies, Norwegian Oil & Gas companies, etc.