Subject: BSEE’s Crane Safety Assessment Project

Contract Number: E14PB00023  
Project Start Date: 04/25/2014  
Completion date: 04/30/2015  

Contractor: ABSG Consulting, Incorporated  

Purpose:  
The purpose of this study is to gain an understanding of the risks associated with Cranes and Material Handling Equipment operating on the OCS. The intended outcome is the development of a lifting inspection methodology that may be used by BSEE and United States Coast Guard (USCG) personnel in performing an assessment of cranes and material handling equipment operating on the OCS.

Scope of Work:  
A major intent of this crane safety project was to create a “partnership” between BSEE and the contractor. During the period of performance, the contractor provided their expert knowledge and experience in the development of an OCS crane inspection strategy by conducting the following activities:

- Analyzed Cranes and Material Handling Equipment operating on the OCS
- Analyzed BSEE Crane PINCs and INCs
- Analyzed Industry Standards, Methodologies, and Guidelines
- Reviewed of USCG MODU rules and MOU/MOA
- Proposed a Lifting Inspection Strategy
- Recommended Lifting Regulatory Changes and Improvements (30 CFR 250.108)

Goals and Objective:  
The objective of this study is to increase the efficiency and effectiveness of BSEE’s inspection force by developing a model lifting inspection strategy that increases safety for all workers on the OCS and may be implemented by BSEE and USCG personnel in regulating lifting operations on the OCS.

Actual Recommended Lifting Strategy:  
Based on the information gathered and analysis conducted it is recommended that the future inspection and lifting strategy move away from a prescriptive methodology, BSEE’s philosophy of strict regulatory compliance, and toward ensuring that operators create and comply with a robust Safety and Environmental Management System (SEMS) tailored for their facility. The following recommendations are outlined in the report to produce a robust crane and material handling inspection and lifting program for offshore facilities which harmonizes with 30 C.F.R §250.108 and 30 C.F.R. §250.1913, et seq. and with the intentions of 46 C.F.R. §107.258 and 259:

- Create database of offshore facilities having cranes subject to API Spec 2C, API RP 2D, and material handling equipment with capacities greater than 5 short tons subject to ASME B30.2.
- Amend regulation 30 C.F.R. §250.108 for pedestal, overhead bridge, and gantry cranes.
- Amend regulation 30 C.F.R. §250.108 for material handling.
- Amend regulation 30 C.F.R. §250.198 to incorporate applicable ASME B30 series standards.
Amend PINCs to harmonize with the requirements of 30 C.F.R. §250.1900.

- Train BSEE inspectors to become qualified crane and rigging inspectors as promulgated by API RP 2D and ASME B30 series standards, or audit crane inspection records performed by third-party qualified inspectors similar to the strategy adopted by the USCG in 46 C.F.R. §107.259.
- Require drilling systems used on mobile offshore drilling units (MODUs) to be certified drilling systems (CDS) and inspected by the marine classification society that issued the CDS certificate.
- Develop a formal training qualification program for BSEE inspectors in mechanical and electro-hydraulic equipment fundamentals, hazard identification for machine safety.
- Inspect or audit third-party inspections to ensure that the cranes and material handling equipment are designed, maintained, and operated in accordance with the standards promulgated by marine classification societies, API, or ASME as regulations promulgated by 30 C.F.R. 250.108 and 30 C.F.R. 250.1913 (d);

Findings and Program Related Recommendations:

During the Crane Safety project, the ABSG project team concluded the following:

- Incident data must to be collected with the goal of identifying undesirable circumstances and behaviors
- Data should be collected and organized taxonomy that classifies incidents and allows for analysis
- A root cause analysis (RCA) methodology should be adopted
- Routine analysis should be conducted on lifting incidents to identify trends in lifting incidents on the OCS
- Develop a database of offshore cranes operating on the OCS.

Project Recommendations:

- Updates to 30 CFR 250.108 (a – e) for Cranes operating on the OCS.
- Updates to 30 CFR 250.108(f) for Material Handling Equipment operating on the OCS.
- Updates to the Lifting PINCs.
- Train BSEE inspectors to become qualified crane and rigging inspectors or audit crane inspection records performed by third-party qualified inspectors similar to the strategy adopted by the USCG.
- Require drilling systems used on MODUs to be certified drilling systems (CDS) and inspected by the marine classification society that issued the CDS certificate.
- Develop a formal training program for BSEE inspectors in mechanical and electro-hydraulic equipment fundamentals, hazard identification for machine safety, and other OSHA-type hazard identifications and mitigation procedures, as well as general inspection and maintenance auditing procedures.
- Inspect or audit third-party inspections to ensure that the cranes and material handling equipment are designed, maintained, and operated in accordance with the standards promulgated by 30 C.F.R. 250.108 and 30 C.F.R. 250.1913 (d).
- Require a human factors analysis (ASTM F1166) for human-machine interfaces for all CDS material handling equipment.
- Require operators to have formal or structured OJT program to produce qualified operators and riggers for material handling equipment.
- Require that material handling equipment inspection and maintenance schedules (FMECA).
- Verify qualifications of operational and inspection personnel for all cranes and material handling equipment.