Today’s Discussion

- Emerging Technologies Branch
  - Best Available and Safest Technology (BAST)
  - Systems Reliability
  - Contracts
    - Oil and gas research of interest to BSEE
      - Safety
      - Arctic
Oil and Gas Research Initiatives

- 2013 Safety Broad Agency Announcement (BAA) Timeline
  - Advertise – February, 2013
  - Request Proposals – April, 2013
  - Evaluate Proposals & Funding – May thru August, 2013
Oil and Gas Research Initiatives

- Safety BAA White Papers
  - Corrosion Prevention for OCS Facilities – evaluate & determine best available technologies, products, and practices to prevent, reduce and/or mitigate the effects of corrosion on facilities
  - R5 Grade Mooring Materials Properties – investigate & evaluate the material properties (mechanical, thermal, corrosion) of R5 grade mooring material
  - Novel Cementing Qualification Standardization – design & develop a standardized qualification and validation test methodology for novel cements, cement materials and cementing alternatives
  - Materials Suitable for Use in HPHT Conditions – identify which new HPHT (350°F/15000psi) structural materials and coatings (including Ni based high temperature grades, carbide based coatings and others) are best for use on the OCS
Oil and Gas Research Initiatives

- Safety BAA White Papers (cont.)
  - HPHT Equipment and Pressure Testing Methods – examine pressure testing methods & evaluate the plausibility of reduced pressure test requirements for HPHT heavy walled pressure equipment and validate results
  - HPHT Safety Factors (SF) & Safety Margins (SM) – assess, evaluate & validate the best SF and SM for tubulars under HPHT conditions for drilling & production operations, and the ideal working pressure for tubulars under HPHT
  - ROV Intervention & Capabilities – determine capability of current fleet of deepwater ROV’s available for subsea intervention activities
  - Improved Shearing for Eccentrically Positioned Tubulars – identify best procedures/methods to modify existing equipment, develop new equipment, or develop new approaches to ensure tubulars eccentrically positioned in BOP can be sheared
Oil and Gas Research Initiatives

- Safety BAA White Papers (cont.)
  - Qualification of Cranes for the Offshore Arctic – determine if current standards, regulations and practices are applicable for use in validating load ratings for new built cranes and for de-rating of existing cranes
  - Risk Based Design (RBD) – validate and compare RBD approach for wells to Working State Design for wells under HPHT conditions to determine best approach
  - Decommissioning Costs of Pipelines in Water Depths Greater Than 500 ft. – validate deepwater pipeline decommissioning liabilities to determine if industry is posting adequate bonds to meet decommissioning regulations
  - Met Ocean Wave and Current Base Shear Study – create a document on the proper use of API met ocean parameters for design/analysis of fixed GOM platforms (including comparison of loading using API RP 2A, API Bull. 2INT–Met and API RP 2MET)
Oil and Gas Research Initiatives

- 2013 Arctic BAA Timeline
  - Advertise – December, 2012
  - Request Proposals – April, 2013
  - Evaluate Proposals & Funding – April thru July, 2013
Oil and Gas Research Initiatives

- Arctic BAA
  - Research available physical ocean/met data for Beaufort & Chukchi Seas to support the use of reliability based design criteria for offshore Arctic structures
  - Evaluate existing sea ice data for Beaufort & Chukchi Seas for use in reliability based RBD for offshore Arctic structures
  - Hold workshop on physical ocean/met data available for Chukchi Sea to aid in decision making and to identify data gaps
  - Assess unmanned aerial system/vehicle technologies for monitoring/measuring ice features in Beaufort & Chukchi Seas
  - Assess subsea glider technologies for mapping/measuring ice keel/ice gouge geometries, subsea pipeline surveillance, and under ice oil accumulations
Areas of Additional/Possible Future Interest

- **Well control**
  - Use of surface choke manifold systems in Managed Pressure Drilling (MPD) for early kick detection
  - Deep gas wells being drilled on the shelf are approaching BHT of 450–500°F. Current relief well ranging tool has a 350°F limit

- **Sustained casing pressure**
  - Are leaky connections (non metal to metal) a cause?
  - Selection of casing to minimize hoop stresses opposite cement

- **Defining shearing capability criteria for BOP**
  - Different manufacturers use different assumptions when determining ability to shear
Renewable Energy research

European offshore wind experience

U.S. offshore oil & gas experience

U.S. land-based wind experience

U.S. offshore wind program
Renewable Energy research

Marine Board studies:
• CVA Workshop
• Structural Integrity of Offshore Wind Turbines
• Offshore Wind Farm Worker Safety

TAR studies:
• Safety Management System (SMS) template/audit checklist
• Fatigue design for wind turbines
• Design Basis for wind turbines
• Design standards – fixed and floating turbines
• Inspection methodologies
• Scour considerations
• Resonance/vibration design considerations
• Electrical cable burial considerations
• Metocean design parameters
Questions, Comments, Discussion

- Joseph.levine@bsee.gov
- (703) 787 1033

- John.cushing@bsee.gov
- (703) 787 1737