

BOEM ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Alaska

Planning Area(s): Beaufort Sea, Chukchi Sea

Title: Updates to the Fault Tree for Oil-Spill Occurrence Estimators Needed Under the Forthcoming BOEM 2012-2017, 5-Year Program (AK-11-01)

BOEM Information Need(s) to be Addressed: The Oil-Spill-Risk Analysis (OSRA) is a cornerstone to regional EISs, EAs, and oil-spill response planning. Oil-spill issues constitute a significant portion of public comments submitted on lease sale or development EISs and exploration EAs in the Alaska OCS Region. This study is necessary to incorporate fault-tree spill occurrence estimators into NEPA analyses for Arctic oil and gas lease sales or Arctic development in the expected BOEM 2012-2017, 5-Year Plan.

Total Cost: \$229,840

Period of Performance: FY 2011-2016

Conducting Organization: Bercha International

BOEM Contact: [Caryn Smith](#)

Description:

Background: The OCS spill occurrence rates used in non-Arctic BOEM NEPA analyses are based on historical Gulf of Mexico and Pacific OCS platform, pipeline or worldwide tanker crude oil-spill rates. Since 2002, the Alaska OCS Region has incorporated a fault-tree approach which considers 1) differences in oil-spill occurrence factors between the Arctic and Gulf of Mexico OCS and 2) Arctic-specific factors. Recent examples of such analyses include:

Bercha, F. G. 2006. Alternative Oil Spill Occurrence Estimators and Their Variability for the Chukchi Sea - Fault Tree Method. OCS Study MMS 2006-033. Prepared by Bercha Group, Calgary, Alberta, for MMS Alaska OCS Region, Anchorage, AK.

Bercha, F. G. 2008. Alternative Oil Spill Occurrence Estimators and Their Variability for the Alaskan OCS - Fault Tree Method: Update of GOM OCS Statistics to 2006. OCS Study MMS 2008-025. Prepared by Bercha Group, Calgary, Alberta, for MMS Alaska OCS Region, Anchorage, AK.

Bercha, F. G. 2008. Alternative Oil Spill Occurrence Estimators and Their Variability for the Beaufort Sea - Fault Tree Method. OCS Study MMS 2008-035. Prepared by Bercha Group, Calgary, Alberta, for MMS Alaska OCS Region, Anchorage, AK.

Bercha, F. G. 2008. Alternative Oil Spill Occurrence Estimators and Their Variability for the Chukchi Sea - Fault Tree Method. OCS Study MMS 2008-036. Prepared by Bercha Group, Calgary, Alberta, for MMS Alaska OCS Region, Anchorage, AK.

Objectives: Provide an update to fault tree spill occurrence rates and confidence intervals for NEPA analyses for any Arctic OCS Lease Sales or for OCS offshore oil and gas developments during the contract period of performance.

Methods: This study will: 1) review and assimilate oil-spill occurrence reports, data and geohazard data from alternative sources and locations as needed; 2) use updated Gulf of Mexico OCS historical data together with its measures of spill size and frequency variance to run the Monte Carlo fault tree model with these measures of variance; 3) provide updated fault tree analyses for Arctic oil and gas lease sales based on BOEM-supplied exploration and development scenarios, generating life-of-field oil spill occurrence rates and indicators; 4) provide up to two additional fault-tree analyses for Beaufort and/or Chukchi Seas for site-specific oil and gas development taking into account site-specific geohazards and generating life-of-field occurrence indicators; 5) provide a formal report documenting each analytical or fault-tree update, and 6) provide professional support to BOEM in regard to statistical issues of occurrence rates and estimator(s) related to this study and its results.

Current Status: Ongoing

Final Report Due: September 2016

Publications Completed: None

Affiliated WWW Sites: <http://www.boem.gov/akstudies/>

Revised Date: December 2012

ESPIS: Environmental Studies Program Information System

All *completed* ESP studies can be found

here: http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp