Offshore Well Integrity

SECARB Offshore Gulf of Mexico

Project Overview and Status –February 2019

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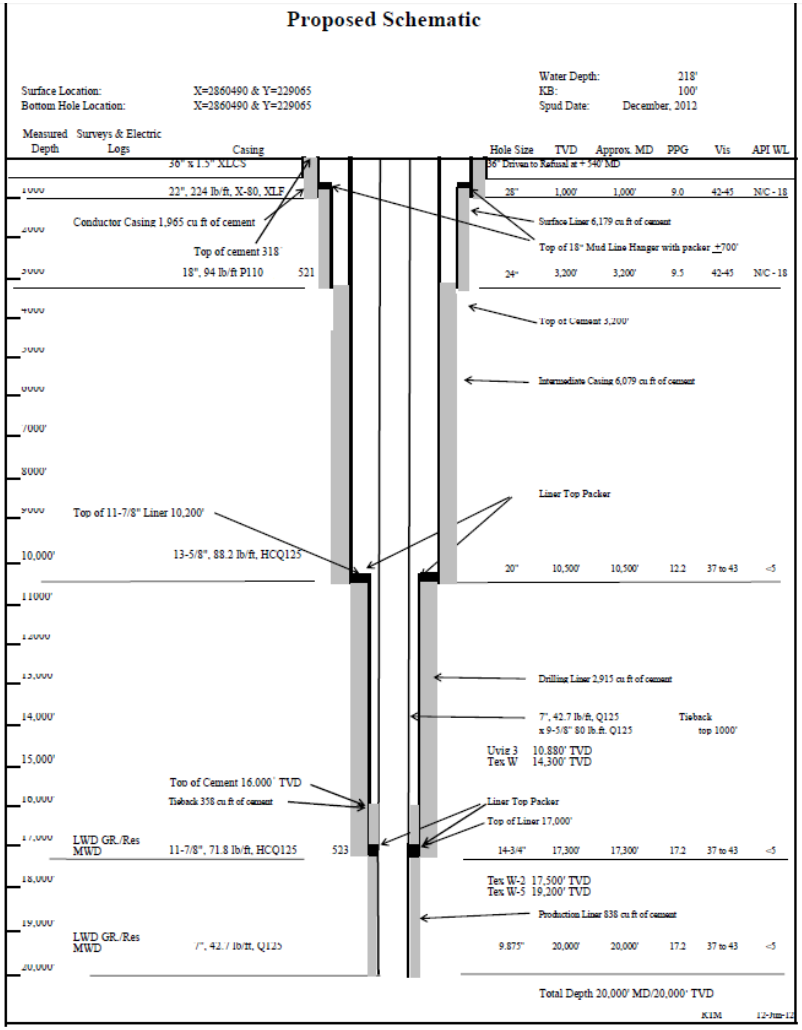
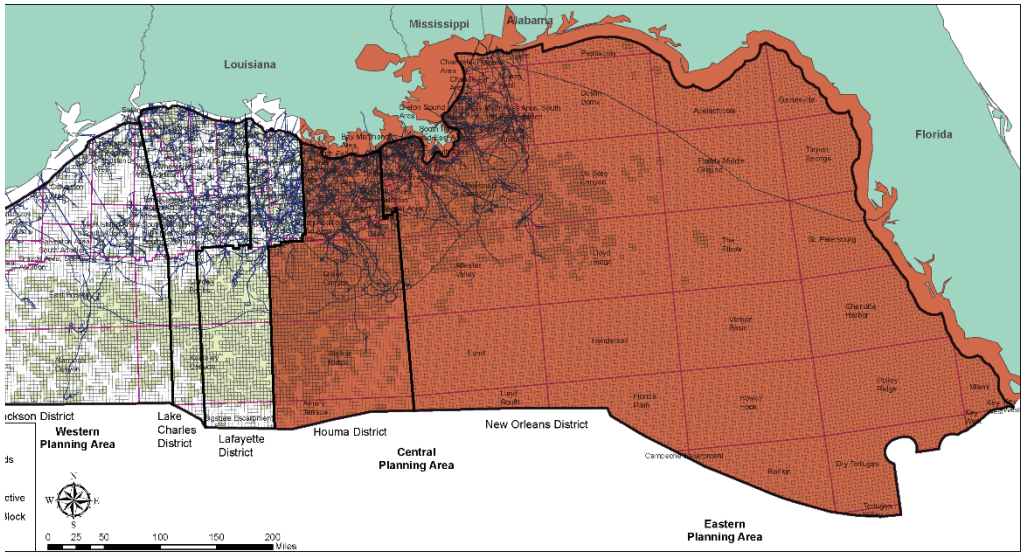
Existing Well Risk Assessment





Bureau of Safety and Environmental Enforcement, 2014, "QC-FIT evaluation of seal assembly & cement failures interim summary of findings

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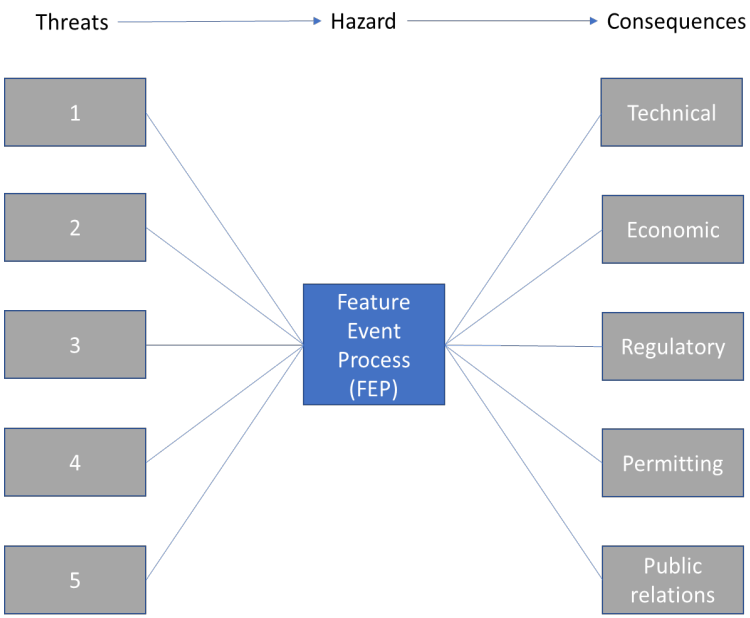
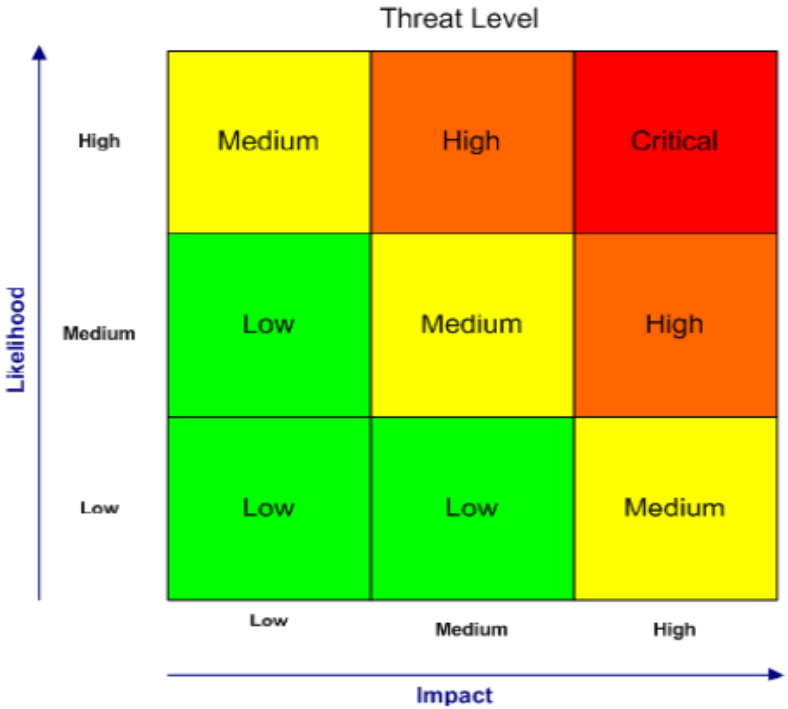
Risk Assessment Framework

- Risk = Likelihood * Impact





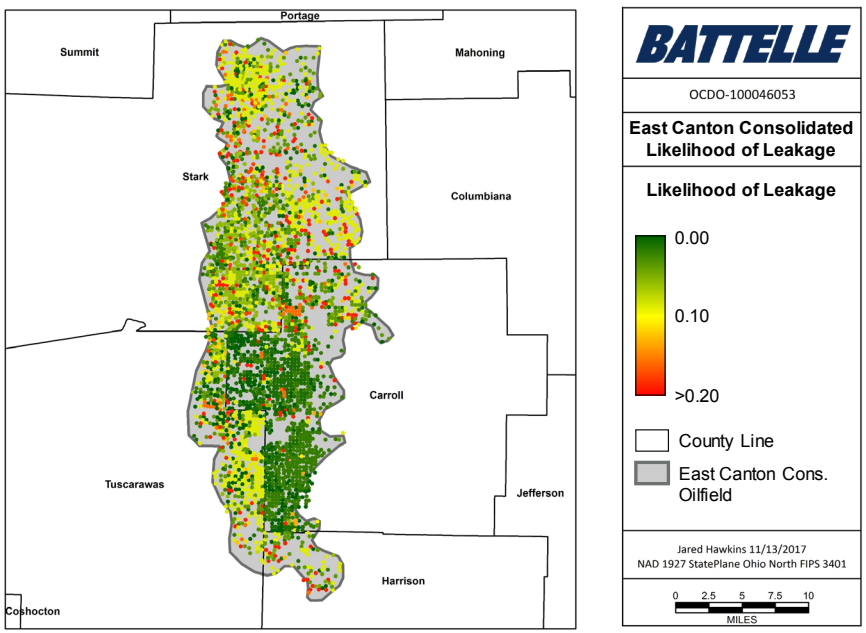
Well Leakage Risk

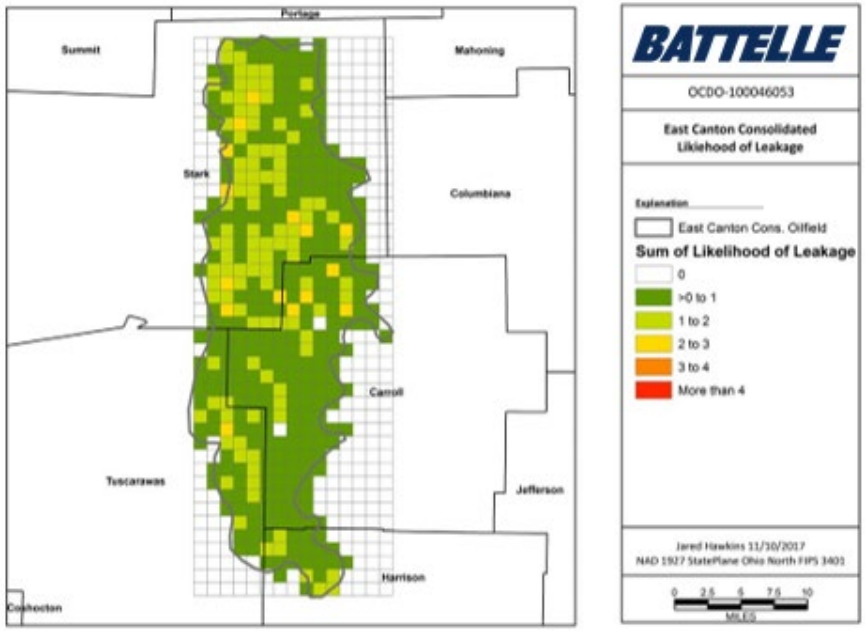
$$Total\ Risk\ = \sum_{1}^{n} Likeihood \times \sum_{1}^{m} Impact$$

Possible Likelihood of Occurrence Categories

- Well Deviation
- History of sustained casing pressure (SCP)
- Well Status
- Cement Top(s)
- Failure History
- Well Age
- Well Depth
- Well Type
- Cement Quality
- Casing Quality
- Geologic formations

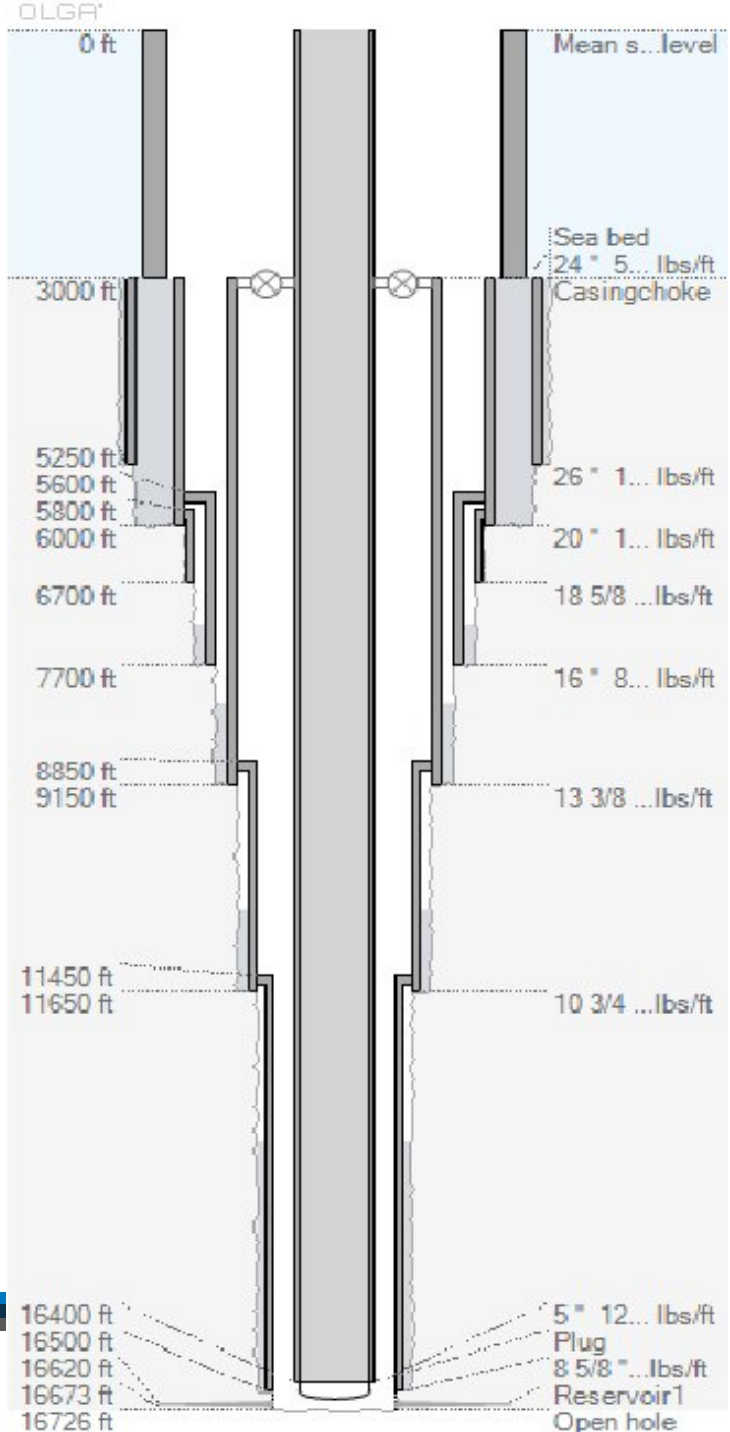
Likelihood of CO_2 Leakage from Wells





Current and next steps

- *Data Collection*
- Data organization
- Inclusion of seal and reservoir geology
- Risk Assessment
  - Data dependent decision on risk model
  - Sustained casing pressure / leak data may be correlatable to likelihood proxies
- Visualization



Zulqarnain, M., and Tyagi, M., 2014, Quantitative Risk Assessment (QRA) of an Exploratory Drilling Oil Spill in Deepwater Gulf of Mexico , Conference: ASME 2014 33rd International Conference on Ocean, Offshore and Arctic Engineering