



Wellbore Containment Screening Tool (WCST) Implementation

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Explain why was WCST needed



- Need to comply to BOEMRE NTL-10

*Statement of Compliance with Applicable Regulations and Evaluation of Information Demonstrating Adequate Spill Response and **Well Containment Resources***

<http://www.gomr.boemre.gov/homepg/regulate/regs/ntls/>

- A joint industry task force was established to develop evaluation tools to demonstrate that the well design is adequate for well containment. (i.e. WCST)

Approach



- Establish a method to accurately and consistently apply the WCST
- WCST has been used to evaluate all Gulf of Mexico well operations: including drilling, water injection, permanent abandonment and obo.

Approach



- Rolled out Well Containment Screening Tool to deepwater functional teams (Drilling, Completion, Intervention, Regulatory and OBO)
 - That first rollout was a graphical introduction to the:
 - Load Cases
 - Level 1 and 2 Spreadsheets format
 - Decision Flowchart

Approach



- After the rollout, time was allowed for teams to fill out Level 1 evaluations
 - Met with each individual team member to review the results of the Level 1 screening
 - Validated individuals understanding of spreadsheet
 - Confirmed whether the well met Level 1 criteria.
 - If the well did not meet Level 1 criteria, explained what information was required for a Level 2 assessment and provided training

Approach



- After reviewing the Level 1 Screening Results, allowed for time to complete a Level 2 assessment
 - Reviewed the Level 2 input data entered into the spreadsheet
 - Validated individuals understanding of the Level 2 consequences
 - Discussed the results of the Level 2 analysis
 - Formulated design changes for resolving Level 2 issues
 - Formulated action plans for technical justification of Level 2 strategies that did not require design changes.

Approach



- Upon completion of WCST, all teams met offsite. Each team presented the results of their assessments.
 - Compared issues and proposed solutions
 - The following observations were captured at the meeting.

Individuals Observations of Meeting



- The WCST provides a new way of assessing well designs.
- Peer approaches to completing the WCST demonstrated the many options available.
- Close reading of the detailed instructions is vitally important
- Gradient calculations methodology must be standardized

Path to APD/APM Submittal



- Verify that a single input data set is used for all calculations
- Verify that the required forms are consistently and correctly completed by trained engineers
- Verify that all involved participants review the results before submittal

Backup



BACKUP

Stage Gate Process



Appraise → Select → Define → Execute → Review

Stage Gate Process



Appraise

Read instructions

Collect data

Prepare input schematic

Stage Gate Process



Select

Fill out the sheet correctly

Determine if Level 1 or Level 2

Stage Gate Process



Define

If Level 1 - finished.

If Level 2

- Select the levers (can work more than 1 in parallel)

Execute

Prepare APD

What Information is needed for Level 2



- From Reservoir Engineering
 - Unrestricted flowing gradients, production rates and profiles (i.e. production rate vs time) for individual and / or combined zones
 - Shut- in gradients

- From APB Analysis
 - Resultant APB from reservoir engineering unrestricted flow rate data

- Special equipment performance properties. i.e. high collapse or burst pipe, liner hangers, etc....