

BOEMRE Permitting Workshop  
WCST Panel Discussion  
Level 2 Considerations  
August 30, 2011

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NBL

## **Noble Energy Recent Deepwater Permitting**

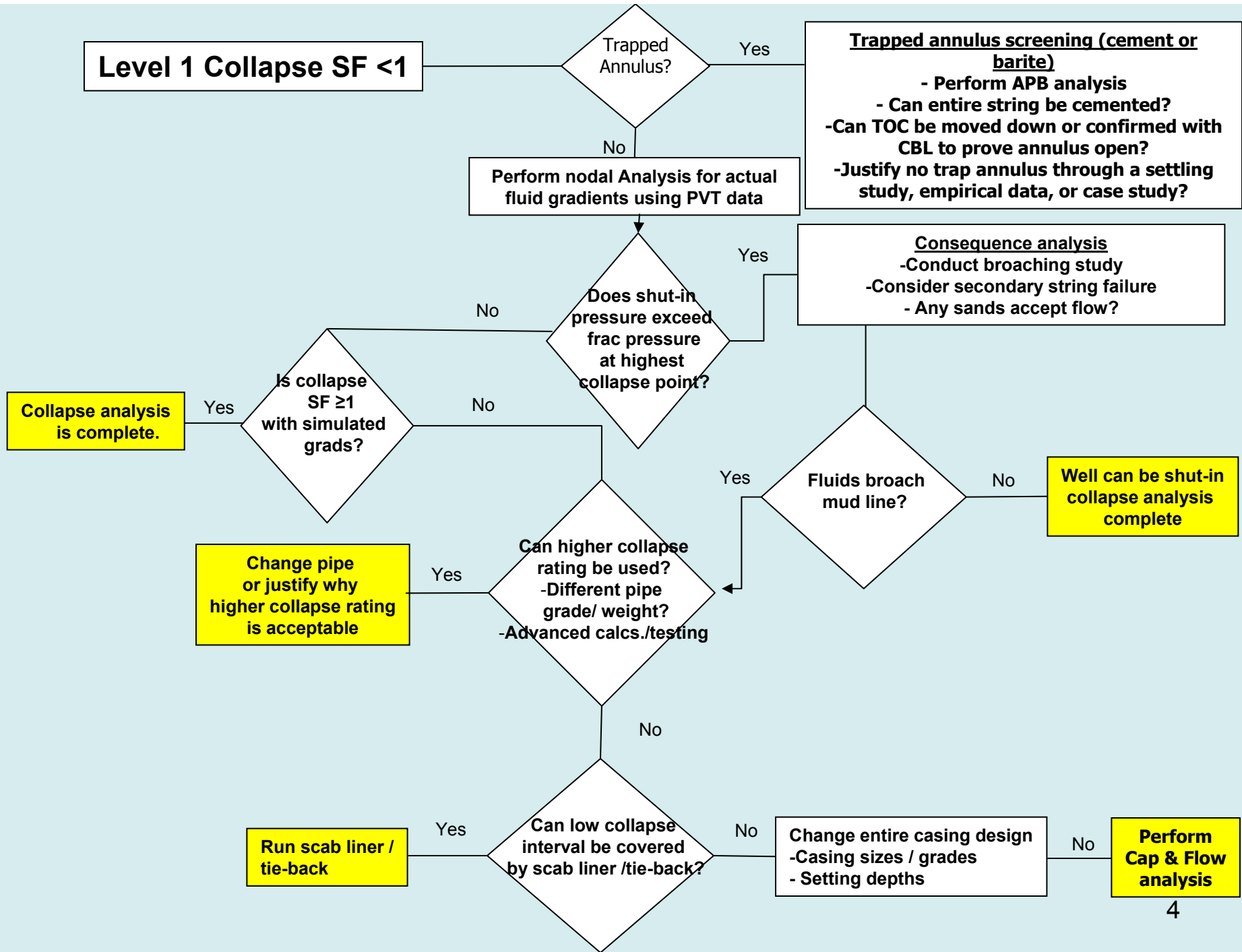
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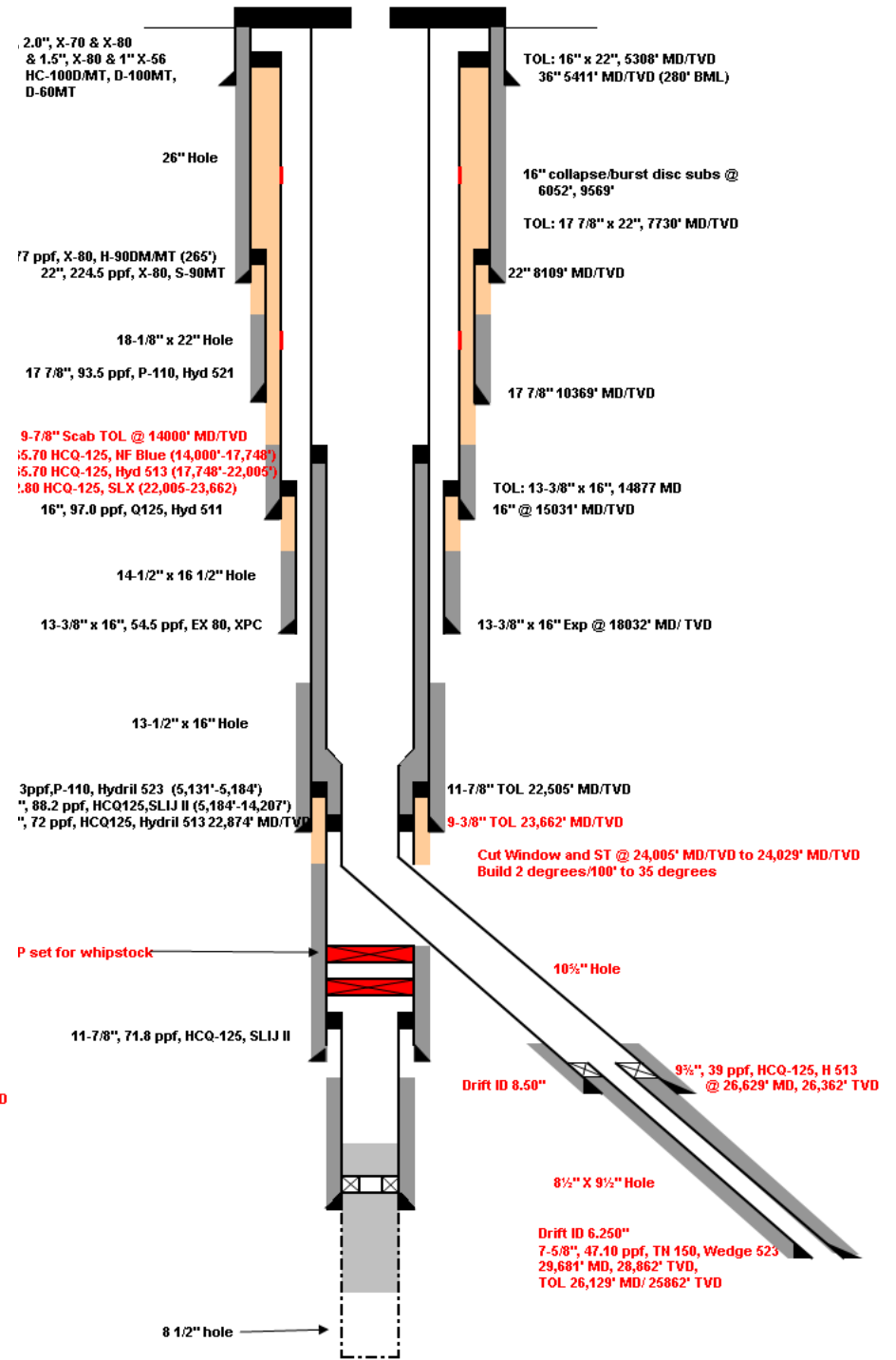
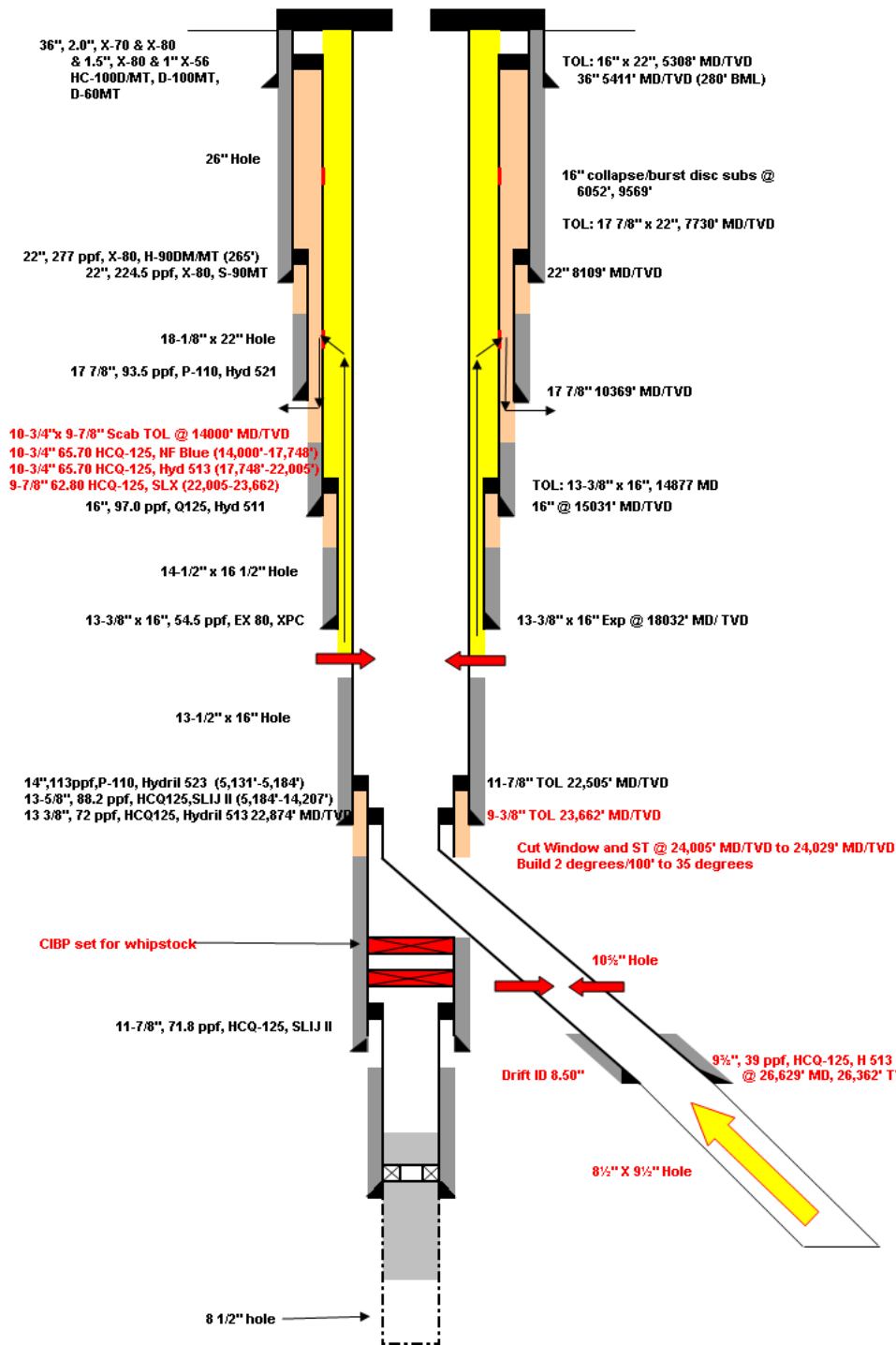
- ▶ **2 completion permits approved during the moratorium**
- ▶ **2 drilling permits, 1 completions APM post moratorium**
  - **Development by-pass approved February 28, 2011**
  - **Completion APM approved in May 27, 2011 (2 days)**
  - **Exploration sidetrack approved July 22, 2011**
- ▶ **1 appraisal well permit currently being reviewed.**

## Recent Permitting Experience

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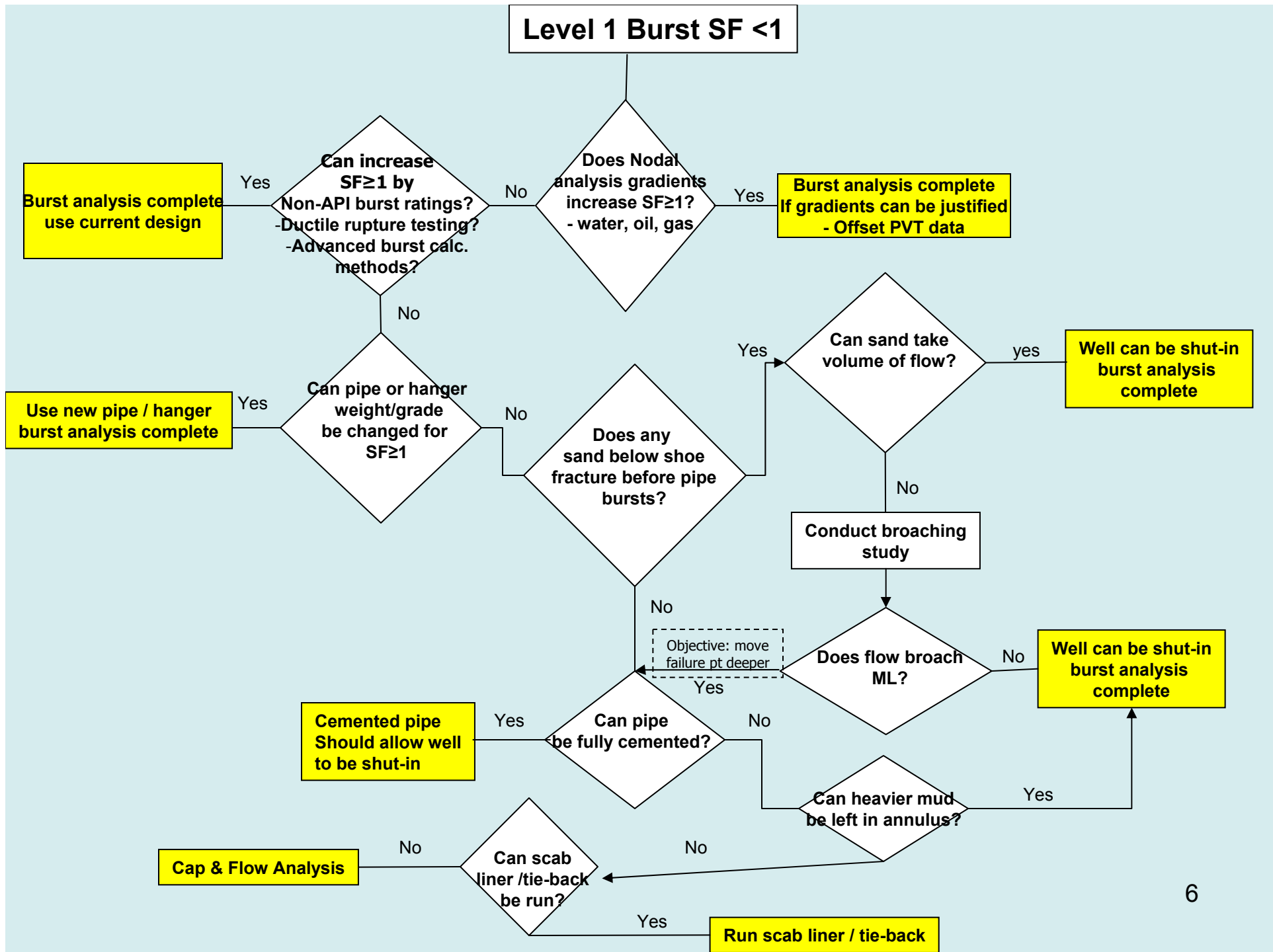
- ▶ **Ensure all data is complete and consistent prior to submitting.**
- ▶ **Organization is learning as we go, takes significantly more man hours to get permit ready.**
- ▶ **Internal training to fulfill new permitting requirements (WCP, WCST, attachments, etc).**
- ▶ **Expect revisions during review process.**
- ▶ **Document learnings to prevent repeat mistakes.**
- ▶ **When in doubt, call BOEMRE and ask for clarification.**







# Level 1 Burst SF <1



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## **Questions / Open Discussion**

# Broaching Study Elements

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- ▶ **Executive summary stating conditions evaluated and findings**
- ▶ **Broaching Analysis considering the following**
  - **Mapping of major and minor faults (sealing / non sealing, ability to transfer fluid)**
  - **Ability of pressure to exceed net pressure to propagate fracture of significant length.**
  - **Orientation of fracture with respect to faulting.**
  - **Presence of sand to except flow rate/volume and prevent vertical fracture.**
- ▶ **Conclusion of findings**
- ▶ **Appendix with supporting data (maps, calculations, etc.)**

