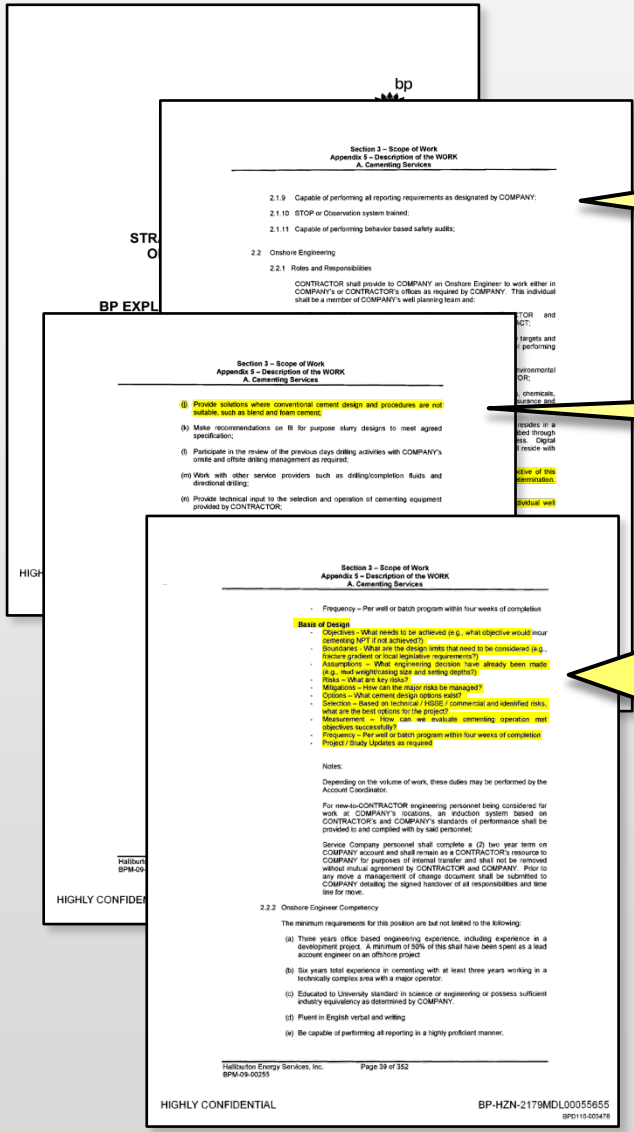


# Thomas Roth – Cross-Examination



(f) Produce and update a BOD document for the project. The objective of this document is to record the major decisions and their process of determination. The document shall be controlled and auditable;

(g) Apply risk based engineering processes to prepare the BOD, individual well programs and all associated engineering and documentation;

(j) Provide solutions where conventional cement design and procedures are not suitable, such as blend and foam cement;

- ### Basis of Design
- Objectives – What needs to be achieved (e.g., what objective would incur cementing NPT if not achieved?)
  - Boundaries – What are the design limits that need to be considered (e.g., fracture gradient or local legislative requirements?)
  - Assumptions – What engineering decision[s] have already been made (e.g., mud weight/casing size and setting depths?)
  - Risks – What are key risks?
  - Mitigations – How can the major risks be managed?
  - Options – What cement design options exist?
  - Selection – Based on technical / HSSE / commercial and identified risks, what are the best options for the project?
  - Measurement – How can we evaluate cementing operation met objectives successfully?
  - Frequency – Per well or batch program within four weeks of completion
  - Project / Study Updates as required