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GP 10-15

Pore Pressure Prediction

Group Practice

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**

Introduction

The introduction to this ETP mirrors section 16 of the revised DWOP.

All Pore Pressure Prediction activity shall conform to Engineering Technical Practice GP10-15 – Pore Pressure Prediction.

1. A Single Point of Accountability shall be defined for the preparation of a pore and fracture gradient prediction for any given well.
2. The prediction of pressure for a BP well shall be prepared by a qualified individual who has been trained on BP practices and workflows.
3. All individuals preparing pressure predictions for BP wells shall have attended the BP 21st Century Pore Pressure Principles training course.
4. All individuals preparing pressure predictions for BP wells shall have been trained on the use of Presgraf.
5. The methods used to predict pressure shall be consistent with the BP pore pressure practices workflow (Appendix A).
6. Every well operated by BP shall have a pressure profile which shall include pore, sand fracture, shale fracture, and overburden pressures.
7. The pressure profile shall express the uncertainties associated with the prediction.
8. The pressure profile shall be updated to include all learning's from offset wells (offset pressure measurements, kicks, current state of depletion, etc.).
9. A validation review shall be conducted on any prediction subsequent to any major changes in the profile. The validation review shall have included at least one approved auditor and one qualified pore pressure expert from outside the asset (can be the same individual). Once the validation review is completed, the PPFG profile shall be frozen and further changes to the profile shall require management of change (MOC) process.
10. Software used to prepare pore and fracture pressure predictions shall meet BP safety critical software standards as defined in Section 12 of the BP Drilling and Well Operations Practice (BPA-D-001).



Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 10-15 dealing with Pore Pressure Prediction. This Group Practice (GP) replaces the relevant parts of the Drilling and Well Operations Policy BPA-D-01.

Description of Risk

The prediction of pore and fracture pressures in wells is considered a zero tolerance activity within BP. Errors associated with the prediction of pore and fracture pressures could lead to the harm to people, damage to the environment, and undermine BP's operational reputation. For these reasons pressure prediction requires a definition of practices that establish the minimum requirements for performing pressure prediction.

The purpose of this document is to establish the minimum requirements in the prediction of pore and fracture pressures in planned wells. These requirements should be met by both employees and contractors acting on the behalf of BP in planning the design of wells to be operated by BP.

Note: This Practice reflects the balanced judgment of the BP Group and is based on experience and inputs from a variety of sources. However, it should be recognised that risk can never be eliminated and, as we learn, the Group may have to adjust the acceptable risk envelope and the Minimum Requirements of this Practice. This would result in an updated edition of this Practice being issued by the relevant authority.

What is the Pore Pressure Prediction Recommended Practice?

This PPP Practice is intended to ensure that there is a formal approach to managing the risks associated with predicting pore and fracture pressure in BP operated wells, that these risks are identified, assessed and controlled in a methodical way so that they can be removed or reduced to an acceptable level.

The primary aim of this Practice is to prevent safety incidents. However, the processes may be extended to include other aspects of performance.

Who is it for?

This Practice is intended for the use of following groups:

- Those involved in the pre-drill prediction of pore and fracture pressure for BP operated wells
- Those directly involved in the selection and management of those employees and contractors who will conduct pressure prediction on BP wells

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In the event of a conflict between this document and a relevant law or regulation, the relevant law or regulation shall be followed. If the document creates a higher obligation, it shall be followed as long as this also achieves full compliance with the law or regulation.



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1. Scope

This Practice applies to work on any BP operated well. A BP Company is a company in the BP Group or other legal entity where BP has operational control, is responsible for HSSE and has the right to impose these requirements. In situations where BP does not have control (i.e. a joint venture where BP is not the operator) we should endeavour to confirm that the operator implements processes that meet the minimum requirements in this document.

Applicability

For the purpose of this Group Practice, the workforce comprises BP employees and every employee of any other company or other legal entity that has been engaged to perform work on BP-operated reservoirs or production/injection infrastructure. A BP-operated reservoir for the purposes of this document includes any site or location used for the injection or extraction of fluids that is owned or operated by or for a BP Company.

In situations in which BP does not have control (i.e. a joint venture where BP is not the operator) BP should attempt to persuade the operator to employ practices at least meeting the Minimum Requirements in this document.

In the event of a conflict between this Group Practice and a relevant law or regulation, the relevant law or regulation will be followed. If the Group Practice creates a higher obligation, it should be followed as long as full compliance with the law or regulation is achieved.

Subject to the Group Practice's intent and subject to existing contractual constraints (to the extent that they cannot be renegotiated) this Group Practice shall be applied to all contractors and their associated subcontractors who perform work on BP-operated reservoirs or on behalf of BP and shall be incorporated in all tenders and contracts.

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

BP

BPA-D-001	BP Drilling & Well operations Practice
BPA-D-002	BP Well Control Manual Volume 2
http://ppfg.bpweb.bp.com/training.htm	Training course materials of the 21 st Century Pore Pressure Principles course

