



Directive 027: Shallow Fracturing Operations-Interim Controls, Restricted Operations, and Technical Review

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Directive 27 was issued January 31, 2006

- ◆ Background – history, need, rational
- ◆ Interim Controls
- ◆ Restricted Operations
- ◆ Technical Review Committee
 - make up (multi-stakeholder)
 - purpose
 - status to date
 - next steps



Need for a Directive

- ◆ Increased development at ever shallower depths.
- ◆ Increased fracture volumes, rates, and pressures.
- ◆ Increased public concern on water well protection.
- ◆ Lack of regulatory control on fracture design.
- ◆ Understanding fracture propagation at shallow depth in coal seams using N₂ as the fracture fluid.
- ◆ Number of reported incidents of communication at nearby EUB licensed wells (e.g., low cement tops and SC setting depth).
- ◆ MAC Report - oilfield and water well drilling and completion practices may not be adequate - reviewed.



Interim Controls

- ◆ Fracturing at less than 200 metres (m) requires a complete assessment of all potential impacts.
- ◆ Mitigation program is in the designed fracture program to adequately address all identified potential impacts.
- ◆ Provide the assessment to the EUB up on request.

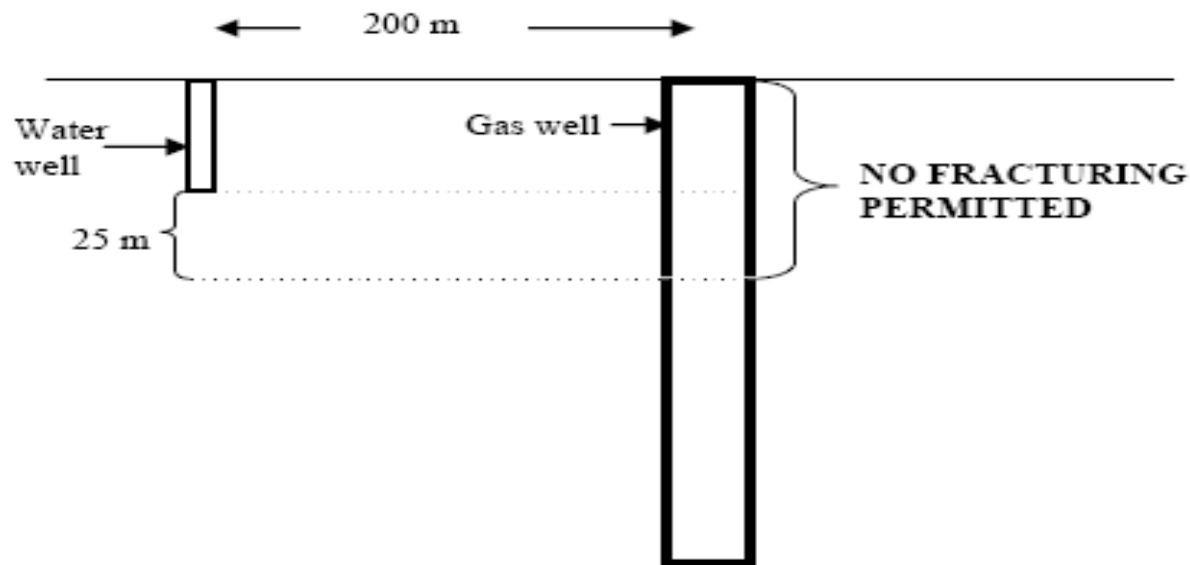


Interim Controls - Assessment

- ◆ Fracture program design (e.g., rates, volumes, pressures, and fluids).
- ◆ Determine maximum propagation expected for all treatments.
- ◆ Identification of all offset oilfield & water wells within a radius of 200 m. - completion information.
- ◆ Verification of cement integrity -all oilfield wells within a radius of 200 m.
- ◆ Landowner notification for all water wells within 200 m.
- ◆ Directive 035–mandatory baseline w.w. testing above the BGWP – offer to test w.w. and obs. w. < 600 m and if none < 800 m.

Restricted Operations

- ◆ Prohibition when planning to fracture at a depth less than 200 m. and a water well exists within the 200 m. radius such that the fracture interval or depth is within 25 vertical m. of the total depth of the water well.





Technical Review Committee

- ◆ *D 27* evaluate current Industry fracturing practices and assess the need for appropriate regulatory controls or industry recommended practices (IRPs) – target end 06.
- ◆ Multi-stakeholder format consisting of EUB, CAPP, SEPAC, CSUG, PSAC, AENV, Farmer's Advocate, AAMD&C, AEN (Pembina Institute), and Surface Rights Federation.
- ◆ Purpose – review current shallow fracturing operations to identify knowledge gaps and evaluate potential risks to confirm groundwater is protected.



Completed Activities to Date

- ◆ Had five meetings (May, June, July, Sept. & Oct.) - continuing
- ◆ Developed purpose statement and agreed on participants roles and responsibilities.
- ◆ Presentations:
 - Shallow Geology and Rock Strength
 - Typical Fracturing Operations including Shallow N₂
 - Water Well Restoration Program
 - EUB Role in Groundwater Protection (e.g., casing and cement)
 - Drilling, Completion, and Abandonment Regs for Water Wells
 - Water Well Complaint Statistics and Results





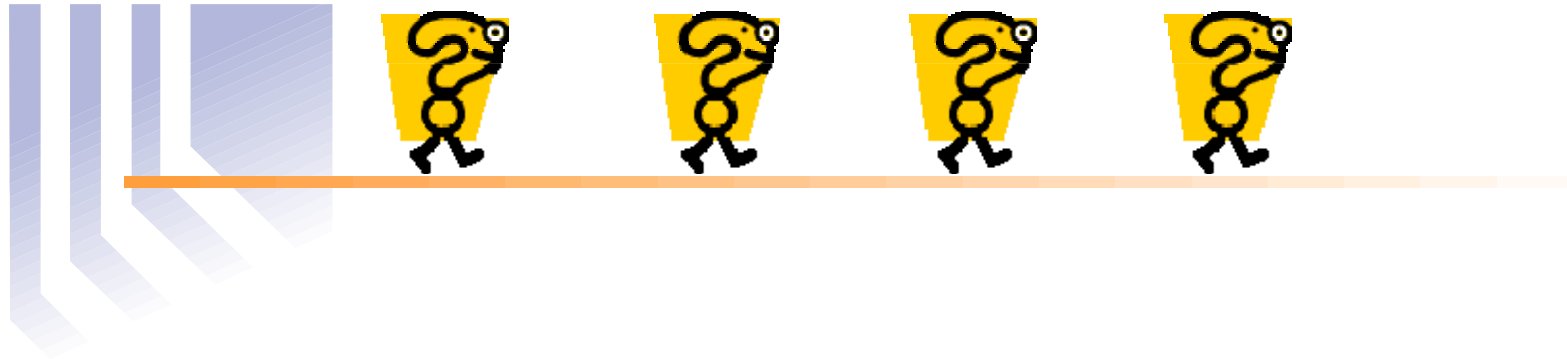
Completed Activities to Date

- ◆ Information Items Reviewed:
 - Comments submitted on the draft *D 27*,
 - Review of reported fracturing incidents,
 - Fracture mapping – surface and in well tilt, and
 - Fracturing regulations in other jurisdictions.



Next Steps

- ◆ Gather actual data from completed shallow coal bed fracturing operations.
- ◆ Review and analyze data, results, use of a third party.
- ◆ Determine gaps relative to groundwater protection and shallow fracturing.
- ◆ Review controls currently in place.
- ◆ Assess need for a model and controls.



It's **QUESTION TIME!!**

