Statewide Rule 10: Downhole Commingling

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Class Synopsis

SWR 10

• Rule
• Exception
• Application
• Online Completions
• Frac Port Completions
Down-Hole Commingling

• Applicable Statewide Rules:
  – Rule 3.10
  – This rule prevents down-hole commingling.
  – The subject of this discussion is the administrative exception to this rule.
What is Down-hole Commingling?
Down-Hole Commingling

• Purpose of the Exception
  – A permit to allow two or more RRC fields to be produced commingled in the same production string
Down-Hole Commingling

• Purpose of the Exception (cont’d)
  – Fields vs. Zones
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- Down-hole commingle vs. multiple completion
  - Both involve completing two or more RRC fields
  - In a down-hole commingled completion, all completion intervals are producing into the same production string
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Multiple Completion
Down-hole Commingled Completion
Down-Hole Commingling

Application procedures

• Fill out the 19-question datasheet: http://www.rrc.texas.gov/media/2745/rule10w.doc

Serve notice to affected offsets.

• $375 application fee as of May 2012.

• One well per application.
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Filling out the datasheet...
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• Application header information (ITEMS NOS. 1, 2, 3)
  – Well identification information
  – Field identification information
  – See O&G proration schedule
  – The Hydrogen Sulfide (H2S) listing
    (http://www.rrc.texas.gov/oil-gas/research-and-statistics/field-data/h2s/)
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• Notice Requirements (ITEM NO. 4)
  – One of three notice categories will apply:
    • Initial
    • Non-initial
    • Blanket order
  – How to determine category:
    • Statewide Rule 10 exception database.
      – Central Records (512-463-6882)
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Notice Requirements (ITEM NO. 4) (cont’d)

- Initial
  - All operators in each field are considered affected

- Non-Initial
  - All offset operators in the field are considered affected.

- Blanket order
  - No notice required
  - Fill out only items 1-4 and 8 on the application
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• Application Requirements
  – Determine the correct notice category (ITEM NO. 4)
  – Drilling permit and schedule history (ITEM NOS. 5, 6, 7)
    • Is the well permitted in each field? (yes/no)
      – Not currently permitted in one of the fields ➔ Need New Permit
    • Is the well currently on schedule in each field? (yes/no)
      – Not on schedule in one of the fields ➔ Need New Permit
    • Need new/amended drilling permit? (yes/no)
      – The existing drilling permit has been closed ➔ Need New Permit
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• Application Requirements (cont’d)
  – Pressure information (ITEM NOS. 9 and 13)
    • Shut-in pressure
    • Flowing pressure
    • Capable of flowing without artificial lift?
    • For wells in low-pressure zones / well-developed areas, it is reasonable for estimates to be provided
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• Application Requirements (cont’d)
  – Wellbore diagram (ITEM NO. 11)
    • Tops of cement must be adequate. Comply with Statewide Rule 13
    • Perfs for each field must be clearly indicated.
  – Service list (ITEM NO. 12)
    • The applicant certifies that notice has been served to each affected operator. Notice period is 14 days.
Inadequate top of cement for production casing
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• Application Requirements (cont’d)
  – Production information (ITEM NOS. 10 and 17)
    • Producing capabilities of each zone
    • Economic limit and ultimate recovery without commingling
    • Economic limit and ultimate recovery with commingling
    • Ultimate recovery for each zone=higher with commingling than without
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- Application Requirements (cont’d)
  - Evidence of fluid compatibility (ITEM NO. 16)
    - Operators are responsible for:
      - Produce in a practicable manner
      - Accounting for scale build up and treatment
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• Application Requirements (cont’d)
  – Zone ownership (ITEM NO. 8)
    • Interests between all commingled intervals must be identical
    • If not → application to be set for hearing
  – Reporting field selection (ITEM NO. 19)
    • Operator request is accommodated if possible
    • Gas wells: Field with most restrictive gas allowable unless they are all 100% AOF (Absolute Open Flow)
    • Oil wells: Field with lowest bbl per day allowable
    • Horizontal/vertical commingled completions: Field that has the horizontal drainhole in it
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• Application Requirements (cont’d)
  – Why not multiple completion? (ITEM NO. 14)
    • Mechanically impractical?
    • Economically impractical?
  – Plan if application not approved? (ITEM NO. 18)
    • Examples include: well will not be economical to drill at all; complete one zone and leave the other(s) unrecovered; complete one zone at a time; etc.
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• Application Requirements (cont’d)
  – Crossflow and migration (ITEM NO. 15)
    • The well must comply with SWR 3.7.
    • A down-hole commingling exception should not be proposed as a resolution to a violation of cementing and isolation requirements.
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• Completion Requirements (cont’d)
  – SWR10 Exception should be approved before the completions are filed.
  – A well is considered non-compliant if the application has not been approved by the Railroad Commission Engineering Department.
  – The operator should reference SWR 10 approval in the remarks section of the completion.
• Completion Requirements (cont’d)
  – complete at a later date
    • “leave permit open for future SWR 10”
    • Must report perforations, formation tops, and completion intervals for each field completed.
  – The SWR 10 approval letter must be attached and the fields must match the drilling permit.
  – Approved fields should be valid, i.e. not consolidated.
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• Completion Requirements – OIL WELLS
  – File one W-2 for the **reporting field only**.
  – Must have an approved Drilling Permit.
  – Existing lease # should be listed in the work over section of the Packet Data.
  – For oil wells in oil only fields, only 1 lease number will be carried on schedule at a time.
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• Completion Reports - GAS WELLS
  – File a G-1 for each field.
    • “Initial Potential” for the reporting field
    • “Well Record Only” for each non-reporting field.
  – The reporting field cannot be a 100% AOF field unless all of the fields are 100% AOF.
  – A combined G-10 test for all producing intervals is required.
  – All production should be reported to the reporting ID #. Additional non-reporting zones are carried on schedule with a SWR 10 code that are not eligible for an allowable.
Frac Port Completions

What questions does this raise with regard to down-hole commingling?

– The technology allows multi-stage fracture stimulation without cementing the production liner
– Uses open-hole packers for interval confinement
– Statewide Rule 13 **does not** recognize open-hole packers for vertical confinement
Frac Port Completions

• Example: a horizontal well with an open-hole packer completion system

• “Field 1” is exposed to uncemented pipe. SWR 13 violation.

• Is the exposed formation really “down-hole commingled”? 
Frac Port Completions

- Field 1 is not considered down-hole commingled. Field 1 does not have a completion interval in the production string.

- A Statewide Rule 10 exception **cannot** resolve this issue.
Frac Port Completions

• Completion Requirements
  – Producing interval section includes “range” you are producing out of.
  – The range is still evaluated like the perforations for proper field designation and audited for SWR 10 compliance.
  – List in remarks that you are using a frac port, open hole packer etc. system.
CONTACT US

For Technical Questions related to the SWR 10 Exception to Down-hole Commingle contact the Engineering Unit: 512.463.1126

For Questions related to Completion filings for SWR 10/Down-hole commingled wells contact the Proration Unit: 512.463.6975