

## **Summary of Proposed Changes**

### **(1) Adopt the concept of “Pre-Approved Pools or Areas.”**

To date, the OCD has issued over 2,900 permits for downhole commingling. Within certain pool combinations, there exists substantial downhole commingling data. The committee recommends the adoption of a procedure whereby an operator can request administrative approval of “Pre-Approved Pools or Areas.” “Pre-Approved Pools or Area” are certain pool combinations or areas encompassing certain pools that have sufficient downhole commingling data available so as to qualify for an abbreviated and streamlined procedure for obtaining subsequent downhole commingling permits. To obtain a “Pre-Approved Pools or Areas”, an operator will File a C-107-A complete with the additional information shown on the form as “Reference Pool.”

### **(2) Recommend Adoption of a List of “Pre-Approved Pools & Areas.”**

The committee statistically analyzed the Division’s administrative and hearing order downhole commingling database, and has produced a list of pool combinations and a geographic area that it recommends be adopted as “Pre-Approved Pools & Areas.” The proposed list contains twenty-three pool combinations in the Permian Basin and sixty-one pool combinations in the San Juan Basin.

### **(3) Adopt a Streamlined Process for Approval of Downhole Commingling in “Pre-Approved Pools or Areas.”**

The committee recommends that a streamlined procedure be adopted for downhole commingling approval of wells within “Pre-Approved Pools or Areas.” This streamlined procedure would consist of filing a Division Form C-103 (Sundry Notice) with the appropriate District Office. In addition to the information required by Form C-103, minimal additional information pertaining to the proposed downhole commingling will be required. (A copy of Form C-103 shall be provided to the Commissioner of Public Lands for wells on State lands and a Form 3160-5 shall be provided to the Bureau of Land Management for wells on Federal lands.)

### **(3) Amend the Criteria for Approval.**

The committee recommends that certain criteria for approval be relaxed. The proposed criteria, as well as the previous criteria, are shown in detail on a subsequent exhibit.

### **(4) Amend Form C-107-A**

In order to honor the proposed changes to Rule 303, the committee recommends amending Division Form C-107-A. These changes will be shown in detail on a subsequent exhibit.

## Current Approval Criteria vs. Proposed Approval Criteria

| <u>Current Criteria</u>                                                                                                                                                                                          | <u>Proposed Criteria</u>                                                                                                                                                                                                                                                                                                                    | <u>Comments</u>                                                                                                                                                                                                                                                                                                                                             |
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| (a)(i) The total combined daily oil or casinghead gas production from the zones before commingling does not exceed the top allowable rate for the shallowest producing horizon.                                  | (1)(f) If any of the pools being commingled is prorated, or the well's production has been restricted by Division order in any manner, the allocated production from each producing pool in the commingled wellbore shall not exceed the top oil or gas allowable rate for a well in that pool or rate restriction applicable to such well. | Applicable to oil pools. This change increases the oil and gas allowable for a well commingling in two or more oil zones. Previously, total production from the well was limited to the oil and gas allowable of the shallowest commingled zone. Proposed change would allow each commingled zone to produce up to the oil and gas allowable for that pool. |
| (a)(ii) The operator utilizes a method of production which results in the efficient recovery of oil and gas reserves from the respective producing formations.                                                   | None                                                                                                                                                                                                                                                                                                                                        | The committee felt that this provision could be eliminated without detriment to the downhole commingling rule.                                                                                                                                                                                                                                              |
| (a)(iii) Total water production from all commingled zones does not exceed twice the oil limit as described in (i) above.                                                                                         | None                                                                                                                                                                                                                                                                                                                                        | Since all wells with significant water production are generally maintained in a "pumped off" condition, the committee felt that it was not necessary to restrict water production in a commingled wellbore.                                                                                                                                                 |
| (a)(iv) & (b)(v) The fluids from each zone are compatible with the fluids from the other(s), and combining the fluids will not result in the formation of precipitates which might damage any of the reservoirs. | (1)(a) The fluids from each pool are compatible and combining the fluids will not result in damage to any of the pools.                                                                                                                                                                                                                     | Minor language change.                                                                                                                                                                                                                                                                                                                                      |
| (a)(v) The commingling will not jeopardize the efficiency of present or future secondary recovery operations in any of the zones to be commingled.                                                               | (1)(b) The commingling will not jeopardize the efficiency of present or future secondary recovery operations in any of the pools to be commingled.                                                                                                                                                                                          | Minor language change.                                                                                                                                                                                                                                                                                                                                      |

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| <p>(b)(i) That the commingling is necessary in order to allow the recovery of gas reserves from marginal producing zones. (In determining whether a zone or zones should be classified as marginal for the purpose of this rule, the Division may consider economic factors such as drilling and operating costs, and engineering and geologic factors such as producing rates, reserve calculations, decline rates, proration status, geologic data, etc.).</p> | <p>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>The committee recommends that the marginal criteria be eliminated. As long as allowable producing rates are enforced for commingled pools, there are no waste or correlative rights issues involved in downhole commingling zones which may be non-marginal. Also, eliminating this marginal requirement may encourage additional drilling for wildcat as well as development prospects.</p>                                                                                                                                                                                                                                                                 |
| <p>(b)(ii) The bottomhole pressure of the highest pressured commingled zone does not exceed the original reservoir pressure of any other commingled zone in the wellbore, adjusted to a common datum. Such bottomhole pressure shall be determined by downhole measurement for each zone capable of flowing.</p>                                                                                                                                                 | <p>(1)(c) the bottom perforation of the lower zone is within 150% of the depth of the top perforation in the upper zone and the lower pressure zone must be at or below normal pressure with normal pressure assumed to be 0.433 psi per foot of depth. If the pools to be commingled are not within this vertical interval, then evidence will be required to demonstrate that commingling will not result in shut-in or flowing wellbore pressures in excess of the fracture parting pressure of any commingled pool. The fracture parting pressure shall be assumed to be 0.65 psi per foot of depth unless the applicant submits other measured or calculated pressure data acceptable to the Division.</p> | <p>The committee felt that the primary pressure consideration in a commingled wellbore is that the pressure of the higher pressured commingled zone does not exceed the fracture pressure of the lower pressured zone. This will help to avoid permanent loss of cross-flowed production which may result if the lower pressured zone is fractured in the commingled wellbore. The proposed criteria grants an exception to pressure reporting for normally pressured commingled zones within 150% of depth of each other. Higher pressure zones within this depth interval should not pose any danger of fracturing lower pressure zones in this interval.</p> |
| <p>(b)(iii) The commingling will not result in the permanent loss of reserves due to crossflow in the wellbore.</p>                                                                                                                                                                                                                                                                                                                                              | <p>(1)(d) The commingling will not result in the permanent loss of reserves due to crossflow in the wellbore.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>No change.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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| <p>(b)(iv) That any zone which is producing from fluid-sensitive formations, which may be subject to damage from water or other produced liquids, is protected from contact from such liquids produced from other zones in the well.</p> | <p>(1)(e) Fluid sensitive formations which may be subject to damage from water or other produced liquids shall be protected from contact from such liquids produced from other pools in the well.</p> | <p>Minor language change</p>                                                             |
| <p>(b)(v) The fluids from each zone are compatible with the fluids from the other(s), and combining the fluids will not result in the formation of precipitates which might damage any of the reservoirs.</p>                            | <p>None. See (1)(a).</p>                                                                                                                                                                              | <p>This criteria is duplicated in (a)(iv) and (b)(v). It will be kept as new (1)(a).</p> |