

Recommended Evaluation Practices (REPs) represent the society of Petroleum Evaluation Engineers' (SPEE) suggested treatment of hypothetical reserve evaluation topics. SPEE recognizes that, due to the varied nature of actual reserve evaluation situations likely to be encountered, these REPs are presented merely as suggested approaches. The REPs are not standards or guidelines. The use of or adherence to this SPEE REP is not required in any situation. The REPs should not be considered a substitute for the evaluator's professional judgment. This REP is subject to future revision(s) by the SPEE.

SPEE Recommended Evaluation Practice #8 – Calculation of Reversionary Interests

Issue:

In many oil and gas properties the working interest and net revenue interest owned by a particular entity change or “revert” when certain “trigger points” are reached. These reversion points may be based on the recovery of certain dollar amounts, volume amounts, or based on certain dates. A classic example is a back-in after payout. When the future performance of a property is being modeled for the benefit of a particular owner, it is usually necessary to include these interest changes in the cash flow calculation. There are several ways to calculate the results; modeling the reversion as occurring at the beginning of the month in which the trigger event occurs; modeling the reversion at the end of the month; or interpolating during the month or year to determine the exact day. Each of these methods will lead to a different answer for the net cash flow.

Discussion:

The commercially available computer programs use a wide variety of methods. The test case shown below was run by 11 software vendors for the SPEE Petroleum Economics Software Symposium.¹

Variable	Value	Units	Comments
Effective Date of Study	1/1/2000		
Lease revenue interest for payout calculation	0.80		
Trigger Points:			
Cum Production < 10,000 bbls	WI = 0.250 NRI = 0.175	Decimal	
Cum prod >= 10,000 bbls and before payout	WI = 0.250 NRI = 0.1875	Decimal	
After payout	WI = 0.350 NRI = 0.280	Decimal	
Investment	1,000	M\$	Gross (100% WI), Time 0
Production Schedule-Oil	100	BOPD	Hold constant for life of project
Oil Price	17.00	\$/bbl	Hold constant for life of project
Operating Costs	1,000	\$/month	Gross (100% WI)
Severance Tax	0.0	Fraction	Fraction of NRI Revenue
Advalorem Tax	0.0	Fraction	Fraction of NRI Revenue
Life	20	Years	

¹ SPEE Petroleum Economics Software Symposium 2000, March 2, 2000, Houston, TX

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The expected results are a first reversion at the end of April 2000 and a second reversion at the end of January 2002. The case can be checked by examining the net production for 2000 which should be 6,691 bbl and the net production for 2002 which should be 9,094 bbl. The results for the software's treatment of the first reversion based on production are shown below:

During April 2000 – two of the eleven software packages.
End of April 2000 – four of the eleven software packages.
Beginning of April 2000 – two of the eleven software packages.
Did not include first reversion – two of the eleven software packages.
Unknown – one of the eleven software packages.

The results for the second reversion (based on payout) were:

During January 2002 – four of the eleven software packages
End of January 2002 - one of the eleven software packages
Unknown – six of the eleven software packages

Most Joint Operating Agreements specify that any reversionary interest changes become effective on the first day of the month following the month in which the reversion point is reached. However, in the case of participating area revisions under Federal Exploratory Units “the effective date of any revision shall be the *first of the month* [emphasis added] in which the knowledge or information is obtained on which such revision is predicated.

SPEE Recommended Evaluation Practice:

Unless specified otherwise by a Joint Operating Agreement or other similar contract, reversionary interest changes should be assumed to become effective on the first day of the month following the month in which the reversion point is reached. In cases where the reversion(s) occur at other points that result in a material difference, the preparer² of the reserve report should discuss the issue in the report's cover letter or body.

² The terms “Preparers of Reserve Reports” or “Preparers” are used herein to signify the person(s) responsible for the contents of the report.