U.S. Securities and Exchange Commission Regulations

Part 3: SEC Guidance

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Professor Lee joined the University of Houston faculty in September 2011 and held the Cullen Distinguished University Chair until September 2015, when he rejoined the Texas A&M Faculty.
He served as an Academic Engineering Fellow with the U.S. Securities & Exchange Commission (SEC) in Washington during 2007-2008, and was a principal architect of the modernized SEC rules for reporting oil and gas reserves. John and his team received the SEC's Law and Policy Award in 2009.

Professor Lee is the author/co-author of four textbooks published by SPE and has received numerous awards from SPE, including the Lucas Medal, the DeGolyer Distinguished Service Medal and Honorary Membership. He has received Distinguished Achievement and Honorary Life Member Awards from SPEE and is a member of the U.S. National Academy of Engineering and the Russian Academy of Natural Sciences.

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Disclaimer

Opinions expressed in this presentation are mine alone; they represent neither the opinions of the Securities and Exchange Commission nor of its staff members.

Sources of Guidance and Additional Information on SEC Reserves Reporting

- SEC Compliance and Disclosure Interpretations: Oil and Gas Rules, issued 16 May 2013
- SEC Staff Accounting Bulletin (SAB) No. 113, issued 29 October 2009, updating SAB 12
- FASB, Financial Accounting Series, Extractive Industries – Oil and Gas (Topic 932), Oil and Gas Reserves Estimation and Disclosures, issued 10 January 2010 (amending SFAS 69 to conform with December 2008 modifications to SEC Regulations S-X, section 210.4-10 and Regulation S-K section 229.1200)
- Guidance issued by SEC and posted on its website prior to 2009 likely to be obsolete and is subject to revision because of new rules

SEC Definitions: Reserves [4-10(a)(26)]

- Estimated remaining quantities of oil and gas and related substances anticipated to be economically producible, as of a given date, by application of development projects to known accumulations
- Following must exist or be reasonably expected to exist
  - Legal right to produce (or revenue interest in production)
  - Installed means to deliver oil, gas or related substances to market
  - All permits and financing required to implement project

Reserves [4-10(a)(26)] Guidance (Question 126.01)

- **Question:** Can a company claim proved reserves under a production sharing contract prior to obtaining approval from the host country?
- **Answer:** No. Since production sharing contracts are entered into in countries where the government claims ownership of the mineral rights, all government approvals must be obtained prior to claiming proved reserves. [Oct. 26, 2009]

Reserves [4-10(a)(26)] Guidance (Question 126.02)

- **Question:** In the case of reserves above a highest known oil (HKO) limit, if it is equally likely that oil or gas is present above HKO, should the lower value product be assigned above HKO?
- **Answer:** Yes, but only if the well or field is in a location where a market for that product exists. In particular, if there is no market for gas, or no way to transport gas to a market, then any assumed gas cap volume that may or does exist above a HKO cannot be classified as reserves. [Oct. 26, 2009]

Undeveloped Oil and Gas Reserves [4-10(a)(31)]

- Reserves of any category expected to be recovered from new wells on undrilled acreage or from existing wells where relatively major expenditure required for recompletion
  - Reserves on undrilled acreage limited to directly offsetting development spacing areas reasonably certain of production (drilling units adjacent to production) unless evidence using reliable technology establishes reasonable certainty (or the required certainty levels for unproved reserves) of economic producibility at greater distances

Undeveloped Oil and Gas Reserves [4-10(a)(31)]

- Undrilled locations classified as having proved undeveloped reserves only if development plan has been adopted indicating they are to be scheduled to be drilled within five years unless specific circumstances justify longer time
- Under no circumstances shall estimates for undeveloped reserves be attributable to acreage for which fluid injection or other improved recovery technique is contemplated unless such techniques have been proved effective by actual projects in same reservoir or an analogous reservoir, or by other evidence using reliable technology establishing reasonable certainty

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.01)

- **Question:** Can an issuer assign proved undeveloped reserves to horizontal locations offsetting the toe of an existing horizontal producing well if the location is moving in the direction of other successful, analogous producing horizontal wells?
- **Answer:** Yes, if the technical evidence supports this assignment with reasonable certainty. [Oct. 26, 2009]

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.02)

- **Question:** Does the standard, "reasonable certainty of economic producibility," in the definition of "undeveloped oil and gas reserves" mean that a registrant cannot assign probable or possible undeveloped reserves beyond areas containing proved undeveloped reserves?
- **Answer:** No. Reliable technology can be used to establish (1) that probable reserves in undeveloped locations are as likely as not and (2) that possible reserves in undeveloped locations are possible but not likely. [Oct. 26, 2009]

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.03)

Question: In the definition of "undeveloped oil and gas reserves," what "specific circumstances" would justify a time period longer than five years to begin development of those reserves?

Answer: Although several types of projects — such as constructing offshore platforms and development in urban areas, remote locations or environmentally sensitive locations — by their nature customarily take a longer time to develop and therefore often do justify longer time periods, this determination must always take into consideration all of the facts and circumstances. No particular type of project per se justifies a longer time period, and any extension beyond five years should be the exception, and not the rule. (continued following)

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.03)

Question: In the definition of "undeveloped oil and gas reserves," what "specific circumstances" would justify a time period longer than five years to begin development of those reserves?

Answer: (cont'd) Factors that a company should consider in determining whether or not circumstances justify recognizing reserves even though development may extend past five years include, but are not limited to, the following:

- The company's level of ongoing significant development activities in the area to be developed (for example, drilling only the minimum number of wells necessary to maintain the lease generally would not constitute significant development activities);
- The company's historical record at completing development of comparable long-term projects; (continued following)

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.03)

- **Answer:** (cont'd) The amount of time in which the company has maintained the leases, or booked the reserves, without significant development activities;
- The extent to which the company has followed a previously adopted development plan (for example, if a company has changed its development plan several times without taking significant steps to implement any of those plans, recognizing proved undeveloped reserves typically would not be appropriate); and
- The extent to which delays in development are caused by external factors related to the physical operating environment (for example, restrictions on development on Federal lands, but not obtaining government permits), rather than by internal factors (for example, shifting resources to develop properties with higher priority). [Oct. 26, 2009]

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.04)

- **Question:** The definition of "undeveloped oil and gas reserves" requires that the company have adopted a development plan with respect to the reserves. What constitutes adoption of a development plan?
- **Answer:** The mere intent to develop, without more, does not constitute "adoption" of a development plan and therefore would not, in and of itself, justify recognition of reserves. Rather, adoption requires a final investment decision. [Oct. 26, 2009]

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.05)

- **Question:** Would a company's decision to slowly develop a field in order to extend its economic life justify recognizing proved undeveloped reserves in the field beyond five years?
- **Answer:** No. The company should not recognize undeveloped areas as proved undeveloped reserves if it does not anticipate initiating development in those areas within five years. [Oct. 26, 2009]

Undeveloped Oil and Gas Reserves [4-10(a)(31)] Guidance (Question 131.06)

- **Question:** Rule 4-10(a)(31)(ii) states that "[u]ndrilled locations can be classified as having undeveloped reserves only if a development plan has been adopted indicating that they are *scheduled to be drilled* within five years…." (emphasis added). In comparison, the Petroleum Reserves Management System of the Society of Petroleum Engineers and World Petroleum Council states that "[a] reasonable time frame for the *initiation of development* depends on the specific circumstances …" (emphasis added). Is there a difference between the terms "scheduled to be drilled" and "initiation of development"?
- **Answer:** No. [Oct. 26, 2009]

Developed Oil and Gas Reserves [4-10(a)(6)]

- **Background:** Prior to the revision of the oil and gas rules in 2008, reserves obtained from applying improved recovery techniques (such as fluid injection) to increase the ultimate recovery of hydrocarbons could be classified as "proved developed reserves" (as defined in prior Rule 4-10(a)(3) of Regulation S-X) only under limited circumstances. Specifically, the rule expressly required that a registrant could classify such reserves as proved developed only after the improved recovery technique had caused a production response, such as a measurable change in reservoir pressure or production performance, confirming that the registrant would achieve the recovery of such reserves.

Developed Oil and Gas Reserves [4-10(a)(6)]

- **Background (Cont'd):** Unlike the prior rules, the new rules adopted in 2008 do not expressly define the term "proved developed reserves." Rather, the new rules separate the concepts of "proved reserves" from "developed reserves," separately defining "proved reserves" in Rule 4-10(a)(22) of Regulation S-X and "developed reserves" in Rule 4-10(a)(6) of Regulation S-X. The revised definition for developed reserves applies to developed reserves of all categories, including proved, probable and possible reserves. In addition, the revised definition of developed oil and gas reserves no longer expressly requires a production response from the improved recovery technique to classify such reserves as developed.

Developed Oil and Gas Reserves [4-10(a)(6)]

- **Question:** Under the new rules, if a registrant has expended all of the money required to install and implement the improved recovery technique but has not yet achieved a production response from it, may it classify the reserves as proved developed?
- **Answer:** Yes, so long as the reserves otherwise meet all of the criteria for proved reserves set forth in Rule 4-10(a)(22) and developed reserves set forth in Rule 4-10(a)(6). [May 16, 2013]

Development Project [4-10(a)(8)]

- Means by which petroleum resources brought to status of "economically producible"
- Examples
  - development of single field
  - incremental development in producing field
  - integrated development of group of several fields and associated facilities with common ownership

Development Project [4-10(a)(8)] Guidance (Question 108.01)

- **Question:** For an issuer that intends to develop a large field involving the drilling of numerous wells in multiple stages, what constitutes a development project?
- **Answer:** A development project is typically a single engineering activity with a distinct beginning and end, which, when completed, results in the production, processing or transportation of crude oil or natural gas. A project typically has a definite cost estimate, time schedule and investment decision; is approved for funding by management; may include all classifications of reserves; and will be fully operational after the completion of the initial construction or development. The scope and scale of a project are such that, if a project were terminated before completion, for whatever reason, a significant portion of the previously invested capital would be lost. (continued following)

Development Project [4-10(a)(8)] Guidance (Question 108.01)

- **Question:** For an issuer that intends to develop a large field involving the drilling of numerous wells in multiple stages, what constitutes a development project?
- **Answer:** (cont'd) If an investment decision has been made to develop only a portion of the primary, secondary or tertiary reserves, the remainder of the reserves would not be considered to be proved reserves until such time as management has made an investment decision to develop those additional reserves, the requisite level of certainty has been demonstrated from the initial portion of the development or by other means, and the additional development is within five years of being initiated. [Oct. 26, 2009]

Proved Oil and Gas Reserves [4-10(a)(22)]

- Those quantities which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically producible – from a given data forward, from known reservoirs, and under existing economic conditions, operating methods, and government regulations – prior to time contracts providing right to operate expire unless evidence indicates renewal reasonably certain
- Either deterministic or probabilistic methods can be used for estimation
- Project to extract hydrocarbons must have commenced or be reasonably certain to commence within reasonable time

Reserves Disclosures: Reserves [229.1202] Guidance (Question 154.01)

- **Question:** For a recently drilled well, where there is only a limited amount of production data and the production rate is expected to decline in a hyperbolic manner but the evidence to date indicates only an exponential decline, can you assume that the production rate will eventually begin to decline in a hyperbolic manner and claim that as proved reserves?
- **Answer:** Yes, but only at such time when additional production data, such as from offset wells, exists demonstrating that there will be a change in the manner of decline from exponential to hyperbolic. [Oct. 26, 2009]

Deterministic Estimate [4-10(a)(5)] Guidance (Question 105.01)

- **Question:** In a deterministic reserve evaluation, when you have determined specific, individual estimates for proved, probable and possible reserves, is it acceptable to sum up these separate reserve categories into one total reserve estimate?
- **Answer:** No. Because the categories of proved, probable and possible reserves have different levels of certainty, it is not appropriate to sum up the individual deterministic estimates for these reserves into one total reserve estimate. The individual estimates for each category should be disclosed as separate estimates, with the difference in certainty for each estimate fully explained. [Oct. 26, 2009]

Existing Economic Conditions [4-10(a)(22)(v)]

- Prices and costs at which economic producibility is to be determined
- Price is average price during 12-month period immediately prior to ending date of period covered by report
  - Unweighted arithmetic average of first-day-of-month price for each month during period unless prices are defined by contractual arrangements, excluding escalations based upon future conditions (same calculation procedures as year-end but done for each first day of the month)
- Computational procedure for costs not specified

Proved Oil and Gas Reserves [4-10(a)(22)] Guidance (Question 122.01)

- **Question:** What oil and gas prices should be used to estimate probable and possible reserves?
- **Answer:** Unproved reserves should be evaluated using the same price as used for the evaluation of proved reserves. [Oct. 26, 2009]

Proved Oil and Gas Reserves [4-10(a)(22)] Guidance (Question 122.02)

- **Question:** Does the new definition of "proved oil and gas reserves" require issuers to change their existing procedures for determining costs?
- **Answer:** No. [Oct. 26, 2009]

Reliable Technology [4-10(a)(25)]

- Grouping of one or more technologies (including computational methods) that has been field tested and demonstrated to provide reasonably certain results with consistency and repeatability in formation being evaluated or analogous formation (note: should say "analogous reservoir," since analogous ***formation*** is an ambiguous term)

Reliable Technology [4-10(a)(25)] Guidance (Question 125.01)

- **Question:** Does the staff intend to publish a list of reliable technologies that the SEC will accept for the determination of proved reserves?
- **Answer:** No. An issuer has the burden of establishing and documenting the technology (or set of technologies) that provides reliable results, consistent with the criteria set forth in Rule 4-10(a)(25) of Regulation S-X. This information should be made available to the Commission's staff upon request in support of any reserves estimates that the staff may be reviewing. [Oct. 26, 2009]

Probable Reserves [4-10(a)(18)]

- Additional reserves less certain to be recovered than proved reserves but which, together with proved reserves, are as likely as not to be recovered
  - Deterministic: as likely as not that actual remaining quantities recovered will exceed sum of estimated proved plus probable reserves
  - Probabilistic: at least 50% probability that actual quantities recovered will equal or exceed proved plus probable reserves estimates

Possible Reserves: [4-10(a)(17)(v)]

- May be assigned where data identify immediately adjacent portions of reservoir in same accumulation that may be separated from proved area by faults with displacement less than formation thickness or other geological discontinuities not penetrated by wellbores if filer believes adjacent portions are in communication with proved reservoir
- May be assigned to areas structurally higher or lower than proved area if these areas are in communication with proved reservoir

Probable Reserves: [4-10(a)(18)(ii),(iii)]

- May be assigned to areas of reservoir adjacent to proved reserves where data control or interpretations less certain, even of interpreted continuity of structure or productivity does not meet reasonable certainty criterion
- May be assigned to areas structurally higher than proved areas when in pressure communication with proved reservoir (silent on areas structurally lower)
- Includes potential incremental quantities associated with greater percentage recovery of hydrocarbons in place than assumed for proved reservoirs

Probable Reserves [4-10(a)(18)] Guidance (Question 117.01)

- **Question:** Is it acceptable to assign probable or possible reserves below the Lowest Known Hydrocarbon (LKH) limit penetrated in a well bore under the new definition of the term "probable reserves"?
- **Answer:** It may be acceptable to assign unproved reserves below the LKH if that volume of reserves meets the test for either probable or possible reserves. If there is no data below LKH, no reserves should be assigned. [Oct. 26, 2009]

Probable Reserves [4-10(a)(18)] Guidance (Question 117.02)

- **Question:** Can an issuer assign probable or possible reserves in an area in which it does not, or cannot, assign proved reserves?
- **Answer:** Yes. However, disclosure of unproved reserves without associated proved reserves should be done only in exceptional cases, such as for (1) development projects where engineering, geological, marketing, financing and technical tasks have been completed, but final regulatory approval is lacking or (2) improved recovery projects, at or near primary depletion, that await production response. Reserves should not be assigned without well penetration of the subject reservoir (rock volume) in the contiguous area that yields technical information sufficient to support the attributed reserve category. Volumes that are not economically producible are not reserves of any classification and should not be disclosed. [Oct. 26, 2009]

Probable Reserves [4-10(a)(18)] Guidance (Question 117.03)

- **Question:** The definition of the term "probable reserves" does not include instructions regarding reserves below LKH. Does this mean that probable reserves cannot be assigned below proved areas, such as below LKH limit, and can be no higher classification than possible reserves?
- **Answer:** No. Probable reserves may be assigned if reliable technology and data exist that, in the judgment of the evaluator, support characterizing those reserves as probable reserves. If no data exists below LKH, no unproved reserves can be assigned. [Oct. 26, 2009]

Probable Reserves [4-10(a)(18)] Guidance (Question 117.04)

- **Question:** Can an issuer assign probable or possible reserves to an un-penetrated fault block?
- **Answer:** No. Un-penetrated, pressure-separated fault blocks should not be considered to contain reserves of any category until penetrated by a well. [Oct. 26, 2009]

SEC Regulations: Disclosures

- New disclosure requirements can be found in S-K 229.1200 provided in SEC's "Adopting Release" issued on December 29, 2008

Reserves Disclosures [229.1202]

- Disclose, by product type, in aggregate, by geographic area and for each country containing 15% or more of registrant's proved reserves (on BOE basis), reserves estimated using prices and costs under existing economic conditions for product
- Disclosure of country reserves not required if prohibited by country or if country disclosure would essentially mean disclosure by field

Reserves Disclosures [229.1202] Guidance (Question 154.02)

- **Question:** Should reserve quantities attributable to equity method investees be combined with reserve quantities attributable to consolidated entities for purposes of identifying countries containing 15% or more of the registrant's reserves under Item 1202 of Regulation S-K.
- **Answer:** Yes. [Oct. 26, 2009]

Reserves Disclosures: Aggregation [229.1202]

- Reported reserves totals shall be simple arithmetic sums of all estimates for individual properties or fields within each reserves category
- When probabilistic methods are used, reserves should not be aggregated probabilistically beyond field or property level; instead, use simple arithmetic summation

Deterministic Estimate [4-10(a)(5)] Guidance (Question 105.01)

- **Question:** In a ***deterministic*** reserve evaluation, when you have determined specific, individual estimates for proved, probable and possible reserves, is it acceptable to sum up these separate reserve categories into one total reserve estimate?
- **Answer:** No. Because the categories of proved, probable and possible reserves have different levels of certainty, it is not appropriate to sum up the individual deterministic estimates for these reserves into one total reserve estimate. The individual estimates for each category should be disclosed as separate estimates, with the difference in certainty for each estimate fully explained. [Oct. 26, 2009]

Quality Control of Reserves Estimates and Audits (229.1202)

- Disclose and describe internal company controls used in reserves estimation effort
- For in-house estimates, disclose qualifications of technical person primarily responsible for overseeing preparation of reserves estimates
- For third-party estimates and audits, disclose qualifications of technical person primarily responsible for the estimates or audits

Third-Party Reserves or Audit Reports (229.1202)

- If registrant represents that third party prepared or audited registrant's reserves estimates, or conducted "process review," registrant shall file report of third party as exhibit in filing with SEC
- Contents of report described in 229.1202(a)(8)

Third-Party Reserves or Audit Reports (229.1202) Guidance (Question 154.03)

- **Question:** If an issuer engages a third party to prepare or audit its reserve estimates, or to conduct a process review, of a limited amount of its reserves, does it need to file the third party's report under Item 1202(a)(8) of Regulation S-K?
- **Answer:** If the issuer discloses in its filing that it engaged a third party to prepare or audit its reserve estimates, or to conduct a process review, of a limited amount of its reserves, then the issuer must file the third party's report. [Oct. 26, 2009]

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