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**Letter of Comment No: 5480**  
**File Reference: 1102-100**

June 29, 2004

Ms. Suzanne Bielstein  
Director of Major Projects and Technical Activities  
Financial Accounting Standards Board  
401 Merritt 7  
P.O. Box 5116  
Norwalk, CT 06856-5116

Re: Exposure Draft Proposed Statement of Financial Accounting Standards,  
Share-Based Payment (File Reference 1102-100)

Dear Ms. Bielstein:

We are pleased to provide the Financial Accounting Standards Board (FASB) with a summary of our comments on its Share-Based Payment Exposure Draft (the "ED") dated March 31, 2004. We support the FASB's conclusion that share-based payments should be recognized as compensation cost in the financial statements and that pro forma disclosure is not an appropriate substitute for recognition of compensation cost.

#### **Black-Scholes vs. Lattice Model**

We are encouraged by the FASB's efforts with respect to addressing the valuation issues surrounding employee share options, especially those dealing with the additional guidance in developing assumptions to be used in an option-pricing model in paragraphs B13 through B30. We believe the guidance provided in these paragraphs is much needed and will result in companies having greater consistency in developing their input assumptions.

Valuing a financial instrument that is not traded in an organized market presents companies with unique and difficult problems. However, we believe that existing closed-form models, such as Black-Scholes, produce reasonable estimates of employee option fair value. A lattice (binomial) model might provide a more "accurate" estimate of option value, because of its flexibility; however, we believe that potential benefits of a lattice model are out-weighed by the potential costs or problems of using such a model.

*Occidental Petroleum Corporation's Comments re Share-Based Payment Exposure Draft**Advantages of Using a Black-Scholes Model*

Since its introduction in 1973, the Black-Scholes model has become the industry standard for options pricing. It emerged as the industry standard, even though alternative models were available at the time, for a simple reason: it is the best “general” options model. Compared to other models, the formulas of the Black-Scholes model are straightforward and require few inputs. Like other models, it relies on simplifying assumptions and is not appropriate under some conditions. However, over the past thirty years it has prevailed over other models because of its accuracy and ease of use.

For example, options-related data, such as implied volatility published by the Commodity Research Bureau (CRB), long considered in the industry to be the best source of historical futures and options data, are based on the Black-Scholes model. The leading financial markets data provider, Bloomberg, also uses the Black-Scholes model to compute the options data it publishes.

The majority of options traders employ the Black-Scholes model in their daily valuations. They are aware that it might not always be the most accurate model given the specific option they are pricing. Traders realize however that if they correctly adjust the inputs to the model, the Black-Scholes model will result in a reasonably accurate valuation which will be widely accepted by other traders.

*Disadvantages of Using a Lattice (or Binomial) Model*

If the same six inputs (volatility, risk-free rate, dividend rate, underlying price, strike price, time to expiration) are run through the Black-Scholes model and a lattice model, both valuations will produce approximately the same fair value. See the example in Appendix 1 for an illustration of this comparison.

Proponents of the lattice model say its advantage is that it allows the user to incorporate additional customized assumptions including:

- The post-vesting behavior of employees (i.e., “if the stock price doubles, triples, etc., X% of employees will exercise X% of their options”); and
- Change in certain inputs (volatility, dividend rate, risk-free rate) as time goes by and/or the underlying price changes.

However, the customized assumptions of the lattice model lead to numerous other problems:

- It is more complex and requires more effort to construct than the Black-Scholes model.
- The additional customized assumptions can lead to:
  - Less consistency among companies;
  - More complex models and therefore a higher probability of modeling errors;
  - Poor assumptions resulting in inaccurate valuations (garbage-in garbage-out); and
  - Manipulation of the inputs to achieve desired fair value results.

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Our opinion is that the potential problems associated with the lattice model outweigh its potential benefits. If the customized assumptions listed above are instead simplified, and the time to expiration is adjusted accordingly, then the Black-Scholes model will produce a similar result to the much more complex lattice model.

Anecdotally, we understand that the lattice model generally will provide a lower valuation than the Black-Scholes model.

*Black-Scholes and Network Effects*

Network effects refer to the surprising (and significant) increase in benefits to users of a good or service as the number of other users increase. In the financial community, the network effects of the Black-Scholes model are very strong. Via network effects, financial community members derive significant benefits from the use of Black-Scholes as the single industry-standard options model.

The use of other options models may be more appropriate under certain conditions. However, the network effects benefits of using the Black-Scholes model typically dwarf the small increase in the accuracy of an alternative model. The network effects benefits include comparability of results, ease of use and understanding, and few training/educational requirements. When network effects are strong, the costs incurred by all may be too high to make the transition to a somewhat superior model worthwhile.

The use of an industry standard like the Black-Scholes model allows participants to have a greater understanding and confidence in the valuation results. Having a high comfort level with the model reduces the anxiety around possible manipulation of model inputs or the model itself.

*Conclusion*

Based on the above, we suggest that the final standard should not prescribe the lattice model as the preferred valuation model.

**Use of the Black-Scholes Model**

If the FASB believes it still should prescribe a "preferred" methodology, we would suggest that the final statement provide further clarification about the use of the Black-Scholes model.

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In paragraph B10-B12 and in C24 of the ED, it appears that the FASB "prefers" but does not require the lattice model in valuing employee share options. However, these paragraphs infer that the only way companies would use the Black-Scholes model would be in the following circumstances:

- If a company lacks the historical data on employee exercise patterns;
- If a company's compensation costs are not a significant element of the financial statements; and
- If a company is not a public company or is a newly formed company that does not have historical employee patterns.

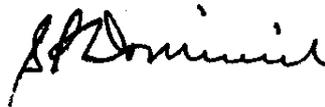
Many constituents have interpreted that unless one of these circumstances exists, the lattice model is essentially required. We do not believe it is the FASB's intention to require the lattice valuation model in every other circumstance. Therefore, we suggest that the final statement clarify that each company can select its valuation model and that the Black-Scholes model can still be used in any circumstance.

**Effective Date**

In addition, we are concerned about the short period of time between the proposed issuance of the final statement and the effective date for calendar-year companies. The period of time between the issuance of the statement and its required implementation should be long enough to allow companies to properly adopt the provisions of the statement. We suggest you consider delaying the effective date of the final statement so that companies can effectively implement it.

We appreciate the opportunity to provide our views on this ED. If you have any questions regarding our comments, please contact me at (310) 443-6009.

Sincerely,



S. P. Dominick  
Vice President and Controller

*Occidental Petroleum Corporation's Comments re Share-Based Payment Exposure Draft*

**APPENDIX 1**

*Comparison of Valuation Methods*

The following table compares the results of the Black-Scholes, Whaley (a Black-Scholes variant), and Lattice/Binomial models.

Assumptions:

- Current Stock Price: \$50.00
- Option Exercise Price: \$50.00
- Years to Expiration: 10
- Annual Volatility: 25%
- Risk Free Rate: 5%
- Dividend Rate: 2%

Model Used	Additional Assumptions	Call Value
European (no early exercise allowed)		
Black-Scholes	Closed form.	\$16.99
Lattice*		\$16.90
American (early exercise allowed)		
Whaley	Closed form. Quadratic Approximation.	\$17.97
Lattice*		\$17.19
American with customized assumptions		
Lattice*	early exercise if stock triples (i.e. $\geq$ \$150)	\$17.17
Lattice*	early exercise if stock doubles (i.e. $\geq$ \$100)	\$16.23

\*Using a lattice model with 32 steps