

## ***“RESERVES EVALUATORS:***

### ***Reduce Litigation Liability Through Defensive Report Preparation”***

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#### Abstract

The statement “There is a potential lawsuit in every reserves report” is unfortunately true in North America and particularly in the United States. The professional petroleum reserves evaluator is responsible for producing a quality product consistent with good industry practices and the stated purposes of the report but occasionally gets drawn into various forms of litigation through no fault of the report preparer. Business decisions made by individuals that place absolute reliance on reserves report volumes and values while being unfamiliar with the uncertainties and limitations of reserves estimation often lead to economic disappointments and sometimes failures. Some of these seek redress in the court system hoping to find a sympathetic jury to absolve them of their own failures, lack of adequate due diligence and often, simple incompetence. This paper outlines suggested practices to minimize the possibility that a court will find a competent evaluator to be negligent and financially liable for any court-ordered penalties. Indemnification agreements are important but cannot protect an evaluator from the results of poor performance or a client financially unable to comply with the terms of the agreement.

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## **Introduction**

**This paper is written from the perspective of the author who has invested more than 40 years as an employee/partner of two internationally recognized oil and gas consulting firms and has experienced first-hand the cost – including time, money and continuing distractions – in defense of unwarranted law suits filed against his employers.**

**Additionally, the author has relied heavily on an unpublished “white paper” <sup>(1)</sup> entitled “The Reservoir Engineering Report in Financial Transactions: A Useful Tool - Neither Panacea nor Placebo” prepared in 1996 by T. William (Bill) Porter and delivered at a Hart Publication conference that year in Houston. Bill is a founder of the Houston law firm of Porter & Hedges. L.L.P. and has specialized in US securities regulation and corporate law for more than 40 years and is fully aware of the business risks of operating a consulting practice and the uncertainties surrounding the estimation and evaluation of petroleum reserves. Additionally, Bill was a principal author of the 1979 “Standards Pertaining to the Estimating and Auditing of Oil and Gas Reservoir Information,” jointly adopted by the Society of Petroleum Engineers (SPE) and the Society of Petroleum Evaluation Engineers (SPEE) - the original generally accepted reservoir engineering standards for publicly-held issuers. Coincidentally, the writer of this paper was the principal author of the updating of these standards by SPE in 2007 as described below.**

**This paper is generally directed toward consultants and consulting firms who prepare independent reserves studies and reports for a wide range of clients. It further contains comments related to minimizing potential misunderstandings and disagreements between consultants and clients. Despite the focus on consulting, much of the recommended practices contained herein can be considered applicable to professional reserves evaluators employed and active throughout all areas of the petroleum industry. Indeed, the potential for oil and**

gas company shareholder lawsuits always exists as investor expectations often far exceed the results actually achieved.

### Reserves Evaluator Standards

The “1979 Standards” referenced above were revised and adopted by the SPE in 2007<sup>(2)</sup> and were expanded to reflect the increasing complexity over time of both evaluation technology and the unconventional petroleum reservoirs being commercialized today.

This author fully supports and adopts Porter’s<sup>(1)</sup> recommendation that qualifying consultants include a statement in their reports that they have adopted (the original version of) the “2007 Standards” as the minimum qualifications of their evaluation personnel regarding relevant experience and qualifications, objectivity and independence. Any deviation by the consultant from these standards should be clearly disclosed in the report.

### Reserves Reports Defined

The term “Reserves Report” can describe any of several types of reports containing:

1. Estimates of petroleum reserves quantities by categories of proved, probable and/or possible reserves
2. Estimates of future production rates of oil, gas, condensate and/or plant products
3. Estimates of net revenues from the sales of hydrocarbon following deduction of all costs including direct taxes and (sometimes) income taxes as specifically directed by the client.
4. A reserves report can be limited to the evaluation of a single well or inclusive of hundreds of fields and thousands of wells.
5. An “Entity Reserves Report”<sup>(2)</sup> should include at least 80 percent of the total reserves (or value) owned by the company under study.

Reserves reports are almost always prepared for a limited and defined use by qualified individuals familiar with the various risks and uncertainties associated with the classification, quantification and evaluation of petroleum reserves. All such reports should clearly state the relevant objectives, data sources, economic assumptions and definitions used in the report preparation.

Porter<sup>(1)</sup> describes his experience with the uncertainties inherent in reserves reports as follows:

“Reservoir engineers objectively apply established scientific principles to observable fact, from which responsible conclusions can be inferred. They are scientists and professionals. However, no amount of engineering skill, experience, integrity or reputation can overcome the fact that in all but the most mature producing fields, one or more of severally equally sound engineering hypotheses can be applied to a comparatively tiny quantum of observable fact, from which much broader conclusions are drawn. Because interpretation often plays such a critical role in the process, dramatically different conclusions may be drawn by equally reputable and highly qualified engineers. All too frequently, financial executives and commercial and investment bankers insist upon independent reservoir engineering reports, then ignore the limitations and qualifications which are either explicitly stated or inherent in the report and yet are surprised when subsequent developments require reserve revisions.” (emphasis added)

#### Client Screening and Selection

Although most consulting clients present no unusual risks leading to litigation, potential new clients should be subjected to careful scrutiny. Obviously, such evaluation needs to be conducted professionally and to sufficient depth in order to avoid accepting “high risk” clients without diminishing the prospects for genuine business growth. The following observations are not intended as a listing of comprehensive screening criteria but do include some topics worthy of consideration.

1. The evaluator must be entirely comfortable with his ability and capacity, including relevant experience, to perform the desired services within the prescribed time frame and budget to minimize the prospects of a dispute over payment by the client.
2. Potential new clients unknown to the evaluator should not object to providing satisfactory references including, but not limited to, their industry knowledge and experience background as well as confirming their financial capacity to timely pay evaluator invoices.
3. Remaining concerns about payment-for-services-rendered may be significantly offset by requiring a partial payment, often as much as 50 percent or more, in advance of job initiation.

4. Another relatively common litigation risk stems from reports used in the evaluation of properties offered for sale and particularly where a concentration of value is confined to a relatively few, often immature, properties.

### Project Engagement Agreements

Although many engagement projects originate through informal contacts between a consultant and a continuing client, a written agreement best survives the passage of time and recollections of the parties. An engagement agreement should reflect, at a minimum, the following:

1. Identification and contact information for the consultant and the client and names of specific individuals representing each party throughout the course of the engagement.
2. A narrative that clearly describes the nature and purpose of the engagement and identification of parties entitled to a copy of the finished report.
3. If the report is an audit of estimates prepared by others, acceptable tolerances in quantities and/or values must be established in advance.
4. Full understanding of and access to sources and types of data necessary for report preparation.
5. Project initiation and report dates – may also establish deadlines for final data receipt and issuance of a draft report.
6. Estimated project costs – typically may be a fixed fee contract, a “not-to-exceed” amount or based upon time and hourly fees plus expenses.

### Indemnification Agreements

Most established consulting firms require clients to agree to and sign an agreement insulating the consultant from the potential liability of litigation arising directly or indirectly through its association with the client. Unfortunately the protections ostensibly afforded through a carefully crafted indemnification agreement can erode quickly upon the financial collapse of the client.

Evaluators are urged to seek competent legal advice in crafting an agreement that conspicuously and boldly disclose the terms of the agreement and represents the clear understanding of the parties regarding these terms.

Such agreements do not and should not protect report authors and consulting companies from the consequences of their incompetence, negligence or unethical behavior.

### Confidentiality Agreements

Although all consulting agreements are to be considered strictly confidential, with or without a formal agreement, the parties usually agree to terms that prohibit the consulting organization from disclosing any non-public information provided by the client to anyone for a defined time period. There are also provisions common to most confidentiality agreements that require the consultant to inform the client of any court-authorized attempts (subpoenas, data requests, interrogatories, etc.) to access or copy any information in the report files. The client will almost always elect to retain the right, but not an obligation, to seek appropriate legal remedies to keep certain data and information confidential.

### Report Caveats and Disclosures

Many, perhaps most, consultants typically issue reports containing somewhat “standard” caveats including terms or phrases such as:

The reserves included in this report are estimates only and should not be considered as being precise quantities. The quantities may or may not be actually produced as forecast and the revenues from sales and the actual expenditures incurred could be more or less than the estimated amounts. Further, estimates of reserves may be subject to positive or negative revisions as a result of future operations.

The process of estimating petroleum reserves of oil and gas is complex and requires numerous decisions and assumptions in the evaluation and interpretation of geological, geophysical, petrophysical, engineering and economic data for each recognized reservoir. Any significant variance in these assumptions can materially affect the estimated quantity and value of the reserves in this report. Accordingly, such estimates are inherently imprecise.

The estimated present value of estimated future net revenues shown in this report should not be construed as the market value of the oil and gas reserves attributable to the properties.

The paragraphs above, while absolutely correct for virtually all reserves reports, may not adequately capture and expose the risks and uncertainties related to any single report. As a result, recommended additional and specific caveats and/or disclosures could include statements similar to the following:

Approximately \_\_ percent of the estimated proved reserves were determined using the volumetric method without benefit of significant performance information. An additional \_\_ percent of proved reserves

were estimated through use of performance methods including time-rate and material balance graphical projections. The remaining \_\_\_ percent of proved reserves were estimated using a combination of conforming methodologies. (Similar analyses for other reserves categories)

Undeveloped proved reserves are attributable to operator-provided development plan(s). Any significant alterations or delays in the development plan(s) incorporated in this report may materially affect the estimates of all reserves categories.

Not included in the above generalized caveats or disclosures are those necessary to describe atypical fields and reservoirs including, but not limited to, enhanced recovery projects, heavy oil recovery projects, ultra deep water fields, thermal recovery projects, fractured carbonate reservoirs, oil and/or gas from shales or coal seams, etc. Each of these circumstances, if material to the report conclusions, may warrant additional narratives to describe related risks and uncertainties.

#### Data Sources and Authentication

A professional evaluator is obliged to seek, obtain, consider and use as appropriate any credible data from all sources including, but clearly not limited to, that provided by a client. Data gathered should be included as a part of the assignment work files. Data collected and not used in the assignment should be identified along with a notation about why such data were not utilized. Particular attention should be given to information collected after the effective report date as the use of such post-report data may be inappropriate.

Most evaluators include language in their reserves reports that they have accepted and relied upon data and information provided by the client. This is done for obvious reasons as virtually all factual data result directly from measurements collected by the operator at or near the source of hydrocarbon accumulations and production facilities. Nevertheless, an evaluator must subject all information to the test of completeness and reasonableness. Indeed, the evaluator may require a non-operating client to request addition pertinent information from the property operator(s).

Data verification is especially necessary for all information that appears to be aberrant or inconsistent with a preponderance of other similar data. Exclusion of inaccurate or questionable data is a decision that must be made by a competent evaluator and such exclusion should be well documented in project worknotes. Similarly, economic information such as capital and operating costs and revenue information should be tested for reasonableness based on

experience with similar properties and operating conditions. Questionable information should be submitted to the client for validation and/or correction. Again, such will be noted in the project worknotes.

Occasionally, a client may request one or more “sensitivity” evaluation cases using higher or lower prices, operating and/or capital costs and possibly alternate abandonment cost scenarios. Even though such client-provided parameters are disclosed in the report, such assumptions should generally pass the test of reasonableness in preparation for the inevitable conclusion that the evaluator tacitly endorses the viability of such alternate cases.

### Personnel Assignments

Engineers, geologists and other professionals assigned to lead a reserves evaluation assignment should clearly possess the requisite qualifications of education and experience to demonstrate competence necessary to complete the job. Many states in the US and provinces in Canada require that project leads (and signatories to a report) are licensed, certified or otherwise qualified by the appropriate governmental agency, licensing board or recognized professional organizations.

Often overlooked in the comparison of evaluation firms is the quality and experience of the entire evaluation team including technicians and other administrative personnel. Every individual contributing to the preparation of a reserves report must recognize the importance of their input and their responsibility toward the overall report quality. High quality reservoir analysis can be nullified by simple mistakes through the over-confident use of evaluation software and/or in the final report assembly and printing. The admonition is to check, check and re-check!

### Corroborating Methodologies

Even though a given property may be at a state of maturity where one evaluation methodology may clearly be appropriate, there is value in attempting to establish confirmation of results through another procedure. For example, even though relatively immature properties may require primary reliance on a volumetric assessment, there may be enough early performance indications to either validate, or potentially invalidate in part, the volumetric results.

Over time, performance-based methodologies often become more reliable but the volumetric results may still have value in corroborating performance-derived estimates.

None of the above is intended as specific guidance directed toward the preparation of reserves estimates but continued respect for different methodologies does at least suggest prudence of the evaluator in seeking the most reliable and defensible conclusions.

### Worknotes - Creation and Retrieval

It is this writer's opinion that the best defense against allegations of negligence or incompetence is to create (and maintain) a set of worknotes that clearly reflect the workflow and decisions made by competent evaluators throughout the course of the job assignment. Ideally, worknotes should be sufficiently clear and complete so that any engineer or geologist within the evaluation firm could explain the file contents to anyone familiar with the evaluation process.

Turning again to the guidance offered by Bill Porter<sup>(1)</sup>, he states:

“Finally, the engineer should remember if litigation results, the burden will be on him to establish the adequacy of his diligence and the consistency of his engineering interpretations with professional standards. Without adequate documentation of what he did and why he did it, he will have a difficult time making that showing. Plaintiffs will always be able to find at least one other engineer who – for a fee and with the benefit of hindsight – is willing to “second guess” the engineer's work. If the service providing engineer has not maintained a good documentary trail to support his opinion, the second guessing of the plaintiff's expert will likely carry far more weight with a jury than would otherwise be the case.”

Porter's advice is as timely now as ever but the advance of technology since his 1996 paper have greatly complicated the assembly and maintenance of a project work file. Email correspondence has replaced hand-written notes taken during meetings and phone conversations. Few of these are routinely printed and saved in a job file and may be difficult to locate a few years after creation. Moreover, the use of emails has caused a degree of “casualness” to creep into business communications, making emails the new “smoking guns” in the event litigation arises. As a result, this writer recommends that all engineers, geologists, and other professionals should exercise care in drafting the content of *every* email that is sent, both internally and externally. Emails should be viewed as formal business communications, not casual conversations. An easy rule of thumb: If you would not want the email reprinted on the front page of the Wall Street Journal, don't send it.

Much of the performance data, including production and pressure information, may have been analyzed through various graphical displays without ever being printed and preserved on paper. Maps and cross sections may have been created electronically based upon log analysis results similarly derived. Paper copies of logs may have never been received, used or even printed for records keeping.

Locating all necessary digital data and recreating these interpretative records a few years later may be virtually impossible in instances where commercial software has been upgraded with earlier versions no longer available.

It is beyond the scope of this paper to recommend individual company or individual evaluator policies and practices for preparing, storage and ready retrieval of all project workpapers. However, each such individual or organization should carefully consider the potential cost of not being able to both (1) reproduce a full set of workpapers and (2) explain and defend every critical step in reaching all relevant estimates and conclusions presented in a reserves report.

#### **Records Retention Policies**

The establishment of a records' retention policy is a topic best addressed by the evaluator and/or his/her employer with guidance from legal counsel. Existing practices may need to be re-evaluated in light of concerns about litigation and conforming to applicable laws within the state, province or country where the evaluation practice is located.

#### **Draft Reports**

Report drafts are commonly provided by the evaluator to the client for several purposes, none of which is related to the independent conclusions reached by the report preparer. The purposes of providing a draft are numerous but usually include allowing the client to provide final confirmation for the following:

1. Completeness in the inclusion of all relevant properties
2. Correct ownership interests and entitlement terms
3. Updates in producing status of any property
4. Report format: Levels of sub-totals and totals
5. Any additional report caveats and disclosures
6. Final distribution lists

#### **Final Reports**

The content of a final reserves report should be discussed with the client but should clearly contain (1) the purpose of the report (2) a discussion of all relevant facts and conclusions that may be necessary for a complete understanding of the report contents, and (3) a detailed tabulation by years of estimated future production rates, costs, income and net revenues – either before or after income taxes. SPEE Recommended Evaluation Practice No. 1 <sup>(3)</sup> contains a detailed itemization of the recommended elements of a petroleum reserves report.

### Third-Party Reliance on Reserves Reports

Porter<sup>(1)</sup> describes several topics that should be considered by investors or their representatives in order to “bridge the gap between science and finance”. Several of those are restated below in abridged form:

- Consider the overall reserves mix particularly if a significant portion of the reserves quantity and value are not proved developed producing.
- Meet with the reserves engineer away from the presence of his client to inquire about any matter that may affect economic risk. Of course, such meetings must be conducted only after receiving the clear consent of the client.
- Inquire about any particular or unusual technical risks that concern the engineer including any uncertainties associated with any complications associated with the reservoir geology.
- Consider the maturity of production history.
- Remember the principle of risk diversification is assessing the suitability of investments in the relevant properties.
- Finally, remember that the suitability of any investment lies in the hands of the financial professionals and cannot responsibly be shifted to the reservoir engineer.

### Fair Market Value

Occasionally, an independent evaluator is asked to provide an estimate of Fair Market Value (FMV) for certain oil and gas properties. Such assignments are most commonly related to valuations of assets of an individual upon his/her death. Occasionally, a FMV estimate may be needed in connection with the determination of damages ostensibly owed by a defendant in a lawsuit.

Most consultants recognize their inability to independently determine the true market value of any asset without full cooperation and input with individuals

from the financial, accounting and legal community. According, most engineer-created FMV reports contain a caveat similar to that following:

FMV as used in this report is defined as the estimated value which might be agreed upon by a willing buyer and a willing seller for the subject properties, both being competent and knowledgeable of the material facts and neither being under compulsion to buy or sell. The estimate of FMV is an opinion based solely upon engineering and geological analysis and the use of evaluation techniques and methods generally accepted by the petroleum industry. The actual FMV agreed to by a buyer and seller is the result of economic and business decisions and may be more or less than the FMV presented herein.

Further, the FMV letter often (or at least should) contains an additional caveat:

The FMV reported herein is further subject to all assumptions and conditions described in the accompanying reserves report.

#### Professional Liability Insurance

Anecdotal information indicates that few, if any, North American consultants currently have professional liability insurance coverage. Reasons include the perceived high premium costs relative to the coverage and a common perception that large insurance policies can actually attract litigation.

Errors and Omissions (E&O) insurance, also called professional liability insurance, is designed to protect consultants from litigation alleging negligence, incompetence, or otherwise bad advice. There is no standard professional liability policy for consultants. Each insurer will offer its own coverage. A detailed analysis of the insurance contract is required to judge the coverage offered. The exact definition of "wrongful act" can affect coverage. What is specifically excluded from coverage? Does the insured have the right to refuse a settlement offer in a claim? Does the policy pay on behalf of the insured or indemnify the policyholder?

E&O insurance ostensibly protects consultants from allegations of a "wrongful act" typically defined as "an act, error, omission, misstatement, misleading statement or neglect or breach of duty". Excluded are claims resulting from an employment injury or employment practice. Professional liability insurance protects a consultant from allegations that a consulting job was not done properly or that the job was not done well enough. Liability insurance should pay for the cost to defend a lawsuit. Some errors and

omissions policies pay defense costs from within the policy limits. For example, if you have a \$1,000,000 policy, the cost of your attorney is part of the maximum payment of \$1,000,000.

Each evaluator or consulting company should consider their unique circumstances and clientele in electing to seek full or partial protection through liability insurance. Evaluators should also seek legal advice in the various forms of organizational structure under which they practice to develop the most favorable tax and liability position.

### In Conclusion

Even though most reserves reports are authorized by, and limited to the exclusive use of, industry-qualified individuals cognizant of the risks and uncertainties associated with reserves estimates and reserves categories, the preparer should always consider the possibility of either unauthorized, or at least, unqualified individuals obtaining a report copy and placing blind reliance on forecast quantities or monetary amounts they see on the printed page.

Hence the recommendations herein for reserves evaluators to take precautions to carefully craft each and every report so that even an untrained user will be placed on clear notice about the inherent risks and uncertainties in reserves estimation and revenue forecasting.

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- (1) "The Reservoir Engineering Report in Financial Transactions: A Useful Tool - Neither Panacea nor Placebo" prepared in 1996 by T. William (Bill) Porter and delivered in Houston, TX at a Hart Publication Seminar (unpublished)
  - (2) "Standards Pertaining to the Estimating And Auditing of Petroleum Reserves Information" (Auditing Standards approved concurrent with the Board approval of the SPE/WPC/AAPG/SPEE Petroleum Resources Management System (PRMS) in March 2007),  
[www.spe.org/industry/reserves/audit.php](http://www.spe.org/industry/reserves/audit.php)
  - (3) "SPEE Rep #1 – Elements of a Reserves Report",  
[www.spee.org/ReferencesResources/index.html](http://www.spee.org/ReferencesResources/index.html)

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