

# APPRAISING OIL & GAS PROPERTIES

A Newsletter for Appraisal Professionals

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Well, here it is Fall already - the last time I looked it was early summer. The weather is beginning to cool off, so far we have gotten through the fire season without any major catastrophes, the number and variety of ducks in the pond is increasing, the beaver are building furiously, and the horses and dogs are getting shaggy-haired as never before. We could use a good, wet winter this year. The Christmas decorations are going up in the mall, we are getting about 20 mail order catalogs every day, and I have dropped numerous hints about appropriate toys that say Craftsman. Granddaughter #2 is walking and ready for Halloween; time to move all our worldly goods out of reach and to watch out where you step - there may be a short person behind you. Fall is a great time for working on our place in the mountains. I have to get out the deer feeders, patch up the woodpecker holes, and clean up the toboggan run into Dismemberment Gorge. We have decided to start naming the years much as the Chinese have the Year of the Dog, etc. In our case 1996 has been the Year of the Plumber and next year will be the Year of the Paintbrush. The football season isn't going all that well; our guys lost to Cal - oh! humiliation - and will probably have to buy tickets if they want to go to the Rose Bowl. Of course, we are in the midst of an election here too, but my editor said to keep my opinions to myself so there will be no cracks about You Know Who in this issue. Vote early and often.

It has been a pretty good year here at our little outpost in the state of confusion. We took time out for an excellent SPEE meeting in Aspen and the WSPA Tax Forum in September but aside from that we have been head-down and tail-up since May with one project or another. Busy is good - interesting is even better and it has been that too! For one thing lien date in California changes to January 1 this year so all the stuff, like our WSPA study, that I used to slough off till February has to get done - well, about now. Work has been completed by the SBE on the new oil and gas appraisal manual which will help to bring California assessment practice into the late 20th Century. Congratulations are in order to the SBE staff and board members who endured months of argument and sifted through tons of documentary submissions to reach a well-reasoned and well-written guidebook to appraisal practice. Along the way, the Board made some useful decisions about specific issues that will help to dispel 30 years of confusion. See SBE pg.8.

In our last issue ( May '96) we ventured into the courtroom to see how things have changed for appraisers and expert testimony as the result of some recent court decisions. The courts are great sources of material and we found plenty. As exciting as that was, however, it is time to get back to appraisal issues. Our work on the SBE manual and several of the more salient issues in a recent appraisal has engendered some prodigious pondering about the importance of language and the use of words in our business. Unlike many appraisals which tend to be functions of the discount rate, this particular case centered on differing interpretations of Fair Market Value and Proved reserves.

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These are interesting topics, of course, and have also been talked to death by a lot of folks but maybe one more time around the barn would be useful -- from a practical standpoint. So, for the next three newsletters -- barring some singular event or collective yawn -I thought we might discuss Fair Market Value, Reserves, and Risk; generally in that order.

Whilst pondering these momentous issues, (and believe me there is no better place for such pondering than sitting on your duff for several days in a hard-backed, butt-sprung seat in a hearing room) it soon became apparent that, despite all the bluster, the dispute comes down to interpreting the meaning of a few commonplace words that most of us pass over quickly and take for granted. Very modest differences in the wording of various definitions of fair market value, proved reserves, and concepts of risk can be built from molehills into mountains in no time at all. Of course in the venue in which I was ensconced what else would you expect?

All this pondering led up to a not-so-startling revelation.

Words are Important! Whether written or spoken, words are the medium of exchange between and among reasonably intelligent beings. Words, supplemented in some cases by actions, are the causation for many of the things we do and may influence the *way* we do those things. Carefully chosen and used words can motivate, uplift, and enhance relationships, improve our prospects for success, and help to bring about positive results. On the other hand, we often find ourselves in the "I wish I hadn't said that" mode for one reason or another. The eloquent use of words created nations ("When in the course of human events..."), initiated representative government ("We the people..."), communicated sacrifice ("We are met on a great battlefield of that war."), and honored heros ("Never have so many owed so much to so few."). Words institute marriages, create new faiths, destroy empires, and record the passage of Man from ancient Summer to the craters of the Moon. The choice of words and their usage in something as simple as a subordinate clause can result in arguments that go on for hundreds of years: "A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed." Never underestimate the power of the lowly comma.

On the more mundane level, words are required for virtually everything we do throughout our day. They record our victories, our defeats, our joys, our despairs, and our frustrations ("Files not Found"). One of the fascinating attributes of the English language is that it has so many words and so many aggravating ways to use them. Think about it--literally thousands of words--each of which conveys a meaning of it's own--and most of which you and I have never heard let alone used. The really fun part is that some of those words mean one thing in one context and something different in another. Parts of English can be very expressive and yet other words are so subtle that you don't know if you have been praised or cut to ribbons. I know of only one other language that is more expressive than English--that is Yiddish. There is no English word that conveys the same meaning as "Chuzpah", at least not in mixed company. Chuzpah, loosely translated, means, "I am taking credit for this Welfare Reform Bill even though I vetoed it twice and promise to change it if re-elected."

Most of us can get along in our daily lives with a limited use of words. I can communicate reasonably well with most of my relatives by grunting and pointing. The exception is Granddaughter #1 who requires long explanations, is prone to debate any issue, and will cheerfully point out my errors in logic. But for most of our personal interactions, great eloquence is not required.

Our professional activities are something else. What we do as appraisers, or evaluators, or operators, or suppliers of capital to the oil and gas business is very much dependent on our use and understanding of words. They can make the difference between being able to pay that college tuition or not. Which sort of, finally, brings me to the point.

## FAIR MARKET VALUE

### A Conundrum

Three suave and urbane professionals -- an appraiser, a petroleum engineer and a lawyer--walk into a bar. (We could have had a geologist but this is serious). After ordering a round, the engineer said to the bartender, "Did you hear the one about the talking dog?" To which the bartender said, "Yup," whence the conversation turned to more substantive issues. The appraiser said, "I have a problem. I have a property owned equally by two public companies where both companies, after working together on a detailed geologic and reservoir study, decided to either sell or abandon the property. After three years of trying to sell their interests--and no acceptable offers--Party A essentially paid Party B his share of the abandonment cost, gave him the keys, and told him to turn out the lights when he left." The engineer responded, "So what's your problem?" To which the appraiser replied, "Well, I am appraising a similar property for almost the same date as the AB transaction and I want to use AB as a comparable sale but I am getting conflicting opinions as to whether or not the AB transaction is Fair Market Value. I think it is, but I talked to another fellow who says it was not an 'arm's length' deal--whatever that is. What do you think?"

The engineer looked thoughtful for a minute and then said, "I think I'll have another beer, but if I were you I would apply the old duck test--you know--if it looks like a duck, walks like a duck, quacks, etc., it must be a duck. That's what I would do." The lawyer, however, was not so sure. "Well, it could be," he said, "but then again, maybe not, it could be fair market value but it may depend on the purpose of the appraisal and where it is being used, and of course whether you have the facts right. That's what I would say. 'It depends'." The appraiser appeared frustrated and said, "Fat lot of help that is--I like the duck theory better." The lawyer quickly responded, "That's all fine, well, and good but you have to determine what kind of duck it is and in whose pond it is swimming." To which the engineer, between pretzels, said, "Leave it to you to fuzz things up."

The above conversation is real, only the location has been changed to protect everyone's expense account. The negative value is a common occurrence the market for oil properties these days but that is not the issue. The issue is: Is the transaction fair market value--and if not, why not?

In researching this subject in preparation for a more formal sharing of views than the one in which our three friends participated, I found a number of well written critiques and discussions of fair market value (FMV), some of which dissected the phraseology and others which went into lengthy dissertations on the application of the definition(s) to certain types of appraisals. <sup>(1),(2),(3),(4)</sup> There have even been forceful arguments that the term "fair" was unnecessary and we should use only "market value." It is enough to say that the subject that has generated a lot of paper. One would expect that this was a controversial subject but the evidence for that conclusion is pretty sparse; the controversy seems to be in how to estimate FMV. Most of the writings in the oil business regarding FMV start with an obligatory but cursory discussion which includes the author's favorite definition and then slide into the latest method for estimating value. We rarely get wrapped up in the definition - we just seem to know what is meant. Even so, appraisers, such as our friend above, occasionally have difficulty with FMV conclusions precisely because one or more of the conditions of the definition in use are at issue.

There are really two facets of this discussion which effect property appraisal. One part concerns the estimation of market value for a property that has not been sold. The second part is concerned with determining whether sales that have occurred are FMV. The best source of information regarding market conditions and the attitudes of buyers and sellers is the analysis of sales that have occurred in the relevant time period. These sales represent market perceptions of value at a point in time. If these sales are to be used to help us estimate the value of other properties they must be FMV transactions. The definition of FMV must be the same for comparable and subject.

### Just What is Fair Market Value Anyway?

I currently find myself on a number of committees composed of earnest researchers and all of which are attempting to accomplish something useful. One of these groups of eager missionaries has been assigned the task of describing, dissecting, and otherwise delving into the secrets of Fair Market Value, inquire into the relationship between various forms of FMV, explore the role of reserves and risk and other weighty matters in estimating FMV, and to then report back, preferably before the millennium. I doubt that the latter goal can be met given the ambitious scale of work that is plotted on the map for this expedition. Reading over the outline and mentally converting it to a project schedule, I kept getting this picture of one of those pre-Columbian maps that had a small area of KNOWN WORLD (always in the middle), several areas showing the purported homes of bizarre creatures, and a large area labeled "Here There Be Dragons". (Not dissimilar to a map of Southern California) I rolled the dice and moved to Square One which is to be a comparison of the definitions of Fair Market Value. Blowing the dust off several old books, I found that there are numerous FMV definitions. Some are associated with professional groups, but there are also colloquial usages, and, of course, legal definitions.

Since we are attempting to deal with the appraisal of oil properties, a review of industry definitions might be useful. A commonly used oil industry definition, quoted by Garb,<sup>(5)</sup> is as follows:

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"...the amount a willing buyer will pay a willing seller, with the property or interest exposed to market for a reasonable period, neither the buyer nor the seller under any compulsion to buy or sell, both being competent and having reasonable knowledge of the facts."

This quote is the same as that offered by Arps<sup>(6)</sup> and other writers and which occur throughout industry literature. It would appear that most of us work with a definition which is generally understood and accepted and which has been passed down from generations past. I also found that the real estate appraisal business has several definitions of their own which get wide usage. Probably every group of appraisers has a description of FMV for their particular interest. Many of these different definitions exist for a specific reason. Professional groups may use a specific definition in order to calibrate the work of their members. Local or state law may require a specific form, particularly in eminent domain or tax situations. For the most part, however, the variations are composed of a word here or there, and a few rearranged clauses - at least at first glance. Since in modern practice, it is likely that sooner or later an appraisal using one of these definitions will end up in court, it may be that a good place to start is with the legal one.

### ***When In Court***

One would think that it would be simple to say, "The legal definition is ...." and be done with it - Off with his head! Would that it were truly so simple. There are even quibbles about the value of legal opinions. One author disparages court opinion as mere description; not a definition. There may be a difference between a description and a definition but I fail to see it and the author studiously avoided defining a description or describing a definition. I purpose trial by combat - let the author testify that his preferred definition supersedes the court's favored description and see who wins. Of course, the law being the way it is, there is more than one legal definition - every court that has ruled on a valuation case seems to have felt the urge to contribute new prose to posterity. One legal description that has held up well is the *Heilbron* decision which defined fair market value as:

"The highest price estimated in terms of money which the land would bring if exposed for sale in the open market, with reasonable time allowed in which to find a purchaser, buying with knowledge of all the uses and purposes to which it is adapted and for which it is capable of being used." [Sacramento Southern R.R. Co. v. *Heilbron* 156 Cal. 408, 104 p. 979 (1909)]

The *Heilbron* language remains a standard and probably served as the source for the "industry definition" quoted above. *Heilbron* has been criticized as having no reference to point in time or the date at which value is to be determined. The import of this issue is debatable - value has to be determined as of some date - so the inclusion of a statement about value on a specific date may be somewhat redundant. I suspect the California Supreme Court figured that out. Considering that the English language was in much better condition in 1909 than it is today, *Heilbron* gets the idea across with a relative economy of words. It is succinct yet descriptive with enough elasticity in the terms and phrases that it does not bind. As legal stuff goes, it is even understandable. Digression: If a law is written such that it cannot be understood by those to whom the law applies can or should it be a enforceable law?

In later years, circa 1955, the California Supreme Court said that market value is:

" . . . the price that property would bring to its owner if it were offered for sale on an open market under conditions which neither buyer nor seller could take advantage of the exigencies of the other." [DeLuz Homes, Inc. v. County of San Diego, 45 Cal. 2d 546, 561-62]

The California Revenue and Taxation Code broadens the language a bit by adding "...and both with knowledge of all the uses and purposes to which the property is adapted and for which it is capable of being used and of the enforceable restrictions upon those uses and purposes." Except for that last (emphasis added) phrase, which gives credit to the expansion of regulatory power since 1909, and a concern for exigencies, we are right back at the *Heilbron* text. DeLuz is an update of *Heilbron*.

I have used California definitions because they are most familiar to me - your state and local jurisdictions no doubt have similar definitions even if the words are modified.

### ***Just Give Me a Home***

In the absence of a mayor body of appraisal literature, oil and gas appraisers fall back on the real estate industry for help in some of the more esoteric aspects of FMV appraisal. Judging by the volume of such information these guys do not have enough to do. The definition of Fair Market Value found in the "Dictionary of Real Estate" (DRE)<sup>(7)</sup> is apparently rooted in *Heilbron* but differs in some interesting ways, to wit:

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with buyer and seller each acting prudently, knowledgeably and for self-interest, and assuming that neither is under undue duress."

Here is an instance where words are important. For one thing there are too many of them. Of more concern, however, increasing the number of words does nothing to promote better understanding. My guess is that this definition was written by a committee of 8-10 real estate appraisers each of whom was allowed to contribute one phrase. This appears to be the definition preferred by The Appraisal of Real Estate<sup>(8)</sup> and by most real estate texts. It is surpassed - and made to seem the epitome of cogent prose - only by FIRREA. (You remember FIRREA, the Financial Institution Reform, Recovery and Enforcement Act of 1989 which was the federal government's attempt to "save" the S&L industry and which ended up sinking the whole shebang.) The FIRREA definition is three times as long as DRE and repeats itself at least twice. It is the only definition that The Appraisal of Real Estate finds that it must explain.

## ***What Does That Mean?***

So, let's go back and review some of the conditions sprinkled through our definitions and consider how they can be applied to our daily work as appraisers. We can do this by comparing and discussing the *Heilbron/DeLuz* and DRE definitions. Right at the start, the DRE makes a major change from *Heilbron* by replacing 'highest price' with 'most probable price.' Most of us realize that 'most probable' is not necessarily the same as 'highest', but what is 'most probable'? Note that *DeLuz* simply says "...the price..". The difference can cause problems. The classic example, of course is a certain transaction in the late 1970's where a sale elicited several offers at around \$1.2-1.4 Billion and a highest bid at over \$2.0 Billion. If you are operating under the 'most probable' approach but another appraiser is targeting the 'highest price' which is the correct value for the property?

How do we solve the 'highest', 'most probable', or plain old 'price' issue? Obviously these terms are subject to some interpretation based on our individual experience and point-of view. For now we will use mine. Clearly 'highest' is not necessarily 'most probable'. 'Highest' brings to mind the Bigger Fool Theory, while 'most probable' suggests a consensus price among knowledgeable folks. But if you are appraising a property you are estimating value so how do you differentiate between highest and most probable. This is not as obvious as it seems - you cannot simply use the case with the highest production or price projection without the risk of running afoul of the knowledgeable and prudent criteria. If we assume an open market circumstance where several equally knowledgeable and informed potential buyers evaluate and make cash offers on a property can we also assume that the offers will be reasonably close? Possibly - but additional circumstances may come into play. I have a list of sales from the early 1980's where buyers with more money than sense went bananas and sellers chuckled all the way to the bank. Sanity has since been restored. If 'highest' price is presumed to refer to the commonly accepted economic and market conditions which prevail for properties at the time of the sale, then 'highest' could be essentially the same as 'most probable'. A transaction based on economic or other criteria that was significantly different from the criteria used by other players in the market might well produce a 'highest' value but that begs the question - Can one player be a market? - particularly if that player is at variance with the rest of the market?

On the other hand, if we note that *Heilbron* (1909) preceded most of the zoning and 'highest and best use' (H&BU) ideas that now influence land use, then 'highest' could be thought of as an attempt to capture those concepts without stating or defining them. Moving along in time to *DeLuz* (1955), we assume that the court has now absorbed the H & BU concept as part of the enforceable restrictions, then 'price' or "most probable price" may be sufficient. Compare the *DeLuz* language, "...the price that (the) property would bring.." to the industry definition "... the amount a willing buyer will pay to a willing seller.." and we see very little difference if any. In the absence of any more recent contribution, perhaps the industry/*DeLuz* criteria is sufficient.

Next, we find an expansion of the form of exchange in the use by DRE of two new terms or phrases - "...reasonable exposure in a competitive market.." and "...conditions requisite to a fair sale." Let us take the time issue first. *Heilbron* says, "...reasonable time..", industry says "...reasonable period.." and DRE says "...reasonable exposure..". There is no difference. But, what is a reasonable

time? The stock market is instantaneous. I bought a house once almost before the "For Sale" sign stopped quivering in the front yard but it took a year to sell the previous house. If the market is 'open' and/or 'competitive' is 'reasonable time' a day, a week, 6 months? Reasonable exposure in one market may be two weeks while in another it could be six months. How long does it take word to travel through the tunnels and across the street in Houston? Is 'reasonable period' shorter if the seller sends out data books or sets up a data room? What if the time is fixed by a deadline for sealed bids? Does it have anything to do with the outcome? If a property is on the market for two months before it sells is it necessarily a better measure of the market than one that sells in two weeks? One measure that has been suggested is to use an average of the time that similar properties are on the market before they are sold. Anyone see any flaws in that idea?

Moving along, what is meant in DRE by a 'competitive market'? How many buyers are necessary to create competition? What form does competition take? What are the 'conditions requisite to a fair sale'? Are they the same as the conditions that create a competitive market? If not, how are they different? Further, how are these conditions - for either competitive market, fair sale, or both - different from the conditions listed in DRE as, "each acting prudently, knowledgeably, and for self-interest". Are they not the same? Why string together a bunch of phrases or collections of words that sound important but add nothing to our understanding. The DRE definition is like a hat rack with 10-20 pegs just waiting for some lawyer to find one of them on which to hang his legal Stetson. I'm not really picking on DRE, it just seems that way.

Cannot we presume that a marketplace where buyers and sellers are acting prudently, knowledgeable, and in their respective self-interest is a competitive market? Both *Heilbron* and *DeLuz* use "...open market..." while industry simply refers to "...market..." The DRE substitutes "...competitive market under all conditions requisite to a fair sale". That's nine extra words. What is an open market? In residential real estate, a seller lists his house with an agent who puts it in the multiple listings, potential buyers mosey through with their kids, and then presumably serious buyers make offers, sellers scoff, and eventually there is agreement on a price. This is a reasonably open market - everyone who is interested in buying a house on a particular day has access to information about a large number of properties and can make an offer on any of them. Commercial real estate is not especially different.

The market for oil properties is not so convenient; there are no multiple listings. However, properties are offered for sale through investment bankers, consultants, and media ads. I read in a magazine the other day that there is now a multiple listing for homes on the Internet. Can oil properties be far behind? A large number of properties have "For Sale by Owner" signs on them and it doesn't take long for interested buyers to find out about a property for sale. There are 2-3 auction companies selling smaller properties on a pure bid basis.

But is an open market necessarily a competitive one? The residential market is open but is it truly competitive? Aside from the "I should tell you there is another couple looking at the house", which is used by the realtor to keep you from low-balling your offer, buyers do not compete directly, there is no auction. In contrast to the stock market, there is limited competition in the real estate market. The market for oil properties is often more competitive than residential real estate. Sellers

send out data books and invite competitive offers from qualified bidders. But even if there is no data book or sealed bid offering, simply making it known that a certain property is for sale is often sufficient in a relatively small community such as the oil business. The location of the market may be important. There is a small but active market in oil properties in Bakersfield and I can imagine a similar situation in Midland or any other place where Oily-Americans hang out. A market does not have to be a specific location or event but could be any place where information may be exchanged.

One of the parts of some FMV definitions that causes concern is the effect of duress. DRE goes so far as to say "...undue duress". How much duress is 'undue duress'? A seller normally wants to sell and a buyer normally wants to buy but is that duress? The *Heilbron* definition makes no mention of duress while *DeLuz* refers only to "exigencies". Here the industry definition is more informative by saying "...neither the buyer nor the seller under any compulsion to buy or sell." Compulsion seems easier to understand than duress. Being compelled to buy or sell would seem to be a limited circumstance. *Heilbron* presumed we would know a fire sale when we saw it. Going bankrupt or divorce is duress - needing to sell you house because of a transfer may or may not be duress. We could probably take a poll on the latter. Here's a ponder point - if the agent tells every potential buyer that the price on House A is "flexible" because the seller has been transferred or must close on another house in two weeks, is this a sale under duress? Is anyone taking advantage of 'exigencies' here? By the way, is there such a thing as good duress? If I am offered 10 times what I think the property is worth should I not sell the property or risk feeling really dumb? Is that duress?

On a larger scale, if an oil company decides to sell all its producing properties in a certain state in order to invest elsewhere, is that compulsion or duress? What if the "duress" is not specific to a property but is a prevalent condition in the market, is it truly duress or a change in the market affecting all properties? I would suggest that the duress or compulsion must be specific to the buyer or seller in a particular transaction - not a condition that would be common among buyers and/or sellers.

Having resolved the duress issue, how do we define "buying with knowledge of all the uses and purposes to which it is adapted and for which it is capable of being used". *Heilbron* was conceived with regard to land, period, (in a time before zoning and best use considerations) and, further, presumed a buyer capable of determining the uses and purposes of the property. The basic purpose and use of oil properties is no mystery but the concept may include expanded drilling, enhanced recovery, or simply improved operations. A buyer lacking in the knowledge or experience to evaluate the property in the context of all potential uses could be successful in acquiring the property but would not necessarily create a 'market' value. The industry definition requires both buyer and seller be "competent" and to have "reasonable knowledge of the facts". This is not asking a lot, but, we do have to be careful to define competence? Assume 10 bidders have identical facts about a property and that the highest bid is twice the lowest bid and 40% above the average. Who is more competent - the low bidder, the average bidder, or the highest bidder? If 8 of 10 bidders cluster about the average, does that mean that the outliers - the successful buyer included - are incompetent? If not, what are they? Of course, buy and sell decisions are made for reasons that often go beyond the appraised value of the property so competence may be hard to judge. On the other

hand, each of us probably has at least one story about people who were too dumb to get out of bed in the morning who nonetheless bought an oil property with visions of being the next Jed Clampett.

We will touch briefly on the last point - the "...enforceable restrictions..." phrase in *DeLuz*. When this opinion was written in 1952, the court probably had in mind nothing more than zoning requirements but since then the magic of legislation and litigation has created a much wider range of restrictions -both real and perceived. Some read the 'enforceable restrictions' as applying only to those contained in the lease or other contract; but, as we all know, property rights and the enforceability of private contracts have been so eroded by government regulation and expansive court decrees that the property may be far more restricted by unwritten conditions than by anything contained in the lease or contract. Consider the situation where further development of an oil property, or even continued operation, is curtailed by a complex regulatory and permitting process which is subject to political manipulation? It is clearly a restriction that is enforceable. More on this subject in a future newsletter.

### Meanwhile Back at the Conundrum

Returning to our friends in the bar, can we help the appraiser to determine if the A/B transaction was FMV or not? If his facts are correct - we'll assume they are - the property was on the market for 3 years but there were no offers to purchase the property except for those that allowed the buyer to take over the property but left the seller with all liability for abandonment. A and B had participated in a joint study of the future development potential of the property, remaining reserves, and cost of abandonment. The results of this study were made available to prospective purchasers. Both A and B are large, experienced oil companies for whom the property is a distinguishable asset but not a major one and neither is being pressured to buy or sell. If B pays A an amount equal to B's share of the net abandonment cost, is the payment an indicator of market value? Is it, in fact, the market value?

The key words are cash equivalent, prudence, knowledge, motivation, exposure, and market. The degree to which the combined conditions are met determines whether the transaction is FMV or not. "The absence of any of the stipulated conditions in the market value definition does not necessarily mean the sale is not indicative of market value. It merely means that the appraiser must determine whether or not the lack of this condition influenced selling price. Investigation might disclose that the sale price agreed upon by relatives may not have been affected by the fact that the parties are related." True enough - just because I sold the property to my business partner does not mean it was not FMV - particularly if it was exposed to the prevailing market at the same time. In truth, it is very rare to find a transaction in which both parties are equally motivated, knowledgeable, and prudent and there is always some duress on both sides.

When you get right down to it, describing or defining FMV is difficult - as many authors have found. If you try to cover everything, you find yourself with the wordy DRE approach. We usually end up describing what is not a FMV transaction - like a pretty girl or a sunset you can't describe it but you know it when you see it.

So, what's an appraiser to do? The afternoon and conversation have progressed - Let's listen in.

The engineer, returning with a plate of Nachos Grande, said, "Hey, did you here the one about the bachelor paleontologist who hired a carbon dating service?" Feigning disdain but reaching for the nachos, the appraiser says, "Yup. Now what about my problem. We have gone through all these conditions for a market value transaction and it seems to me that this sale meets all of them. The parties were knowledgeable, the property was on the market for several years, offers were received, there was no compulsion on either party, and it was an all cash deal - What's missing?" The lawyer looked lawyerly for a moment then said, "Nothing that I can see - it probably is a good comparable sale although some people might choke on the negative value." "Not enough jalapenos - the nachos need more jalapenos - back in a minute", and off trotted the engineer. "Well, the negative is a function of high costs, low oil price, and abandonment requirements - that's a fact of life," said the appraiser, "can't do anything about that. So what is this argument about 'arms length'? I can't find anything about 'arms length' in any books or manuals - no papers that describe it. I asked some other appraisers about it and as best as I can tell it is the same thing as market value - what do I do about that?"

The engineer, returning with more jalapenos, chimed in, "Doesn't that have something to do with measuring cloth. My mother used to hold a piece of cloth up to here nose and stretch it out to the end of her arm and that was a yard." Putting on his best \$300/Hr. face, the lawyer intoned, "You are the appraiser BUT how can you determine the value of a property using terms that are undefined and have no apparent appraisal function?" "You're right", said the appraiser, "Forget that arm's length stuff - it sounds good but it doesn't mean anything. Speaking of empty phrases, I heard that this so-called "Bridge to the 21st Century "that they want to build up in D. C. is going to be a one-way, leftlane only, toll bridge - that doesn't sound like a road I want to travel - do you?"

(Camera draw back, fade to black)

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### Assessment of Petroleum Properties

The California State Board of Equalization has completed work on Assessor's Handbook 566, "Assessment of Petroleum Properties" and copies are currently available. As I noted earlier the Board and the Assessment Standards staff who worked on this manual, particularly Dick Johnson and James McCarthy, should be pleased and proud of this work. At the urging of new Board member Dean Andal, the SBE has embarked on a project to update and re-write all of the numerous appraisal manuals used by California assessors and taxpayers. Of the existing manuals the petroleum properties edition was the worst. It was last updated in 1972 and was hopelessly out-of-date. While useful for basic petroleum geology and engineering information it had no reference to the many changes in tax law, regulations, and rules that have occurred since 1972.

The new manual will provide the foundation necessary to bring appraisal and assessment practice in California into the 1990's and will, it is hoped, be kept up-to-date. The manual continues to provide the basic information that is useful to an understanding of petroleum appraisal practice but also has expanded discussion of issues such as discount rates and reserves classification along with other facets of assessment practice. While directed toward implementation of California law, the manual is sufficiently generic that assessors in other states should find it useful. The price is \$11.00.

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Writing this manual was not without controversy. The Board ultimately had to resolve several major issues involving appraisal procedures and practices.

Economic Limit - The Board ruled that the royalty on a property was not to be deducted as a cost in calculating the economic limit of production for a property. This issue generated some heat with strong arguments (including some silly ones) from all sides, as might be imagined.

Abandonment Costs - The Board ruled that the expected costs for abandonment of a property could be deducted and accumulated from the cashflow of the property during the economic life of the property, as a sinking fund or similar vehicle, so that the necessary funds would be available to cover the costs at the end of the life of the property.

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- Discount Rates - The Board clarified the form of construction of the cost-of-capital discount rate as a minimum discount rate relative to the discount rate obtained from actual sales including the use of the Capital Asset Pricing Model as the source for the cost-of-equity component. The discount rate discussion is one of the best parts of the new manual and will be very helpful in improving the quality of discount rate determination for oil property appraisal.
- Reserves - In approving the manual the Board expanded and clarified the definition of reserves that are assessable in California and included reference to SPE/SPEE reserves definitions as sources for resolving differences in reserves classification.

### **Reports and Studies**

The 15th Annual SPEE Survey of Economic Parameters Used in Property Evaluation was published in June, 1996. The survey "is designed to compile opinions obtained from the evaluation community regarding future prices, cost escalation, probability or risk-adjustment factors, economic indices, and other evaluation criteria relating to petroleum property evaluation in the United States." Respondents to the survey include 57 producers, 57 consultants, and 43 bankers. The survey results (as of May, 1996) found average oil price escalation to 2005 of 2.27% per year; average gas price escalation of 2.57% per year; and average operating cost escalation of 3.04% per year.

The average expected Rate-of-Return (defined as Cost of Money Plus Return) is 17.08%; the standard deviation is  $\pm 4.15$ . Risk Adjustments (defined as Probability of Success) are enumerated by Reserve class where Proved Producing has an average adjustment of 96.09% and Proved Undeveloped is 51.78%.

Of the respondents 45.9% apply risk adjustment to reserves (production) and 36.9% apply to the cash flow; 4.5% apply risk to both reserves and cash flow. If the adjustment is applied uniformly to the cash flow, the effective average discount rate would be 17.78% for Proved Producing and 33.0% for Proved Undeveloped. The survey range is not that different from the range found for actual sales and is consistent with prior years surveys. For further information contact:

SPEE, P.O. Box 27709, Houston, TX 77227  
(713)651-1639)

***Happy Halloween  
and  
Watch Out for Donkeys  
Masquerading as Elephants***

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Richard J. Miller is a petroleum engineer with BS and MS degrees in petroleum engineering and an MBA in finance and economics. He has over 25 years of petroleum evaluation experience throughout the U.S. with Texaco, Inc., James A. Lewis Engineering, and United California Bank prior to founding RJM&A. Mr. Miller is an Accredited Senior Appraiser specializing in oil and gas properties. Member of SPE, SPEE, and ASA.