

# THE APPRAISAL OF MINERAL INTERESTS (COMPLETED OR PRODUCING)

## FOR AD-VALOREM TAX PURPOSES IN TEXAS

According to §11.01 of the Texas Property Tax Code (PTC), all Real Property and Tangible Personal Property within a Taxing jurisdiction is taxable based on its appraised Fair Market Value. As defined in §1.04 PTC, Mineral Interests are classified as Real property. This handout addresses the proposed fair market value for your mineral interest(s), not the estimated tax rate or tax amount. See 25.19 NAV Tax Rate.

**Market value**, according to the PTC, is "the price at which a property would transfer for cash or its equivalent under prevailing market conditions if: (A) *exposed for sale in the open market with a reasonable time for the seller to find a purchaser;* (B) *both the seller and the purchaser know 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 on its use;* and (C) *both the seller and purchaser seek to maximize their gains and neither is in a position to take advantage of the exigencies of the other*".

In its simplest form, Market Value is the price a willing buyer, from the open market, would pay for your mineral interest in current prevailing market conditions as of the assessment date, PTC§23.01(a), January 1.

Mineral interests, unlike real estate, are individual undivided interests in a lease. The Market Value of a mineral interest in a completed or producing well is your net revenue interest's percentage value of the total lease calculated recoverable reserves to be produced in the future, then discounted to present worth. If you were to sell your mineral interest in a lease, you are selling your interest in these future reserves, not what has already been produced. Your mineral interest market value of these future lease reserves is based on the appraiser's projection as to how each lease will perform in the future using the State mandated Discounted Cash Flow (DCF) appraisal methodology, and its four parameters common to all producing mineral properties.

Therefore, in Texas, the valuation of mineral interests for ad valorem tax purposes is **NOT an income tax on prior annual income**. There is no income tax in Texas. The market value is **NOT supposed to represent your prior annual income**. If you sold your mineral interest, you are selling your NRI portion of the calculated reserves to be produced still in the ground, NOT your prior income. In the prevailing current market, mineral interests are generally worth three (3) to four (4) times your prior year's annual 12 month income (depending on the quality of the property). Also, the mineral interest appraisal is separate from any "surface" appraisal.

Mineral interest market value is determined by the remaining reserves that you could sell. The methodology outlined by the Texas Comptroller, by law, to calculate the recoverable reserves for completed/producing mineral interests as of January 1, is known as the **Discounted Cash Flow (DCF)**, also known as **Discounted Net Income (DNI)**, approach. Under the DCF/DNI, the principle of anticipated future income from these reserves is what buyers are willing to purchase. This mineral interest assessment may be new to you and many interest owners in the Fort Worth Basin. To the contrary, every mineral interest owner in every producing well in every county in Texas has been annually assessed using this State methodology since 1926. This is not a new assessment for Fort Worth Basin (FWB) mineral interest owners. The methodology can NOT be protested.

The results of the DCF appraisal represent the calculated recoverable reserves, and the corresponding future income, for each individual lease as of the annual January 1 appraisal date. This methodology is an "engineering based income" appraisal and not a "real estate", "accounting" or "statistical" comparison of prior year's value. You can not use real estate, accounting or statistical comparison to calculated future reserves.

These valuations do not use a volumetric or "in-place" reserve calculation method where the total "original oil/gas in place" reserves are estimated at the well's completion and each year's actual production is deducted from the original calculation. Besides the fact that the Comptroller requires the DCF method, these approaches would require extensive proprietary reservoir engineering information.

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The four basic parameters common to all producing oil and gas properties in the DCF/DNI valuation:

**1) Production Profile:** Consists of two parts - *Start Rate & Production Decline*

**A) Start Rate** of production – The appraiser's determination of a relevant average daily barrel rate for oil and/or an average daily MCF gas rate from prior calendar year's actual production up to Jan 1. This rate can be selected from any time period of the prior year. Source: Texas Railroad Commission Production Database

**B) Production Decline** – The appraiser's opinion of each lease's current decline rate of oil and/or gas production to be used in the current year's appraisal for each individual lease. Source: The decline rate is selected using advanced production plotting and projecting software. All projected future production is projected to decline into the future;

**2) Price** –per PTC §23.175 (eff. 01/01/08) the monthly average price for the preceding calendar year multiplied by Comptroller's Market Condition Factor (CMCF) for the first year's price. The escalation/de-escalation of pricing after the first year is now based on the Comptroller's model. Source: Texas Comptroller. State Severance taxes previously deducted from your income are deducted from the gross price to arrive at the net appraisal price;

**3) Operating Expense (LOE)**– The operator’s anticipated annually recurring cost to operate the lease. Source: Lease Operators documentation or default average if not furnished.

**4) Discount Rate** – The overall rate consists of two parts: (1) a consideration for the cost of money as of January 1 and (2) the risk of the property itself (dictated by production rates and declines in addition to technical, economic and political influences). The mid-year discount rate factor of the overall discount rate is used to bring future income back to present worth for each future year of the appraisal.

The DCF formula in its simplest form is calculated:

For Working Interest (WI):

$$S/R \times (1-PD)^{\text{Time}} \times 365 \text{ days} \times \text{Price} = 100\% \text{ Gross Revenue} \times \text{Total WI decimal interest} - \text{LOE} \times \text{D/R factor} = \text{Yr 1 DNR}$$

For Royalty Interest (RI):

$$100\% \text{ Gross Revenue (from above)} \times \text{Total Lease RI decimal interest} \times \text{D/R factor} = \text{Yr 1 Discounted Net Revenue}$$

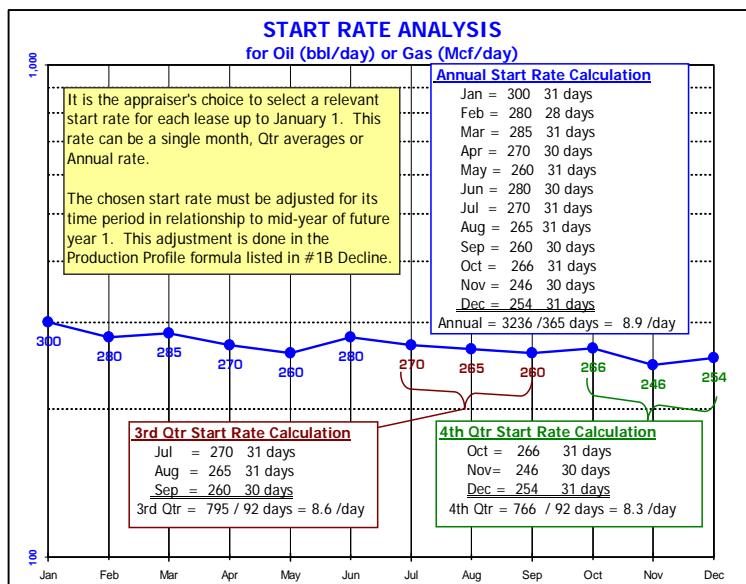
This calculation continues for each future year until the Operating Expense becomes greater than the WI calculated income.

**(4) BASIC PARAMETERS OF DNI / DCF APPROACH- DETAIL**

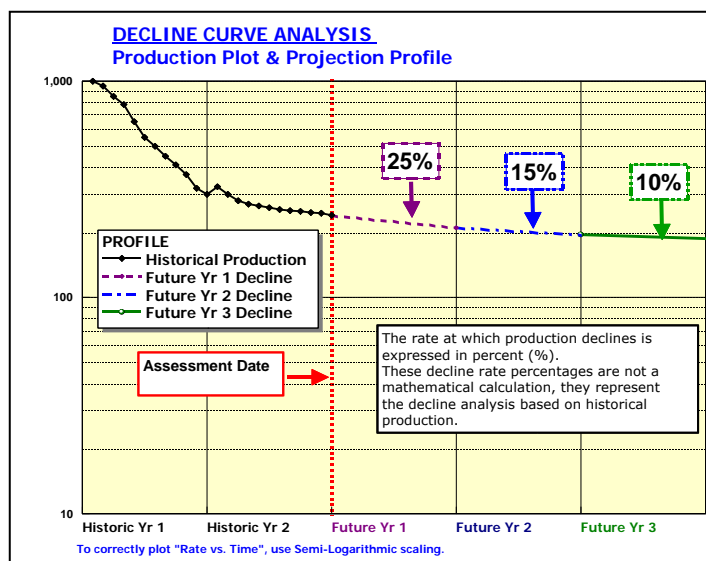
**1) PRODCUTION PROFILE:**

**A) START RATE:** According to the PTC, the annual assessment and appraisal date for the State of Texas is January 1. Therefore, prior year's actual production is used to determine a starting rate for the appraisal. These rates reflect each lease's most relevant level of production up to the assessment date. The source is the Texas Railroad Commission production data. This is expressed in barrels of oil per day and/or MCF (1,000 cubic feet) of gas per day. The selected daily average start rate must be adjusted for the time period from which it is taken.

This is done by using the exponential factor of how many months the start rate is away from next year’s mid-year (July 1). A December rate is 6 months from the next July 1 and has less risk than an annual rate because of 6 more months of “known” production-6/12=.5. An annual rate is 12 months away-12/12=1. This exponential factor is applied to the Decline rate. Source: Texas Railroad Commission Production Database



**B) DECLINE (DECLINE CURVE ANALYSIS):** The rate at which production declines is expressed in percent (%). The appraisers chosen annual decline is NOT necessarily the mathematical calculated decline % of one year’s actual production vs. another year’s actual production. That is because mathematical decline calculations can be abnormally affected by large swings in production caused by well work, additional wells or temporary well problems. The historical decline is derived from analyzing plotted historical monthly production on a logarithmic production graph. Our source is Aries® decline curve analysis software. The decline rate is reviewed and adjusted each year to match the current production up to January 1. To correctly plot “Rate vs. Time” use Logarithmic scaling. Many increases in current year’s value can be traced back to the prior year’s appraisal where the production decline projection actually “over” projected the actual decline; therefore, the prior year’s market value was too low.



The production profile used to calculate the calculated future Year 1 production (reserves) is: (Start Rate) x (1-Decline %) ^SR Time x (365 days). Below shows the importance of the time period adjustment.

If, S/R is 34= and it is the **Annual rate** (12/12=1), D/C% = 15%; then (34) x (.85)^1 x (365) = 10,549

If, S/R is 34= and it is the **3<sup>rd</sup> Qtr rate** (9/12=0.75), D/C% = 15%; then (34) x (.85)^.75 x (365) = 10,986

If, S/R is 34= and it is the **4<sup>th</sup> Qtr rate** (6/12=0.5), D/C% = 15%; then (34) x (.85)^.5 x (365) = 11,441

**2) PRICE: OIL & GAS** - PTC §23.175 (eff. 01/01/08) – calculated as the property’s monthly average prices from the preceding calendar year divided by 12, then multiplied by the Comptroller’s Revenue Estimating Division (RED) Annual Market Condition Factor (CMCF) to arrive at the gross price. The calculated CMCF by RED uses statewide composite pricing. The annual CMCF is listed on the Comptroller’s website.

M/Yr	\$/Mo	PRICE CALCULATION
01/##	\$6.65	<i>Gas Price Sample</i> PTC §23.175 (eff. 01/01/08) CMCF = 1.034%
02/##	\$6.90	
03/##	\$7.11	Σ Monthly Total = \$81.75
04/##	\$7.60	
05/##	\$7.64	÷ 12 Months 12
06/##	\$7.37	
07/##	\$6.22	Annual Avg Gross \$ = \$6.81
08/##	\$6.22	
09/##	\$6.07	(x) CMCF = 1.034
10/##	\$6.85	
11/##	\$6.52	Adjusted Yr 1 CMCF Gross Price = \$7.04
12/##	\$6.60	
Σ =	\$81.75	

**For 2008 Tax Year, the Oil CMCF = 0.992, the Gas CMCF = 1.034.**  
Also, §23.175 states: If the lease did not produce for all twelve (12) months of the prior calendar year, the appraisal price used should reflect the price of similar leases, not the price for the months it did produce.

In the appraisal, after future year 1 price is calculated, all subsequent future year’s pricing (future year 2 on) escalation/de-escalation scenario is now based on RED’s forecasted percentages, positive or negative.

We deduct State ad valorem taxes (4.6%/bbl-Oil and 7.5%/mcf-gas) from the Adjusted Gross CMCF price to arrive at the Net Price, which is used in the appraisal.

In addition, the appraiser may choose to make additional deductions for marketing and transportation costs along with shrinkage adjustments from the price. The source for Oil pricing is actual purchaser pricing and the gas price source is the Texas Comptroller Annual Gas Severance Tax Report.

**3) LEASE OPERATING EXPENSE (LOE):** This is the annually recurring expense incurred by the operator to produce the property. LOE determines what future year the appraisal stops. When the operating expenses become greater than the working interest’s income, the appraisal stops in that future year.

L.O.E. (example)	J	F	M	O	N	D	TOTAL
Power & Fuel							
Contract pumping							
Salt Water Disposal							
Well servicing							
Chemicals & treating							
Equipment rental							
Contract labor							
Repairs-surface							
Repairs-sub surface							
Materials & supplies							
Administrative O/H							
Other-							
<b>Total Annual LOE</b>							

In the DCF/DNI, the Working Interest (WI) receives an annual credit (deduction) for these annual costs in each future year of the appraisal. Since the Royalty Interest (RI) owners do not receive this credit, each appraisal has two separate total value calculations, WI value & RI value. Therefore, you can not take an individual Net Revenue Interest (NRI) and corresponding value and “bump” it up to arrive at the actual 100% lease value. The lease total WI & RI values must be added together to arrive at the 100% lease value. Source: Lease Operators Annual Operating Expense data.

Non-recurring expenses such as well workovers are classified as Capital Expenditures. The expense for this type of work is generally credited over several years in the appraisal.

**4) DISCOUNT RATE (MID-YEAR):** This is the overall rate used to equate future net revenue (the value of the future calculated reserves) back to present worth for each future year in the appraisal. “Time value of Money” is the concept that a dollar in hand today is worth more than a dollar that will be received in some future time. The discount rate considers the cost of money as of January 1, and recognizes the risk (dictated by technical, economic and political influences).

A rate of xx% itself is not the actual factor used. The **Mid-Year Discount Rate Factor** is calculated for each future year (FYr) as exponential “n”. This is a constant factor based on the actual future year being calculated. FYr 1n =.5 (from Jan 1, it is 6 mo to mid-yr, 6÷12); FYr 2n=1.5; FYr 3n=2.5, etc.

Formula:  $D/R \text{ Factor} = 1 \div (1 + D/R)^n$

Example: 16% D/R, FYR 1 Mid-Yr Factor =  $1 \div (1 + .16)^{.5}$ , or 0.92848

FYr	n	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
1	0.5	.93659	.93250	.92848	.92450	.92057	.91670	.91287	.90909	.90536	.90167	.89803
2	1.5	.82157	.81087	.80041	.79017	.78015	.77033	.76073	.75131	.74210	.73306	.72421
3	2.5	.72067	.70511	.69001	.67536	.66114	.64734	.63394	.62092	.60828	.59599	.58404
4	3.5	.63217	.61314	.59484	.57723	.56029	.54398	.52828	.51316	.49859	.48454	.47100
5	4.5	.55453	.53316	.51279	.49336	.47482	.45713	.44023	.42410	.40868	.39394	.37984
6	5.5	.48643	.46362	.44206	.42167	.40239	.38414	.36686	.35049	.33498	.32027	.30632
7	6.5	.42670	.40315	.38109	.36041	.34101	.32281	.30572	.28966	.27458	.26039	.24704

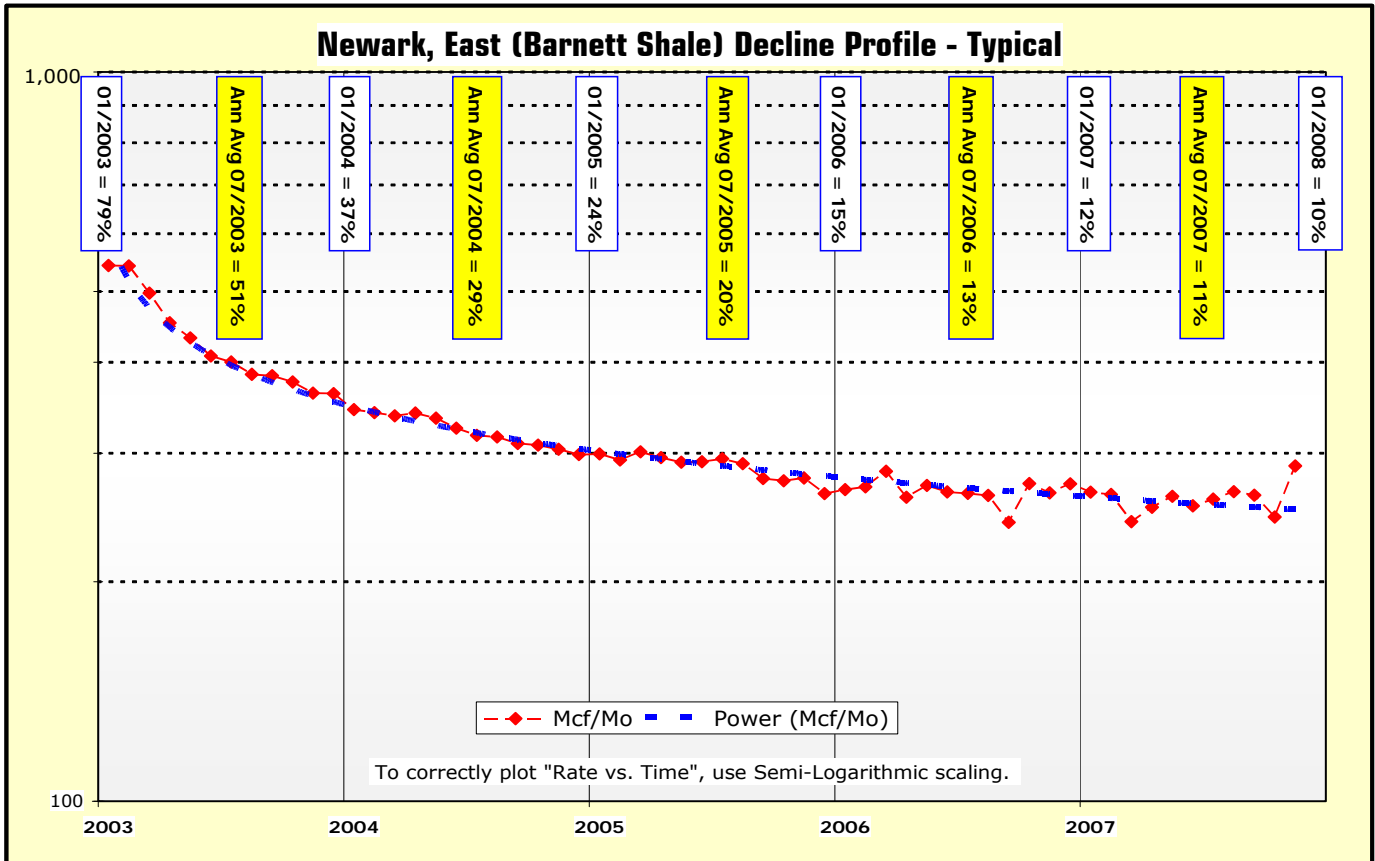
**Total DCF/DNI Future Year 1 Calculation**

YR 1 WI:  $(SR) \times (1 - DC)^{SR \text{ Time}} \times 365 \times \text{Net Price} = 100\% \text{ Yr1, } \times \text{Total WI amount} - \text{LOE} \times \text{DR factor Yr1}$

YR 1 RI:  $= 100\% \text{ Yr1, } \times \text{Total RI amount} \times (1 - \text{WI DR})$

## Production Decline Profile – Newark, East (Barnett Shale) Gas Wells

Most Barnett Shale (NEBS) well's production decline is not exponential or a straight-line decline. Rather, they begin to bend or moderate and move to the right (flatten out) each month that they produce. These mineral interest decline rates are expressed in terms of "Annual Decline" rates, not January 1 or initial decline rates which can be misleading if you are not familiar with the decline profile.



Although each well is annually re-appraised on its specific production profile, the NEBS production shown above is a typical pattern. Refer to the declines in six month increments at the top of the graph. You may hear or read where a typical Barnett Shale well has annual decline rates of something like 65-55% for Yr 1, 45-35% for Yr 2, 30-20% for Yr 3, 20-12% for Yr 4 & 10% thereafter; this is referring to an "Annual average" rate.

The decline profile is constantly in motion and basically continues to moderate every month for the first 3 to 5 years of the wells life. After which, the well stabilizes at a moderate (exponential-straight line) rate for the remainder of its life. This is known as its natural decline.

Projecting the subsequent future year's appraisal decline profile becomes more accurate with more production history. Specialized engineering decline software can "Curve Fit" the known production points and project future decline rates with greater accuracy. This software incorporates the "slope" or bending of the projection line to fit each well's individual production profile.

Therefore, instead of using the higher declines associated with initial well production or the January 1st rate, the slope of the decline, accounts for the lower decline at the end of the year also. If these higher decline rates were used in the appraisal, the projected production would be significantly "under-projected" and the corresponding market value would not be accurate for ad valorem or buying/selling purposes.

The "Annual" slope decline represents the actual mid-year decline (July 1 being mid-year) of all twelve months declines-high to low.

## Valuing Mineral Interests under the Income Approach

Mineral market value represents all potential future income and the corresponding estimated recoverable reserves which can be expected as of January 1 (PTC§23.01(a)).

By using a modified income approach known as the Discounted Cash Flow/ Discounted Net Income approach, the mineral value can be determined. The basic formula for the income approach is:

$$FI = R \times P, \text{ where } FI = \text{Future Income (est. reserves), } R = \text{Rate, and } P = \text{Price.}$$

In any mineral appraisal, **there are two separate calculations**- one for the **working interest (WI)** and one for the non-working or "**royalty**" interests (**RI**). This is because the working interest must pay for the cost to operate the property (Lease operating expense- **LOE**) and the "royalty" interest does not. The working interest gets an LOE credit each year that the appraisal runs into the future. This is the reason you can not take a royalty or working interest value and "bump" it up to 100% lease value. Therefore, our original income formula for the working interest WI is modified to read as:

$$\begin{aligned} \text{Year 1 } \underline{\text{WI Discounted Net Income}} &= \text{Annual Production Projection (for oil and/or gas)} \\ & \quad (X) \text{ Prior year's annual net price (for oil and/or gas)} \\ & \quad (X) \text{ Amount of total WI decimal interest (division order)} \\ & \quad (-) \text{ LOE (Lease operating expense)} \\ & \quad (X) \text{ Discount Rate Factor} \end{aligned}$$

This calculation is done for each year into the future, until the LOE becomes greater than the WI net income for that year. This is when the appraisal reaches its **Economic Limit** and the appraisal stops. Then all the prior year's discounted net incomes are added together to arrive at the total WI value. This can be in year one, year 25, or any year in between-depending on all the factors for each lease.

*Below is a sample calculation that is rounded for explanation purposes, the actual internal appraisal calculations are not rounded.*

Future Year	Calculated Production (Reserves)	Prior Yr Mo. Avg. CMCF Price	100% Lease Gross Revenue	WI Gross Rev @ .780000 (Rounded)	Direct Expenses LOE	WI Future Net Revenue	Discount Factor (16%)	Discounted WI Future Net Revenue
1-2008	11,429	\$10.00	\$114,290	\$ 89,150	\$ 35,000	\$ 54,150	0.92848	\$50,277
2-2009	10,286	\$ 9.00	\$ 92,571	\$ 72,210	\$ 37,500	\$ 34,710	0.80041	\$27,782
3-2010	9,257	\$ 7.00	\$ 64,800	\$ 50,540	\$ 39,700	\$ 10,840	0.69001	\$ 7,480
4-2011	8,331	\$ 7.50	\$ 62,486	\$ 48,740	\$ 41,300	\$ 7,440	0.59484	\$ 4,426
5-2012	7,498	\$ 7.75	\$ 58,112	\$ 45,330	\$ 42,900	\$ 2,430	0.51279	\$ 1,246
Totals:	46,801		\$392,259	\$305,970	\$196,400	\$109,570		<b>\$91,211</b>

**THEN,**

The RI Discounted Net Income follows the same pattern as the WI with the exception of the LOE deduction and calculating total RI interest value based on the lease's Total RI amount in the lease. The royalty interest RI formula would read as:

$$\text{Year 1 } \underline{\text{RI Discounted Net Income}} = \text{Annual Production Projection (for oil and/or gas)}$$

$$\begin{aligned} & \quad (X) \text{ Prior year's annual net price (for oil and/or gas)} \\ & \quad (X) \text{ Amount of total RI decimal interest (division order)} \\ & \quad (X) \text{ Discount Rate Factor (1\% less than WI because of less risk)} \end{aligned}$$

100% Lease Gross Revenue	RI Gross Rev @ .220000 (Rounded)	Discount Factor (15%)	Discounted RI Future Net Revenue
\$114,290	\$ 25,140	0.93250	\$ 23,443
\$ 92,571	\$ 20,370	0.81087	\$ 16,517
\$ 64,800	\$ 14,260	0.70511	\$ 10,055
\$ 62,486	\$ 13,750	0.61314	\$ 8,431
\$ 58,112	\$ 12,780	0.53316	\$ 6,814
\$392,259	\$ 86,300		<b>\$ 65,260</b>

The **8/8ths or 100% total lease value** equals the WI total net discounted value plus the RI total net discounted value.

$$\begin{aligned} \text{WI Disc FNR} &= \$ 91,211 \\ \text{RI Disc FNR} &= \$ 65,260 \\ \text{Total Lease FNR} &= \$156,471 \end{aligned}$$

The individual net revenue interest values used on the tax rolls are not calculated until the lease values (WI and RI total values) are "calced" into the division order file and netted out based on the individual net revenue interests.

### CALCULATING RI OWNER'S NET INTEREST VALUE FROM PRITCHARD & ABBOTT APPRAISAL:

Owner Net Revenue Interest (NRI) ÷ Lease's Full RI Decimal (X) Lease's RI Total Value.

If Owner NRI = .0625000, Total Lease RI = .220000, Lease RI Total Value = \$65,260

$$.062500 \div .220000 (X) 65,260 = 18,539, \text{ rounded to nearest } 10 = 18,540$$

# MINERAL INTEREST DCF/DNI APPRAISAL - SAMPLE SPREADSHEET

## THE FOUR PARAMETERS OF THE DISCOUNTED NET INCOME (DNI) APPROACH TO VALUE USING DECLINE CURVE ANALYSIS:

1A) **START RATE**: Oil = 5.06 Bbls/Day; Gas = 57 MCF/Day (4th Qtr daily average) Total WI = .750000  
 1B) **DECLINE** = 20%/Year for Oil & Gas - historical Total RI = .250000  
 2) **PRICE** = \$16.25 Net/Bbl, Gas = \$1.82 Net/MCF 00 AA Mineral HO.xls  
 3) **LEASE OPERATING EXPENSE** = \$20,000/yr  
 4) **DISCOUNT RATE** = 23%=WI, 22%=RI

F U T U R E ↓	OIL VALUE CALCULATION			GAS VALUE CALCULATION			TOTAL WORKING INTEREST PRESENT VALUE CALCULATION					Total "Royalty" (*D) PRESENT VALUE CALCULATION				
	(1)	(2)	[3]	(4)	(5)	[6]	(7)	(8)	(9)	(10)	(11)	(12)	(7)	(13)	(11)	(14)
	Annual OIL PROD	NET OIL PRICE	Annual OIL REV	NET GAS PROD	NET GAS PRICE	Annual GAS REV	8/8 Gross REV	Gross WI REV	LEASE OPER EXP	NET Working REV	DISC RATE Mid-Yr	Discounted Present Value-WI	8/8 Gross REV	Gross Royalty Revenue	DISC RATE Mid-Yr	Discounted Present Value-WI
	(*A)	(*B)	100%		(*B)	100%	100%	@.75000	(LOE)	@.75000	@.23%	@.75000	100%	@.25000	@.22%	@.25000
1	(1) X	(2) =	[3]	(4) X	(5) =	[6]	[3+6=7]	[7 X WI]	[-LOE]	[9-8=10]	[Factor]	[10x11=1]	[3+6=7]	[7xRI]	[Factor]	[13x11=14]
1	1652	16.25	26845	17599	1.82	32030	58,875	44,156	-18000	26,156	0.90167	23,584	58,875	14,719	0.905357	13,326
2	1322	16.25	21483	14079	1.82	25624	47,107	35,330	-18000	17,330	0.733065	12,704	47,107	11,777	0.742096	8,740
3	1058	16.25	17186	11263	1.82	20499	37,685	28,264	-18000	10,264	0.595988	6,117	37,685	9,421	0.608275	5,731
4	846	16.25	13748	9011	1.82	16400	30,148	22,611	-18000	4,611	0.484543	2,234	30,148	7,537	0.498586	3,758
5	677	16.25	11001	7208	1.82	13119	24,120	18,090	-18000	90	0.393937	35	24,120	6,030	0.408677	2,464
6	544	16.25	8791	5767	1.82	10496	19,287	14,465	<b>(-3535)</b>	<b>&lt;Economic Limit, Negative WI Income: Appraisal Stops (*C)</b>						
	5554		90263	59160		107672	197,935	148,451	-90000	58,451		44,674	197,935	49484		34,019

↓ 100%	↓ 100%	Your individual NRI Reserves that equate to your MV = NRI (x) Total Economic Reserves (for both Oil & Gas): Gas Example: .010966 (x) 59,160 = 649	↓ .750000 WI Discounted Market Val	↓ .250000 RI Discounted Market Val
Economic Oil Reserves	Economic Gas Reserves			

<p><b>*A</b> Year 1 Annual Oil Production Calculated as:</p> <p><math>Q_n = Q_1 (\text{Decline} - 1)^{(n-1)}</math>  <math>Q_n = \text{Production at any point in time.}</math>  <math>Q_1 = \text{Initial annual prod (daily rate x 365)}</math>              Decline = Historical decline - year (%)  <math>n = \text{Chosen S/R Months to Mid-Yr Future year 1 (4th Qtr)=(6/12)=.5; Annual =1, etc.}</math></p>	<p><b>*D</b> "Royalty interests" are those interests that do NOT participate in the operation (lease operating expense) of the lease.</p> <p>These are: Royalty, Oil / Production payments and Over-rides. They are calculated at 1% less than the WI discount rate because of reduced risk.</p> <hr/> <p>&gt;NET "ROYALTY INTEREST VALUE" calculation&lt;</p> <p><i>Example:</i></p> <p>Owner's Net Revenue Interest (NRI) = .015625              Lease's Full RI Decimal (RI) = .250000              Lease's RI Total Value = \$34,017  <b>(NRI) / (RI) x \$ Total RI value = Net Interest Value</b>              (.015625 ÷ .250000) x (\$34017) = 2126 or <b>2130</b></p>
<p><b>*B</b> Effective 01/01/2008, §23.175 PTC mandates the prior year's monthly average price times the Comptroller's Revenue Estimating Division (RED) annual Market Condition Factor (CMCF) minus State severance deductions. The escalation/de-escalation of pricing after the first year's price is now based on RED's forecasted model percentages, positive or negative.</p>	
<p><b>*C</b> When the operating expenses become greater than the WI income, the appraisal STOPS and the discounted WI values are totaled, then the discounted RI values are totaled. (WI + RI = 100% or 8/8ths value).</p> <p>An individual interest cannot be "bumped" up to a 100% lease value, because the LOE is deducted from the WI each year the appraisal runs into the future.</p>	

## GENERAL INFORMATION

A change from one year to the next for any single parameter or a combination of these parameters can affect the calculated recoverable reserves and the corresponding market value from one year to the next year's appraisal. Unlike real estate, all mineral interests are re-appraised annually.

After we initially appraise each property and prior to mailing the NAV, we send preliminary appraisals to the lease operator(s) or their agent. This is done because they have information about annual lease operating expense and reserve information that is not public information and not readily available. They respond with information and, if a re-appraisal is necessary, the lease is re-appraised and all interest owners received the benefit of the re-appraisal whether you have protested or not.

**A Total Lease Appraisal** - As noted earlier, mineral interests, unlike real estate, are **individual undivided interests** in a lease. Therefore, there is no negotiation of individual undivided interest market value in a lease since individual NRI market values are a calculation of the **total lease appraisal** using the mandated DCF appraisal. As such, these operator representatives are working as your agent to ensure that the most accurate market value is assessed.

**Acreage** - Your mineral interest market value assessment is not based on your previous individual 100% lease acreage, unless you own the total lease acreage. When you signed the lease/pooling agreement, your individual 100% ownership ceased and you became a fractional mineral interest owner in the leases' total acreage and lease boundary lines for appraisal and jurisdiction assessment. Your previous individual acreage is usually used to calculate your individual Net Revenue Interest (NRI) of the entire lease acreage, 0.000000, from which you are paid from the proceeds of the total lease production and its corresponding lease acreage.

**Unsolicited offers** to buy your interest/s do not constitute an open market transaction because they do not meet the guidelines of Market Value according the PTC. They are more than likely overly conservative so as to guarantee the buyer a more-than-reasonable profit. Therefore, unsolicited offers are invalid for market value purposes. Unlike the market value real estate appraisal parameters for your homestead that basically remain the same (square footage, condition, etc.); these lease parameters can change drastically from one year to the next. Because of the constant parameter change, each lease is individually re-appraised each year as of January 1 using the "known" lease information at that time point in time. Lease changes after this date will be used in the next year's appraisal. Each year's appraisal stands on its own.

**Non-producing mineral interest** are those interests without producing/completed wells. Reserves can not be calculated without production using the DCF. Therefore, the absence of capable to or actual production renders these non-producing interests valueless for ad valorem purposes. The **completion date** listed on RRC form W-2 or G-1, Box 14, distinguishes a non-producing property from a producing property. It is this date's relationship to the State mandated January 1 assessment date for appraisal purposes, not the test date. Although not as common as in past years, many operators and some royalty interest owners would "render" their non-producing interests so they would receive a tax statement, with a nominal assessment, as additional proof of ownership if it came under dispute.

**Shut-in wells** are generally temporary for well work or because of drilling in a close proximity. This can last as long as six months or longer. The shut-in status does not affect the calculated reserves and their value since you can still sell your interest in these reserves; it just delays the recovery of those reserves. See Terms.

**Production and well data** is available to the public at the **Texas Railroad Commission (RRC)** website. The majority of this information is listed at <http://www.rrc.state.tx.us/> and the various links listed there.

FYI- most FWB wells: are classified as "Gas", are in RRC District -09, the RRC Lease ID# is on the Notice. Areas over which the RRC has no authority include lease and royalty matters (including leasing, payment of royalties and the right to receive royalties), the financing of or investment in oil and gas activities, and bankruptcy.

### **How can I determine if the proposed market value is valid?**

As stated earlier, the valuation of mineral interests for ad valorem tax purposes is **NOT an income tax on prior annual income.** There is no income tax in Texas. The market value is **NOT supposed to represent your prior annual income.** **Answer: An owner completed "Payout Calculation" is your litmus test of validity** - Although your market value is not based or calculated from you income, you can use your prior calendar year's 12 month income to calculate whether the proposed market value is in line with current market conditions using a Year's Payout. This calculation is a reversionary calculation of known information. It is used industry-wide as a quick test of relevance. The "Payout Calculation" requires the prior calendar year's **income**, such as **Federal form 1099-MISC** or your **monthly income receipts from all purchasers, all income streams of oil and/or gas, totaled for the calendar year.** (If your lease did not produce for all 12 months, you must extrapolate an estimated 12 month income-you can not compare a partial year's income to a full market value).

The completed "Payout Calculation" form for each individual property is **your best guide as an interest owner to determine if the proposed value listed on the Notice of Appraised Value or any offer to purchase is valid.** The payout's **relevance**, based on this comparison, will indicate if the proposed value is valid in current market conditions regardless of how it compares to last year's market value. If your calculated Payout is less than 4, the current proposed value is generally in line with current market conditions.

# PAYOUT CALCULATION WORKSHEET - CURRENT YEAR'S MARKET VALUE

## 2008 Tax Roll - 2007 Data

To Be Completed By The Protestor For Presentation at Your ARB Hearing, If The Calculated Payout is Out of Relevance<sup>3</sup> Range.

County: \_\_\_\_\_ Owner: \_\_\_\_\_ LC#: \_\_\_\_\_  
 Lse Name: \_\_\_\_\_ Owner#: \_\_\_\_\_ RRC#: \_\_\_\_\_  
 Operator: \_\_\_\_\_ Interest: \_\_\_\_\_ RI / OR Oil / Gas: \_\_\_\_\_

\*\* (This sheet does not reflect the DCF parameters used in the appraisal. It is an estimate of annual income for Payout purposes only.)\*\*

**USE THIS WORKSHEET TO CALCULATE YOUR OWN YEAR'S PAYOUT AND FOR YOU TO COMPARE THE PROPOSED VALUE TO CURRENT MARKET CONDITIONS.<sup>1</sup>**

For the most accurate result, each individual property should be calculated individually. Using your income receipts from all purchasers (OIL &/or GAS), fill in the appropriate monthly income OR fill-in MISC-1099 as the total of all properties where indicated. **NOTE PAYOUT GUIDELINES AND RELEVANCE BELOW.**

Not Payment Month PRODUCTION YEAR/ Month	GAS		OIL		TOTAL INCOME
	Raw Gas, Residue Gas, &/or NGL Volume	Raw Gas, Residue Gas, &/or NGL Income	Crude Oil, Condensate &/or Products Volume	Crude Oil, Condensate &/or Products Income	TOTAL MONTHLY INCOME
Jan-07		\$		\$	\$
Feb-07		\$		\$	\$
Mar-07		\$		\$	\$
Apr-07		\$		\$	\$
May-07		\$		\$	\$
Jun-07		\$		\$	\$
Jul-07		\$		\$	\$
Aug-07		\$		\$	\$
Sep-07		\$		\$	\$
Oct-07		\$		\$	\$
Nov-07		\$		\$	\$
Dec-07		\$		\$	\$
<b>ANNUAL TOTAL</b>		\$		\$	\$

**YEAR'S PAYOUT CALCULATION:** Proposed market value divided by the prior year's total income = Payout<sup>1</sup>

2008 Proposed Value = \$ \_\_\_\_\_ (listed on 2008 Notice of Appraised Value)

÷ by

\*\* '07 \$Total or MISC-1099 Income = \$ \_\_\_\_\_ = \_\_\_\_\_ Year's Payout<sup>1</sup>

\*\* Income must be for full 12 months.  
If not, extrapolate for annual estimate.

Guidelines for Year's Payout	Relevance <sup>3</sup>	Payout Descriptions	Payout Year Ranges	
	Acceptable - Best	(higher end of market conditions)		= 3.6 - 4.5 Yrs.
	Acceptable - Good	(mid-range of market conditions)		= 2.6 - 3.5 Yrs.
	Acceptable - Low	(unsolicited offer, marginal, short life, New)		= 0.1 - 2.5 Yrs.
Un-Acceptable -	* High (unless a multi-well Unit interest)		= 4.6 or higher	

\* Some unitized/pooled interests with large acreages, that have existing multiple wells or the potential for multiple wells, can have between 4.5 to 6.5 Yr or higher payouts.

<sup>3</sup> The Relevance of your payout is your guide to determine if the proposed market value is in line with current market conditions. If your payout is in the "Acceptable" range, the corresponding market value is valid regardless of what your previous value. NOTE: Operator HEDGED pricing is appraised at Market pricing.

<sup>1</sup> A "payout" is one indicator, or test of reasonableness, of a proposed value. The theory of a payout is that a willing purchaser will offer a willing seller multiple times last year's income, in exchange for the right to receive all future income. Properties with longer projected economic lives can be expected to command larger payouts - say, five (5) to seven (7) years. Conversely, marginal properties may have payouts of less than one year. A typical payout for mineral interests falls in the three (3) to four (4) year range. Unsolicited offers are more than likely overly conservative so as to guarantee the buyer a more-than-reasonable profit. As such, they do not represent fair market value because they are not exposed to the open market between a willing seller and buyer.

The proposed market value<sup>2</sup> is based on the appraiser's analysis of each lease's individual parameters up to the State mandated assessment date of January 1. It is then appraised using the State mandated Discounted Cash Flow methodology to arrive at the current market value. The resulting market value represents the discounted value of the reserves to be produced, or the value of the reserves you would sell. Although your proposed market value is not based on your income, you can use your prior year's income to determine if the proposed market value is in line with the relevance<sup>3</sup> of prevailing market conditions by using the year's payout calculation. <sup>2</sup> Market Value is the price a willing buyer would pay for your mineral interest in prevailing market conditions.

## ANNUAL MINERAL INTEREST MARKET VALUE CHANGES

Mineral interests' market values change each year. Normally, the market value will reflect the decline in production. However, it is not uncommon for the market value to remain about the same or even increase in value when compared to the prior year. These situations can be caused by several factors. One of the major factors is caused by the annual appraisal pricing (PTC §23.175) influence from one appraisal year to the next.

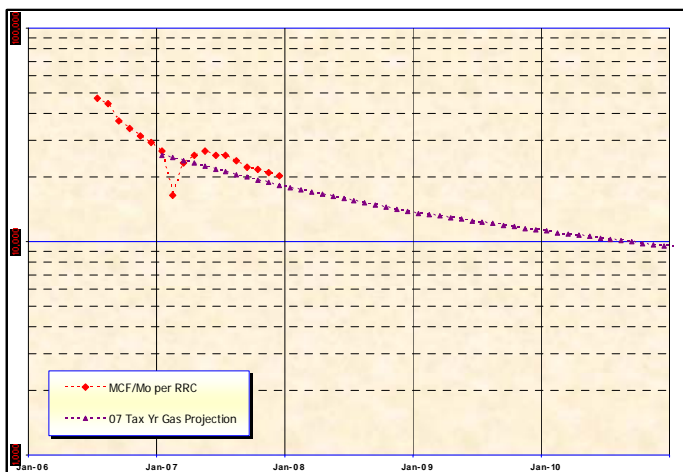
Increase in Value of a Depleting Asset - <u>Price Influence</u>				
P R I O R	*Simplified Example: If the prior year's appraisal, the total reserves were 300,000 Mcf and the price was \$5.63 per Mcf = \$1,689,000 value.			
	<u>Mcf Reserves</u>	Price Per Mcf	Prior Year's Mcf Value	
	300,000 (x)	\$5.63	=	\$1,689,000 ←
C U R R E N T	and the current year, the appraisal's Mcf reserves had declined to 255,000 Mcf, however, the price per Mcf had increased 23% = \$6.93,			
	<u>Mcf Reserves</u>	Price Per Mcf	Current Year's Widget Value	
	255,000 (x)	\$6.93	=	\$1,767,150 ←
<i>Therefore, even though there may be less appraisal reserves in the current year, the price increase made those reduced total reserves more valuable than the prior year.</i>				
<small>* Assuming the other appraisal parameters remained somewhat the same.</small>				

### Increase in Value of a Depleting Asset – Production Profile Projection

Beside the pricing variation in recent years, another common reason for market value increases is that the appraiser's decline profile for the prior year under-projected its actual performance and was adjusted to fit the current production trend in the current year.

As stated earlier, the market value is not an income tax. The proposed market values are based on **"OUR appraisal projection"**, based on each lease's parameters, as to how each lease/unit will perform in future years, as of January 1. Most owners assume that the appraiser's prior year's appraisal, and corresponding market value, correctly projected the next year's actual production and its corresponding income. After reviewing the prior year's appraisal parameters and comparing the results to actual production, more often than not, the prior year's projection, and the corresponding prior year's market value shown on the Notice, was under projected and was **NOT** an accurate projection of actual production.

Each annual appraisal is normally projected to decline. Many times the property **performed better than the prior year's appraisal had projected even though the production is declining**. This is most common in newer wells that have high initial declines and then begin moderating or flatten out over the next several years. Our appraisal declines are adjusted annually to match the most recent production up to January 1.



Increases in value can also be attributed to well work done by the operator. This after-the-fact (January 1) information was not "known" when the lease was appraised the prior year and therefore was not included in the prior year's appraisal projection.

Therefore, **you can not use the prior year's market value to make a valid comparison without verifying its accuracy also**. Generally, it is not that the current proposed market value is too high; **it was the prior year's projection and corresponding market value was too low and did not equate to the actual production and your corresponding income**.

Each year's appraisal stands on its own. Each year's appraisal is a "snapshot" of the current parameters as of January 1<sup>st</sup> for that appraisal year. There is no correlation between each year's appraisals and market value, beside the fact that each is the annual calculated projection for the same property as of January 1 of each year. Parameter changes that occur after January 1 will be taken into account for the next year's appraisal.

After we initially appraise each property, we send these preliminary appraisals to the lease operator/s or their agent/s. This is done because they have information about annual lease operating expense and reserve information that is not public information and not readily available. They respond with their documentation and, if a re-appraisal is necessary, the lease is re-appraised **and all interest owners received the benefit of the re-appraisal whether you file a protest prior to the ARB hearing or not**. These operator representatives are working to ensure that the most accurate market value is assessed to the lease regarding working and royalty interests. In effect, you have a tax agent working in your behalf regarding your mineral interest value.

## PROTEST INFORMATION

If you file a protest, **you must present "evidence" that documents and supports your protest for each individual protested lease** for the Appraisal Review Board (ARB) that will hear your protest. Such evidence that you must submit at your hearing or attached to your notarized affidavit are:

1. Completed "Payout Calculation" for each lease (previously discussed, use blank form attached), including:
  - 2007 MISC-1099 from ALL purchasers,
  - 2007 January–December Production month, not payment month, Income check summaries

The income requested above is for comparative purposes only, NOT market value appraisal purposes

2. Copy of your signed Lease Agreement for each lease
3. Copy of your signed pooling agreement for each lease (if applicable)
4. Copy of your signed division order for each lease
5. Since individual mineral interests are not negotiated individually, **You must provide your own DCF APPRAISAL for the 100% LEASE that supports your value and is defensible. NOT a Real Estate, accounting, statistical or "royalty calculator" appraisal.**

NOTE: It should be noted that the State protest form or an Appraisal District version is general in nature, but the verbiage is based on real estate property appraisal using the Cost or Market approach. All "Evidence" you provide should pertain to the four (4) parameters of the DCF appraisal. You can not write in a "value" without providing your own DCF appraisal that supports that "value".

On the State form, if you indicated in Step 3, "Value is over market value" on the protest form,

- You should not only list your own value, in Step 4, but also in Step 4, you must "give facts (evidence)", which would be your own DCF appraisal that substantiates your proposed value. You can not just list "too high" without any evidence to support your statement. This evidence should not include the prior year's market value comparison to the current year's value, since each year stands on its own and because the prior year's value may not have been an accurate projection when compared to actual production (discussed previously).

On the State form, Step 3 lists "Value is unequal compared with other properties" – Again, this is for Real Estate and not Mineral Interests. The State protest form's verbiage is based on real estate property appraisal using the Cost or Market approach. No two mineral leases can be compared against one another as an appraisal method since the parameters for each lease are different and are appraised individually based upon these differences. This is unlike real estate appraisals where similar characteristics can be "comparables" to the subject property and adjusted to arrive at market value. Mineral Interest properties, appraised under the Income approach, do not accurately lend themselves to the use of "comparables" commonly used in the Cost or Market Approach.

Also on the State form in Step 3, "Exemption" – if you receive an exemption (homestead, over 65) on your real estate assessment, you can not use that exemption on your mineral interest assessment. Those exemptions can only be used on one type of property (real estate or mineral interest, not both). Exemptions are granted/denied by the Appraisal District.

Other common items that can NOT be protested are:

- The State mandated DCF methodology - the ARB can not overrule State law.
- Any understanding or misunderstanding concerning the lease or leasing agreement with a landman/operator.
- Any over-payment accounting adjustments by the purchaser. This does not diminish the reserve's value that you could sell.
- Anything related to the surface site, if you own the surface, such as damages, roads, equipment
- Any current or pending litigation regarding the lease agreement, production/non-production, marketing or pricing contracts.

**25.19 NAV Tax Rates and Estimated Taxes** – As listed on the Notice of Appraised Value (NAV), "The Texas Legislature (Appraisal District) does not set the amount of your local taxes. Your property burden is decided by your locally elected officials, and all inquiries concerning your taxes should be directed to those officials."

State Law requires that the actual prior year's jurisdiction tax rate be used for the current year's original, corrected or supplemental NAV. This is because the jurisdictions will not have their budget and tax rate hearings until August or September. It is your right to attend these hearings and voice your opinions. Therefore, the rates and estimated tax amount listed can NOT be protested. Original tax statements are mailed October 1<sup>st</sup> each year. Supplemental statements are mailed in the fall.

### **LEGISLATIVE CHANGES for TAX YEAR 2008**

**HB1010**- The RRC determines the primary county for all leases using field rules, lease plats and well location. If the lease acreage for the primary county crosses into another county jurisdiction, HB1010 states that the primary county's appraisal value will be used for appraisal purposes in both the primary and secondary county. (Prior legislation stated that each county would appraise the lease and the lower value would be used.)

**Protesting a HB1010 lease** – The NAV for a HB1010 lease will list all taxing jurisdictions (primary and secondary) on the primary NAV. The secondary county will not send a NAV. Therefore, you must file your protest in the primary county and not the secondary county. This is because the secondary county did not appraise the lease and has no authority to change the primary county appraisal. If any adjustments are made by the primary county, the secondary county's jurisdiction values will be adjusted accordingly.

# PRITCHARD & ABBOTT, INC - SAMPLE APPRAISAL SHEET

YR-BY-YR SUMMARY APPRAISAL SHEETS - PRITCHARD & ABBOTT, INC. TAX YEAR: 200X

xx/xx/xxxx

PAGE #

JOB# NAME..... CO APPRAISAL DISTRICT RRC CO#..... LAST UPDATE: xx/xx/xxxx  
**A** LEASE#, NAME..... FULL WI DECIMAL % = .750000 **E** #WELLS: 10  
**B** RRC#, WELL#..... RRC DIST.. 08 FULL RI DECIMAL % = .250000 DEPTH: 4300

**C** OPERATOR#, AGENT#:  
 OPERATOR NAME.....  
**D** OIL FIELD#.....  
 OIL FILED NAME.....  
 ALT FRZ.: ALT G\$ RRC:  
 ALT JOB#: UNIT.....  
 ALT LSE#: EOR.....  
 ALT RRC#: GRAPH.....

YR	O1		O2		K1			K2
	8/8 ANNUAL	8/8 ANNUAL	8/8 ANNUAL	8/8 ANNUAL	OIL	GAS	GAS	WI OIL
	OIL PRDCTN	GAS PRDCTN	PRD PRDCTN	PRD PRDCTN	PRICE	PRICE	PRICE	REVENUE
1	2181	16454	0	0	33.89	3.90	0.00	55436
2	1842	15137	0	0	33.89	3.90	0.00	46819
3	1648	13926	0	0	32.07	3.90	0.00	39639
4	1516	12812	0	0	31.03	3.90	0.00	35285
5	1394	11787	0	0	30.36	3.71	0.00	31761
6	1283	10844	0	0	30.02	3.52	0.00	28893
7	1180	9976	0	0	30.02	3.57	0.00	26582
8	1086	9178	0	0	30.37	3.63	0.00	24740
	<u>12130</u>	<u>100114</u>	<u>0</u>	<u>0</u>				<u>289155</u>

JUR	JURISDICTION NAME	PERCENT	8/8 VALUE
00	CO APPRAISAL DIST	1.000000	280,660
01	COUNTY	1.000000	280,660
30	I.S.D.	1.000000	280,660

YR	WI GAS	WI PRD	WI GROSS	OPERAT	WI NET	PV WI N	PV RI N
	REVENUE	REVENUE	REVENUE	EXPENSE	REV	REV	REVENUE
1	48128	0	103564	48000	51150	51150	31916
2	44278	0	91097	48000	33622	33622	23993
3	40735	0	80374	48000	21404	21404	18094
4	37477	0	72762	48000	13874	13874	14000
5	32799	0	64560	48000	7863	7863	10617
6	28630	0	57523	48000	3832	3832	8085
7	26713	0	53295	48000	1806	1806	6403
8	24989	0	49729	48508	352	352	5106
	<u>283749</u>	<u>0</u>	<u>572904</u>	<u>384508</u>	<u>188396</u>	<u>133903</u>	<u>118214</u>

# SAMPLE

**\*\*CURRENT APPRAISAL PARAMETERS\*\***

<b>H3</b> MO SHIFT: 6	<b>M</b> DISC: 18.0	YRS MAX: 28
YRS FLAT:	FMVF:	8/8 RES:

<b>J1</b> OIL WELLHEAD PRICE: 37.90	<b>J3</b> GAS WI GR PRICE 4.51
OIL %TAX ALLOWABLE: 10.6	GAS RI GR PRICE: 4.51
TYPE..(USNPQLHCT): L	GAS %TAX ALLOW: 13.5
GRAV SCHED#/DEGREE: 98/38	GAS PRICE ESCAL? Y
PRD WELLHEAD PRICE: <b>J2</b>	ADDL GAS PRICES? N

OP EXP \$/YR	OIL BOPD	GAS MCF/D	PROD BBL/D
<b>L1</b> 48,000	<b>H1</b> 6.6	<b>H2</b> 47	
<b>L2</b>	<b>I1</b> 18.0 1	<b>I2</b>	
	13.0 1		
	8.0 99		

**R** PROD WELLS: 9 EQ SCH#: 51 VAL: 45,000  
 SERV WELLS: EQ SCH#: VAL:  
 INJ WELLS: EQ SCH#: VAL:  
 COMPRESSRS: HP: VAL:  
 OTHER EQ VALUE(RCNLD):  
 LAST YR WI VAL: 71,970  
**F** LAST YR WI VAL: 49,970  
 LAST YR WI VAL: 121,840  
**G** LAST YR OIL PROD: 2,322  
 LAST YR GAS PROD: 15,995

REMARKS1:  
 REMARKS2:

\$/BBLRESV: 7.43 EQUIP VAL: 28,548  
 \$/BBLPROD: 13,653 WI OIL VA: 67,583 RI OIL VAL: 59,665  
 WI PAYOUT: 2.9 **Q1** GAS VAL: 66,320 GAS VAL: 58,549  
 RI PAYOUT: 3.4 **Q2** PRD VAL: 0 PRD VAL: 0  
 8/8 VALUE.: 280,660 WI TOTAL: 162,450 RI TOTAL: 118,210

PRITCHARD & ABBOTT MINERAL APPRAISAL SHEET LAYOUT	
GENERAL	APPRAISAL RESULTS
<b>A</b> - CAD Lease #, Lease Name	<b>N</b> - Year's Life
<b>B</b> - RRC#, RRC Dist	<b>O1</b> - Oil Reserves 8/8
<b>C</b> - Operator	<b>O2</b> - Gas Reserves 8/8
<b>D</b> - Field (Reservoir)	<b>P1</b> - Total WI Value
<b>E</b> - Full WI & RI Decimal Interest	<b>P2</b> - Total RI Value
<b>F</b> - Prior Year's WI & RI Value	<b>Q1</b> - Calculated WI Payout
<b>G</b> - Prior Year's Production	<b>Q2</b> - Calculated RI Payout
	<b>R</b> - Well Count

APPRAISAL PARAMETERS	
<b>H1</b> - Start Rate - Oil - Bbl/Day	<b>K1</b> - Appraisal Net Oil \$/Bbl
<b>H2</b> - Start Rate - Gas - Bbl/Day	<b>K2</b> - Appraisal Net Gas \$/Mcf
<b>H3</b> - Start Rate - Time Period	<b>L1</b> - Annual Operating Expense
<b>I1</b> - Oil Decline, Years	<b>L2</b> - Operating Expense - Decline
<b>I2</b> - Gas Decline, Years	<b>M</b> - WI Mid-Year Discount Rate
<b>J1</b> - Prior Year Wtd Avg. Gross Oil \$/Bbl, Before Tax Deductions	
<b>J2</b> - My appraisals, Comptroller Severance Report Gross Gas Price	
<b>J3</b> - My Appraisals, J2 Price less Mkt & Other Costs, Before Tax Ded in K2	

**Calculating RI Owner's Net Interest Value from P&A Appraisal**

Owner Net Revenue Interest ÷ Full RI Decimal (x) Total Lease RI Value  
 If Owner Net Revenue Interest = .062500, Full RI Decimal = .250000, RI Value = \$118,210  
 Then, .062500 ÷ .250000 (x) 118,210 = 29,552 rounded to nearest 10 = 29,550

**TAX CALENDAR - NORMAL (N) PHASE CYCLES - COMPLETED/PRODUCING MINERAL**

- 1N- Appraisal Phase - Discovery & Appraisal of All known Mineral properties Completed or Producing as of January 1 Assessment date, State Law.
  - 2N- Equalization Phase - 25.19 Notice of Appraised Value mailed, 30 day Protest Period, 20 day Waiver Period & ARB hearing.
  - 3N- Assessment Phase - Appraisal Records Certified by each ARB and those values sent to appropriate taxing entity.
  - 4N- Collections Phase - Taxing Jurisdictions statements are mailed October 1 and close January 31 of the next year.
  - 5N- Delinquent Collections - All current tax statements become Delinquent as of February 1 of the following year.
- The dates for each phase are dependent on the actual ARB date & set by calculating backward from the ARB date each phase date  
 These specific dates are set by each Appraisal District. Therefore, these dates & deadlines can change each year.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1N - Appraisal Phase													
			2N - Equalization Phase										
						3N-Assessment Phase							
								4N - Collections Phase					
5N - Delinquent Collections from Prior Year >>													

**TAX CALENDAR - SUPPLEMENTAL (S) PHASE CYCLES - COMPLETED/PRODUCING MINERAL - NEW LEASES**

Although you may have received income since well completion, it is only after the Texas Railroad Commission (RRC) Central Records validation process is completed, that the lease is entered into the RRC production database. Only then can it be discovered and appraised for ad valorem tax purposes. The validation process includes the review of the final required RRC forms and reports from the operator and the RRC District office for each well, plus the assignment of the lease’s individual RRC ID number.

In the interim, an operator can produce a lease using the assigned drilling permit number. These permit numbers and their corresponding production is not entered into the production database. We all are aware of the drilling/completion activity here in the Fort Worth Basin. This drilling/completion activity is just a great in other parts of the State and they are all funneled from each of the 12 RRC Districts to Central Records in Austin for validation. Therefore, it is not uncommon for this RRC validation process to take six to eight months or more after initial production.

Supplements are for these properties that were actually Completed or Producing as of January 1, the assessment date in Texas, but were not known or listed on the RRC production database at the time of the Original Notice of Appraised Value (NAV) mail out (discovery deadline of early April). Per the Texas Property Tax Code, we can not insert/supplement a newly discovered lease into original Tax Calendar Cycle (May-July) after it has begun. Supplemental assessments create their own Tax Calendar with the same bundle of rights as the Original NAV.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
							1S - Supp Appraisal						
									2S - Supp Equalization >>				
									3S - Supp Assessment >>				
										4S - Supp Collections >>			
5S - Supplemental Delinquent Collections from Prior Year >>													

## Common Mineral Interest Acronyms/Definitions/Terms

**PTC – (Property Tax Code):** Texas State laws governing ad valorem appraisal, assessment and collection. These laws (updated every other year) are available at the Texas Comptroller's website: <http://tlo2.tlc.state.tx.us/statutes/tx.toc.htm>

**Ad valorem tax:** According to value.

PTC §1. Equality and Uniformity; Tax in proportion to value

(a) *Taxation shall be equal and uniform.*

(b) *All real property and tangible personal property in the State, unless exempt as required or permitted by this Constitution, whether owned by natural persons or corporations, other than municipal, shall be taxed in proportion to its value, which shall be ascertained as may be provided by law.*

**Tax Rates** – the rate, per \$100 market value, is set by each taxing jurisdiction to raise money for their budget. The jurisdiction rates and budgets are set at public hearings. It is each property owner's responsibility to attend and voice your concerns and opinion regarding these two items. *Your property burden is decided by your locally elected officials, and all inquiries concerning your taxes should be directed to those officials*". For ad valorem tax purposes, State law states that the actual prior year's tax rate be used for the current years NAV.

**RRC** - Railroad Commission (of Texas), responsible for regulation of the oil and gas industry. Primary responsibilities include protection of correlative rights and prevention of waste, mainly achieved through well spacing and production allowables. Areas over which the RRC has no authority include lease and royalty matters (including leasing, payment of royalties and the right to receive royalties), the financing of or investment in oil and gas activities, and bankruptcy.

**Crude Oil** – The liquid hydrocarbons which are produced from an Oil classified well.

**Oil Well** – as classified by the RRC field rules for the type of products being produced. They can be flowing or use artificial lift.

**Casinghead Gas** – The gas produced from Oil classified well.

**Bbl** - Barrel, the standard unit of measurement for oil, equal to 42 gallons.

**bopd,bo/d** - Barrels of oil per day, a typical unit of daily oil measurement

**Natural Gas** – a mixture of hydrocarbons and non-hydrocarbons existing as gas or in solution with crude oil in a reservoir.

**Gas Well** - as classified by the RRC field rules for the type of products being produced. They can be flowing or use artificial lift.

**Artificial Lift - (Raw Gas / Nitrogen Lift)** Down-hole equipment installed after initial production to lift liquids (water or hydrocarbons) to improve the performance and efficiency of these wells. Besides drilling in the vicinity of producing wells, gas lift installation is the most common reason for a well to be temporarily shut-in.

**Raw Gas** – The gas produced from a Gas classified well.

**Condensate** - In a Gas classified well, the hydrocarbons which are in a gaseous state within the reservoir, the heavier of the hydrocarbons becoming liquid in passage up the hole at the surface. The hydrocarbon liquids which condense out of gas.

**NGL (Natural Gas Liquids)** - Gas that is processed through a plant to separate the heavier hydrocarbon liquids from the natural gas stream. These heavier hydrocarbon liquids, NGLs, traditionally have a higher value than the gaseous natural gas stream. Principal NGLs include ethane, propane, butanes, and natural gasolines. The separation or extraction of NGLs from the natural gas stream is performed to enhance the ultimate value of the raw natural gas stream (increases the price per Mcf). If the heavier hydrocarbon liquids are left in the gas, they are valued at the gas sales price along with the lighter gaseous components.

**Mcf** - Thousand cubic feet, the standard unit of measurement for gas. The letter "m" is of Roman numeral origin.

1,000,000 cubic feet = 1,000 mcf

**mcfpd, mcf/d** - Thousand cubic feet per day, a typical unit of gas daily rate measurement.

**Bcf** - Billion cubic feet, a common measurement of gas usually used for expressing large gas volumes for field, county, or state production totals. 1bcf = 1,000,000 mcf.

**ADP** - Average Daily Production. Denotes the appraisal's starting production rate for projection of future production from the lease.

**Reserves** - Classified as proved developed reserves. Economically producible in future years from know reservoirs under existing economic and operating conditions using conventional production methods and equipment.

**Field** – the geographic area in which there are oil and/or gas wells which produce from one or more reservoirs.

**Newark, East** – gas field geographically associated with RRC district 9 by the RRC (the district number assigned by the RRC follows all wells, regardless of the actual County the well is located and its district number).

**Reservoirs** – an accumulation of oil and/or gas in a layer of compressed rock that has been sealed by geological forces.

**Barnett Shale** – a geological gas formation

**Shut-In/Temporary Abandoned** – RRC well status code for those wells that are not currently producing. This does not mean that they will never produce again. This is commonly used for those wells that are shut-in because of drilling in the immediate area. This is very common and these wells can be shut-in six months or longer. This status does not affect the reserves or the corresponding market value, it just delays their recovery. The other most common reason for this status is temporary well work. The most common of this type of well work include installation of Artificial Lift (Commonly Raw Gas or Nitrogen lifts).

**British Thermal Unit (Btu):** The standard measure of heat energy. It takes one Btu to raise the temperature of one pound of water by one degree Fahrenheit at sea level. One Btu is equivalent to 252 calories, 778 foot-pounds, 1055 joules, or 0.293 watt-hours.

[Decline Curve](#) – the graphic representation that shows how the production rate changes over time .

[Semi-log plot](#) - method of displaying large volumes of data that is changing with an exponential relationship. The “x” axis is linear for Time (months) and the “y” axis is logarithmic for Rate (large volumes of production).

[Exponential decline](#) - (straight-line decline) A single decline rate that is used for the life of the appraisal.

[Hyperbolic decline](#) - Non-exponential with subtle multiple decline rates. It incorporates the “slope” or bending of the decline to match a decline profile.

[Harmonic decline](#) - Non-exponential with more pronounced or steeper multiple decline rates. It incorporates the “slope” or bending of the decline to match a decline profile.

[Economic Life](#) - Describes the total projected years the lease can be operated profitably. After that point the expenses exceed the revenue for the working interest owner(s), and therefore the appraisal program assumes the well will be abandoned and that royalty income will cease.

[Mineral Rights](#) – the ownership of the minerals on or under the surface, with the owner having the right to capture or recover and the right to delegate owner rights to another party to recover mineral by negotiating a lease agreement.

[Mineral Interest](#) – the ownership of all rights regarding oil, gas, or other minerals as they naturally occur in place, at or below the surface of a tract of land.

[Division Order](#) – A list completed by the operator or the purchaser of the oil and gas which shows the name, address and fractional interest and type of interest for each party owning an interest in an oil or gas property.

[NRI](#) - Net Revenue Interest, the amount of fractional ownership in the lease, typically expressed in decimal form (to the hundred thousandths, 6<sup>th</sup> decimal place) for mineral interest appraisal and assessment.

[RI](#) - Royalty Interest, mineral interests in the lease acreage that do not participate in the lease operations.

[OR](#) - Over-Riding Interest, carved out of the Working Interest, usually in lieu of payment of services or financing. Non-operating.

[WI](#) - Working Interest, mineral interests that operate the lease and bear the cost to operate.

Appraisals for ad valorem tax purposes consolidate interests of the same type for cashflow purposes. For example, all royalty interest owners' interests will be consolidated to one decimal sum, typically 12.5% to 25%, so that total royalty value is derived for the lease. Individual owners' values are calculated prorata to the portion of the total royalty interest they own individually.

[Comptroller Market Condition Factor \(CMCF\)](#) The Comptroller's calculated forecast factor used to account for market conditions for pricing purposes when calculating the average price in the current appraisal (PTC §23.175 - Effective 01/01/2008 beginning with the 2008 Tax Year).

**RRC Production and well data** is available to the public at the [Texas Railroad Commission \(RRC\) website](#). The majority of this information is listed at <http://www.rrc.state.tx.us/>. You can click on these active hyperlinks and once there, save as a Favorite.

**RRC GIS Map Viewer** – is the most comprehensive link for finding the well information and production from one link. <http://gis2.rrc.state.tx.us/public/>

On “Map Tools”, select Identify Well. At “Search BY:” enter the specific well ID information of your choice (“Lease/ID”=RRC#, Dist#=09), and then click “Map”. On the map, click the well (it will be identified by the well # and in the center of the map) and follow the link of your choice.

**RRC Production Query** - Quick, well specific production query with adjustable date ranges.

<http://webapps.rrc.state.tx.us/PR/publicQueriesMainAction.do>