FINAL REPORT

DOE/FE/64202--T4

STUDY OF ALTERNATIVES FOR FUTURE OPERATIONS OF THE NAVAL PETROLEUM AND OIL SHALE RESERVES

NOSR-1 & 3

Garfield County, Colorado
as of October 1, 1996

for

U.S. DEPARTMENT OF ENERGY

December 1996

MASTER

GUSTAVSON ASSOCIATES
GEOLOGISTS·ENGINEERS

PHASE II - FINAL REPORT
STUDY OF ALTERNATIVES

FOR

FUTURE OPERATIONS OF THE NAVAL PETROLEUM AND OIL SHALE RESERVES NOSR 1 & 3, COLORADO

for the

U.S. DEPARTMENT OF ENERGY
Contract No. DE-AC01-96FE64202

DECEMBER, 1996

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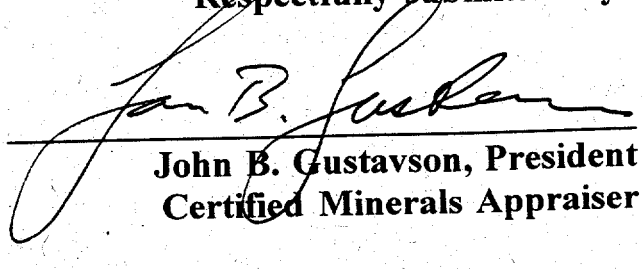

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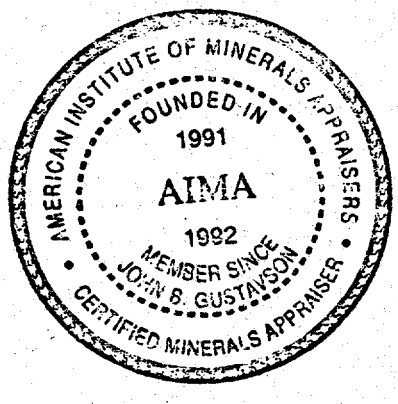


DISCLAIMER

EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE) has asked Gustavson Associates, Inc. to serve as an Independent Petroleum Consultant under contract DE-AC01-96FE64202. This authorizes a study and recommendations regarding future development of Naval Petroleum Oil Shales Reserves Nos. 1 and 3 (NOSR 1 and 3) in Garfield County, Colorado (Figure 0.1). The report that follows is the Phase II Final Report for that study. Additional details are provided in the Addendum (the Phase I Property Description and Fact Finding Report).

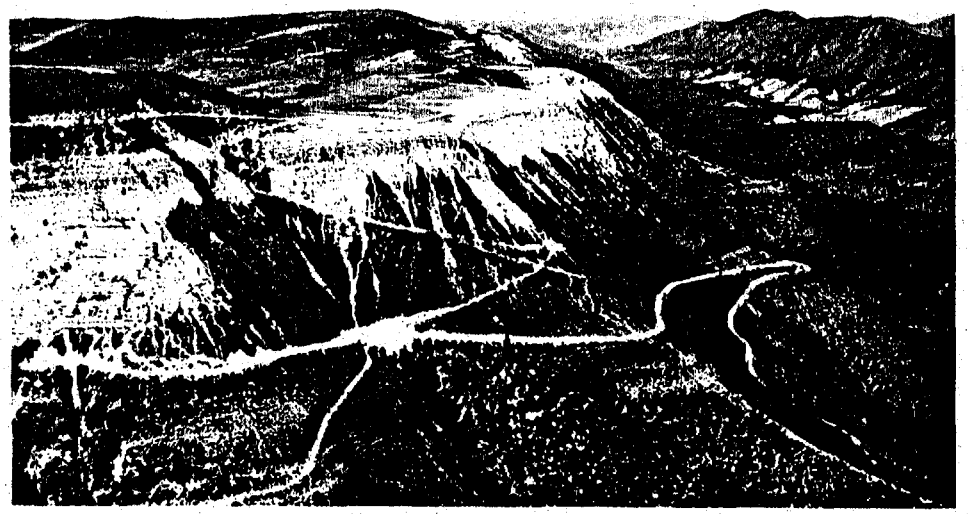
The key property elements that positively affect the estimated value of NOSR 1 and 3 include the following: working interest income from producing oil and gas leases, income from grazing or leasing of grazing rights, potential income from oil and gas leasing on exploratory (or nonprospective) acreage, potential value of trading surface real estate as ranch land for livestock grazing (56,577 acres). Key elements that negatively impact the estimated value include: environmental assessment costs, gas prices, operating budgets, and lease sale expenses.

The United States of America owns 100 percent of the mineral rights and 100 percent of the surface rights in 36,406 acres of NOSR-1 and 20,171 acres of NOSR-3. These tracts of 36,406 and 20,171 were set aside as an oil reserve for the U.S. Navy by an Executive Order of President Wilson in 1916. Management of NOSR 1 and 3 are the responsibility of DOE.

Gustavson Associates has conducted a study and made recommendations regarding which of the following options, or combination of options, would maximize the value of NOSR 1 and 3 to the United States:

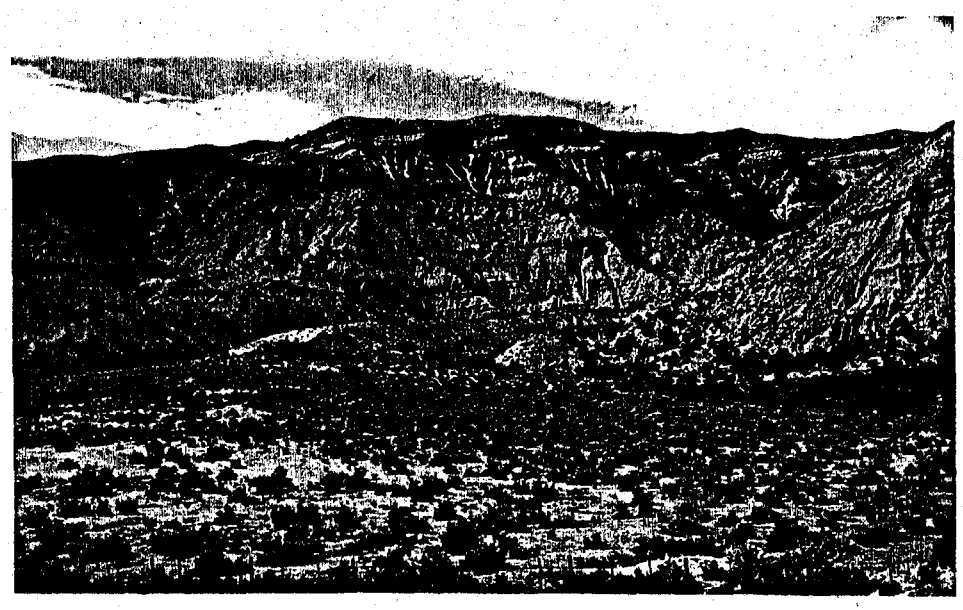
Option 1: Retention and operation of all or part of NOSR 1 and 3 by the Secretary of Energy under Chapter 641 of Title 10, United States Code.

FIGUF 0.1
NOSR 1 & 3 PHOTOGRAPHS

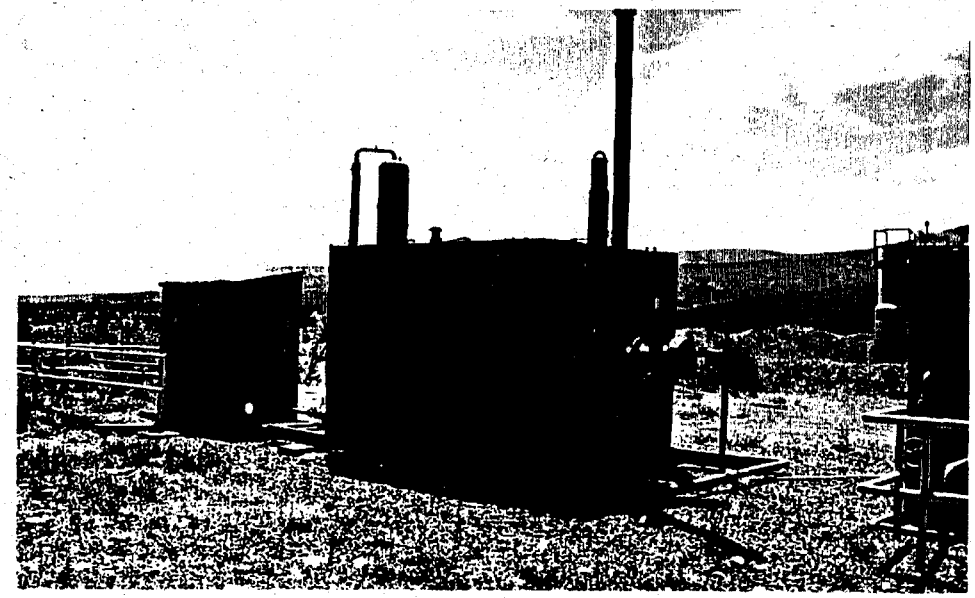


A. NOSR-1 surface and access from the east.
NOSR-3 east facing cliffs.

B. NOSR-1 typical terrain.



C. NOSR-3 terrain; south facing cliffs from I-70.



D. NOSR-3 typical well location equipment.

Option 2: Transfer of all or a part of NOSR 1 and 3 to the Department of the Interior for leasing in accordance with the Mineral Leasing Act (30 U.S.C. 181 et seq.) and surface management in accordance with the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq.).

Option 3: Transfer of all or part of NOSR 1 and 3 to the jurisdiction of another federal agency for administration under Chapter 641 of Title 10, United States Code.

Option 4: Sale of the interest of the United States of all or a part of NOSR 1 and 3.

Over 50 wells in the field are current producing 10,000 MCF of gas per day. The DOE operates approximately half of the wells with the remainder being communitized wells operated mainly by Barrett and others. Gross revenues are about $3.0 million per year. Estimated net proved reserves to the government's interest include 20.0 thousand barrels of oil and 19.8 billion cubic feet of gas.

There is potential for the DOE to realize higher gas prices in the range of $1.25 per MCF in the near term provided that certain contractual arrangements are made and pipeline infrastructure is improved. The contractual issues involve negotiations with the Defense Fuel Supply and pipeline companies for selling and transporting NOSR-3 gas to military installations along the Front Range of Colorado along with construction of pipeline links to main trunklines in the area. This Appraiser has considered this scenario strictly as a sensitivity in the overall valuation of the property because it can only be based on an expectation that events will come to pass as predicted.

There is a considerable amount of undeveloped acreage on NOSR 1 and 3 which in some cases is close to existing production but currently uneconomic to drill at current gas prices. This acreage has never been offered for mineral leasing. If gas prices increase and stabilize at $1.50 MCF or higher, then there will be an addition of numerous proved undeveloped locations which will add substantial value to the NOSR-3 property. Higher gas prices will improve the economics

of drilling and oil companies would be interested in leasing, drilling and producing the subject properties.

NOSR-1 is further removed from production and mineral development is speculative at this time. There is a seismic structure on the east side of NOSR-1 which would be considered prospective by the oil industry. This Appraiser has considered these aspects in the overall appraisal. Currently, there is only a speculative value to the oil shale given the high cost of extraction.

The *highest and best use* of the mineral estate at this time is for continued generation of income from oil and gas production from currently producing wells and from generation of income from the undeveloped acreage by leasing (bonus and rentals) and/or outright sale of the property. There is a reasonably active market of recent producing property transactions, and of recent leasing of nearby federal, state, and private mineral rights. These data have been utilized, with production and economic forecasts for the producing acreage, in estimating the Fair Market Value for all of the mineral rights at NOSR-1 and NOSR-3.

Continued oil and gas production is currently the most economically important use of NOSR-3. This is managed by the DOE and provides a revenue stream to the United States from production.

The *highest and best use* of the surface and water rights is generation of income from grazing livestock. Comparable sales of similar types of lands have been utilized to estimate the Fair Market Value of the surface and water rights at NOSR 1 and 3. This use is considered to be compatible, though somewhat diminished by ongoing oil and gas production operations at NOSR-3. For NOSR-1, the dominant estate is considered to be the surface which diminishes the value of the mineral rights.

The *highest and best use* of NOSR-3 is for a combination of activities related principally to generation of income from production of oil gas, leasing of oil and gas rights, and livestock grazing. These uses are compatible with each other, provide minimal interference and tend to be additive in valuation. The *highest and best use* for NOSR-1 is for a combination of activities

related principally to generation of income from livestock grazing and from oil and gas leasing. As with NOSR-3, these uses are compatible with each other, provided there is minimal interference.

The option recommended to maximize value to the United States is Option 4, sale of the interest of the United States of all or part of NOSR 1 and 3. Evaluation of this option results in an estimated value of $2.2 million for NOSR-1 and $5.5 million for NOSR-3. The next highest value for NOSR-3 is $4.4 million for Option 1 which is 26 percent lower than Option 4. All of the remaining options are negative for NOSR-1 due to the high cost of surface management with very little income being derived from current surface leasing activities.

1. INTRODUCTION

1.1 AUTHORIZATION

The U.S. Department of Energy has asked Gustavson Associates, Inc. to serve as an Independent Petroleum Consultant under contract DE-AC01-96FE64202. This authorizes a study and recommendations regarding future development of Naval Oil Shale Reserve No. 1 and No. 3 (NOSR-1 & 3) in Garfield County, Colorado. The report that follows is the Phase II Final Report for that study.

1.2 TYPE OF APPRAISAL

The scope of this appraisal engagement or study refers to the extent of the process of collecting, verifying, analyzing, and reconciling relevant data. The U.S. Department of Energy could engage an appraiser to perform either a Complete or Limited Appraisal. In this particular case, it is considered that the requested appraisal or study falls under the designation of a Limited Appraisal. This is mainly due to the fact that a Limited Appraisal was conducted for the surface rights which, when considered for the entire property, does not allow for the designation for the entire property as a Complete Appraisal. When considering just the mineral rights, it is the opinion of this Appraiser that a Complete Appraisal was conducted. A Complete Appraisal is the act or process of estimating value without invoking any departure provisions. As will be discussed below, one minor departure provision has been invoked for the mineral rights, namely that of utilizing oil and gas price forecasts as of 1 October 1996 as the basis for this Appraisal, although that date and the corresponding hydrocarbon prices are still in the future as compared to the date of preparation of this Appraisal.

Apart from this minor departure, this Appraiser has utilized all applicable approaches to value for the mineral rights. Our value conclusion reflects all known information about the subject property, market conditions and available data.

The type of appraisal performed here, namely a Limited Appraisal, is the act or process of estimating value performed under and resulting from invoking substantial departure provisions. In that hypothetical case, both the appraiser and the client would have agreed prior to the engagement that the appraiser will not use all applicable approaches to value or that the value conclusion will not reflect all known information. In the case of appraising the surface, some departure provisions were invoked and are discussed below. Hence, this is a Limited Appraisal.

1.2.1 Disclosure of Departures from Guidelines

This Appraiser has carefully tested whether or not the assumption of using oil prices as of 1 October 1996 constitutes a departure from guidelines. Typically, our test to determine if the appraisal would involve departure is to ask the following questions:

1. Is there anything about the subject property or market that this Appraiser needs to acknowledge, but won't, in order to estimate value? and

2. Is there any analysis that this Appraiser should do, based on what reasonable appraisers would consider necessary for this engagement, but won't, in order to estimate value?

This Appraiser's answer to both of these questions is "no". This Appraiser has taken the approach to value based on realistic assumptions of oil and gas prices. When the report was first prepared in August, prices were forecasted for two months into the future. Actual gas prices for October 1 were checked with DOE personnel in Casper and there was only a slight increase. As a result, there is no material difference between the projected and the actual oil and gas prices as of October 1. While oil and gas prices undoubtedly will vary as they always do, we anticipate no major change and we do not consider any minor change of oil or gas prices to be critical to our appraisal. This Appraiser also expects that other reasonable appraisers and/or participants in the market for this type of property would not consider the assumption of oil and prices two months in the future to be critical, particularly since this disclosure is clearly made and since the reader will be able to qualify the opinions given herein in case of minor upwards or downwards

changes in oil and gas prices. This immaterial departure was caused by the desirability of matching the years of future production and cashflow in the various reserve estimates with the fiscal year cycle of the U.S. Government.

Departure provisions of the Uniform Standards of Professional Appraisal Practice (USPAP) allows limited exceptions to specific guidelines of USPAP provided the assignment is not so limited in scope that, in the judgement of the appraiser, the resulting appraisal will not confuse or mislead the Client.

In the process of preparing the surface appraisal, the work completed has gone beyond the typical definition of a limited appraisal and would approach a complete appraisal, limited though by the fact that (a) only the market approach was used (the income approach could have been marginally useful but was left out because of schedule constraints), and (b) some of the comparable sales data was furnished by others and not independently verified. It is the opinion of this Appraiser that the market data approach provides a reasonable estimate of value for the surface which can be relied upon for valuing the property in its entirety.

1.2.2 Self-Contained Report

This self-contained report is prepared under USPAP Standard 2-2(A) to document this Appraiser's Complete Appraisal and consulting service. This self-contained report contains to the fullest extent possible and practicable, full and complete explanations of the data, reasoning and analyses that were used to develop the opinion of value and the results of our consulting service. It also includes thorough descriptions of the subject property, the property's locale, the market for the property type and this Appraiser's opinion of the *highest and best use*.

This appraisal report provides enough information on each topic so that the reader of the report can follow the reasoning without having to make leaps of faith. In cases where additional details may be necessary the reader will, at each occasion, be referred to the Property Description and Fact Finding Report for each of the NPR and NOSR properties dated 30 June 1996 and submitted

on 18 July 1996, for further substantiation. The intention has therefore been that the reader should understand solely on the basis of what is herein written how this Appraiser has arrived at the conclusions and recommendations.

1.3 PROPERTY SUMMARY

With the exception of 600 acres of private oil shale claims, the United States of America owns 100 percent of the mineral rights in NOSR-1 & 3, and we are relying on this claim for the purpose of this evaluation. This 56,577.15-acre area is located in Garfield County, in Western Colorado (Figure 1.1). These tracts were set aside as an oil shale reserve for the U.S. Navy by an Executive Order of President Wilson in 1916. NOSR-1 & 3 consists of approximately 88 square miles in Townships 5 and 6 South, Ranges 93 to 95 West (Table 1.1). Management of NOSR-1 & 3 is the responsibility of the U.S. Department of Energy (DOE).

According to Chapter 641, Title 10, U.S. Code, dated August 10, 1956, the Secretary of the Navy, and through subsequent transfer of responsibility, the Secretary of Energy, is authorized to "...explore prospect, conserve, use and operate..." the Naval Petroleum and Oil Shale Reserves, including NOSR-1 & 3. This authority was given provided that use and operation be for (1) the protection, conservation, maintenance and testing of the Reserve or (2) production of petroleum whenever such production is required for the national defense (Naval Petroleum and Oil Shale Reserves Fiscal Year 1995 Annual Operating Plan).

1.4 DESCRIPTION OF SCENARIOS

As authorized in contract DE-AC01-96FE64202, Gustavson Associates was retained by DOE to serve as an Independent Petroleum Consultant as specified in Section 3416 of the National Defense Authorization Act for Fiscal Year 1996, P.L. 104-106 (110 Stat. 186). As stated in the Act, we have conducted a study and made recommendations regarding which of the following options, or combination of options, would maximize the value of NOSR-1 & 3 to the United States:

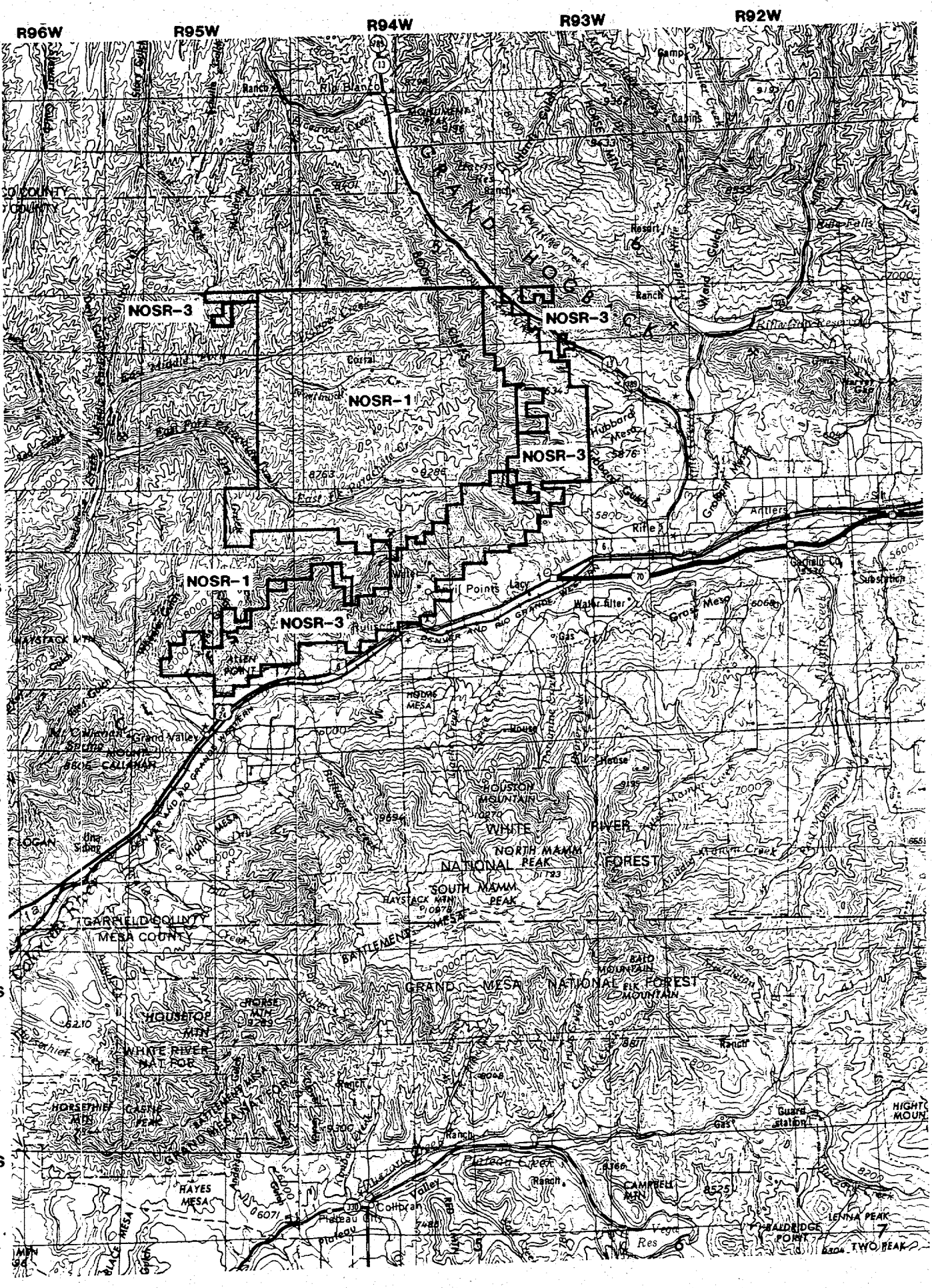


FIGURE 1.1-GENERAL LOCATION MAP FOR NOSR-1 & 3

Table 1.1

Property Income Summary Table

NOSR-1

Surface : 36,406.21 acres

- Grazing
- Recreation

Mineral:

- Oil and Gas: No Production Established, Exploratory
- Oil Shale: 18 billion barrels in place*

NOSR-3

Surface: 20,170.94 acres

- Grazing (minimal)

Mineral:

- Oil and Gas: PDP Reserves of 11.3 BCF and 12.9 MBO
- Oil Shale: Reserved Water Rights

* Oil Shale Reserves are not Economic to Mine

- Retention and operation of all or part of NOSR-1 & 3 by the Secretary of Energy under Chapter 641 of Title 10, United States Code.

- Transfer of all or part of NOSR-1 & 3 to the jurisdiction of another federal agency for administration under Chapter 641 of Title 10, United States Code.

- Transfer of all or a part of NOSR-1 & 3 to the Department of the Interior for leasing in accordance with the Mineral Leasing Act (30 U.S.C. 181 et seq.) and surface management in accordance with the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq.).

- Sale of the interest of the United States in all or a part of NOSR-1 & 3.

Our study includes an examination of the value to be derived by the United States from the retention, transfer or sale of NOSR-1 & 3. The study includes an assessment and estimate of the Fair Market Value of the interest of the United States in this property. The assessment and estimate were made in a manner consistent with customary property valuation practices in the oil and gas industry.

1.5 GENERAL SCOPE OF REPORT

This Report reflects the following general scope of work performed by this Appraiser from April to August, 1996:

1. Delivery of an *Implementation Plan* in May, 1996, containing an initial review of documents, a time frame and schedule for project completion, and identification of additional work and studies required.

2. Meetings with DOE personnel in Washington, D.C. and Casper, Wyoming; with Fluor Daniel (NPOSR) Inc. personnel in Casper; personnel from Barrett Resources, Colorado Oil

and Gas Commission and Piceance Natural Gas in Denver; and a personal inspection of the property.

3. Research for, and preparation of, a Phase I report, titled *Property Description and Fact-Finding Report* for NOSR-1 & 3, which was previously submitted to DOE in draft format, dated June 30, 1996. It is included with this Phase II Final Report as an Addendum. The research was described in detail in the Phase I Report. Corrections to the draft, based on information provided by DOE (and subsequent research), have been made and incorporated in the Addendum.

4. Completion of Task II, an analysis of geophysical data acquired across NOSR-1, and analysis of increased well density on 40 acres on NOSR-3.

5. Upon completion of Phase I, research for, and preparation of, this Phase II Final Report, which is consistent with the *Implementation Plan* and contains the relevant findings, supporting data, underlying assumptions and recommendations. The research is described in detail later in this Report.

1.6 ORGANIZATION OF REPORT

This Report is organized in seven major sections. Preceding this Introduction (Section 1) is an Executive Summary which highlights the methodologies utilized and the recommendations provided. Following the Introduction is a Section on each of the alternatives for future operations at NOSR-1 & 3 that DOE authorized us to consider. These are:

Section 2: Retention and Continued Operation by DOE
Section 3: Transfer to the Department of Interior
Section 4: Transfer to Another Government Agency
Section 5: Sale of the Property.

Section 6 provides a Comparative Analysis of the four alternatives listed above. Section 7 includes our Recommendations for future operations of NOSR-1 & 3.

A number of Appendices follow Section 7, so that the body of the Report can be kept relatively brief. The original Phase I *Property Description and Fact-Finding Report* is included as an Addendum to this Final Report.

1.7 ACKNOWLEDGEMENTS

Gustavson Associates gratefully acknowledges the gracious cooperation of DOE personnel in Washington, D.C. and in Casper, Wyoming; and Fluor Daniel personnel in Casper, Wyoming.

1.8 CONFIDENTIALITY

The findings of this Report are considered confidential to our Client, the U.S. Department of Energy. We have not released these findings to any other party.

2. RETENTION AND CONTINUED OPERATION BY DEPARTMENT OF ENERGY

2.1 RETENTION OVERVIEW

2.1.1 Introduction

Retention and operation of all or part of NOSR-1&3 by the Secretary of Energy has been studied by Gustavson Associates as part of contract DE-AC01-96FE64202. The assumptions, methodology, and results of this study are presented in this section of the Report. Retention of NOSR-1&3 by the Department of Energy is the option requiring the fewest assumptions since the subject properties are currently operated by DOE. The resulting benefits to the Federal Government will serve as a base case comparison to the alternative NOSR-1&3 options studied by this Appraiser.

2.1.2 Summary of Current Operations

Hydrocarbon production at the NOSR sites is from gas-bearing sands in the Piceance Basin drilled as part of the Gas Protection Drilling Program initiated in the mid 1980s. Currently, DOE has ownership interests in over 50 gas wells on or adjacent to the NOSR-3 property. DOE operates just over half of these wells, with interests in the remainder being communitized wells. Current net DOE gas production is approximately 10 million cubic feet per day (MMCFD) with very little associated condensate or water produced. Gas production operations at NOSR-3 are conventional by industry standards.

NOSR-1 is over 9,000 feet above sea level and just to the north of NOSR-3. There are no existing wells at NOSR-1, and the site is used primarily for grazing, hunting, and recreational purposes. The surface area is operated by the Bureau of Land Management for the DOE. The only income associated with NOSR-1 under the retention scenario is associated with grazing rights.

2.1.3 Specific Scope of Review

Retention and operation of NOSR-1&3 by DOE were reviewed in detail by Gustavson Associates. In general, benefits to the Federal Government were based on current DOE operations at NOSR-1&3. More specifically, the pertinent information included:

a. Production rates and forecasts from existing wells.

b. Reserve estimates from existing wells including nonproducing volumes.

c. Reserve estimates from undeveloped locations that could be considered proved.

d. DOE interests in individual wells including operatorship.

e. Estimations of operating costs for all wells that generate income to the Federal Government.

f. Estimations of wellhead gas and condensate sales price received by DOE.

g. Income associated with grazing and maintenance at NOSR-1.

This information was gathered from various sources including a NOSR-1&3 site visit, existing reports submitted by DOE, DOE personnel, Fluor Daniel personnel, local oil and gas operators, local gas gathering and transportation companies, and various other industry sources and surveys.

2.1.4 Assumptions and Limiting Conditions

The initial gas price used in this evaluation is $0.95/Mmbtu as described in the Addendum to this Report. The average gas quality is 1,057 Mcf/Mmbtu which results in an initial gas price of $1.00/MCF. NOSR-3 wells produce a minor amount of condensate along with the gas.

Currently, the crude oil producer, EOTT is paying $18.50 per barrel for condensate. This is the initial price used in this analysis. Both gas and condensate prices are increased using an annual escalation factors of 2.27 percent and 2.57 percent, respectively. These escalation factors are obtained from the Society of Petroleum Evaluation Engineers (SPEE) "Fifteenth Annual Survey of Economic Parameters Used in Property Evaluations".

This Appraiser's operating costs are based on a DOE report prepared under Job Order 541101. As described in the Addendum to the report, the average direct operating costs for Wasatch wells is estimated to be $470 per month, with $1,000 per month estimated for the Mesaverde wells. These initial costs are escalated by 3.04 percent annually based upon the SPEE survey.

Drilling costs are estimated based upon the location to be drilled and historical costs as described in the Addendum to this Report. For Wasatch wells, this Appraiser used a drilling and completion cost of $300,000 for vertical wells with difficult access, $400,000 for directionally-drilled wells, and $600,000 for vertical well locations on top of the mesa. There were no vertical wells with easy access. For new Mesaverde wells, costs for drilling and completion of vertical wells with easy access is estimated to be $800,000, $850,000 for vertical with difficult access, $950,000 for directionally drilled wells with easy access, and $975,000 for directionally-drilled wells with difficult access. There were no Mesaverde locations on top of the mesa. Drilling and completion costs are escalated by 3.07 percent annually based upon the SPEE survey.

DOE provided net interest percentages in existing well and drilling locations. In determining drilling and operating costs and revenue applicable to DOE, the costs and revenues are adjusted based upon these interests.

The discount rate is a key variable in the income method that is used in determining the net present value (NPV). In the income approach to valuation, a discount rate is applied to future net income to determine the present value of the cash stream. The discount rate is a function of the recipient's cost of capital and its perception of risk associated with realizing the predicted cashflow.

Cost of Capital - The office of NPOSR, as a part of the Federal Government, has the same cost of capital as the U.S. Government. The Federal Government raises capital through the sale of Treasury bonds and bills (T-bonds and T-bills). The weighted average of the portion of debt in each of the various denominations determines the government's cost of capital. As shown in Figure 2.1, the resulting value ranges between five and seven percent. These rates also vary over time. An estimated cost of capital is based upon the mean average for all government interest rates, that is, the five year T-bond. The rate for the five-year T-bond has risen from a low of 5.25 percent to rate over 6.5 percent between mid-February and the first of August. This analysis assumes the Federal Government's cost of capital to be 6.5 percent.

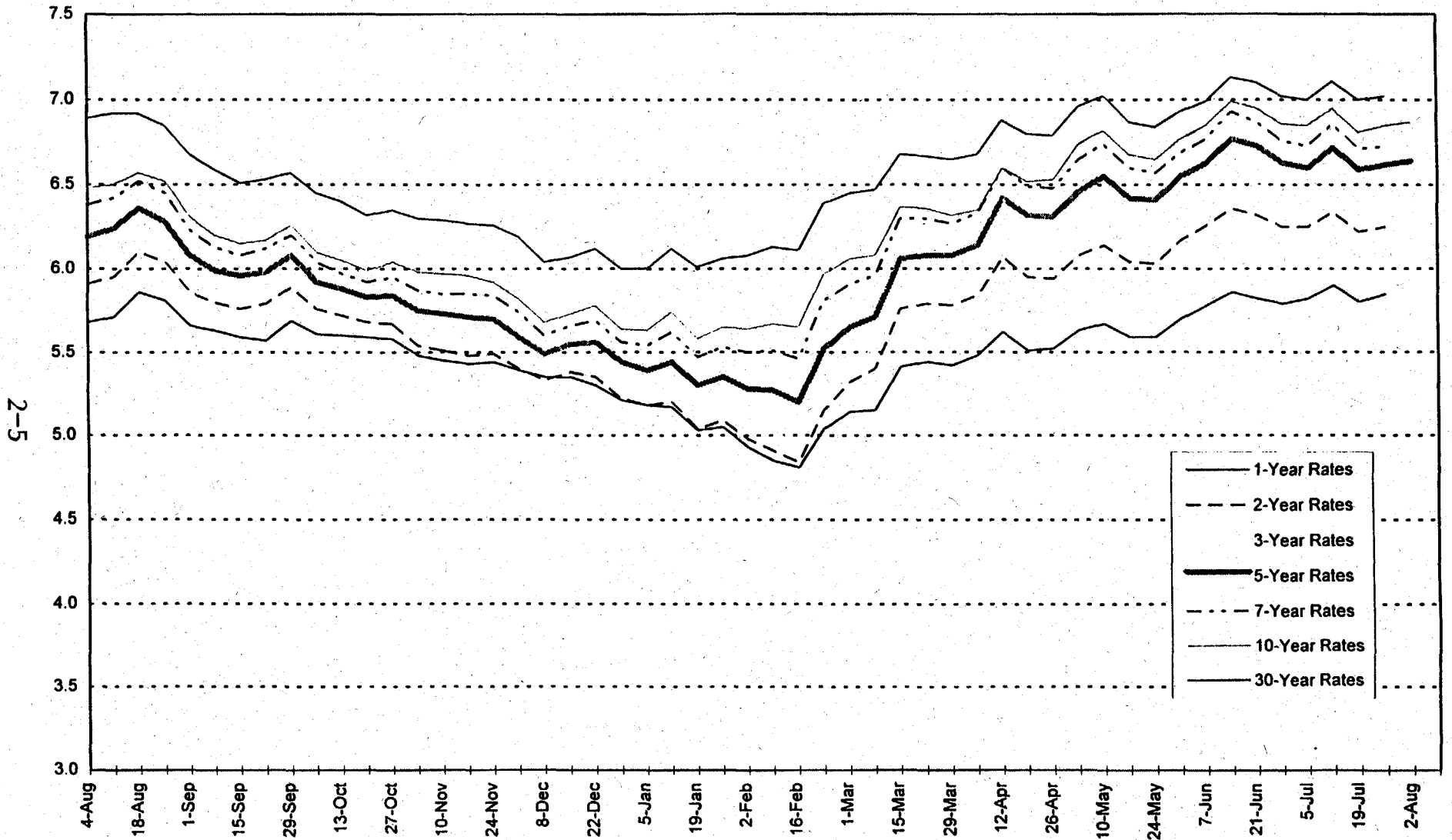
Perception of Risk - To determine the applicable discount rate, the various components of the perception of risk are added to the cost of capital. The risk of achieving the predicted cashflow from producing oil and gas operations can be divided into three major components, the combination of which yield the cashflow risk. These three components are the price, production and operating cost risks.

Price Risk - Price risk is estimated to equal three percent. The efforts by industry to protect themselves from oil and gas price fluctuations -- through the use of hedging, futures selling and other activities -- has historically resulted in adding three percent to cost of capital. In other words, those who use these risk-reducing instruments are able to lower their cost of capital approximately three percent.

Production Risk - There is production risk in obtaining oil and gas that is unique to the petroleum industry. As opposed to other sectors of the mineral extraction industry, oil and gas production declines significantly over time. Historically, the sale of mineral extraction operations for other types of minerals, such as aggregate stone, marble quarries, etc., are purchased based upon a lower discount rate than petroleum production operations. For comparable examples, the difference -- approximately three percent -- is assumed to be attributable to the uncertainty in forecasting oil and gas production.

FIGURE 2.1

Interest Rates for Government Securities



Operating Risk - Increases in operating cost result in lowering the NPV. The risk of higher than forecast operating cost results in increasing the discount rate by two percent. This difference is apparent when two similar property sales are compared where the only difference between the two sales is the type of interest being purchased. Historically, a working interest purchase is based upon a discount rate that is approximately two percent higher than a similar purchase of only the royalty interest.

The result of combining the government's cost of capital (6.5 percent) with the seven percent for the perception of risk provides NOSR-3 with a nominal discount rate of 13.5 percent. This is in line with OMB guidelines which allow the government's cost of capital to be increased by the industry risk to determine the proper discount rate (OMB Circular A-94).

For the nonproducing NOSR-1 and NOSR-3 acreage, there are unique costs associated with the Federal Government's leasing program. These costs impact the NPV of this cashflow. The nominal discount rate applied to the federal program cashflow is seven percent as recommended by OMB.

Land leasing activities include price risk. As such, three percent is added to the nominal seven percent government program discount rate discussed above. The resulting ten percent nominal discount rate is then used to estimate NPV of the land leasing activities.

The NPOSR, as a part of the Federal Government is not responsible for federal, state, or local taxes. Under continued operation, no taxes or payments in lieu of taxes are anticipated.

This Appraiser has relied on information provided by the BLM regarding the number of animal unit months on the subject properties.

The water rights were not valued separately from the value of the land because they are considered to be part of the inherent value of the land which supports the designated use at the time of the water appropriation. Water can be severed from property and sold in most states;

however, reappropriating an existing water right for an alternative use is difficult and expensive to accomplish. Therefore, this Appraiser assumes that the water rights will remain with the subject properties in the case of retention, transfer or sale of the properties. The value of the water rights is reflected in the land value as part of its overall utility.

This Appraiser has assumed that DOE would operate these properties at a loss if they had done so in the past.

2.1.4.1 Scheduling of Plug and Abandonment Liability

DOE's total net plug and abandonment liability at NOSR-3 was estimated at $1.2 million. This cost is a total net cost that includes all associated reclamation and equipment salvage. For net income purposes, the P&A capital was scheduled well-by-well assuming that a nonproducing wellbore with no further utility would be abandoned within two years of going off production. All of the wells scheduled prior to 2010 were Wasatch wells with no further utility or expected uphole potential. Many of the Mesaverde wells with significant behind-pipe reserves had production scheduled well beyond 2010. Plug and abandonment costs for these wells was grouped together and placed after 2020, where many of the behind-pipe reserve projections were ending.

2.2 VALUATION METHODOLOGY

2.2.1 Standards

2.2.1.1 Unit Rule

The standards for using the unit rule are described in detail in Section 5 of this Report. The unit rule will need to be considered when combining the various components of the fee simple estate.

2.2.1.2 Reserve Reporting

Reserves are estimated volumes of hydrocarbons anticipated to be recoverable from known accumulations from a given date forward. The estimation of reserves and reserve information is predicated upon certain historically-developed principles of petroleum engineering. The application of such principles involves extensive judgments and is subject to change based on existing knowledge data, and technology, economic conditions, statutory and regulatory provisions, and the purposes for which the reserve estimate is to be used. The Society of Petroleum Engineers (SPE) has adopted standards pertaining the estimation of oil and gas reserves. The SPE standards include reserve definitions by which all oil and gas reserves should be categorized. All of the reserve estimates included as part of the valuation of the subject property conform to the SPE standards and definitions pertaining to oil and gas reserves. These categories and the associated definitions are included in the Fact Finding Addendum to this Report.

2.2.2 Income Approach

2.2.2.1 Surface

In order to value the NOSR 1 and 3 property, surface activities were analyzed for the projection of this income. Under DOE management, surface activities generate income for the DOE from grazing leases and hunting permits administered by the BLM. These activities are discussed in detail in subsequent sections.

2.2.2.2 Water Rights

Water rights are considered to be an inherent value of the surface and mineral activities on the subject properties. Therefore, an income stream will not be realized from surface or groundwater rights and will not be included as a projected income for those properties. Appropriated, conditional, and reserved water rights for NOSR 1 and 3 are discussed in detail in subsequent sections.

2.2.2.3 Minerals

This Appraiser has projected income from gas production on the NOSR-3 site based on the analysis of the proved reserves described previously. This approach is considered applicable for estimating the value under the DOE retention option. We have assumed no income from any mineral production (natural gas or oil shale) on NOSR-1 since it is exploratory acreage and not economically feasible at this time. We also assumed no income from mineral leasing under this option.

2.3 EXAMINATION AND DISCUSSION OF VALUE

2.3.1 Surface Rights

The BLM administers livestock grazing privileges on both parcels of this property through several different grazing allotments. Information provided by the BLM indicates that on NOSR-1 there are permits for 8,295 animal unit months (AUMs) which is about 4.4 acres per AUM. NOSR-3, due to the steep terrain and barren hills, has much less carrying capacity and has permits for only 1,248 AUMs or about 16 acres per AUM. An AUM is defined as the amount of forage required to maintain one animal unit for one month.

Recreational amenities are present on the parcels in the form of big game hunting, mountain biking and fishing during the summer and fall months. NOSR-1 is accessible and offers recreational opportunities while NOSR-3 has limited access due to the steep terrain and does not offer the same opportunities.

Continuation of these surface activities under the scenario of retention and continued operation by the Department of Energy is possible. The BLM currently administers grazing and hunting permits as though NOSR 1 and 3 were public lands.

2.3.2 Water Rights

United States Government appropriated water for the surface of NOSR-1 is 0.38 cubic feet per second (cfs). This water originates from 38 springs at 0.01 cfs per spring. The designated use is exclusively for livestock and wildlife.

The DOE currently has water rights on NOSR-3 for 1.04 cubic feet per second (cfs) on Sharrard Creek, a wet weather tributary to the Colorado River located on Section 9, Township 6 South, Range 94 West and for 0.3 cfs in Section 18, Township 6 South, Range 94 West. The total adjudicated water right for NOSR-3 is 1.34 cfs. A "conditional water right" for a 100 cubic feet per second (cfs) diversion rate from the Colorado River exists on NOSR-3. The right will remain conditional until the water is appropriated with reasonable diligence and the user reapplies for a final or "adjudicated" water right. All of the water (adjudicated and conditional) on NOSR-3 is appropriated for oil and gas development.

Claimed reserved water rights of 49,000 acre feet (af) exist for NOSR-1 which would be fulfilled respectively from direct flow, storage and groundwater. The Executive Order reserved 10,000 af from the East Fork of Parachute Creek and the remaining balance of 39,000 af would be diverted from the Colorado River and from groundwater under the NOSRs for the primary purpose of development and production of 200,000 barrels per day of fuel oil from oil shale. Colorado water law requires that the designated use and user be changed in Water Court if the reserved right in question is intended for something other than the original designated use. Therefore, in the case of retention and ownership by the DOE of NOSRs 1 and 3, if the water were pursued with diligence for oil shale production, the DOE could theoretically realize this water right.

The reserved water right for "recoverable groundwater" for oil shale development is 2,650 af/year on NOSR-1 and 100 af/year on NOSR-3. Water in the mainstem of the Colorado River alluvium is excluded from this reserved groundwater right. Before constructing any well, the water right owner/developer must notify the State Engineer and provide the location and depth of the well,

maximum pumping rate, estimated annual pumpage, specific uses of the water to be withdrawn and the place or places of use for the well. Under the retention option, there is no income from the existing Water Rights on NOSR-1&3.

2.3.3 Minerals

2.3.3.1 Proved Reserves

Continued operation by the DOE will result in future income from oil and gas production on NOSR-3. This includes the Proved Producing and Proved Nonproducing (Behind-pipe) reserves from over 50 existing wells. These reserves were based on the 1995 Fluor Daniel reserve report which was discussed in detail in the Phase I Fact Finding Report. DOE net Proved Producing and Behind-pipe reserves are estimated to be 11.3 BCF and 4.4 BCF, respectively,

The value attributable to potential undrilled locations was also examined by this Appraiser as part of Task II for this project. Detailed information on this effort is provided in the Addendum to this Report.

Based on the assumptions described in the preceding section, this Appraiser has found that none of the locations considered Proved Undeveloped were economic at a gas price. DOE currently has plans to drill a single Mesaverde well as part of the drainage protection efforts at NOSR-3. For this reason, projections for a single Mesaverde well were included as part of the income approach under the DOE retention scenario.

Based on the projected rates of recovery described above, the future net income to the DOE under this option is provided in Appendix A. Undiscounted future net income and the net present value at 13.5 percent are $7.86 million and $4.73 million, respectively.

There are currently two pipeline infrastructure projects which should ultimately improve future prices for DOE gas. Piceance Natural Gas is building a gathering system on NOSR-3 in order

to tie in with the main transport links in the area. Colorado Interstate Gas (CIG) is currently constructing the Parachute Lateral for transporting DOE gas to their main trunkline 20 miles to the north. These projects are scheduled to be completed by October 1, 1996, and will give the DOE access to Front Range markets which may include military installations as part of interagency agreement mentioned in the Addendum.

Under the Interagency Agreement, DOE's net wellhead gas price would be approximately $1.25 per MCF. Under this scenario, DOE's net present value at 13.5 percent would be $7.2 million.

Because gas price is the one critical element affecting value, additional sensitivities were run in order to show undeveloped upside potential for future gas development at NOSR-3. The results of these sensitivities are presented as Table 2.1 of this Report.

2.3.3.2 Exploratory Acreage

The balance of the remaining oil and gas rights is considered exploratory acreage. As described previously in the Addendum, the oil and gas potential for NOSR-1 and portions of NOSR-3 are considered exploratory at this time. While it is reasonable to expect that hydrocarbons are indeed present in the exploratory areas as a result of a basin-centered hydrocarbon accumulation, it is too speculative to project income from production based on a hypothetical development scenario. Under the retention option, it would not be economic for the DOE to drill the exploratory acreage at current gas prices, nor would the DOE receive any income from leasing.

2.3.3.3 Oil Shale

Prices for conventional oil and gas are such that oil shale is not economically feasible at this time. It is not anticipated in the near future that mining of oil shale will be viable as an economic energy resource given the high cost of extraction. Consequently, there is no income from oil shale.

TABLE 2.1

Gas Price Sensitivity
[Undeveloped Potential]

Gas Price ($/MCF)	Economic Prospects		13.5% Disc. Cash Flow [BTAX]	Gas Reserves (Unrisked) [BTAX]
	Wasatch	Mesaverde		
(actual price)				
$1.00	4	0	$381,279	2.7 BCF
$1.50	7	7	$2,999,436	20.2 BCF
$2.00	7	14	$7,545,630	31.9 BCF
$2.50	7	19	$13,541,971	38.4 BCF
$3.00	7	43	$22,546,388	62.2 BCF

An inherent value to the oil shale is the value of reserved water rights claimed by Executive Order with priority dates of December 1916 and September 1924. The Executive Order reserved 10,000 acre-feet from the East Fork of Parachute Creek and 39,000 acre-feet diverted from the Colorado River and from groundwater under the subject property. The designated use was reserved for the primary purpose of development and production of 200,000 barrels of fuel oil and oil shale. Keeping the reserved rights maintains the future potential for oil shale development should this become a viable option in the future.

Potential environmental liabilities associated with the spent shale pile were identified in the Addendum. At this time, this Appraiser has not deducted any costs associated with remediating the shale pile from the future income stream since remediation is not mandatory at this time. It should be noted as a "potential liability" that the DOE might be faced with sometime in the future. DOE has advised that it will cost $2,000 per year for monitoring groundwater in the vicinity of the shale pile. The DOE is planning to share in the costs associated with the preparation of a regional EIS that includes the NOSR-1 & 3 properties. The total cost of the EIS is expected to be $1.0 million and the DOE Casper office reports that the DOE's share is estimated at $300,000 for FY 98. Other contributors include the BLM and area operators such as Barrett Energy, Snyder Oil, Vessels Oil and Gas and Chandler and Associates.

This cost has been factored into the analysis as part of the retention option. NOSR-3 will be the primary area of interest for additional oil and gas drilling. Accordingly, this Appraiser has allocated $200,000 of the EIS cost to NOSR-3 and $100,000 to NOSR-1.

This Appraiser has also reviewed the option of farming out undeveloped acreage to other operators for drilling. Given gas prices as of October 1, the economics of development drilling would only be favorable for acreage adjacent to existing production on NOSR-3 and is considered marginal based on these prices.

Terms for a farmout agreement are similar to those used in the Alternative Development Scenario Report prepared in 1991. Several assignments obtained during searches of the various courthouse

records typically have an overriding royalty provision when one party assigns a lease to another. In most cases, the net revenue to the party taking the farmout is not less than 80 percent. On average, the net revenue interest after the override was carved out is in the range of 83 to 85 percent.

It is therefore expected that the DOE could receive a 15 percent royalty before payout. It is also assumed that the DOE could back-in for a 40 percent working interest after payout.

This arrangement is probably more favorable than DOE developing the undrilled acreage since operating costs for the DOE are higher than industry. It was beyond the scope of this report to project future income from a hypothetical farmout option. When the economics for drilling becomes more favorable, the farmout option is a viable option under continued operation by the DOE.

2.3.4 Opinion of Value

Based on this Appraiser's analysis of the surface and minerals uses, we have estimated a value if the DOE retains ownership of the NOSR-13 properties.

Under continued DOE retention, the value of the NOSR-1 and NOSR-3 properties are as follows:

NOSR-1	
Surface Uses	$-387,000
Mineral Production	-95,000
TOTAL VALUE	**-$482,000**
NOSR-3	
Surface Uses	-$139,000
EIS	-$191,000
Mineral Production	$4,730,000
***TOTAL VALUE**	**$4,400,000**

* Does not include any environmental remediation costs associated with cleanup of shale pile.

3. TRANSFER TO THE DEPARTMENT OF INTERIOR

3.1 TRANSFER OVERVIEW

3.1.1 Introduction and Purpose of Review

This section of the Report analyzes the option that the NOSR 1 & 3 properties are transferred into the Department of Interior. The leasing of minerals on public lands in accordance with the Mineral Leasing Act of 1920 was considered as part of the overall evaluation as well as surface management in accordance with Federal Land Policy Management Act (FLPMA).

Future net income from these potential uses were projected in order to estimate the value to the USA under Department of Interior management. This value will then be compared with other options discussed in this Report.

3.1.2 Scope of Review

As part of the Addendum, this Appraiser researched and identified standard terms for oil and gas leasing on federal lands. In addition, data were obtained on market bonuses and rentals in order to estimate the future income from oil and gas leasing.

Research was also conducted for surface uses of public lands as it pertains to Federal Land Policy Act. Certain officials at the Colorado State office of the BLM were interviewed regarding DOI rules and regulations for oil and gas leasing and surface uses under FLMPA.

3.1.3 Assumptions and Limiting Conditions

Many of the assumptions and limiting conditions described in Section 2.1.4 remain applicable if the properties are transferred to DOI with a few exceptions. As discussed in that previous section, a cashflow stream is discounted differently due to the perception of risk associated with realizing the revenue.

A lease transfers the perception of risk concerning operating costs to the lessee. Thus, the appropriate discount rate for the revenue to the government from royalties would be their cost of money, 6.5 percent, and five percent for price and production risk for a total of 11.5 percent. The government would receive additional income from income taxes paid by the lessee. These taxes carry the full weight of price, production and operating cost risk and are discounted using 13.5 percent. Furthermore, the ten percent nominal rate for land leasing is applicable to bonus and rentals income from mineral leasing.

Operating costs are expected to be reduced by transferring the property to the private sector by an estimated five percent. This is primarily due to industry efficiencies as discussed in the Addendum to this Report.

This Appraiser assumes that DOI will offer all unleased properties in two separate sales beginning in the second year of management. NEPA compliance and re-writing plans is expected to cost $600,000 for NOSR-1 and $600,000 for NOSR-3. These estimates are strictly for preparing NEPA documents and does not include any costs associated with remediation of the shale pile. Completion of this work is assumed to be required prior to the first lease sale. Based upon conversations with Jenny Sounders, Director of Real Estate Appraisal in BLM's Lakewood, Colorado office, each lease sale is expected to cost an additional $180,000. This value is split between NOSR-1 and NOSR-3 based upon the acreage split, that is, 61 percent to 29 percent or $127,800 and $52,200. An average bonus of $16.50 and $56.50 per acre is expected for NOSR-1 and NOSR-3 based upon extensive review of recent leasing activity in the area on comparable properties and is discussed in the following section of this Report. This study also showed that 81 percent of the leases offered are expected to be leased.

Only income from rentals and bonuses are considered in the unproductive mineral leasing NPV analysis, royalty income is considered speculative and suffers from an extremely low realization risk. The analysis is based upon three rental cycles occurring with one year hiatus between cycles, that is, thirty four years. Rentals beyond three cycles are tentative and their NPV would add little value. Half of the income from bonuses and rentals would be shared with the State of Colorado.

As in the first scenario, net surface income of $27,569 and $19,233 per year is assumed to continue for the next thirty four years for NOSR-1 and NOSR-3.

The acreage held by production is expected to command a lease bonus that is estimated to be the NPV of the future cashflow as expected by an existing oil and gas producer. This estimate is supported by analysis on historical property sales in the region.

For this acreage, a royalty rate of 12.5 percent is assumed. Operating costs are adjusted as discussed above. The applicable discount rate (17.2 percent before tax) is one that incorporates the industry cost of money; based upon the SPEE survey, the average cost of money to industry is 10.2 percent.

Although the federal government is not subject to taxes, the new owner is. And as such, the tax situation is anticipated when determining the NPV. All appropriate federal. state, and local taxes, as discussed in Section 1.14 of the Addendum, are included to determine the expected future net income. The purchaser is expected to take maximum legal advantage of all applicable depreciation and depletion allowances in reducing taxable income.

The value to the government includes the lease bonus, and the NPV of royalties from producing properties, rentals from nonproducing properties (exclusive of maintenance and leasing costs) and future federal income taxes expected to be paid by the purchaser.

The water rights were not valued separately from the value of the land because they are considered to be part of the inherent value of the land which supports the user for the designated use at the time of the water appropriation. Water can be severed from property and sold in most states; however, reappropriating an existing water right for an alternative use is difficult and expensive to accomplish. Therefore, this Appraiser assumes that the water rights will remain with the subject properties in the case of retention, transfer or sale of the properties. The value of the water rights is reflected in the land value as part of its overall utility.

3.2 VALUATION METHODOLOGY

3.2.1 Potential Surface Uses under the Federal Land Policy and Management Act

The Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. §§ 1701 *et seq.* directs the Secretary of the Interior to develop and maintain "land use plans which provide by tracts or areas for the use of the public lands." FLPMA declares a general policy that the United States should "receive fair market value of the use of the public lands and their resources." Id. §§ 1716(a). FLPMA further impacts BLM land management by reaffirming the management principle of "multiple use" by imposing the substantive duty" to manage the public lands under principles of multiple use and sustained yield." The BLM implements these FLPMA directives through various statutes, including, among numerous other acts, the Mineral Leasing Acts discussed in the following section of this Report, and the Taylor Grazing Act, 43 U.S.C. §§ 315 *et seq.*, which authorized the Secretary of the Interior to establish "grazing districts ... from any part of the public domain ... which in his opinion are chiefly valuable for grazing and raising forage crops." In these grazing districts, the privilege of grazing livestock is regulated through a system of allocating grazing permits, as discussed below in Section 3.3.1.

3.2.2 Potential Mineral Uses under the Mineral Leasing Act

As discussed in detail in the Addendum, the Mineral Leasing Act of 1920, as amended, 30 U.S.C. §§ 181 *et seq.*, and the Mineral Leasing Act for Acquired Lands of 1947, as amended, 30 U.S.C. §§ 351 *et seq.*, give the BLM responsibility for oil and gas leasing on BLM, national forest and other federal lands where mineral rights have been retained by the Federal Government. Regulations that govern the BLM's oil and gas leasing program are found in 43 C.F.R. §§ 3100.0 *et seq.*

According to the director of the Real Estate and Appraisal Section of the Colorado State Office of the BLM, since Congress enacted legislation in 1977 creating DOE and transferred to it jurisdiction over the Naval Petroleum and Oil Shale Reserves, Congressional approval will be required for the transfer of full jurisdiction over the reserves from DOE to DOI. The director

stated that existing lease and other contractual arrangements in effect at the NOSR sites could be grandfathered under the legislation authorizing the transfer of the reserves to DOI.

Consequently, the rules and regulations presently governing the leases and agreements in effect on the NOSR sites, including royalty rates, would continue in effect for the duration of said leases and related agreements. Since the leases and agreements currently in effect on the reserves are not subject to the 1920 or 1947 Mineral Leasing Acts, the provisions of those acts will not apply to the leases transferred from DOE to DOI. For example, the requirement that 50 percent of the royalties payable under any oil and gas lease issued thereunder be paid to the state in which the leased lands are located in order to compensate the state for the impact of the federal leasing activities on those lands will not apply to the current leases and related agreements which are transferred to DOE. Future leases issued by the BLM on any portion of the reserves would, however, be subject to the applicable Mineral Leasing Act and would be subject to the provisions of the act requiring payment of the 50 percent state impact fee described above, and would be subject to all other BLM rules and regulations currently applicable to leasing activity, both surface and mineral, conducted by BLM.

3.3 EXAMINATION AND DISCUSSION OF VALUE

3.3.1 Income from Surface Leases

Specific surface uses information for NOSR 1 and 3 are discussed in Section 2.3.1 of this Report. NOSR-1 permits for 8,295 animal unit months (AUMs) at a fee of $1.35 per AUM is worth $27,070 of annual surface income to the DOE. NOSR-3 can sustain year-round grazing with an average of 1,248 AUMs. The net income to the DOE from grazing permits on NOSR-3 is $19,233.

Hunting permits purchased by commercial hunting outfitters is an estimated $500.00 per year. In the case of a transfer to the Department of Interior, these fees would generate income for the BLM. Specific recreational uses information is included in Section 2.3.1 of the Report.

3.3.2 Income from Water Rights

The water rights were not valued separately from the value of the land because they are considered to be part of the inherent value of the land which supports the user for the designated use at the time of the water appropriation. In the case of transfer to the Department of Interior, an income from water rights would not be realized.

3.3.3 Income from Mineral Leasing and Production

As described previously, this Appraiser obtained market data from competitive oil and gas lease sales in Western Colorado, and the results are presented statistically on Figure 3.1. The amount of bonus consideration was then posted on a base map for the purposes of comparing acreage throughout the study area. The elements of comparison used in this analysis include topography, proximity to production, geologic trend areas, and time of sale. A brief synopsis of this comparison is shown on Table 3.1.

3.3.3.1 NOSR-3 Acreage

Overall, the NOSR-3 acreage should command higher bonus bids than NOSR-1 at a competitive lease sale. The areas of NOSR-3 that are close to existing production and have relatively low surface elevations (in the valley) will be sought after by oil and gas companies seeking to expand the producing areas of Grand Valley, Parachute and Rulison gas fields. There are approximately 4,761 acres on NOSR-3 that have existing production. It is assumed under this option that the BLM would lease all of this existing production at a competitive lease sale. In considering bonus amounts, the oil companies would tender bonuses that would approximate a reasonable rate of return. In essence, the bonus would be close to what the property would sell for outright (royalty burden considered) since the BLM would be (in most cases) assigning an 87.5 percent lease with existing wellbores. Based on a net present value of 17.2 percent for the future income stream, the market bonus is estimated to be $4.2 million for this acreage. This includes the interest owned by the DOE in the communitized areas. Since half of this money will be shared with the State of Colorado, the net income to the U.S. Government is $2.1 million.

FIGURE 3.1

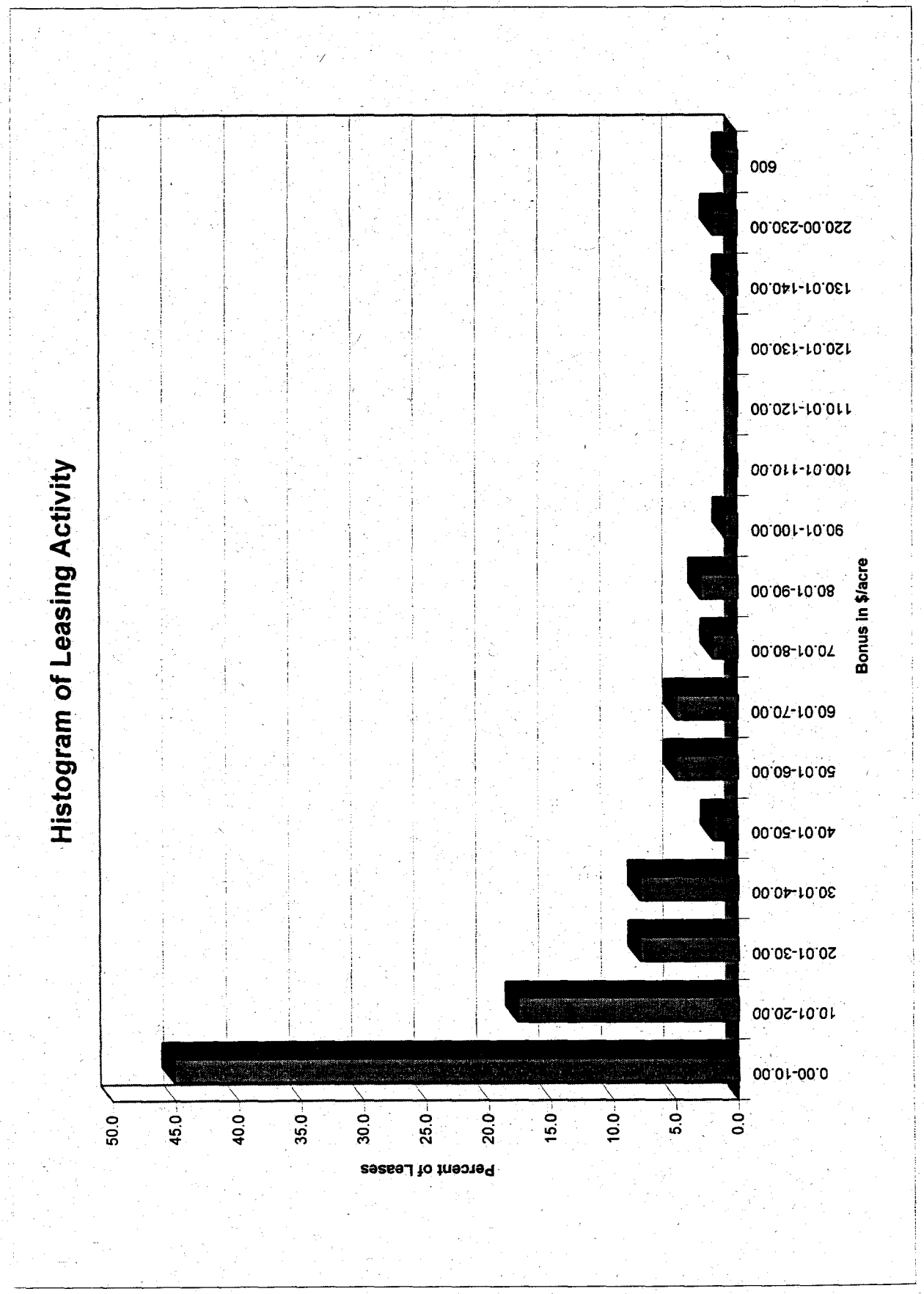

Histogram of Leasing Activity
Percent of Leases
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.00-10.00
10.01-20.00
20.01-30.00
30.01-40.00
40.01-50.00
50.01-60.00
60.01-70.00
70.01-80.00
80.01-90.00
90.01-100.00
100.01-110.00
110.01-120.00
120.01-130.00
130.01-140.00
220.00-230.00
600
Bonus in $/acre

TABLE 3.1

RANKING AND MARKET BONUS FOR NOSR 1 AND 3 ACREAGE

NOSR 3

	Ranking of Acreage	Acres	Market Bonus	Estimated Bonus Amount
1	**Acreage With Production** Lands With wells (either %100 DOE or communitized spacing Units)	4,761	$ 893.00	4,100,000
2	**Acreage Close to Existing Production** Based on comparable areas with close proximity to production, similar surface elevations (i.e. drilling depth), and comparable maturity of source rock.	2,720	$ 200.00	544,000
3	**Trend Acreage** Slightly further from existing production, but on trent with existing fields. Accessibility problems due to steep slopes.	4,000	$ 65.00	260,000
4	**Structural Low Areas** Based on comparable areas with less economic production. Near by production decreases in quality moving toward this area. Structurally low.	2,150	$ 15.00	32,250
5	**Exploratory Acreage** Area is exploratory in nature, and far removed from production, with similar surface elevations. Bonus amounts are supported by fee lease transactions in the area.	6,540	$ 5.00	32,700
		20,171		4,968,950
	WEIGHTED BONUS AVERAGE		$246	

NOSR 1

	Ranking of Acreage	Acres	Market Bonus	Estimated Bonus Amount
1	**Seismic Structure Acreage** Seismically defined structures are attractive, but closure is apparent in deep horizons. Considered slightly more attractive than trend acreage.	5,000	$ 75.00	375,000
2	**Amplitude Anomaly Acreage** Based on areas with comparable surface elevations that are removed from production. Higher value than # 7 on the basis of seismic control.	13,000	$ 10.00	130,000
3	**Exploratory Acreage** Comparable to areas with high surface elevations, (i.e. greater drilling depth.) Areas far from production, and exploratory in nature.	18,406	$ 5.00	92,030
		36,406		$ 597,030.00
	WEIGHTED AVERAGE BONUS		$ 16.50	

There will be royalty income from the existing production based on a 12.5 percent royalty burden. The net present value from this income stream is $540,000. In addition, the Federal Government will receive income taxes from the producer. This income stream has a value of $551,000. It is the opinion of this Appraiser that there is not any income from production as a result of drilling and developing offsetting acreage because it is uneconomic to drill at current gas prices. Consequently, industry would most likely value offsetting acreage based on market bonuses.

If there was a gas price increase that stabilized at or above $1.50 per MCF, there would be substantial value added from income. This is because a number of undrilled locations would be considered proved undeveloped and industry would most likely drill them.

Approximately 2,720 acres are in very close proximity to existing production, and for the most part would be considered as Proved Undeveloped locations at a higher gas price. The market bonus for this acreage is estimated at $200 per acre. Bonus amounts in this range are not reflected in the statistical information on Figure 3.1. Rather, recent sales of undeveloped properties in the area reflect what the market will pay for acreage in close proximity to production. Detailed aspects of these sales are discussed in the Section 5 of this Report.

Approximately 4,000 acres in NOSR-3 is on trend with existing fields but less accessible due to steep slopes. This acreage is expected to receive bonuses in the $65.00 per acre range. Directional drilling is available to overcome accessibility problems but would increase well costs.

The remaining balance of NOSR-3 acreage (8,700 acres) is considered low-potential acreage and the market bonus is estimated at $5.00 to $15.00 per acre. This acreage is either in structurally low areas or located some distance from production. Based on this analysis, the weighted average bonus is estimated at $246 per acre for the NOSR-3 acreage.

The future income from leasing and production on the NOSR-3 acreage has a net present value of $2.84 million. Detailed cashflow projections are provided in Appendix B.

All of the NOSR-1 acreage is considered exploratory, but some areas are more prospective than others. Seismic data acquired across NOSR-1 were analyzed by this Appraiser for the purposes of identifying geologic prospects or leads on the property. A detailed description of this analysis is provided in the addendum. In summary, a seismically-defined structure was identified in the southeast portion of NOSR-1 just north of Rulison field. Other leads include acreage where amplitude anomalies were observed at the Wasatch level on the seismic data.

Because of the lack of well control and the disappointing results from the Barrett Schutte Creek wells, the remainder of the NOSR-1 acreage is considered to have low potential and would most likely receive the lowest bonus bid at a lease sale.

This was the framework for ranking the NOSR-1 acreage and market bonuses were then estimated based on comparisons with leasing activity in comparable areas. Market bonuses are expected to be in the range of $5.00 to $75.00 per acre and the weighted average bonus for NOSR-1 is estimated at $16.50 per acre (Table 3.1). The future net income from mineral leasing has a net present value of negative $381,600 after the $600,000 NEPA compliance cost is factored into the cashflow. The discount rates used for the income projections are discussed in Appendix E of this Report.

3.3.4 Opinion of Value

The transfer of the NOSR 1 and 3 properties into the Department of Interior will allow for surface and minerals uses in accordance with FLMPA and MLA. The value of projected future net income from these uses are as follows:

NOSR-1

Surface Uses	-$387,000
Mineral Leasing	-$381,600
TOTAL VALUE	**-$768,600**

NOSR-3

Surface Uses	-$139,000
Mineral Leasing of Production	$2,075,000
Royalty Income	$540,000
Mineral Leasing of Undeveloped Acreage	-$182,500
Income Taxes	$551,000
TOTAL VALUE	**$2,844,500**

* Net after deduction of $600,000 NEPA compliance cost

4. TRANSFER TO ANOTHER GOVERNMENT AGENCY

4.1 INTRODUCTION

As authorized in contract DE-AC01-96FE64202, Gustavson Associates was retained by DOE to serve as an Independent Petroleum Consultant as specified in Section 3416 of the National Defense Authorization Act for Fiscal Year 1996, P.L. 104-106 (110 Stat. 186). As stated in the Act, we have conducted a study and made recommendations regarding the following option to maximize the value of NOSR 1 & 3 to the United States:

- Transfer of all or part of NOSR 1 & 3 to the jurisdiction of another federal agency for administration under Chapter 641 of Title 10, United States Code.

In this regard several other federal agencies were considered for transfer, but none were found to be suitable for this purpose. This alternative for the future operations of NOSR 1 & 3 was considered inappropriate. No assessment of the value to be derived by the United States from the transfer to another federal agency was made. The other federal agencies considered are briefly discussed below.

4.2 NATIONAL PARK SERVICE

This Appraiser contacted officials at the National Park Service in Denver regarding any interest for acquiring the subject properties as part of any acquisition or expansion of lands within the park system. They reported that they are restricted by law to only acquiring lands that are either within or contiguous to existing Park boundaries. Therefore, the NOSR 1 and 3 would not fit this criteria, hence, would not be suitable for transfer to the National Park Service.

4.3 NATIONAL FOREST SERVICE

Another federal agency considered for transfer is the Department of Agriculture's National Forest Service (NFS). Mineral rights under NFS zoned surface are administered by the Bureau of Land Management. Therefore, Option 2, transfer to the Department of the Interior, applies direction to this option, as well.

5. SALE OF THE PROPERTY

5.1 INTRODUCTION

As authorized in contract DE-AC01-96FE64202, Gustavson Associates was retained by DOE to serve as an Independent Petroleum Consultant as specified in Section 3416 of the National Defense Authorization Act for Fiscal Year 1996, P.L. 104-106 (110 Stat. 186). As stated in the Act, we have conducted a study and made recommendations regarding the following option to maximize the value of NOSR 1 & 3 to the United States:

- Sale of the interest of the United States of all or a part of NOSR 1 & 3.

Our study includes an examination of the value to be derived by the United States from the sale of NOSR-2. The study includes an assessment and estimate of the fair market value of the interest of the United States in this property. The assessment and estimate were made in a manner consistent with customary property valuation practices in the oil and gas industry.

5.2 APPRAISAL OVERVIEW

5.2.1 Assumptions and Limiting Conditions

The following assumptions and limiting conditions apply to our review of the option to sell the interest of the United States in NOSR 1 and 3:

Many of the assumptions and limiting conditions described in Sections 2.1.4 and 3.1.3 remain applicable under the sale option with a few exceptions. The terms of sale on mineral properties are not disclosed on recorded instruments and are usually held confidential by the parties involved. This Appraiser relied on interviews conducted with the buyers and the sellers and, where possible, attempted to confirm the salient aspects of the sale or lease which included the purchase price, net reserves and/or net mineral acres involved.

The water rights were not valued separately from the value of the land because they are considered to be part of the inherent value of the land which supports the user for the designated use at the time of the water appropriation. Water can be severed from property and sold in most states; however, reappropriating an existing water right for an alternative use is difficult and expensive to accomplish. Therefore, this Appraiser assumes that the water rights will remain with the subject properties in the case of retention, transfer or sale of the properties. The value of the water rights is reflected in the land value as part of its overall utility.

The ability to lease the minerals and surface would transfer to the purchaser. The new owner is expected to receive the same income as the DOI. The cost of the environmental assessment would remain with the Federal Government; otherwise, leasing costs are expected to be the same as DOI. The present value of the net income is determined using an industry nominal discount rate of 13.2 percent. This rate -- 13.2 percent -- is obtained by adding the cost of capital (10.2 percent, as previously discussed) to the price risk (three percent, as previously discussed).

5.2.2 Scope of Appraisal

This Appraiser met with DOE officials in Casper and Washington D.C. and with personnel from Flour Daniel over the course of the project. The property was also visited in June and July for the purposes of inspecting gas production operations, reviewing potential environmental liabilities and for appraisal of the surface lands.

This Appraiser has analyzed the *highest and best use* of both the surface and mineral components of the property.

All relevant reports provided by the DOE were reviewed and considered as part of this appraisal. In addition, seismic data provided were analyzed and interpreted for the purposes of assessing the oil and gas potential on NOSR-1.

Copies of records were obtained from the county courthouse records of Garfield, Mesa and Rio Blanco counties in order to review transactions involving the purchase and sale of mineral properties. This Appraiser made a diligent effort of contacting affected parties involved in the relevant transactions in order to establish the terms of each sale.

Scout tickets, well logs and oil and gas production data were obtained from the DOE files and from the commercial databases of Petroleum Information and Dwight's Energy Data. These data were used as a basis for checking and making projections of future gas reserves from the NOSR-3 properties.

Market data used in the surface appraisal were obtained from research within the county and surrounding area, contact with other appraisers, realtors, lenders and others familiar with the market.

5.2.3 Purpose of Appraisal

The purpose of the appraisal is to provide the DOE with an estimate of the Fair Market Value for both the mineral and surface components of the NOSR 1 and 3 properties should the property be considered for sale. This value and the value of an associated federal income tax stream generated by continued operations by a potential purchaser, will then be compared to the other options analyzed in this Report to make recommendations for which option maximizes the value to the USA.

5.2.4 Summary of Appraisal Problems

Because of the large size of the NOSR 1 and 3 properties, it is difficult to find many comparable sales of similar magnitude in the immediate area. As a result, the search was expanded beyond Garfield County for both the mineral and surface components.

The economics of gas resource development on the NOSR 1 and 3 properties are extremely sensitive to gas prices. A price differential of only $0.10 to $0.20 per MCF will shift the reserve classification from proved to probable or possible which has a significant effect on the overall value of the mineral component.

5.3 APPRAISAL PROPERTY PROFILE

5.3.1 Description of the Property being Appraised

5.3.1.1 Surface Description

Naval Oil Shale Reserves #1 and #3 are both located eight miles west of the town of Rifle, in the southeastern portion of the Piceance Basin Garfield County, Colorado. Figure 1.1 shows that the properties are just north of Interstate 70 which parallels the Colorado River. Located along the eastern portion of the Naval Oil Shale Reserve, the Roan Cliffs generally marks the boundary between NOSR 1 and 3. From a geologic and hydrocarbon potential standpoint, the properties are situated in the southeastern portion of the Piceance Basin where natural gas is currently produced from sedimentary formations in the subsurface.

The immediate neighborhood of the subject property is west of Highway 13-789, northwest of Rifle, north of the Colorado River and Interstate Highway 70 and east of Parachute and Parachute Creek. The NOSR lands constitute a large portion of the neighborhood with the remaining land between the Roan Cliffs and the River and or Highway being primarily private fee owned land.

Garfield County is located in west central Colorado and extends from the Utah state line on the west approximately 100 miles east into the mountains. The Grand Mesa lays to the north. The area has traditionally been agriculture oriented, however, in recent years, national attention was focused on oil shale development in the western part of the county. However, recreation has become a major economic factor for in the eastern portion of the county.

NOSRs 1 and 3 are located in the rugged highland country of western Colorado. The two NOSR sites are adjacent to one another and consist of approximately 36,406 acres on NOSR-1 and 20,171 acres on NOSR-3. The high mesa that characterizes NOSR-1 is underlain by the oil shale deposits of the Green River formation that were resistant to erosional processes over geologic time. This forms a spectacular escarpment which is known as the Roan Cliffs. NOSR-1, at a peak elevation of 9,300 feet above sea level is on top and to the north of the Roan Cliffs. The terrain is typified by large gently rolling mesa to canyons that are gently rolling on the east end of the parcel to very deep and steep sides as they traverse the property to the west. Numerous streams and creeks are located in canyon bottoms. Vegetation consists of native grasses and sagebrush on the open mesas of the parcel and aspen, spruce and fir trees cover portions of the parcel.

NOSR-3 to the south stands at an elevation of 6,000 feet above sea level. The terrain is moderately steep on the lower end of the Roan Cliffs to extremely steep higher up on the cliffs. There is little or no level ground on this parcel. There are several small drainages which originate on this parcel. The high desert terrain supports minimal vegetation which consists of sage and a variety of small desert plants.

The water rights were described in detail in Section 2.3.2 of this Report and it was noted that the DOE has ground and surface water rights on both NOSR 1 and 3 as well as reserved rights to the Colorado river. NOSR 1 and 3 have appropriated, reserved and conditional water rights designated for livestock watering, oil shale mining and oil and gas development.

If the reserved right in question is intended for something other than the original designated use, the Colorado water law requires that the designated use and user be changed in Water Court. Continued oil and gas operations on NOSR-3 does not change the current use of the conditional water right and is not considered problematic.

NOSR-1 surface management by the BLM permits livestock grazing and watering on existing streams and drainages. It would be feasible for a new owner to continue this practice. Water

diversion from the Colorado river up to NOSR-1 would be too expensive for agricultural use. Any other water intensive uses for these properties other than the original livestock designated use would require a review process in water court.

The BLM administers livestock grazing privileges on both parcels of this property through several different grazing allotments. On NOSR-1 there are permits for 8,295 animal unit months (AUMs) which is about 4.4 acres per AUM. NOSR-3, due to the steep terrain and barren hills, has much less carrying capacity and has permits for only 1,248 AUMs or about 16 acres per AUM. An AUM is defined as the amount of forage required to maintain one animal unit for one month.

Some recreational amenities are present on the parcels in the from of big game hunting, mountain biking and fishing during the summer and fall months. NOSR-1 is accessible and offers good recreational opportunities while NOSR-3 has limited access due to the steep terrain and does not offer the same opportunities.

5.3.1.2 Mineral Rights Developments

There are currently over 50 producing gas wells on the property which were initiated as part of the Gas Protection Program in the early 1980's. Slightly over 50 percent are wholly owned and operated by the DOE while the remainder are communitized wells with ownership being shared with Barrett and other companies. There is a considerable amount of undeveloped acreage which is prospective for oil and gas development.

All of the NOSR 1 and 3 acreage are in an area of a basin centered hydrocarbon accumulation where the Cretaceous and Tertiary sandstone reservoirs are most likely saturated with gas. The economic feasibility of drilling and developing these resources are directly affected by natural gas prices which can change reserve categories from proved to unproved with minor price differentials. At current prices of about $1.00 per MCF net to the wellhead, the vast majority of the undrilled locations in close proximity to existing to production are uneconomic to drill

(unrisked). Thus, the subject properties have substantial gas resources that require higher gas prices before they can be developed economically.

There are substantial resources of oil shale on NOSR-1 that have seen limited development since designated as an Naval Oil Shale Reserve in 1916. Prices for conventional oil are such that it is uneconomic to mine and produce oil shale economically. Future prospects for oil shale development will require oil prices of over $100 per barrel in order to realize economic development. Consequently, there is no current economic value to the oil shale resources other than a speculative one.

5.3.2 Owner Contact and Property Inspection

During the course of this appraisal, Gustavson Associates contacted the Department of Energy regarding all aspects of operations at NOSR 1 and 3. In addition, an on-site inspection by Gustavson personnel was conducted on June 19-20, 1996. Field operations and equipment were visually inspected at NOSR-3, and a thorough site inspection of the NOSR-1 property was also completed. The property was also visited in August for the purposes of a surface appraisal.

5.3.3 Division of Ownership

With the exception of 600 acres of private oil shale claims on Naval Oil Shale #1, the United States Government owns 100 percent of the fee simple title interest for all lands and minerals in the subject properties.

This Appraiser is not aware of any current mineral leasehold interests on the subject lands. All gas wells on the NOSR sites have been drilled and are operated by the DOE as part of the Gas Protection Drilling Program which was initiated in mid 1980s. In some cases, there are communitized areas for gas wells either on or near the boundary of the Naval Oil Shale Reserves.

The Department of Energy has entered into communitization agreement for approximately 24 wells on NOSR-3. Certain tracts were pooled under communitization agreements when they could not be developed independently in conformity with state well-spacing guidelines. Eighteen of these wells have been drilled and are operated by Barrett Resources. The remaining eight were drilled by the DOE and communitized with Barrett Resources and other partners. In this agreement, each of the communitized wells are operated as a unit under the communitization agreement. Development costs and income from production are shared amongst the unit partners and the interest is based on a percentage of mineral ownership in the unit acreage.

5.4 HIGHEST AND BEST USE

5.4.1 Tests

The Appraisal Institute (1992) defines *highest and best use* as: "The reasonable probable and legal use of vacant land or improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value." Each of these criteria must be met sequentially.

For oil, gas and mineral properties the comparable definition can be applied by testing the candidate uses sequentially against each of five criteria:

1. Physically possible. The property must possess adequate size, dimension, shape, quality of reservoir and resource, and geotechnical quality to support the proposed use. As an example, an oil reservoir consisting of many, very thin interfingering sands and shales may not be physically possible to produce. *Physical access to certain areas of NOSR-3 and NOSR-1 are difficult. This makes it more expensive, but not impossible, to develop the minerals.*

2. Legally permissible. The proposed use of the property must con from to all local, state and federal zoning and use restrictions for the property. A negative example is an

otherwise well-tested stone quarry, ready to develop except for the lack of a mining permit. *Mineral exploration and production is considered legally permissible on NOSR 1 and 3. The use of the surface for agricultural purposes such as grazing or farming is also considered legally permissible.*

3. Financially feasible. The proposed use must be capable of providing a net return to the property owner or leaseholder. Here, the uncertainty of, for example, the amount and category of gas reserves could reduce an undeveloped location to an exploratory drilling prospect. *For NOSR 1 and 3, it is financially feasible to produce, drill and lease minerals. It is not financially feasible to drill the gas reserves at current gas prices.*

4. Maximally productive. Of those physically possible, legally permissible, and financially feasible uses, the *highest and best use* for a property is that use which results in the highest value; that is, the use that provides the greatest net return to the property owner and leaseholder in combination, and as of the date of the evaluation or firmly planned for the immediate future. *For NOSR 1 and 3, it is maximally productive to produce, drill and lease the minerals on the subject lands. It is not maximally productive to drill the subject lands at current gas prices.*

5. Economically fitting. This fifth criterion adds: the proposed use must fit with the constraints with regard to oil and mineral development of relevant firms, institutions, governments, and markets. For example, impending environmental or surface access regulations on the area as a whole may make the proposed use of a mineral property problematic. *Oil and gas development and agricultural use are considered economically fitting for NOSR 1 and 3.*

5.4.2 Highest and Best Use

5.4.2.1 Mineral Rights

A mineral property will have substantially different *highest and best uses*, depending on its stage of development. Clearly, the *highest and best use* of a producing oil or gas (or other mineral) property is to produce income from the sale of production. Likewise, on the other end of the development spectrum, the *highest and best use* of rank wildcat acreage is the present value of the future bonuses and rentals that the property will bring to the landowner. Between these two extremes, properties may be nonproducing, although the reserve may be proved, or the property may be a prospect defined by seismic, by subsurface control, or by other means (see the Addendum, Section 3 of the Phase I Report, for additional details).

The *highest and best use* of a nonproducing property may occasionally be related to the ability to produce income, if such income is shown to be reasonably close in the future. On the other hand, wildcat acreage cannot be considered to be anywhere near the stage of income from oil production, partially because there may be a very substantial question with regard to actual discovery of reserves, and partially because of the timing of drilling may be impossible to determine.

For the developed portions of NOSR-3, the *highest and best use* is for income from oil and gas production from the gas wells on the property. Currently, it is not economic to drill offset or undeveloped locations.

On the undeveloped portions of NOSR 1 and 3, the *highest and best use* is for income from leasing that would be tendered by oil companies seeking to explore and develop the properties. Alternatively, the undeveloped mineral rights could be sold to a party interested in speculating on the future development of the acreage.

5.4.2.2 Surface and Water Rights

Due to the difficult access to NOSR-1 and steep terrain on NOSR-3, the highest and best use for the surface estate on NOSR 1 and 3 is forage for livestock. The current surface water available on NOSR-1 would sustain this use, hence the water rights support the *highest and best use* for the surface. Potential exists for recreational use on a seasonal basis for big game hunting on NOSR-1 acreage. Specific livestock grazing and recreation uses information is referenced in Section 2.3.1. of the Report.

5.4.3 Highest and Best Use of Property

In considering the entire estate, the highest and best use of the property as a whole would be follows. For the NOSR-3 acreage, the highest and best use is for income from oil and gas production and leasing with some livestock grazing of the surface. For the NOSR-1 acreage, the highest and best use is for income from oil and gas leasing or from sale of the existing mineral rights and for forage for livestock and for hunting on a seasonal basis.

5.5 FAIR MARKET VALUE DEFINITION

Fair Market Value means the amount in cash, or in terms reasonably equivalent to cash, for which in all probability the property would be sold by a knowledgeable owner, willing but not obligated to sell to a knowledgeable purchaser who desired but is not obligated to buy, after exposure to market forces for a reasonable period of time.

5.6 APPRAISAL METHODS

5.6.1 General

In addition to the analysis of *highest and best use*, a detailed analysis of geologic, engineering, economic and environmental factors was necessary for this Appraiser's choice of which appraisal method(s) to use in appraising the subject tracts.

A minerals appraiser must estimate the Fair Market Value as of a specific date using information available as of that date. The minerals appraiser must use research data to create an accurate market model. This model is then used to estimate the Fair Market Value of the subject property.

5.6.2 Standards

This appraisal has been conducted according to the guidelines set out in the *Uniform Appraisal Standards for Federal Land Acquisition*, Interagency Land Acquisition Conference, 1992. Specifically, the following definition has been adhered to by this Appraiser: The Fair Market Value is defined as "the most probable price in cash, terms equivalent to cash, or in other precisely revealed terms, for which the appraised property will sell in a competitive market under all conditions requisite to fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self interest, and assuming neither is under undue duress."

This market value represents that selling price, as far as it is possible to estimate, and that price is considered to be the just compensation. The Fifth Amendment to the U.S. Constitution, which requires just compensation "for taking of private property for government purposes allows the owner the Fair Market Value of his property, it does not guarantee him a return of his investment," *United States ex rel T.V.A. v. Powelson, 319 U.S. 266, 285 (1993).*

When appraising non-severed mineral interests included in properties, the Uniform Appraisal Standards also state that the mere *possibility* of the existence of minerals, oil or gas is not sufficient to affect market value. Such a possibility can be given consideration only when there is sufficient likelihood of the presence of minerals, oil or gas as to affect market value and when that likelihood would be given weight by a prudent person in bargaining. This Appraiser has made a geologic analysis of the area of the appraisal tract sufficient to determine a higher-than-average probability of hydrocarbons in the appraisal tract. While this by no means guarantees future production from the tract, it does indicate that careful attention must be paid to this probability using appraisal techniques unique to oil and gas valuation.

5.6.3 Obeyance of the Unit Rule

All appraisal standards require adherence to the Unit Rule. It is a principle designed to reflect the true situation in the market for Fair Market estimation. The rule has two main aspects.

First, the Rule requires the property to be valued as a whole (as a "bundle of sticks") rather than summing the value of the various portions of ownership (the individual "sticks"). Value of the constituent parts (the "sticks") are to be considered to the extent of their contribution to the value of the whole. The essence of this principle is that it is the property and not the various titles which is being considered for Fair Market appraisal.

Second, the Rule requires that "different elements of a tract of land are not to be separately valued and added together. The property is to be valued as a whole and its constituent parts considered only in light of how they enhance or diminish to value of the whole, with care being exercised to avoid so-called "cumulative appraisals". (Uniform Appraisal Standards for Federal Land Acquisition A-12, pp. 25-28.)

The values of buildings and improvements, timber, crops, mineral rights, oil and gas production, and other rights are considered to the extent that Fair Market Value of the property as a whole is enhanced. It is stated in the Standards that the mere possibility of the existence of minerals, oil, or gas is not sufficient to affect market value. It is further stated that such a possibility can be given consideration only when there is sufficient likelihood of the presence of minerals, such as oil or gas, as to affect market value and when that likelihood would be given weight by a prudent person in bargaining.

These guidelines should be followed when valuing the mineral and surface components of a given property. The quantity of minerals must be estimated by a qualified expert along with a determination of the market for the mineral commodity in question.

It must be understood that under the Unit Rule, technically there can be only one appraiser. Consultants are often employed by this overall appraiser to estimate Fair Market Value of producing and nonproducing mineral rights, equipment, timber rights, and other rights. Results of secondary valuation reports prepared by them cannot be added to the value of the land in order to arrive at a value of the property as a whole without proper analysis by the overall appraiser.

The appraiser must consider the value of the components of the property only in light of how the components contribute to the value of the property as a whole. Thus, it is improper to simply multiply the mineral quantity by a unit value or gross multiplier and then add it to the value of the land. This results in a summation or cumulative appraisal which is not reflective of market. The various components (surface, mineral and otherwise) of the fee simple property must be considered by the appraiser as factors in arriving at the market value of the property as a whole.

In this particular case it will be shown that the value of the mineral component is the greatest, it is classified as the "dominant estate". Yet, this Appraiser has followed the Unit Rule. from a skill and expertise standpoint it is important to make full disclosure and state (a) that Gustavson Associates is primarily a mineral appraisal firm, (b) that surface and water appraisers are less frequently performed wherefore we have utilized qualified appraisal consultants for those components, as needed, and (c) that the overall appraisal under the Unit Rule and for the purpose of this Study has been performed by Gustavson Associates in accordance with the standards of the appraisal profession.

Thus, inaccuracies, even if inadvertently introduced, are not likely to occur in the major and most valuable component of the property, namely the mineral component due to the expertise of this Appraiser. Likewise, we have taken utmost care in evaluating the effects of the surface and water components in the overall appraisal and recommendation.

5.6.4 Approach to Value

5.6.4.1 Surface Rights

The Market Data Approach is most viable when an adequate number of properties of similar type have been sold. The application of this approach produces a value indication for a property through comparison with like properties, called comparable sales. The sale prices of properties judged to be most comparable tend to set a range within which the value indication for the subject property falls. The comparison results in specific dollar adjustments to the sale price of the comparable property. Positive adjustments are made for deficiencies in the sale property relative to the subject and negative adjustments are made for superior characteristics of the sale relative to the subject. Through this procedure, the appraiser derives a logical estimate of the probable price for which the subject property could be sold on the date of the appraisal.

In preparing this Limited Appraisal of the surface estate only, this Appraiser has considered only the market or comparison approach to value. The *highest and best use* is considered to be agriculture with a compatible secondary recreational use. Most of the sales used for comparison have similar utility to NOSR-1 but superior to NOSR-3 due to steep terrain and barren cliffs. This property is all vacant land and is much larger than the typical property on the market in the area.

Much of the agricultural property, especially mountain land in this area, generally is selling for more than the actual value of a reasonable return expected from agricultural production. The typical operational rancher cannot afford the prices in today's market unless he has other land free and clear or another source of income. Much of this inflated price is due to socio-economic factors that have little to do with the producing value of the land itself. Some of these factors include the rapid rise and increasing affluence of the population of the western United States, which results in much of the ranch land being converted to non-ranching uses, ranch land being purchased as a hedge against inflation, for tax advantages, depreciation purposes, recreation, speculation, or for the sheer desire of owning land. The immediate neighborhood of the subject does not have the scenic and recreational amenities of the higher mountain areas of Colorado.

Very large parcels, such as the subject property, present a very difficult marketing situation because of the total dollars necessary to consummate a purchase. The market is very limited as to buyers with the necessary resources. The prices are influenced by many factors including size, location, scenic amenities, recreational amenities, proximity to National Forest land, and physical features such as trees, streams and topography. Income that can be realized from this type of property is generally low compared to value and results in a very low indicated capitalization rate on the comparable sales.

Within the area there have been certain wealthy buyers that have acquired ranch holdings at a premium price. These, for the most part, are smaller units with good year round access, scenic and recreational amenities not found on the subject, and other potential uses. The sales of larger properties revealed in the market are from a wide area and represent prices that appear to be similar over this large area. Most are strictly agricultural properties with little or no potential for other uses.

In appraising the subject property, this Appraiser has considered NOSR 1 and 3 separately due to differences in access, terrain, livestock carrying capacity and overall utility. Comparison are made with the sales to arrive at an estimated range of value for the subject property. Very few of the sales are truly representative of the type property represented by the subject; however, they are representative of values for properties with similar utility. In the opinion of this Appraiser, the foothill pasture classification is most comparable to NOSR-1 which is considered foothill or high mesa land. The large high desert type property is comparable in utility to the NOSR-3 parcel which is also considered foothill property but with lower utility, due to the steep and inaccessible terrain, than NOSR-1.

The list of comparable sales are provided in Appendix C of this Report. Each sale is analyzed on basis of the various types of land classifications and a value is allocated to this component . These values are then compared to the subject for estimating value. There are five sales with the foothill pasture classification with a range in value from $50.00 to $76.00 per acre, with the higher values found on sales considerably smaller in total acreage than the subject. The low sale is No. 2, a much larger parcel in total acreage.

Based on the above sales, with most consideration given to sales No. 9 and 13, it is the opinion of this Appraiser that a range of value of $55.00 to $60.00 per acre would be reasonable and supportable for the NOSR-1 lands.

In the sales analysis on the preceding pages of the report, this Appraiser finds a range in indicated values for the desert pasture classification from $25.00 to $41.00 per acre with seven of the eight sales within a range of $25.00 to $31.00 per acre.

Based on the sales above it is the opinion of this Appraiser that a range of value of $25.00 to $30.00 per acre would be reasonable and supportable for the NOSR-3 lands.

Final Estimate of Value for Surface Estate

NOSR-1	36,406.21 Acres x $58.00 per acre	=	$2,112,000
NOSR-3	20,170.94 Acres x $28.00 per acre	=	$565,000

5.6.4.2 Mineral Rights

Prior Sales of Identical Property

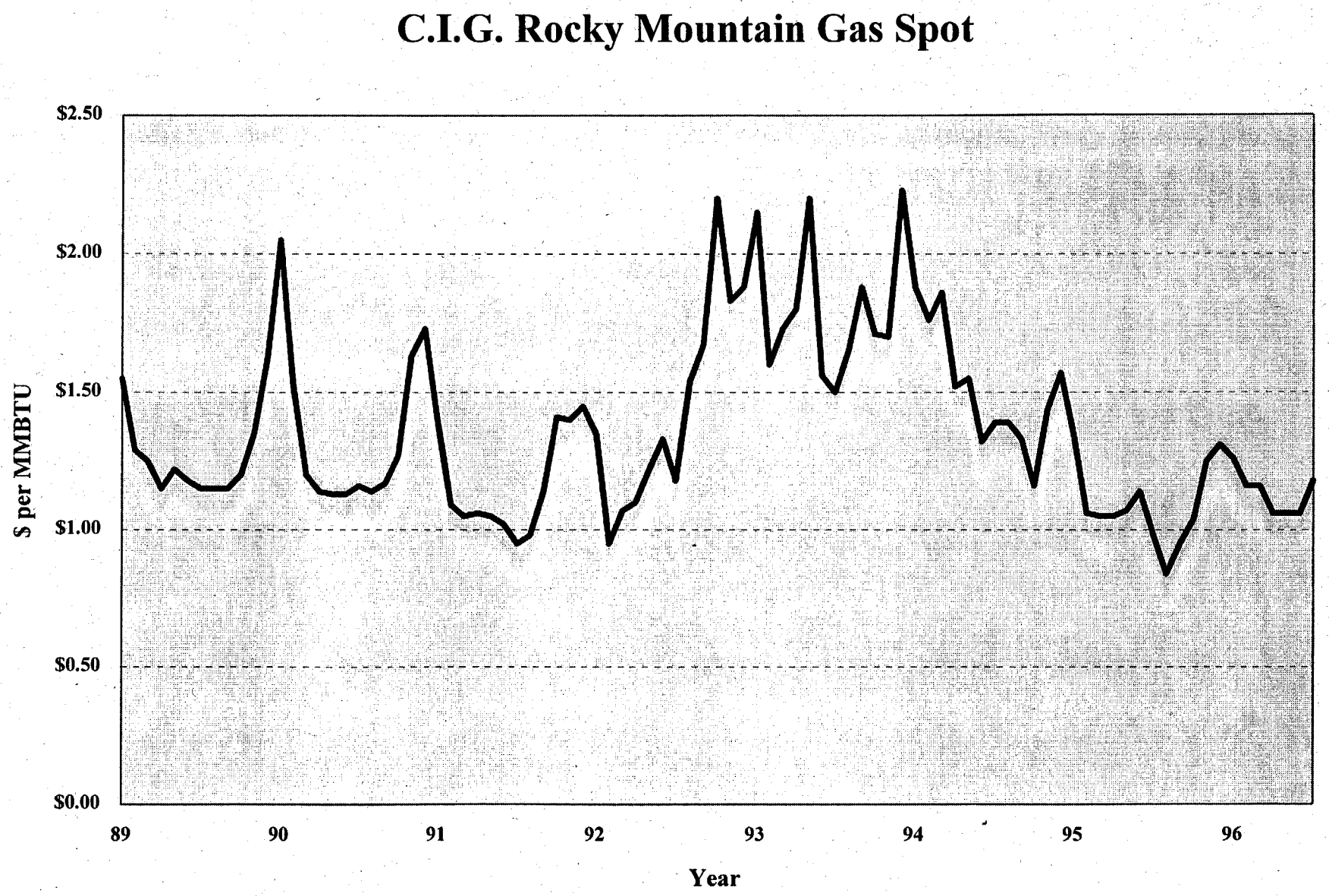
There were no direct sales of the identical property appraised herein which could be used to estimate Fair Market Value of the subject property.

Description of Comparable Sales

Gas price have a direct affect on the value of gas reserves in the Piceance Basin. Historical spot prices in the basin are shown on Figure 5.1.

There were several transactions of oil and gas properties in the NOSR 1 and 3 region over the past three years. Comparable transactions reviewed in detail by Gustavson Associates were sale of other similar gas properties that were considered arms length transactions within the same

Figure 5.1


C.I.G. Rocky Mountain Gas Spot
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
$ per MMBTU
89
90
91
92
93
94
95
96
Year

general market. Three major transactions (Figure 5.2 and Table 5.1) in the Piceance Basin occurred over the past three years and are considered comparable to the subject. Smaller transactions were also reviewed and used to establish value patterns in the market.

In September of 1993, Fina Oil and Chemical Company sold various interests in their Rulison Field properties immediately south of NOSR-3 to Barrett Resources for $3.7 million. The transactions involved an average 33 percent working interest in proved developed producing acreage with a significant amount of proved undeveloped infill potential. The PDP acreage included 69 producing gas wells with a total net land area of 3,000 net mineral acres. This data yields a value of $1,245 per net mineral acre but includes all behind-pipe and undeveloped reserves. Thus, the net value per acre is high. A quick review of the net remaining reserves for proved producing properties as of 1993 results in roughly 2.5 BCF of net gas and 5,000 net barrels of condensate. Barrett reported that they paid approximately $0.85 per MCF of gas for proved producing reserves. When factoring this to the remaining reserves, the value to the PDP is $2.2 million. The balance of $1.5 million when allocated to undeveloped Mesaverde locations provides an estimate of $0.05 per MCF in the ground.

An undisclosed transaction of a 50% working interest in 140,000 gross acres was completed in 1994 for $16 million. The properties are located in the Plateau Creek field south of NOSR-3. The seller indicated that the majority of the acreage was PDP, with 50,000 of the 70,000 net acres held by production. Proved reserves were reportedly sold for approximately $0.64 per MCF in the ground or $3.84 per BOE. On a per acre basis, the transaction was $229 per net acre for the property. Both of these transactions occurred when gas prices were 34 percent higher (on average) than current prices (on average) in the Piceance Basin. When adjusting for the time the average value of $0.75 per MCF in the ground for proved producing, the unit value is $0.50 per MCF based on these two sales.

On April 1, 1996 Snyder Oil Corporation sold 42 BCF of net proved gas reserves to Destec Energy for $22.0 million. The subject properties are located approximately 10 miles slightly southeast of NOSR-3, and included approximately 40 to 50 producing gas wells, and 300

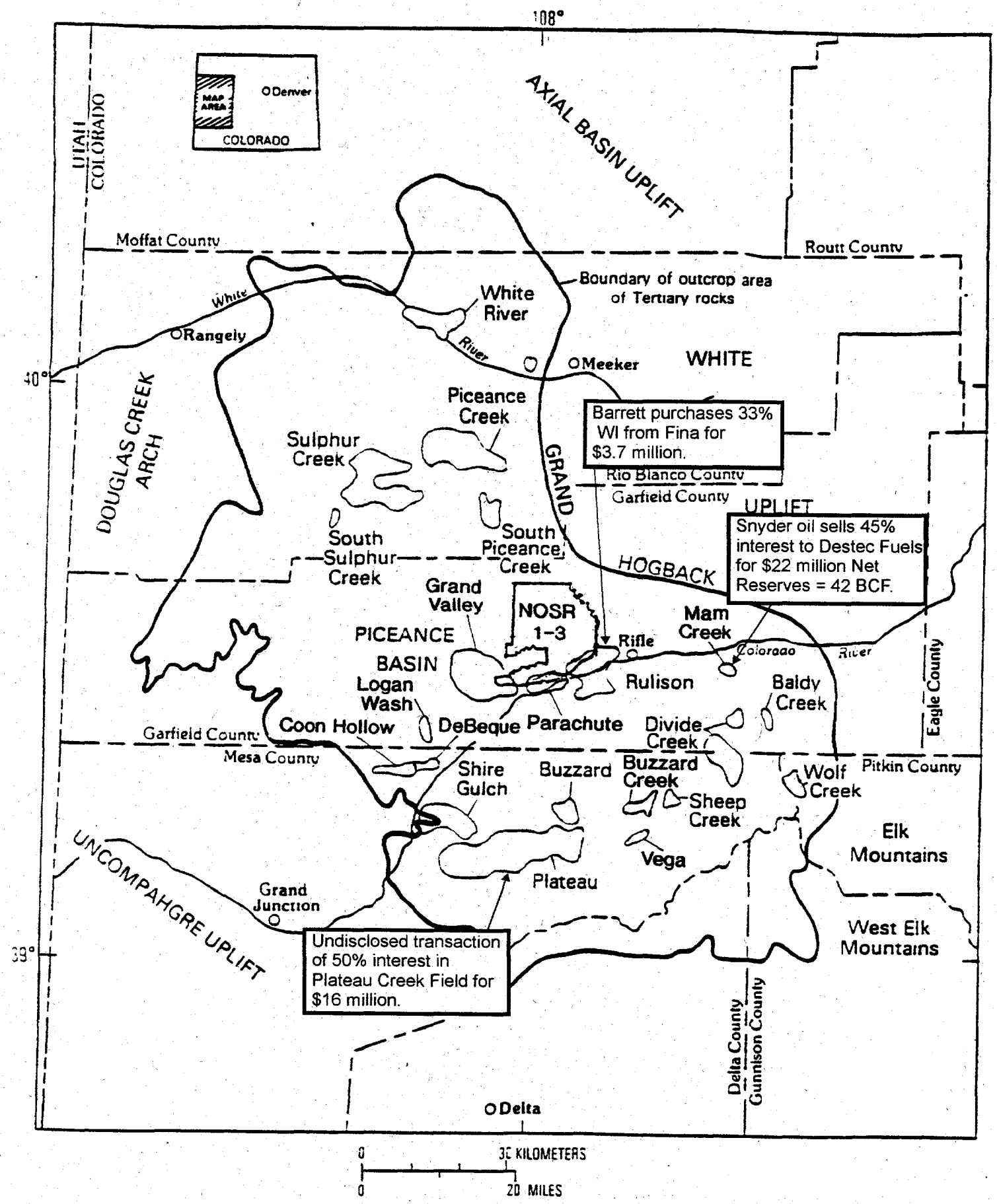


FIGURE 5.2 - NOSR 1-3 and selected Tertiary and Upper Cretaceous gas fields. Piceance basin, western Colorado showing location of recent major sales of gas reserves. Modified from Dunn (1974). (Modified after Pitman et al., USGS Bull, 1787-G, 1989).

Table 5.1

NOSR 1&3
Sales of Mineral Properties

Effective Date	Assignor	Assignee	General Location	Working Interest	Gross Acres	Net Acres	Est. Gross Reserves	Est. Net Reserves	Transaction Amount	Comparable Adjustment	Value Parameters	Notes & Comments
9/29/93	Fina Oil and Chemical Company	Barrett Resources	Rulison Field SE of NOSR-3	Avg. 33%	9000	3000	7.5 BCF	PDP: 2.5 BCF PUD: 40 BCF	$3.7 million	-34%	$0.85 MCF PDP $0.05 MCF PUD	
4/1/96	Snyder Oil Corp.	Destec Fuel Resources, Inc.	SE Piceance T6S R92-93W	45%	101,000	80,000	93.3 BCF	42 BCF	$22 million tot. $17.6 million net	none	$0.42 MCF	Largely Undeveloped +/- 300 locations
4/31/95	Gyrodyne Petroleum	Barrett Resources	T6S R94W	20%	N/A	N/A	N/A	N/A			$70 to $80 net mineral ac.	
9/1/94	Undisclosed	Undisclosed	Plateau Creek	50%	140,000	70,000 50,000 HBP	undisclosed	undisclosed	$16.0 million	-34%	$0.64/MCF $229/net acre	Majority HBP
7/1/94	Timberline	Vessels	Gibson Gulch Unit	100%	6,000	1,200	N/A	N/A	$120,000		$100 net mineral ac.	Mostly undeveloped, purchased Timberline's interest in the Gibson Gulch Unit

undeveloped locations. Total net acreage was reported at 80,000 net acres and included gas gathering and pipeline infrastructure. The transaction amount was reduced by 20 percent to account for the pipeline infrastructure. The remaining sales amount of $17.6 million indicates that the property sold for $220 per net acre if all of the acreage is included. On a proved reserve basis, the property sold for $0.42 per MCF in the ground. When considering these three sales, the market value of proved reserves is $0.46 per MCF. These sales are considered to be the most comparable to the subject property and are supported by regional trends in the oil and gas market.

Undeveloped Acreage

NOSR 1 and 3 contains large amounts of undeveloped acreage that contain considerable gas reserves but are uneconomic to drill at current prices. This Appraiser has reviewed sales of mineral deeds and leasehold interests in order to establish values for undeveloped acreage in the Piceance Basin.

Outright sales of mineral interests ranged from a low of $5.00 to a high of $90.00 per net mineral acre. These transactions are listed in the Addendum and most of the sales were for relatively small parcels consisting of less than 500 net mineral acres. The largest transaction found (in terms of size) included mineral rights for approximately 2800 acres recently sold by Unocal at an Ebco auction in Township 7 South, Range 94 West.

The Unocal acreage sold in July of this year for $20,000 which equates to just over $7.00 per net mineral acre. Unocal reported that there was no oil and gas production and the acreage was considered mountain pasture acreage where access was difficult. This sale compares favorably to the NOSR-1 acreage. Other sales comparable to NOSR-1 sold in the range of $25 to $35 two years ago.

The other significant sales of mineral rights took place in 1994 when Western Minerals Partnership purchased interests from individual landowners in Township 6 to 8 South, Range 92W. Western purchased about 300 to 500 net mineral acres for an average of $90 per net

mineral acre. This was done in anticipation of a large drilling program by Snyder Oil where production royalties would be paid. When gas prices declined in late 1995, Snyder delayed the large drilling program that fueled the speculation.

The location of this acreage is considered very comparable to NOSR-3 due to its proximity to existing production and comparable surface elevations for drilling access. Because of the current low gas prices, the value per acre has probably decreased. Other more recent sales involved smaller fractional interests and were sold in the $25.00 to $50.00 per net mineral acre range.

Other transactions include sales of undeveloped leasehold acreage where raw acreage was acquired by individuals or oil companies and then sold to other companies after leases were consolidated into federal units or prospects were identified. Under this arrangement, the original lessee gains drilling commitments, an overriding royalty interest and some cash after improving the property. The cash consideration for these types of sales range from $15.00 to $220 per acre which includes the Snyder/Destec sale this year.

As shown on Table 5.1, Vessels purchased 1,200 net mineral acres from Timberline for approximately $100 per net mineral acre in June 1994. Timberline had farmed out the acreage from Torch Energy who originally put together the federal unit known as the Gibson Gulch Unit. There was some marginal production established and the leasehold estate had the added value of being part of a federal unit. This transaction is also considered comparable to the NOSR-3 acreage.

The vast majority of the comparable sales took place two years ago when gas prices were 34 percent higher and would require some adjustment. However, there is also a shortage of "valley acreage" in the overall trend and oil and gas operators or promoters would aggressively bid on acreage close to existing production in order to hold in inventory until gas prices improve. As shown on Table 3.2, the NOSR-3 acreage was ranked according to the various elements of comparison. Excluding the producing acreage, some of the NOSR-1 would command a sale price in the range of $200 per acre as seen in the Snyder/Destec transaction. Other acreage would sell

for much less and we estimate that the property would sell for $75 per net mineral acreage on average.

The value to the NOSR-1 acreage is estimated to be in the range of $25 per net mineral acre. The vast majority of the property is considered exploratory but does contain a seismic structure on the east side which would generate interest for possible deep exploratory targets.

Based on the market approach, the undeveloped acreage for NOSR-3 has an estimated value of $75 per net mineral acre or a total value of $1.2 million (15,410 acres x $75.00). On NOSR-1, the undeveloped acreage has an estimated value of $25 per net mineral acre or a total value of $910.150 (36,406 acres x $25.00) using this approach.

Oil Shale

This Appraiser has researched the market for transactions involving oil shale and found no recent sales that could be used for establishing value. In 1992, Arco sold approximately 10,000 acres to Puckett Energy for slightly less than $100 per acre that included some oil shale lands. Puckett Energy reported that very little if any consideration was paid for the oil shale but rather for the gas resources beneath. Officials at Unocal were also contacted regarding any future plans for oil shale development. Their internal analysis estimates that oil shale might become feasible in the year 2076.

Consequently, the oil shale resources at NOSR 1 and 3 have no economic value for mineral production but rather a nominal value for speculative uses in the future. We have estimated this value at $10 per acre since every right has a value. This value would apply to both NOSR 1 and 3 since the water rights are crucial to oil shale development. By multiplying a value of $10 per net mineral acre to the total acreage of 56,577, the value to the oil shale is estimated to be $565,577.

Summary Value from Market Approach

When adding the value of the oil shale, oil and gas production and undeveloped acreage, the total value of the mineral estate from the market approach is as follows:

NOSR-1

Undeveloped Acreage - 36,406 x $25.00 = $910,150

Oil Shale - 36,406 x $10.00 = $364,060

Total Value = $1.3 million

NOSR-3

Proved Reserves @ 11.3 BCF x $0.46 MCF = $5.2 million

Undeveloped Acreage - 15,410 acres x $75.00 per acre = $1.2 million

Oil Shale - 20,171 acres x $10 per acre = $201,710

Total Value = $6.6 million

Income Approach

This approach makes use of an estimate of oil and gas reserves in place in the appraisal tract, and of an analysis of production and income therefrom and from surrounding tracts. This estimate is sometimes determined by volumetric computations involving thickness and porosities of producing formations, water saturation levels, drainage areas, and fluid properties. In some cases the reserves are estimated by analogy, or the average of oil and gas reserves for other wells in the area Probabilities or success are sometimes introduced because the confidence level in the estimate reduces with the distance away from actual production. Based on our research, we have determined that geological and engineering data exists in the subject area such that proved reserves can be estimated with a degree of certainty sufficient to indicate that will provide income. Therefore, the Engineering (Income) Approach is applicable for the reserves categorized as Proved Developed Producing at NOSR-3.

Engineering Income Approach

This Appraiser utilized three methods for the Engineering Income Approach (Table 5.2). The first of these methods is the "Cumulative Cashflow" method, which is used in individual transactions among operators in various oil "patches". This method represents a Fair Market Value that results in the return of the purchaser's investments within a certain amount of time. While this is a classic income approach, it does not consider time value of money. To attempt to compensate for this, a longer recovery period can be used for long-lived properties, or a shorter period for short-lived properties. In this case, this Appraiser considered a four-year cashflow. The resulting value was $5.9 million.

The second method is the "Risked Present Worth" method. This approach begins with a present worth representing the effects of the time value of money on the expected cashflow stream, and further adjusts the value by a factor representing risk/desire for profit. In general, it is expected that the higher the risk associated with an oil or gas property, the higher the profit desired by the investor, and so the lower the Fair Market Value. To use this method, the Appraiser must assess the mechanical/operator risks associated with operating and producing the property. Adjustments are made to a base risk/profit factor determined by general market analysis, accounting for the relative risk/lack of risk for a specific property. This Appraiser currently uses a base factor of 71 percent, applied to the present worth of a property discounted at ten percent. After review of the type of operations at NOSR 1 and 3, this Appraiser adjusted the mechanical/operator risk factor upward to 82 percent. This method yields a value of $4.6 million.

The third and final appraisal method is the "Rate-of-Return-Targeted Present Worth" method. This method is frequently used by financial institutions or large institutional investors. It is based on targeting an internal rate of return typical for the oil industry, and approximating that by discounting the cashflow expected from a property at that discount rate. Typically a royalty interest would require a lower discount rate. The rate used by this Appraiser for this method is 17.5 percent. This method yields a value of $5.0 million.

Table 5.2

FAIR MARKET VALUE WORKSHEET

NOSR-3

Category: Proved Developed Producing

1) METHOD ONE ($ per BOE-in-the-ground):

Total Net Oil						12,905	
Total Net Gas				11,256,525	MCF		
4 Years,	@ 1/	10.0	BOE/MCF x	5,628,263	MCF	562,826	BOE
17 Years,	@ 1/	8.0	BOE/MCF x	5,628,262	MCF	703,533	BOE
Total Gas						1,266,359	BOE
Total Oil and Gas						1,279,264	BOE
Value @	4.2	$/BOE				$5,372,909	
Value Risked at		100%	(for geol./devt.)			$5,372,909	
Capital Costs						$0	
Method One Value of Property							**$5,372,909**

2) METHOD TWO (Return of Purchase Price):

First Year Net Cash	(12	months)	$2,317,017
Second Year Net Cash	(12	months)	$1,595,955
Third Year Net Cash	(12	months)	$1,178,952
Fourth Year Net Cash	(12	months)	$843,505
Fifth Year Net Cash	(0	months)	$0
Total Net Cash			$5,935,429
Value Risked at	100%	(for geol./devt.)	$5,935,429
Capital Costs			$0
Method Two Value of Property			**$5,935,429**

3) METHOD THREE (Risk-Discounted Present Worth):

Present Worth			$5,665,000
at a discount rate of			10%
Mechanical/Operator Risk Factor			82%
Value of Property (at production stage)			$4,645,300
Plus Capital Costs			$0
Value (before Capital Load)			$4,645,300
Value Risked at	100%	(for geol./devt.)	$4,645,300
Less Capital Costs (at 100%)			$0
Method Three Value of Property			**$4,645,300**

4) METHOD FOUR (17.2% Present Worth):

Future Net Cash Flow Discounted @	17.2%		$5,016,000
Plus Capital Costs			$0
Value (before Capital Load)			$5,016,000
Value Risked at	100%	(for geol./devt.)	$5,016,000
Less Capital Costs (at 100%)			$0
Method Four Value of Property			**$5,016,000**

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5) FAIR MARKET VALUE

After reconciliation of above methods: **$5,000,000**

Each method used in this appraisal allows for the consideration of a geologic/development risk factor. The risk to capital in this analysis was applied to the cashflow before making the Fair Market Value analysis. Based on the above approaches, the Fair Market Value for Proved Developed Producing is estimated at $5.0 million.

The additional income associated with the behind-pipe production forecasts had a minimal impact on the net income approach to Fair Market Value. This was due to the fact that the production was played out far into the future and risked at 80 percent. The value was considered in the reconciliation section.

Lease Bonus Method

This method is a derivative of the Income Approach, being based on the income from a different *highest and best use* of the property than that represented by oil or gas production. The value of interests to be appraised under this method derive from the actual or potential future income stream from the receipt of bonus and rentals through leasing, which represents the *highest and best use* of the exploratory oil and gas rights. This method is based on a present value analysis of that future income stream. The Lease Bonus method will be applied to the undeveloped mineral rights within NOSR 1 and 3 since there is no production and only speculative potential therefor. In contrast, leases are executed, sold and bargained in the market.

Large amounts of acreage in the vicinity of the subject property are federal and state owned and as a result provide accessible data on bonuses, rentals and lease terms. Additionally, several fee mineral leases in the area were identified through courthouse research. A summary of the leasing activity for the area is provided in the Addendum. Figure 5.1 illustrates the distribution of the bonus amounts that were paid in the area of study. These data establish market trends and value patterns which can be used for appraising that portion of the mineral estate involving oil and gas exploratory potential. The value of this potential is additive to the value estimated for the remainder of the mineral estate.

Figure 3.1 is a histogram showing a high concentration of leases in a) the $2 to $20 per-acre range; a few leases in b) the $20 to $100 per-acre range; and c) a few leases at $110 to $600 per acre. Examination of the specific conditions involved in these transactions reveals that a) the low range represents the value paid for rank exploratory acreage. The higher bonus amounts b) are typically paid for fairly good prospective leases; and the highest bonus at c) is paid for acreage closer to production. In short, the bonuses represent a tri-modal distribution.

These data can now be used to appraise the subject property. As described previously, NOSR 1 and 3 contain substantial gas reserves which are uneconomic to drill at current prices. Therefore, bonus values paid for the subject property would be somewhat in the mid-range of comparable bonuses as a result of containing both prospective an exploratory acreage. Therefore, the market lease terms would be as follows:

Bonus. The bonus is the consideration initially paid in exchange for an oil and gas lease. Usually the Lease Bonus is a one-time payment made to an owner of the mineral estate upon the owner's execution of a lease. Although bonuses are occasionally paid in installments, and sometimes paid in forms other that U.S. dollars, we have determined from market data for this appraisal that a leasehold bonus is a one-time payment made in its entirety to the mineral owner upon the owner's execution of an oil and gas lease. The current market leasehold bonus for the oil and gas leasehold estate (commonly referred to within an oil and gas lease as "oil, gas, and related hydrocarbons") on NOSR 3 is in the range of $56.00 per mineral acre and for NOSR-1 in the range of $16.50 per acre.

Royalty. Landowner's royalty is a percentage of the value of production made payable to a landowner through contractual provisions within an oil and gas lease. Landowner's royalty is usually expressed as a fraction of total production removed from the leasehold premises that will be stored for the lessor's account, or paid in dollar equivalents to the lessor. The landowner's royalty share is paid "off the top," or without being subject to drilling or lifting costs. The market landowner's royalty is one-eighth, or 12.5 percent, for leases similar to this tract.

Annual (or Delay) Rentals. Oil and gas leases for more than one year's duration usually contain provisions for an annual rental amount to be paid to the lessor's credit at a specified bank or address in order to compensate for delay of drilling. Annual rentals may sometimes be consolidated into an addition to the initial leasehold bonus (and thereby comprising total payment obligations under a "paid-up" oil and gas lease).

If delay rentals are not paid on time, and pursuant to the general instructions given in a lease, the lease will often expire under its own terms. We have assumed that leases on the present tract will be for the market term of years shown below and that all rentals will be paid. The market annual (delay) rental for oil and gas leases similar to this tract is $1.50 per mineral acre for the first five years and $2.00 per acre for the next five years. We have also assumed that the first delay rental payment will be paid on the first anniversary of lease execution.

Term of Years. This is the length of time that a typical oil and gas lease will be in effect. Usually the term of years specified in an oil and gas lease will be automatically extended for so long as oil or gas are produced from the lands under lease, or for so long as drilling and development operations are conducted on the leasehold property.

The term of years for which this acreage could be expected to be leased is five to ten years (state and federal leases, respectively). We have assumed that such a lease would expire at the end of ten years and a new lease would be granted within a reasonable time.

Percentage of the Acreage Expected to be Leased

Based on a review of recent federal lease sales in the area, this Appraiser has estimated that 81 percent of available land is leased each year. This same percentage is assumed to occur for the undrilled acreage at NOSR 1 and 3.

The estimated future income from hypothetical leasing of the subject acreage is shown in Appendix D. This income would approximate the value of the cashflow from the exploratory

acreage as a prospect that the landowners would receive from oil companies interested in exploring and possibly developing the acreage.

In short, the cashflow in Appendix D reflects the market. The future income is based on weighted average market bonuses and rentals as described above. The net present value at 13.2 percent discount rate of this future income stream is $549,000 for NOSR-1 and $752,000 for NOSR-3 (rounded). This amount represents the Fair Market Value for the mineral ownership in the undrilled acreage at NOSR 1 and 3. Offsetting this value is a DOE expense of $600,000 for an NEPA compliance resulting from a major federal action.

Reconciliation

Two different methods were used to value the mineral interest in the producing portion of the NOSR-3 property. The Comparable Sales Approach and the Income Approach were used to value the reserves and future income therefrom. Table 5.3 summarizes these calculations, based on calculations detailed in Appendix D. The Income Approach is considered to be more reliable, but we have weighted more to the higher value derived from the comparable sales in order to give credit to the behind-pipe reserves. This Appraiser has reconciled the different values and estimated Fair Market Value of the producing royalty interest at $5.2 million as of October 1, 1996.

For the undeveloped acreage on NOSR-3, two different values of $752,000 and $1.2 million were estimated. Our reconciliation provides an estimate of $925,000 for this portion of the estate. For NOSR-1 the two different values of $549,000 and $910,150 were reconciled to a value of $725,000.

All of the economic parameters used in the net income estimates were discussed in the Fact Finding Addendum to this Report, and summarized previously in the assumptions and limiting conditions of this Report.

TABLE 5.3

Contributory Parts of Entire Estate

NOSR-1

Value of Surface Rights	$2,112,000
Value of Oil and Gas Rights	$725,000
Value of Oil Shale and Other Minerals	$364,060
	$3,201,060

NOSR-3

Value of Surface Rights	$565,000
Value of Oil and Gas Rights	$6,125,000
Value of Oil Shale and Other Minerals	$201,710
	$6,891,710

5.6.4.3 Water Rights

The water rights were not valued separately and the reasons for this are discussed in the section on Assumptions and Limiting Conditions of this Report.

5.7 ANALYSIS OF WHOLE PROPERTY

As discussed previously, the unit rule must be considered when valuing the property as a whole. Based on this Appraiser's evaluation of the various components of the fee simple estate, it is our opinion that for NOSR-3, the major consideration will be for the mineral rights while the surface component will have less of an influence. The future development of the minerals on NOSR-3 is not expected to substantially preclude the grazing of livestock. Thus the surface and mineral uses are not mutually exclusive. However, this Appraiser has adjusted the surface values

downward to a value of $20 per acre in considering the minerals as the dominant use and valuing the property as a whole.

For NOSR-1, the surface estate appears to be the dominant estate while the mineral rights appear to have less of an influence. Because of these conditions, the minerals would tend to be worth less than the values estimated separately. This is reflected in Sale #4 in Appendix C where Unocal sold the surface rights for $76.00 per acre but kept the undeveloped minerals. When valuing the property as a whole, we have adjusted the mineral rights downward to a value of $15.00 per acre to reflect these patterns in the market.

Sale of the subject property would be considered a major Federal action and would require the preparation of an EIS as a result. As stated in previous sections of this report, the estimated cost for preparation of an EIS is $600,000 for each sale and would be deducted from the estimated sale price.

An additional expense for the sale option would be the costs associated with divestiture. The DOE reports that the cost of divestiture will be $200,000 and $1.3 million for NOSR-1 and NOSR-3 respectively in order to cover all of the expenses associated with divestment and for severance compensation to affected Federal employees and contractors.

5.8 FAIR MARKET VALUE

The Fair Market Value for the entire estate of the subject properties are as follows:

NOSR-1	$3,000,000
NOSR-3	$6,730,000

The costs for divestiture and NEPA are then deducted from the estimated sales price as follows:

NOSR-1	$3,000,000	
Divestiture	-$200,000	
NEPA Compliances	-$563,900	
	$2,236,000	**(rounded)**

NOSR-3	$6,730,000	
Divestiture	-$1,300,000	
NEPA Compliances	-$563,900	
Income Taxes	+$675,000	
	$5,541,000	**(rounded)**

6. COMPARATIVE ANALYSIS

The value of NOSR 1 and 3 to the United States under each of the specified options is as follows:

Option 1: Retention and operation of all or part of NPR-2 by the Secretary of Energy under Chapter 641 of Title 10, United States Code. **Value = -$482,000 for NOSR-1 and $4,400,000 for NOSR-3.**

Option 2: Transfer of all or a part of NPR-2 to the Department of the Interior for leasing in accordance with the Mineral leasing Act (30 U.S.C. 181 et seq.) and surface management in accordance with the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq.). **Value = -$768,600 for NOSR-1 and $2,844,500 for NOSR-3.**

Option 3: Transfer of all or part of NPR-2 to the jurisdiction of another Federal agency for administration under Chapter 641 of Title 10, United States Code. No value derived, this option is considered nonviable.

Option 4: Sale of the interest of the United States of all or a part of NOSR 1 and 3. **Value = $2,236,000 for NOSR-1 and $5,541,000 for NOSR-3.**

7. RECOMMENDATIONS

This option recommended to maximize value to the United States is Option 4, sale of the interest of the United States of all or part of NOSR 1 and 3. Evaluation of this option results in a value of $2.2 million and $5.5 million, respectively. The next highest value of $4.4 million is for Option 1, retention by the DOE.

It should be noted that NOSR-1 had a negative value under the remaining options.

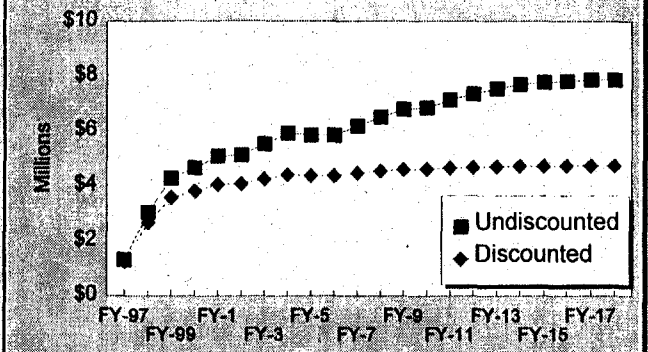
APPENDIX A

DETAILED CASHFLOW PROJECTIONS FROM RETENTION OPTION

Current Parameters

Price= INFL
Case=1
Royalty= not used
Bonus=$0
Severance= none
Ad Valorem = none
St. Tax Rate= none
Fed Tax Rate= 35%
Mcf/bbl=6
Industry Rate=17.20%

Cumulative Federal Income



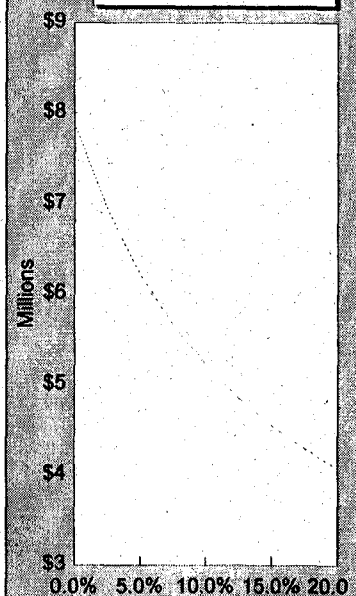
Operator Concerns

RISK	Production	Expenses
PDP	100.0%	100.0%
PD-NP	80.0%	100.0%
PUD	60.0%	100.0%
Unproven	50.0%	100.0%

Federal Benefits Model

NOSR-3

Federal NPV



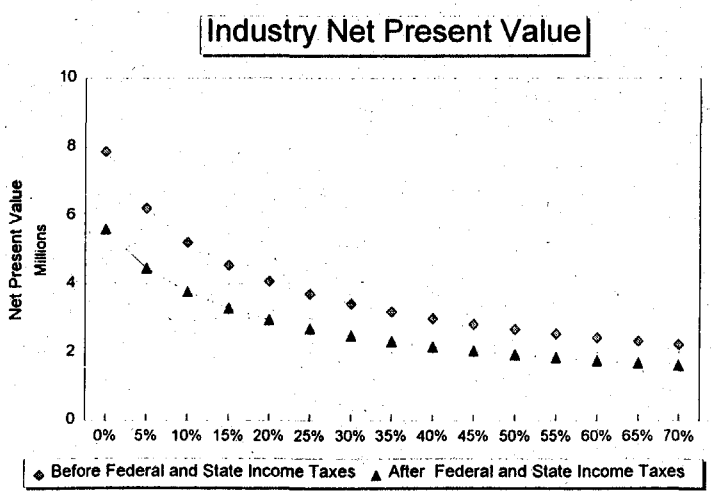
	Initial Income $	Royalties $	Federal Income Taxes $	Total Federal Income $	Cumulative $000	Discounted	Cumulative Discounted $000
FY-97	0	0	0	1,310,358	1,310	1,229,963	1,230
FY-98		0	0	1,715,350	3,026	1,418,597	2,649
FY-99		0	0	1,235,444	4,261	900,189	3,549
FY-00		0	0	383,007	4,644	245,879	3,795
FY-1		0	0	427,266	5,071	241,667	4,036
FY-2		0	0	44,650	5,116	22,251	4,059
FY-3		0	0	410,185	5,526	180,097	4,239
FY-4		0	0	392,127	5,918	151,690	4,390
FY-5		0	0	(80,624)	5,838	(27,479)	4,363
FY-6		0	0	1,170	5,839	351	4,363
FY-7		0	0	335,434	6,174	88,746	4,452
FY-8		0	0	305,127	6,479	71,126	4,523
FY-9		0	0	304,519	6,784	62,541	4,586
FY-10		0	0	49,610	6,834	8,977	4,595
FY-11		0	0	295,822	7,129	47,162	4,642
FY-12		0	0	228,245	7,358	32,060	4,674
FY-13		0	0	188,208	7,546	23,292	4,697
FY-14		0	0	148,154	7,694	16,154	4,713
FY-15		0	0	83,986	7,778	8,068	4,721
FY-16		0	0	44,996	7,823	3,808	4,725
FY-17		0	0	40,885	7,864	3,049	4,728
FY-18		0	0	0	7,864	0	4,728
Thereafter		0	0	0	7,864	0	4,728
TOTAL	0	0	0	7,863,921		4,728,188	
NPV=	0	0	0				

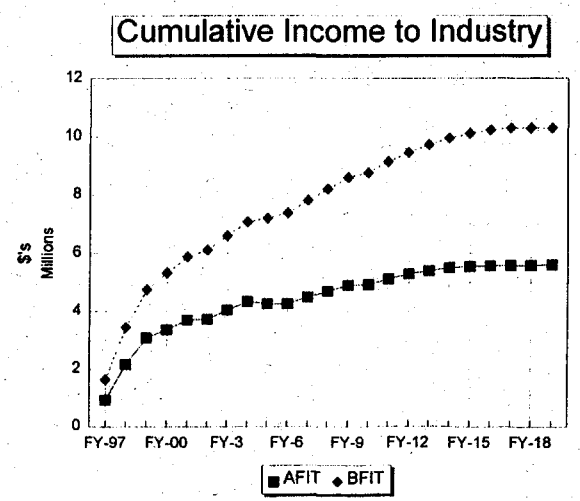
NOSR-3

Federal Income Tax Calculations

	Revenue	Royalty, 80% Cap, OpEx, and Prod. Tax	Allocated Overhead	Depreciation	Depletion	Total Deductions	Taxable Income	State Income Taxes	Federal Income Taxes	After Tax Cash Flow	Cumulative	Discounted @ 14.2%	Cumulative Discounted
	$	$	$	$	$	$	$	$	$	$	$000		$000
FY-97	3,003,114	1,161,610	330,222	28,704	419,241	1,939,777	1,063,337	0	372,168	938,190	938	877,926	878
FY-98	2,189,678	380,390	87,435	50,136	308,929	826,890	1,362,788	0	476,976	1,238,375	2,177	1,014,736	1,893
FY-99	1,663,600	348,880	79,276	36,741	237,195	702,092	961,508	0	336,528	898,917	3,075	644,992	2,538
FY-00	1,334,138	687,452	183,195	37,741	185,875	1,094,263	239,875	0	83,956	299,050	3,375	187,894	2,726
FY-1	1,076,975	485,124	126,276	43,928	145,261	800,589	276,386	0	96,735	330,531	3,705	181,850	2,907
FY-2	997,386	677,688	187,825	54,434	0	919,946	77,440	0	27,104	17,547	3,723	8,453	2,916
FY-3	850,492	345,610	87,131	57,712	95,324	585,778	264,714	0	92,650	317,535	4,040	133,956	3,050
FY-4	809,277	324,569	84,945	39,718	67,257	516,488	292,789	0	102,476	289,651	4,330	106,999	3,157
FY-5	908,224	697,501	197,726	38,359	0	933,586	(25,362)	0	(8,877)	(71,747)	4,258	(23,208)	3,134
FY-6	884,552	629,342	177,427	54,540	0	861,309	23,243	0	8,135	(6,965)	4,251	(1,973)	3,132
FY-7	799,825	356,099	95,783	53,351	0	505,233	294,592	0	103,107	232,327	4,483	57,624	3,189
FY-8	731,663	327,859	90,059	40,245	0	458,162	273,501	0	95,725	209,402	4,693	45,480	3,235
FY-9	672,122	288,045	79,558	27,476	0	395,079	277,043	0	96,965	207,554	4,900	39,473	3,274
FY-10	656,617	441,365	127,172	29,304	0	597,841	58,776	0	20,571	29,038	4,929	4,836	3,279
FY-11	668,019	288,142	81,816	34,907	0	404,865	263,154	0	92,104	203,718	5,133	29,708	3,309
FY-12	592,108	273,834	80,843	30,329	0	385,007	207,101	0	72,486	155,760	5,289	19,890	3,329
FY-13	543,716	249,521	78,405	22,910	0	350,835	192,881	0	67,508	120,700	5,410	13,496	3,342
FY-14	487,529	235,174	77,498	13,903	0	326,575	160,954	0	56,334	91,820	5,501	8,990	3,351
FY-15	418,204	204,906	74,242	22,449	0	301,597	116,607	0	40,813	43,174	5,545	3,702	3,355
FY-16	380,073	205,913	75,715	28,842	0	310,470	69,603	0	24,361	20,635	5,565	1,549	3,356
FY-17	296,097	176,984	26,548	20,180	0	223,712	72,385	0	25,335	15,551	5,581	1,022	3,357
FY-18	0	0	0	13,099	0	13,099	(13,099)	0	(4,585)	4,585	5,585	264	3,358
Thereafter	0	0	0	86,467	0	86,467	(86,467)	0	(30,264)	30,264	5,616	1,526	3,359
TOTAL	19,963,409	8,786,007	2,429,095	865,476	1,459,083	13,539,661	6,423,748	0	2,248,312	5,615,609		3,359,185	

Discount Factor	Before Federal and State Income Taxes	After Federal and State Income Taxes
17.20%	4,326,000	
14.20%		3,359,000
0%	7,864,000	5,616,000
5%	6,218,000	4,469,000
10%	5,218,000	3,767,000
15%	4,553,000	3,294,000
20%	4,077,000	2,953,000
25%	3,715,000	2,692,000
30%	3,428,000	2,484,000
35%	3,192,000	2,312,000
40%	2,994,000	2,168,000
45%	2,824,000	2,044,000
50%	2,675,000	1,936,000
55%	2,545,000	1,841,000
60%	2,429,000	1,756,000
65%	2,324,000	1,680,000
70%	2,230,000	1,611,000





PD, PD-NP, PUD plus Unproven Before Federal Income Tax

NOSR-3

	PRODUCTION			REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue before bonus/price	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	none	$	$	exempt	$	$	$000	13.50%	$000
Oct-96	304	265,171	0	5,624	265,171	0	270,795	0	0	29,052	0	29,052	241,743	242	241,743	242
Nov-96	294	256,803	0	5,450	257,400	0	262,850	0	0	29,052	0	29,052	233,798	476	231,197	473
Dec-96	285	248,838	0	5,294	249,997	0	255,291	0	0	29,052	0	29,052	226,239	702	221,233	694
Jan-97	304	263,511	0	5,654	265,354	0	271,008	0	1,004,640	30,082	0	1,034,722	(763,714)	(62)	(738,508)	(44)
Feb-97	295	256,268	0	5,498	258,661	0	264,159	0	0	30,082	0	30,082	234,077	172	223,833	179
Mar-97	287	249,350	0	5,360	252,263	0	257,623	0	0	30,082	0	30,082	227,541	400	215,163	395
Apr-97	280	242,733	0	5,239	246,140	0	251,379	0	0	30,082	0	30,082	221,297	621	206,930	602
May-97	272	236,401	0	5,100	240,277	0	245,377	0	0	30,082	0	30,082	215,295	836	199,078	801
Jun-97	265	230,242	0	4,979	234,561	0	239,540	0	0	30,082	0	30,082	209,458	1,046	191,526	992
Jul-97	258	223,967	0	4,857	228,699	0	233,556	0	0	30,082	0	30,082	203,474	1,249	183,985	1,176
Aug-97	252	218,410	0	4,754	223,543	0	228,297	0	0	30,082	0	30,082	198,215	1,447	177,236	1,353
Sep-97	246	213,074	0	4,650	218,589	0	223,239	0	0	30,082	0	30,082	193,157	1,641	170,792	1,524
FY-97	3,340	2,904,768	0	62,459	2,940,655	0	3,003,114	0	1,004,640	357,898	0	1,362,538	1,640,580		1,524,208	
Oct-97	225	195,871	0	4,270	201,409	0	205,679	0	0	29,670	0	29,670	176,009	1,817	153,898	1,678
Nov-97	219	190,940	0	4,165	196,795	0	200,960	0	0	29,670	0	29,670	171,290	1,988	148,105	1,826
Dec-97	214	186,195	0	4,078	192,351	0	196,429	0	0	29,670	0	29,670	166,759	2,155	142,584	1,969
Jan-98	209	181,627	0	3,991	188,068	0	192,059	0	0	29,670	0	29,670	162,389	2,317	137,303	2,106
Feb-98	203	177,104	0	3,884	183,811	0	187,695	0	0	29,670	0	29,670	158,025	2,475	132,126	2,238
Mar-98	198	172,713	0	3,797	179,670	0	183,467	0	32,519	29,432	0	61,951	121,516	2,597	100,470	2,339
Apr-98	194	168,652	0	3,728	175,854	0	179,582	0	0	29,432	0	29,432	150,150	2,747	122,764	2,461
May-98	189	164,731	0	3,640	172,166	0	175,806	0	0	29,432	0	29,432	146,374	2,893	118,346	2,580
Jun-98	185	160,945	0	3,570	168,599	0	172,169	0	0	29,432	0	29,432	142,737	3,036	114,121	2,694
Jul-98	181	157,286	0	3,500	165,150	0	168,650	0	0	29,432	0	29,432	139,218	3,175	110,069	2,804
Aug-98	177	153,750	0	3,429	161,812	0	165,241	0	0	29,432	0	29,432	135,809	3,311	106,180	2,910
Sep-98	173	150,331	0	3,359	158,582	0	161,941	0	0	29,432	0	29,432	132,509	3,443	102,447	3,013
FY-98	2,369	2,060,145	0	45,411	2,144,267	0	2,189,678	0	32,519	354,375	0	386,894	1,802,785		1,488,413	
FY-99	1,751	1,523,358	0	34,368	1,629,232	0	1,663,600	0	0	348,880	0	348,880	1,314,720	4,758	957,952	3,971
FY-00	1,370	1,191,117	0	27,498	1,306,640	0	1,334,138	0	402,422	365,514	0	767,936	566,202	5,324	363,484	4,334
FY-1	1,080	937,458	0	22,167	1,054,808	0	1,076,975	0	191,547	331,886	0	523,433	553,542	5,878	313,090	4,647
FY-2	980	846,378	0	20,585	976,801	0	997,386	0	436,116	328,795	0	764,911	232,475	6,110	115,851	4,763
FY-3	816	703,658	0	17,532	832,960	0	850,492	0	37,827	315,349	0	353,176	497,316	6,608	218,353	4,981
FY-4	761	652,752	0	16,719	792,558	0	809,277	0	38,182	294,023	0	332,205	477,072	7,085	184,550	5,166
FY-5	839	714,141	0	18,844	889,380	0	908,224	0	468,107	323,016	0	791,122	117,102	7,202	39,912	5,206
FY-6	800	678,081	0	18,378	866,174	0	884,552	0	383,067	322,888	0	705,955	178,597	7,380	53,631	5,259
FY-7	706	597,787	0	16,593	783,232	0	799,825	0	62,542	306,066	0	368,608	431,217	7,812	114,088	5,374
FY-8	631	533,157	0	15,158	716,505	0	731,663	0	43,091	293,386	0	336,477	395,186	8,207	92,119	5,466
FY-9	565	477,526	0	13,886	658,236	0	672,122	0	0	288,045	0	288,045	384,077	8,591	78,881	5,545
FY-10	539	453,219	0	13,533	640,786	0	656,617	0	180,859	296,678	0	477,537	176,782	8,768	31,989	5,577
FY-11	535	449,623	0	13,741	652,039	0	668,019	0	0	288,142	0	288,142	377,638	9,145	60,205	5,637
FY-12	456	383,842	0	11,972	570,950	0	592,108	0	0	273,834	0	273,834	309,088	9,454	43,416	5,680
FY-13	394	331,351	0	10,595	505,539	0	543,716	0	0	249,521	0	249,521	266,613	9,721	32,995	5,713
FY-14	344	288,437	0	9,451	451,375	0	487,529	0	0	235,174	0	235,174	225,652	9,947	24,604	5,738
FY-15	263	221,626	0	7,399	355,735	0	418,204	0	0	204,906	0	204,906	158,228	10,105	15,201	5,753
FY-16	231	194,356	0	6,643	319,981	0	380,073	0	0	205,913	0	205,913	120,711	10,226	10,217	5,763
FY-17	170	141,780	0	4,995	239,422	0	296,097	0	0	176,984	0	176,984	67,433	10,293	5,029	5,768
FY-18	0	0	0	0	0	0	5,042	0	0	0	0	0	0	10,293	0	5,768
Thereafter	0	0	0	0	0	0	89,544	0	0	0	0	0	0	10,293	0	5,768
TOTAL	22,185	18,988,465	0	507,236	19,550,759	0	20,057,995	0	6,749,605	17,539,379	0	24,288,984	10,293,016		5,768,188	

PDP

Proved Developed Producing

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	exempt	$	$	$000	13.50%	$000
Oct-96	304	265,171	0	$18.50	$1.00	NA	5,624	265,171	0	270,795	0	0	29,052	0	$29,052	$241,743	$242	$241,743	$242
Nov-96	294	256,803	0	$18.54	$1.00	NA	5,450	257,400	0	262,850	0	0	29,052	0	$29,052	$233,798	$476	$231,197	$473
Dec-96	285	248,838	0	$18.58	$1.00	NA	5,294	249,997	0	255,291	0	0	29,052	0	$29,052	$226,239	$702	$221,233	$694
Jan-97	277	241,248	0	$18.61	$1.01	NA	5,156	242,935	0	248,091	0	0	29,052	0	$29,052	$219,039	$921	$211,810	$906
Feb-97	268	234,005	0	$18.65	$1.01	NA	4,999	236,190	0	241,189	0	0	29,052	0	$29,052	$212,137	$1,133	$202,853	$1,109
Mar-97	260	227,087	0	$18.69	$1.01	NA	4,860	229,740	0	234,600	0	0	29,052	0	$29,052	$205,548	$1,339	$194,366	$1,303
Apr-97	253	220,470	0	$18.73	$1.01	NA	4,738	223,565	0	228,303	0	0	29,052	0	$29,052	$199,251	$1,538	$186,316	$1,490
May-97	245	214,138	0	$18.77	$1.02	NA	4,598	217,649	0	222,247	0	0	29,052	0	$29,052	$193,195	$1,731	$178,643	$1,668
Jun-97	238	207,979	0	$18.81	$1.02	NA	4,476	211,880	0	216,356	0	0	29,052	0	$29,052	$187,304	$1,918	$171,269	$1,839
Jul-97	231	201,704	0	$18.84	$1.02	NA	4,353	205,966	0	210,319	0	0	29,052	0	$29,052	$181,267	$2,100	$163,905	$2,003
Aug-97	225	196,147	0	$18.88	$1.02	NA	4,249	200,757	0	205,006	0	0	29,052	0	$29,052	$175,954	$2,275	$157,331	$2,161
Sep-97	219	190,811	0	$18.92	$1.03	NA	4,144	195,750	0	199,894	0	0	29,052	0	$29,052	$170,842	$2,446	$151,060	$2,312
FY-97	3,099	2,704,401	0				57,941	2,737,000	0	2,794,941	0	0	348,624	0	$348,624	$2,446,317		$2,311,726	
Oct-97	213	185,683	0	$18.96	$1.03	NA	4,039	190,932	0	194,971	0	0	28,609	0	$28,609	$166,363	$2,613	$145,463	$2,457
Nov-97	207	180,751	0	$19.00	$1.03	NA	3,933	186,294	0	190,227	0	0	28,609	0	$28,609	$161,619	$2,774	$139,743	$2,597
Dec-97	202	176,007	0	$19.04	$1.03	NA	3,846	181,825	0	185,671	0	0	28,609	0	$28,609	$157,063	$2,931	$134,293	$2,731
Jan-98	197	171,438	0	$19.08	$1.04	NA	3,758	177,518	0	181,276	0	0	28,609	0	$28,609	$152,668	$3,084	$129,083	$2,860
Feb-98	191	166,915	0	$19.12	$1.04	NA	3,651	173,236	0	176,887	0	0	28,609	0	$28,609	$148,279	$3,232	$123,977	$2,984
Mar-98	186	162,524	0	$19.16	$1.04	NA	3,563	169,071	0	172,634	0	32,519	28,371	0	$60,890	$111,744	$3,344	$92,391	$3,077
Apr-98	182	158,483	0	$19.20	$1.04	NA	3,494	165,230	0	168,724	0	0	28,371	0	$28,371	$140,353	$3,484	$114,754	$3,191
May-98	177	154,542	0	$19.24	$1.05	NA	3,405	161,517	0	164,922	0	0	28,371	0	$28,371	$136,551	$3,621	$110,403	$3,302
Jun-98	173	150,756	0	$19.28	$1.05	NA	3,335	157,926	0	161,261	0	0	28,371	0	$28,371	$132,890	$3,754	$106,248	$3,408
Jul-98	169	147,098	0	$19.31	$1.05	NA	3,264	154,452	0	157,716	0	0	28,371	0	$28,371	$129,345	$3,883	$102,263	$3,510
Aug-98	165	143,561	0	$19.35	$1.05	NA	3,193	151,089	0	154,282	0	0	28,371	0	$28,371	$125,911	$4,009	$98,441	$3,609
Sep-98	161	140,142	0	$19.39	$1.05	NA	3,122	147,834	0	150,956	0	0	28,371	0	$28,371	$122,585	$4,132	$94,774	$3,704
FY-98	2,223	1,937,880	0				42,603	2,016,924	0	2,059,527	0	32,519	341,640	0	$374,159	$1,685,369		$1,391,833	
FY-99	1,650	1,448,071	0	$19.63	$1.07	NA	32,589	1,548,713	0	1,581,302	0	0	336,139	0	$336,139	$1,245,163	$5,377	$907,270	$4,611
FY-00	1,268	1,106,402	0	$20.08	$1.10	NA	25,458	1,213,709	0	1,239,167	0	25,730	322,277	0	$348,007	$891,160	$6,268	$572,098	$5,183
FY-1	966	843,039	0	$20.53	$1.13	NA	19,835	948,570	0	968,405	0	62,128	276,993	0	$339,121	$629,284	$6,897	$355,930	$5,539
FY-2	751	655,123	0	$21.00	$1.15	NA	15,771	756,075	0	771,846	0	35,940	240,266	0	$276,206	$495,640	$7,393	$246,996	$5,786
FY-3	603	525,907	0	$21.48	$1.18	NA	12,950	622,546	0	635,496	0	37,827	224,128	0	$261,955	$373,541	$7,766	$164,008	$5,950
FY-4	478	416,733	0	$21.96	$1.21	NA	10,499	505,989	0	516,488	0	38,182	200,029	0	$238,211	$278,277	$8,045	$107,649	$6,058
FY-5	391	340,853	0	$22.46	$1.25	NA	8,783	424,493	0	433,276	0	29,931	191,192	0	$221,123	$212,153	$8,257	$72,308	$6,130
FY-6	300	261,256	0	$22.97	$1.28	NA	6,892	333,726	0	340,618	0	81,982	163,034	0	$245,016	$95,602	$8,353	$28,708	$6,159
FY-7	237	207,029	0	$23.49	$1.31	NA	5,568	271,253	0	276,821	0	62,542	141,351	0	$203,893	$72,928	$8,425	$19,295	$6,178
FY-8	193	168,136	0	$24.03	$1.34	NA	4,637	225,956	0	230,593	0	43,091	123,664	0	$166,755	$63,838	$8,489	$14,881	$6,193
FY-9	158	137,987	0	$24.57	$1.38	NA	3,882	190,206	0	194,088	0	0	113,164	0	$113,164	$80,924	$8,570	$16,620	$6,209
FY-10	131	113,995	0	$25.13	$1.41	NA	3,292	161,173	0	164,465	0	10,961	102,939	0	$113,900	$50,565	$8,621	$9,150	$6,218
FY-11	108	93,965	0	$25.70	$1.45	NA	2,776	136,267	0	139,043	0	0	88,514	0	$88,514	$50,529	$8,671	$8,056	$6,227
FY-12	93	81,507	0	$26.28	$1.49	NA	2,444	121,239	0	123,683	0	0	82,514	0	$82,514	$41,169	$8,712	$5,783	$6,232
FY-13	78	67,900	0	$26.88	$1.53	NA	2,097	103,594	0	105,691	0	0	71,761	0	$71,761	$33,930	$8,746	$4,199	$6,237
FY-14	59	51,130	0	$27.49	$1.56	NA	1,622	80,013	0	81,635	0	0	52,010	0	$52,010	$29,625	$8,776	$3,230	$6,240
FY-15	52	45,656	0	$28.11	$1.61	NA	1,462	73,283	0	74,745	0	0	47,629	0	$47,629	$27,116	$8,803	$2,605	$6,242
FY-16	46	40,173	0	$28.75	$1.65	NA	1,323	66,139	0	67,462	0	0	43,855	0	$43,855	$23,607	$8,827	$1,998	$6,244
FY-17	11	9,384	0	$29.41	$1.69	NA	$323.00	15,847	0	16,170	0	0	10,000	0	$10,000	$6,170	$8,833	$460	$6,245
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$8,833	$0	$6,245
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$8,833	$0	$6,245
Total	12,905	11,256,525	0				262,747	12,552,715	0	12,815,462	0	460,833	3,521,723	0	$3,982,556	$8,832,906		$6,244,803	

PD-NP

Proved Developed Non-Producing

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	exempt	$	$	$000	13.50%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	36	30,166	0	$20.08	$1.10	NA	727	33,092	0	33,819	0	376,692	30,109	0	$406,801	($372,982)	($373)	($239,443)	($239)
FY-1	62	51,618	0	$20.53	$1.13	NA	1,272	58,079	0	59,351	0	129,419	41,366	0	$170,785	($111,434)	($484)	($83,028)	($302)
FY-2	187	156,026	0	$21.00	$1.15	NA	3,932	180,069	0	184,001	0	400,176	74,591	0	$474,767	($290,766)	($775)	($144,899)	($447)
FY-3	177	147,814	0	$21.48	$1.18	NA	3,809	174,976	0	178,785	0	0	76,858	0	$76,858	$101,927	($673)	$44,752	($403)
FY-4	252	209,990	0	$21.96	$1.21	NA	5,535	254,966	0	260,501	0	0	79,195	0	$79,195	$181,306	($492)	$70,136	($332)
FY-5	420	350,283	0	$22.46	$1.25	NA	9,441	436,212	0	445,653	0	438,176	116,575	0	$554,751	($109,098)	($601)	($37,184)	($370)
FY-6	475	396,183	0	$22.97	$1.28	NA	10,921	506,080	0	517,001	0	301,085	144,143	0	$445,228	$71,773	($529)	$21,553	($348)
FY-7	446	372,050	0	$23.49	$1.31	NA	10,489	487,467	0	497,956	0	0	148,525	0	$148,525	$349,431	($180)	$92,450	($256)
FY-8	418	347,917	0	$24.03	$1.34	NA	10,031	467,563	0	477,594	0	0	153,040	0	$153,040	$324,554	$145	$75,655	($180)
FY-9	389	323,784	0	$24.57	$1.38	NA	9,547	446,313	0	455,860	0	0	157,692	0	$157,692	$298,168	$443	$61,237	($119)
FY-10	390	324,822	0	$25.13	$1.41	NA	9,789	458,968	0	468,757	0	169,898	176,027	0	$345,925	$122,832	$566	$22,226	($97)
FY-11	410	342,051	0	$25.70	$1.45	NA	10,549	496,040	0	506,589	0	0	181,378	0	$181,378	$325,211	$891	$51,847	($45)
FY-12	348	289,595	0	$26.28	$1.49	NA	9,134	430,762	0	439,896	0	0	172,515	0	$172,515	$267,381	$1,158	$37,557	($7)
FY-13	316	263,451	0	$26.88	$1.53	NA	8,498	401,945	0	410,443	0	0	177,760	0	$177,760	$232,683	$1,391	$28,796	$22
FY-14	285	237,307	0	$27.49	$1.56	NA	7,829	371,362	0	379,191	0	0	183,164	0	$183,164	$196,027	$1,587	$21,374	$43
FY-15	211	175,969	0	$28.11	$1.61	NA	5,937	282,452	0	288,389	0	0	157,277	0	$157,277	$131,112	$1,718	$12,596	$56
FY-16	185	154,183	0	$28.75	$1.65	NA	5,320	253,842	0	259,162	0	0	162,058	0	$162,058	$97,104	$1,815	$8,219	$64
FY-17	159	132,396	0	$29.41	$1.69	NA	4,672	223,575	0	228,247	0	0	166,984	0	$166,984	$61,263	$1,876	$4,569	$68
FY-18	133	110,609	0	$30.07	NA	NA	3,992	0	0	3,992	0	0	172,061	0	$172,061	$0	$1,876	$0	$68
Thereafter	287	239,319	0	$30.76	NA	NA	8,833	0	0	8,833	0	0	1,273,898	0	$1,273,898	$0	$1,876	$0	$68
Total	5,586	4,655,315	0				140,257	5,963,763	0	6,104,020	0	1,815,446	3,845,214	0	$5,660,661	$1,876,493		$68,413	

PUD

Proved Undeveloped

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	exempt	$	$	$000	13.50%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	27	22,263	0	$18.61	$1.01	NA	498	22,419	0	22,917	0	1,004,640	1,030	0	$1,005,670	($982,753)	($983)	($950,318)	($950)
Feb-97	27	22,263	0	$18.65	$1.01	NA	499	22,471	0	22,970	0	0	1,030	0	$1,030	$21,940	($961)	$20,979	($929)
Mar-97	27	22,263	0	$18.69	$1.01	NA	500	22,523	0	23,023	0	0	1,030	0	$1,030	$21,993	($939)	$20,796	($909)
Apr-97	27	22,263	0	$18.73	$1.01	NA	501	22,575	0	23,076	0	0	1,030	0	$1,030	$22,046	($917)	$20,614	($888)
May-97	27	22,263	0	$18.77	$1.02	NA	502	22,628	0	23,130	0	0	1,030	0	$1,030	$22,100	($895)	$20,435	($867)
Jun-97	27	22,263	0	$18.81	$1.02	NA	503	22,681	0	23,184	0	0	1,030	0	$1,030	$22,154	($873)	$20,257	($847)
Jul-97	27	22,263	0	$18.84	$1.02	NA	504	22,733	0	23,237	0	0	1,030	0	$1,030	$22,207	($850)	$20,080	($827)
Aug-97	27	22,263	0	$18.88	$1.02	NA	505	22,786	0	23,291	0	0	1,030	0	$1,030	$22,261	($828)	$19,905	($807)
Sep-97	27	22,263	0	$18.92	$1.03	NA	506	22,839	0	23,345	0	0	1,030	0	$1,030	$22,315	($806)	$19,731	($788)
FY-97	241	200,367	0				4,518	203,655	0	208,173	0	1,004,640	9,274	0	$1,013,914	($805,741)		($787,521)	
Oct-97	12	10,189	0	$18.96	$1.03	NA	231	10,477	0	10,708	0	0	1,061	0	$1,061	$9,647	($796)	$8,435	($779)
Nov-97	12	10,189	0	$19.00	$1.03	NA	232	10,501	0	10,733	0	0	1,061	0	$1,061	$9,672	($786)	$8,363	($771)
Dec-97	12	10,189	0	$19.04	$1.03	NA	232	10,526	0	10,758	0	0	1,061	0	$1,061	$9,697	($777)	$8,291	($762)
Jan-98	12	10,189	0	$19.08	$1.04	NA	233	10,550	0	10,783	0	0	1,061	0	$1,061	$9,722	($767)	$8,220	($754)
Feb-98	12	10,189	0	$19.12	$1.04	NA	233	10,575	0	10,808	0	0	1,061	0	$1,061	$9,747	($757)	$8,149	($746)
Mar-98	12	10,189	0	$19.16	$1.04	NA	234	10,599	0	10,833	0	0	1,061	0	$1,061	$9,772	($747)	$8,079	($738)
Apr-98	12	10,189	0	$19.20	$1.04	NA	234	10,624	0	10,858	0	0	1,061	0	$1,061	$9,797	($738)	$8,010	($730)
May-98	12	10,189	0	$19.24	$1.05	NA	235	10,649	0	10,884	0	0	1,061	0	$1,061	$9,823	($728)	$7,942	($722)
Jun-98	12	10,189	0	$19.28	$1.05	NA	235	10,673	0	10,908	0	0	1,061	0	$1,061	$9,847	($718)	$7,873	($714)
Jul-98	12	10,189	0	$19.31	$1.05	NA	236	10,698	0	10,934	0	0	1,061	0	$1,061	$9,873	($708)	$7,806	($706)
Aug-98	12	10,189	0	$19.35	$1.05	NA	236	10,723	0	10,959	0	0	1,061	0	$1,061	$9,898	($698)	$7,738	($699)
Sep-98	12	10,189	0	$19.39	$1.05	NA	237	10,748	0	10,985	0	0	1,061	0	$1,061	$9,924	($688)	$7,672	($691)
FY-98	146	122,265	0				2,808	127,343	0	130,151	0	0	12,736	0	$12,736	$117,415		$96,578	
FY-99	91	75,287	0	$19.63	$1.07	NA	1,779	80,519	0	82,298	0	0	12,741	0	$12,741	$69,557	($619)	$50,682	($640)
FY-00	65	54,548	0	$20.08	$1.10	NA	1,313	59,839	0	61,152	0	0	13,128	0	$13,128	$48,024	($571)	$30,830	($609)
FY-1	52	42,802	0	$20.53	$1.13	NA	1,060	48,159	0	49,219	0	0	13,527	0	$13,527	$35,692	($535)	$20,188	($589)
FY-2	42	35,228	0	$21.00	$1.15	NA	882	40,657	0	41,539	0	0	13,938	0	$13,938	$27,601	($507)	$13,755	($575)
FY-3	36	29,937	0	$21.48	$1.18	NA	773	35,438	0	36,211	0	0	14,362	0	$14,362	$21,849	($486)	$9,593	($566)
FY-4	31	26,029	0	$21.96	$1.21	NA	685	31,603	0	32,288	0	0	14,799	0	$14,799	$17,489	($468)	$6,765	($559)
FY-5	28	23,025	0	$22.46	$1.25	NA	620	28,675	0	29,295	0	0	15,249	0	$15,249	$14,046	($454)	$4,787	($554)
FY-6	25	20,642	0	$22.97	$1.28	NA	565	26,368	0	26,933	0	0	15,712	0	$15,712	$11,221	($443)	$3,370	($551)
FY-7	23	18,708	0	$23.49	$1.31	NA	536	24,512	0	25,048	0	0	16,190	0	$16,190	$8,858	($434)	$2,344	($549)
FY-8	20	17,104	0	$24.03	$1.34	NA	490	22,986	0	23,476	0	0	16,682	0	$16,682	$6,794	($427)	$1,584	($547)
FY-9	19	15,755	0	$24.57	$1.38	NA	457	21,717	0	22,174	0	0	17,189	0	$17,189	$4,985	($422)	$1,024	($546)
FY-10	18	14,602	0	$25.13	$1.41	NA	452	20,645	0	21,097	0	0	17,712	0	$17,712	$3,385	($419)	$613	($545)
FY-11	16	13,607	0	$25.70	$1.45	NA	416	19,732	0	20,148	0	0	18,250	0	$18,250	$1,898	($417)	$303	($545)
FY-12	15	12,739	0	$26.28	$1.49	NA	394	18,949	0	19,343	0	0	18,805	0	$18,805	$538	($416)	$76	($545)
FY-13	14	11,975	0	$26.88	$1.53	NA	387	18,270	0	18,657	0	0	19,376	0	$19,376	$0	($416)	$0	($545)
FY-14	14	11,297	0	$27.49	$1.56	NA	379	17,679	0	18,058	0	0	19,966	0	$19,966	$0	($416)	$0	($545)
FY-15	13	10,692	0	$28.11	$1.61	NA	354	17,162	0	17,516	0	0	20,572	0	$20,572	$0	($416)	$0	($545)
FY-16	13	10,149	0	$28.75	$1.65	NA	362	16,709	0	17,071	0	0	21,198	0	$21,198	$0	($416)	$0	($545)
FY-17	12	9,600	0	$29.41	$1.69	NA	353	16,211	0	16,564	0	0	21,842	0	$21,842	$0	($416)	$0	($545)
FY-18	12	9,072	0	$30.07	NA	NA	361	0	0	361	0	0	22,506	0	$22,506	$0	($416)	$0	($545)
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	($416)	$0	($545)
Total	944	785,431	0				19,944	896,828	0	916,772	0	1,004,640	365,753	0	$1,370,393	($416,388)		($545,029)	

Unproven

Unproven

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	exempt	$	$	$000	13.50%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	2	1,691	0	$25.13	$1.41	NA	48	2,250	0	2,298	0	169,898	13,541	0	$183,439	$0	$0	$0	$0
FY-11	2	1,512	0	$25.70	$1.45	NA	47	2,192	0	2,239	0	0	13,952	0	$13,952	$0	$0	$0	$0
FY-12	7	6,047	0	$26.28	$1.49	NA	191	8,995	0	9,186	0	180,490	28,753	0	$209,242	$0	$0	$0	$0
FY-13	7	5,729	0	$26.88	$1.53	NA	185	8,740	0	8,925	0	0	29,627	0	$29,627	$0	$0	$0	$0
FY-14	6	5,411	0	$27.49	$1.56	NA	178	8,467	0	8,645	0	0	30,527	0	$30,527	$0	$0	$0	$0
FY-15	27	22,915	0	$28.11	$1.61	NA	773	36,781	0	37,554	0	395,257	62,911	0	$458,168	$0	$0	$0	$0
FY-16	26	21,642	0	$28.75	$1.65	NA	747	35,631	0	36,378	0	0	64,823	0	$64,823	$0	$0	$0	$0
FY-17	24	20,369	0	$29.41	$1.69	NA	719	34,397	0	35,116	0	0	66,794	0	$66,794	$0	$0	$0	$0
FY-18	23	19,096	0	$30.07	NA	NA	689	0	0	689	0	0	68,824	0	$68,824	$0	$0	$0	$0
Thereafter	2,624	2,186,883	0	$30.76	NA	NA	80,711	0	0	80,711	0	2,723,041	9,426,838	0	$12,149,979	$0	$0	$0	$0
Total	2,749	2,291,195	0				84,288	137,453	0	221,741	0	3,468,686	9,806,688	0	$13,275,374	$0		$0	

NOSR-3 Retention Case

DOE Summarized Output

	Production			Prices			DOE Net Income Calculations				
	OIL (MBO)	GAS (MMCF)	NGLs (GPD)	OIL ($/BO)	GAS ($/MMBTU)	NGLs ($/Gal)	Oil & Gas Revenue ($ 000)	Oil & Gas Costs ($ 000)	Overhead Costs ($ 000)	Cash Flow ($ 000)	Discounted Cash Flow ($ 000)
1997	3.340	2904.768	0	$18.71	$1.01	NA	$3,003.114	$1,362.538	$330.222	$1,310	$1,230
1998	2.369	2060.145	0	$19.18	$1.04	NA	$2,189.678	$386.894	$87.435	$1,715	$1,419
1999	1.751	1523.358	0	$19.63	$1.07	NA	$1,663.600	$348.880	$79.276	$1,235	$900
2000	1.370	1191.117	0	$20.08	$1.10	NA	$1,334.138	$767.936	$183.195	$383	$246
2001	1.080	937.458	0	$20.53	$1.13	NA	$1,076.975	$523.433	$126.276	$427	$242
2002	0.980	846.378	0	$21.00	$1.15	NA	$997.386	$764.911	$187.825	$45	$22
2003	0.816	703.658	0	$21.48	$1.18	NA	$850.492	$353.176	$87.131	$410	$180
2004	0.761	652.752	0	$21.96	$1.21	NA	$809.277	$332.205	$84.945	$392	$152
2005	0.839	714.141	0	$22.46	$1.25	NA	$908.224	$791.122	$197.726	($81)	($27)
2006	0.800	678.081	0	$22.97	$1.28	NA	$884.552	$705.955	$177.427	$1	$0
2007	0.706	597.787	0	$23.49	$1.31	NA	$799.825	$368.608	$95.783	$335	$89
2008	0.631	533.157	0	$24.03	$1.34	NA	$731.663	$336.477	$90.059	$305	$71
2009	0.565	477.526	0	$24.57	$1.38	NA	$672.122	$288.045	$79.558	$305	$63
2010	0.539	453.219	0	$25.13	$1.41	NA	$656.617	$477.537	$127.172	$50	$9
2011	0.535	449.623	0	$25.70	$1.45	NA	$668.019	$288.142	$81.816	$296	$47
2012	0.456	383.842	0	$26.28	$1.49	NA	$592.108	$273.834	$80.843	$228	$32
2013	0.394	331.351	0	$26.88	$1.53	NA	$543.716	$249.521	$78.405	$188	$23
2014	0.344	288.437	0	$27.49	$1.56	NA	$487.529	$235.174	$77.498	$148	$16
2015	0.263	221.626	0	$28.11	$1.61	NA	$418.204	$204.906	$74.242	$84	$8
2016	0.231	194.356	0	$28.75	$1.65	NA	$380.073	$205.913	$75.715	$45	$4
2017	0.170	141.780	0	$29.41	$1.69	NA	$296.097	$176.984	$26.548	$41	$3
2018	0.000	0.000	0	$30.07	NA	NA	$5.042	$0.000	$0.000	$0	$0
TOTALS	18.938	16284.557	0				$19,968.451	$9,442.191	$2,429.095	$7,864	**$4,728**

APPENDIX B

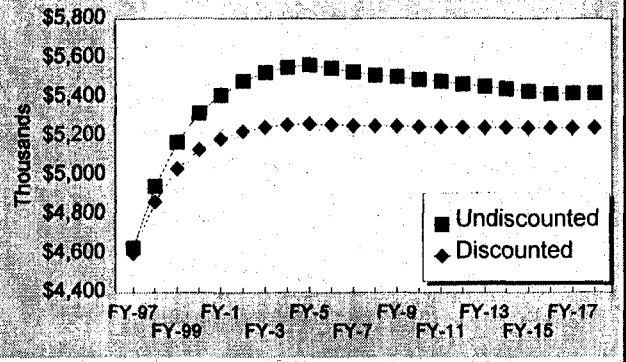
CASHFLOW TABLES FROM LEASING

(OPTION 2)

Current Parameters

Price=INFL
Case=3
Royalty=12.50%
Bonus=$4,150,000
Severance=0.00%
Ad Valorem =5.25%
St. Tax Rate=5.00%
Fed Tax Rate= 35%
Mcf/bbl=6
Industry Rate=17.20%

Cumulative Federal Income



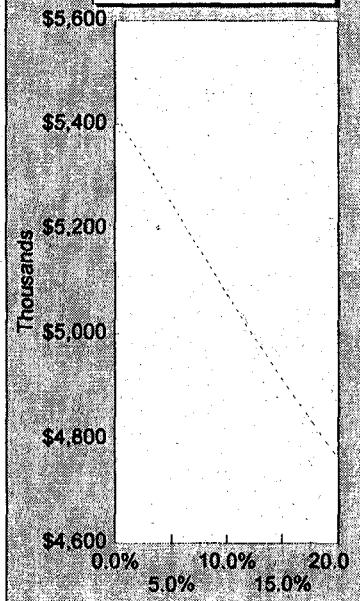
Operator Concerns

	RISK Production	Expenses
PDP	100.0%	95.0%
PD-NP	0.0%	0.0%
PUD	0.0%	0.0%
Unproven	0.0%	0.0%

Federal Benefits Model

NOSR-3

Federal NPV



	Initial Income $	Royalties $	Federal Income Taxes $	Total Federal Income $	Cumulative $000	Discounted	Cumulative Discounted $000
FY-97	4,150,000	174,684	304,000	4,628,684	4,629	4,600,779	4,601
FY-98		128,720	186,000	314,720	4,943	263,151	4,864
FY-99		98,831	127,000	225,831	5,169	167,822	5,032
FY-00		77,448	71,000	148,448	5,318	98,491	5,130
FY-1		60,525	32,000	92,525	5,410	55,185	5,185
FY-2		48,240	22,000	70,240	5,480	37,473	5,223
FY-3		39,719	5,000	44,719	5,525	21,771	5,245
FY-4		32,281	(7,000)	25,281	5,550	11,561	5,256
FY-5		27,080	(15,000)	12,080	5,563	5,623	5,262
FY-6		21,289	(38,000)	(16,711)	5,546	(3,842)	5,258
FY-7		17,301	(36,000)	(18,699)	5,527	(4,008)	5,254
FY-8		14,412	(31,000)	(16,588)	5,511	(3,105)	5,251
FY-9		12,131	(19,000)	(6,870)	5,504	(791)	5,250
FY-10		10,279	(24,000)	(13,721)	5,490	(1,978)	5,248
FY-11		8,690	(20,000)	(11,310)	5,479	(1,396)	5,247
FY-12		7,730	(20,000)	(12,270)	5,466	(1,379)	5,245
FY-13		6,606	(20,000)	(13,394)	5,453	(1,379)	5,244
FY-14		5,102	(17,000)	(11,898)	5,441	(1,094)	5,243
FY-15		4,672	(17,000)	(12,328)	5,429	(1,010)	5,242
FY-16		4,216	(17,000)	(12,784)	5,416	(934)	5,241
FY-17		1,011	0	1,011	5,417	109	5,241
FY-18		0	0	0	5,417	0	5,241
Thereafter		0	0	0	5,417	0	5,241
TOTAL	4,150,000	800,966	466,000	5,416,966		5,241,049	
NPV=	4,150,000	540,128	550,920				

Federal Income Tax Calculations

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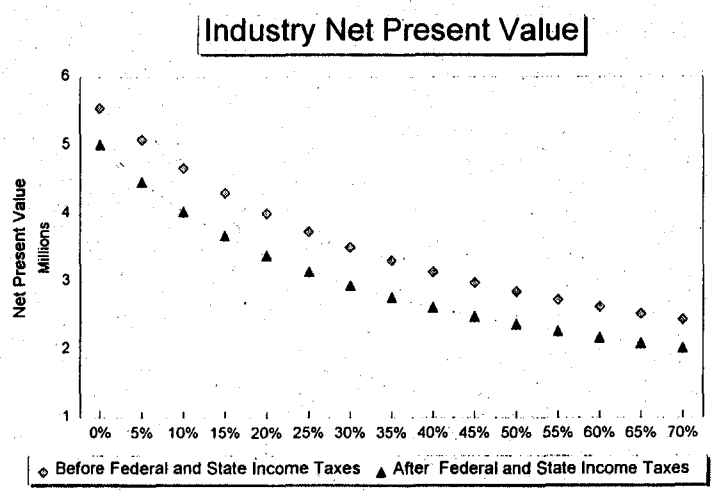
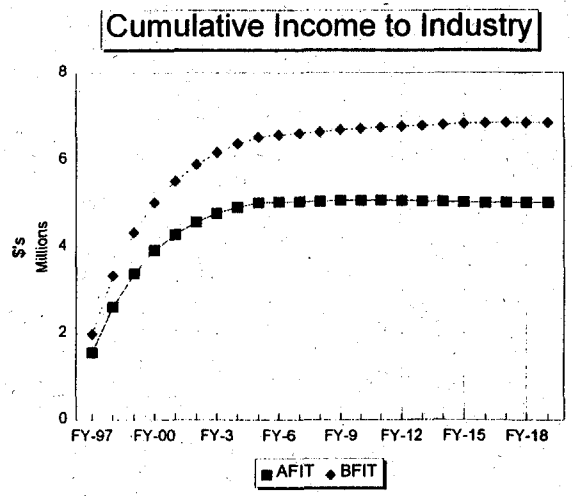
	Revenue	Royalty, 80% Cap, OpEx, and Prod. Tax	Allocated Overhead	Depreciation	Depletion	Total Deductions	Taxable Income	State Income Taxes	Federal Income Taxes	After Tax Cash Flow	Cumulative	Discounted @ 14.2%	Cumulative Discounted
	$	$	$	$	$	$	$	$	$	$	$000		$000
FY-97	2,794,941	808,955	75,056	0	997,042	1,881,053	913,888	45,694	303,868	1,561,373	1,561	1,461,078	1,461
FY-98	2,059,527	701,324	82,556	883	714,451	1,499,213	560,314	28,016	186,304	1,055,152	2,617	864,602	2,326
FY-99	1,581,302	589,636	74,843	1,513	533,867	1,199,860	381,442	19,072	126,829	770,921	3,387	553,152	2,879
FY-00	1,239,167	537,538	79,798	1,779	407,902	1,027,017	212,150	10,608	70,540	535,796	3,923	336,642	3,215
FY-1	968,405	475,898	82,834	3,656	310,806	873,193	95,212	4,761	31,658	361,451	4,285	198,862	3,414
FY-2	771,846	387,505	72,250	5,273	241,527	706,555	65,291	3,265	21,709	280,289	4,565	135,034	3,549
FY-3	635,496	350,300	71,295	5,926	193,889	621,410	14,086	704	4,684	201,326	4,766	84,932	3,634
FY-4	516,488	307,333	68,868	6,454	153,640	536,294	(19,806)	(990)	(6,586)	140,608	4,907	51,941	3,686
FY-5	433,276	278,444	66,600	6,465	125,664	477,173	(43,897)	(2,195)	(14,596)	99,336	5,006	32,133	3,718
FY-6	340,618	275,412	75,930	7,884	96,320	455,546	(114,928)	(5,746)	(38,214)	17,659	5,024	5,002	3,723
FY-7	276,821	229,134	69,234	9,936	76,326	384,630	(107,809)	(5,390)	(35,846)	7,807	5,032	1,936	3,725
FY-8	230,593	189,647	63,135	9,940	61,988	324,710	(94,117)	(4,706)	(31,294)	5,624	5,037	1,222	3,727
FY-9	194,088	140,683	52,477	8,131	50,872	252,163	(58,075)	(2,904)	(19,310)	23,142	5,060	4,401	3,731
FY-10	164,465	134,236	54,728	6,080	42,028	237,072	(72,607)	(3,630)	(24,142)	1,191	5,062	198	3,731
FY-11	139,043	107,855	51,208	4,815	34,643	198,521	(59,478)	(2,974)	(19,776)	2,731	5,064	398	3,732
FY-12	123,683	99,530	51,526	3,800	30,049	184,905	(61,222)	(3,061)	(20,356)	(3,956)	5,060	(505)	3,731
FY-13	105,691	86,239	51,203	2,747	25,033	165,221	(59,530)	(2,976)	(19,794)	(8,980)	5,051	(1,004)	3,730
FY-14	81,635	63,364	49,634	1,447	18,851	133,295	(51,660)	(2,583)	(17,177)	(11,603)	5,040	(1,136)	3,729
FY-15	74,745	58,025	50,293	551	16,832	125,701	(50,956)	(2,548)	(16,943)	(14,082)	5,026	(1,207)	3,728
FY-16	67,462	53,194	51,078	186	14,811	119,268	(51,806)	(2,590)	(17,226)	(16,994)	5,009	(1,276)	3,726
FY-17	16,170	12,264	1,425	93	3,460	17,242	(1,072)	(54)	(356)	2,891	5,012	190	3,727
FY-18	0	0	0	0	0	0	0	0	0	0	5,012	0	3,727
Thereafter	0	0	0	0	0	0	0	0	0	0	5,012	0	3,727
TOTAL	12,815,462	5,886,516	1,295,968	87,558	4,150,000	11,420,042	1,395,420	69,771	463,977	5,011,682		3,726,595	

Discount Factor	Before Federal and State Income Taxes	After Federal and State Income Taxes
17.20%	4,162,000	
14.20%		3,727,000
0%	5,545,000	5,012,000
5%	5,082,000	4,464,000
10%	4,665,000	4,028,000
15%	4,304,000	3,675,000
20%	3,996,000	3,386,000
25%	3,732,000	3,145,000
30%	3,505,000	2,942,000
35%	3,309,000	2,769,000
40%	3,137,000	2,618,000
45%	2,986,000	2,487,000
50%	2,852,000	2,372,000
55%	2,733,000	2,269,000
60%	2,626,000	2,178,000
65%	2,529,000	2,095,000
70%	2,441,000	2,020,000





PD, PD-NP, PUD plus Unproven Before Federal Income Tax

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	PRODUCTION			REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue before bonus/price	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	12.50%	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	304	265,171	0	5,624	265,171	0	270,795	33,849	0	27,599	12,440	73,888	196,907	197	196,907	197
Nov-96	294	256,803	0	5,450	257,400	0	262,850	32,856	0	27,599	12,075	72,530	190,320	387	187,631	385
Dec-96	285	248,838	0	5,294	249,997	0	255,291	31,911	0	27,599	11,727	71,237	184,054	571	178,889	563
Jan-97	277	241,248	0	5,156	242,935	0	248,091	31,011	0	27,599	11,397	70,007	178,084	749	170,641	734
Feb-97	268	234,005	0	4,999	236,190	0	241,189	30,149	0	27,599	11,080	68,828	172,361	922	162,823	897
Mar-97	260	227,087	0	4,860	229,740	0	234,600	29,325	0	27,599	10,777	67,701	166,899	1,089	155,436	1,052
Apr-97	253	220,470	0	4,738	223,565	0	228,303	28,538	0	27,599	10,488	66,625	161,678	1,250	148,445	1,201
May-97	245	214,138	0	4,598	217,649	0	222,247	27,781	0	27,599	10,209	65,589	156,658	1,407	141,804	1,343
Jun-97	238	207,979	0	4,476	211,880	0	216,356	27,045	0	27,599	9,939	64,583	151,773	1,559	135,441	1,478
Jul-97	231	201,704	0	4,353	205,966	0	210,319	26,290	0	27,599	9,662	63,551	146,768	1,706	129,123	1,607
Aug-97	225	196,147	0	4,249	200,757	0	205,006	25,626	0	27,599	9,417	62,642	142,364	1,848	123,479	1,731
Sep-97	219	190,811	0	4,144	195,750	0	199,894	24,987	0	27,599	9,183	61,769	138,125	1,986	118,109	1,849
FY-97	3,099	2,704,401	0	57,941	2,737,000	0	2,794,941	349,368	0	331,193	128,394	808,955	1,985,991		1,848,728	
Oct-97	213	185,683	0	4,039	190,932	0	194,971	24,371	0	27,178	8,957	60,506	134,465	2,120	113,355	1,962
Nov-97	207	180,751	0	3,933	186,294	0	190,227	23,778	0	27,178	8,739	59,695	130,532	2,251	108,485	2,071
Dec-97	202	176,007	0	3,846	181,825	0	185,671	23,209	0	27,178	8,529	58,916	126,755	2,378	103,857	2,174
Jan-98	197	171,438	0	3,758	177,518	0	181,276	22,660	0	27,178	8,327	58,165	123,111	2,501	99,446	2,274
Feb-98	191	166,915	0	3,651	173,236	0	176,887	22,111	0	27,178	8,126	57,415	119,472	2,620	95,143	2,369
Mar-98	186	162,524	0	3,563	169,071	0	172,634	21,579	30,893	26,952	7,930	87,355	85,280	2,706	66,954	2,436
Apr-98	182	158,463	0	3,494	165,230	0	168,724	21,091	0	26,952	7,751	55,794	112,930	2,819	87,409	2,523
May-98	177	154,542	0	3,405	161,517	0	164,922	20,615	0	26,952	7,576	55,143	109,779	2,928	83,770	2,607
Jun-98	173	150,756	0	3,335	157,926	0	161,261	20,158	0	26,952	7,408	54,518	106,743	3,035	80,302	2,687
Jul-98	169	147,098	0	3,264	154,452	0	157,716	19,715	0	26,952	7,245	53,912	103,804	3,139	76,987	2,764
Aug-98	165	143,561	0	3,193	151,089	0	154,282	19,285	0	26,952	7,087	53,324	100,958	3,240	73,819	2,838
Sep-98	161	140,142	0	3,122	147,834	0	150,956	18,870	0	26,952	6,935	52,757	98,199	3,338	70,787	2,909
FY-98	2,223	1,937,880	0	42,603	2,016,924	0	2,059,527	257,442	30,893	324,558	94,610	707,503	1,352,028		1,060,314	
FY-99	1,660	1,448,071	0	32,589	1,548,713	0	1,581,302	197,663	0	319,332	72,641	589,636	991,666	4,330	666,878	3,576
FY-00	1,268	1,106,402	0	25,458	1,213,709	0	1,239,167	154,896	24,444	306,163	56,924	542,426	696,741	5,026	399,783	3,976
FY-1	966	843,039	0	19,835	948,570	0	968,405	121,051	59,022	263,144	44,486	487,702	480,703	5,507	235,344	4,211
FY-2	751	655,123	0	15,771	756,075	0	771,846	96,481	34,143	228,252	35,457	394,333	377,513	5,885	157,699	4,369
FY-3	603	525,907	0	12,950	622,546	0	635,496	79,437	35,936	212,922	29,193	357,488	278,008	6,163	99,090	4,468
FY-4	478	416,733	0	10,499	505,989	0	516,488	64,561	36,273	190,028	23,726	314,588	201,900	6,365	61,402	4,529
FY-5	391	340,853	0	8,783	424,493	0	433,276	54,160	28,434	181,632	19,904	284,130	149,146	6,514	38,701	4,568
FY-6	300	261,256	0	6,892	333,726	0	340,618	42,577	77,883	154,882	15,647	290,989	49,629	6,563	10,988	4,579
FY-7	237	207,029	0	5,568	271,253	0	276,821	34,603	59,415	134,283	12,716	241,017	35,804	6,599	6,764	4,586
FY-8	193	168,136	0	4,637	225,956	0	230,593	28,824	40,936	117,481	10,593	197,834	32,759	6,632	5,280	4,591
FY-9	158	137,987	0	3,882	190,206	0	194,088	24,261	0	107,506	8,916	140,683	53,405	6,685	7,345	4,598
FY-10	131	113,995	0	3,292	161,173	0	164,465	20,558	10,413	97,792	7,555	136,318	28,147	6,713	3,303	4,602
FY-11	108	93,965	0	2,776	136,267	0	139,043	17,380	0	84,088	6,387	107,855	31,188	6,745	3,123	4,605
FY-12	93	81,507	0	2,444	121,239	0	123,683	15,460	0	78,388	5,682	99,530	24,153	6,769	2,063	4,607
FY-13	78	67,900	0	2,097	103,594	0	105,691	13,211	0	68,173	4,855	86,239	19,452	6,788	1,418	4,608
FY-14	59	51,130	0	1,622	80,013	0	81,635	10,204	0	49,410	3,750	63,364	18,271	6,807	1,136	4,609
FY-15	52	45,656	0	1,462	73,283	0	74,745	9,343	0	45,248	3,434	58,025	16,720	6,823	887	4,610
FY-16	46	40,173	0	1,323	66,139	0	67,462	8,433	0	41,662	3,099	53,194	14,268	6,837	646	4,611
FY-17	11	9,384	0	323	15,847	0	16,170	2,021	0	9,500	743	12,264	3,906	6,841	151	4,611
FY-18	0	0	0	0	0	0	0	0	0	0	0	0	0	6,841	0	4,611
Thereafter	0	0	0	0	0	0	0	0	0	0	0	0	0	6,841	0	4,611
TOTAL	12,905	11,256,525	0	262,747	12,552,715	0	12,815,462	1,601,934	437,791	3,345,636	588,712	5,974,074	6,841,398		4,611,043	

PDP

Proved Developed Producing

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	12.50%	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	304	265,171	0	$18.50	$1.00	NA	5,624	265,171	0	270,795	33,849	0	27,599	12,440	$73,888	$196,907	$197	$196,907	$197
Nov-96	294	256,803	0	$18.54	$1.00	NA	5,450	257,400	0	262,850	32,856	0	27,599	12,075	$72,530	$190,320	$387	$187,630	$385
Dec-96	285	248,838	0	$18.58	$1.00	NA	5,294	249,997	0	255,291	31,911	0	27,599	11,727	$71,237	$184,054	$571	$178,889	$563
Jan-97	277	241,248	0	$18.61	$1.01	NA	5,156	242,935	0	248,091	31,011	0	27,599	11,397	$70,007	$178,084	$749	$170,640	$734
Feb-97	268	234,005	0	$18.65	$1.01	NA	4,999	236,190	0	241,189	30,149	0	27,599	11,080	$68,828	$172,361	$922	$162,823	$897
Mar-97	260	227,087	0	$18.69	$1.01	NA	4,860	229,740	0	234,600	29,325	0	27,599	10,777	$67,701	$166,899	$1,089	$155,435	$1,052
Apr-97	253	220,470	0	$18.73	$1.01	NA	4,738	223,565	0	228,303	28,538	0	27,599	10,488	$66,625	$161,678	$1,250	$148,445	$1,201
May-97	245	214,138	0	$18.77	$1.02	NA	4,598	217,649	0	222,247	27,781	0	27,599	10,209	$65,589	$156,658	$1,407	$141,803	$1,343
Jun-97	238	207,979	0	$18.81	$1.02	NA	4,476	211,880	0	216,356	27,045	0	27,599	9,939	$64,583	$151,773	$1,559	$135,440	$1,478
Jul-97	231	201,704	0	$18.84	$1.02	NA	4,353	205,966	0	210,319	26,290	0	27,599	9,662	$63,551	$146,768	$1,705	$129,123	$1,607
Aug-97	225	196,147	0	$18.88	$1.02	NA	4,249	200,757	0	205,006	25,626	0	27,599	9,417	$62,642	$142,364	$1,848	$123,479	$1,731
Sep-97	219	190,811	0	$18.92	$1.03	NA	4,144	195,750	0	199,894	24,987	0	27,599	9,183	$61,769	$138,125	$1,986	$118,109	$1,849
FY-97	3,099	2,704,401	0				57,941	2,737,000	0	2,794,941	349,368	0	331,193	128,384	$808,955	$1,985,986		$1,848,723	
Oct-97	213	185,683	0	$18.96	$1.03	NA	4,039	190,932	0	194,971	24,371	0	27,178	8,957	$60,506	$134,465	$2,120	$113,355	$1,962
Nov-97	207	180,751	0	$19.00	$1.03	NA	3,933	186,294	0	190,227	23,778	0	27,178	8,739	$59,695	$130,532	$2,251	$108,484	$2,071
Dec-97	202	176,007	0	$19.04	$1.03	NA	3,846	181,825	0	185,671	23,209	0	27,178	8,529	$58,916	$126,755	$2,378	$103,857	$2,174
Jan-98	197	171,438	0	$19.08	$1.04	NA	3,758	177,518	0	181,276	22,660	0	27,178	8,327	$58,165	$123,111	$2,501	$99,446	$2,274
Feb-98	191	166,915	0	$19.12	$1.04	NA	3,651	173,236	0	176,887	22,111	0	27,178	8,126	$57,415	$119,472	$2,620	$95,143	$2,369
Mar-98	186	162,524	0	$19.16	$1.04	NA	3,563	169,071	0	172,634	21,579	30,893	26,952	7,930	$87,355	$85,280	$2,706	$66,953	$2,436
Apr-98	182	158,463	0	$19.20	$1.04	NA	3,494	165,230	0	168,724	21,091	0	26,952	7,751	$55,794	$112,930	$2,819	$87,409	$2,523
May-98	177	154,542	0	$19.24	$1.05	NA	3,405	161,517	0	164,922	20,615	0	26,952	7,576	$55,143	$109,779	$2,928	$83,769	$2,607
Jun-98	173	150,756	0	$19.28	$1.05	NA	3,335	157,926	0	161,261	20,158	0	26,952	7,408	$54,518	$106,743	$3,035	$80,301	$2,687
Jul-98	169	147,098	0	$19.31	$1.05	NA	3,264	154,452	0	157,716	19,715	0	26,952	7,245	$53,912	$103,804	$3,139	$76,987	$2,764
Aug-98	165	143,561	0	$19.35	$1.05	NA	3,193	151,089	0	154,282	19,285	0	26,952	7,087	$53,324	$100,958	$3,240	$73,818	$2,838
Sep-98	161	140,142	0	$19.39	$1.05	NA	3,122	147,834	0	150,956	18,870	0	26,952	6,935	$52,757	$98,199	$3,338	$70,786	$2,909
FY-98	2,223	1,937,880	0				42,603	2,016,924	0	2,059,527	257,442	30,893	324,558	94,610	$707,503	$1,352,024		$1,060,308	
FY-99	1,660	1,448,071	0	$19.63	$1.07	NA	32,589	1,548,713	0	1,581,302	197,663	0	319,332	72,641	$589,636	$991,666	$4,330	$556,878	$3,576
FY-00	1,268	1,106,402	0	$20.08	$1.10	NA	25,458	1,213,709	0	1,239,167	154,896	24,444	306,163	56,924	$542,426	$696,741	$5,026	$399,783	$3,976
FY-1	966	843,039	0	$20.53	$1.13	NA	19,835	948,570	0	968,405	121,051	59,022	263,144	44,486	$487,702	$480,703	$5,507	$235,344	$4,211
FY-2	751	655,123	0	$21.00	$1.15	NA	15,771	756,075	0	771,846	96,481	34,143	228,252	35,457	$394,333	$377,513	$5,885	$157,699	$4,369
FY-3	603	525,907	0	$21.48	$1.18	NA	12,950	622,546	0	635,496	79,437	35,936	212,922	29,193	$357,488	$278,008	$6,163	$99,090	$4,468
FY-4	478	416,733	0	$21.96	$1.21	NA	10,499	505,989	0	516,488	64,561	36,273	190,028	23,726	$314,588	$201,900	$6,365	$61,402	$4,529
FY-5	391	340,853	0	$22.46	$1.25	NA	8,783	424,493	0	433,276	54,160	28,434	181,632	19,904	$284,130	$149,146	$6,514	$38,701	$4,568
FY-6	300	261,256	0	$22.97	$1.28	NA	6,892	333,726	0	340,618	42,577	77,883	154,882	15,647	$290,989	$49,629	$6,563	$10,988	$4,579
FY-7	237	207,029	0	$23.49	$1.31	NA	5,568	271,253	0	276,821	34,603	59,415	134,263	12,716	$241,017	$35,804	$6,599	$6,764	$4,586
FY-8	193	168,136	0	$24.03	$1.34	NA	4,637	225,956	0	230,593	28,824	40,936	117,481	10,593	$197,834	$32,759	$6,632	$5,280	$4,591
FY-9	158	137,987	0	$24.57	$1.38	NA	3,882	190,206	0	194,088	24,261	0	107,506	8,916	$140,683	$53,405	$6,685	$7,345	$4,598
FY-10	131	113,995	0	$25.13	$1.41	NA	3,292	161,173	0	164,465	20,558	10,413	97,792	7,555	$136,318	$28,147	$6,713	$3,303	$4,602
FY-11	108	93,965	0	$25.70	$1.45	NA	2,776	136,267	0	139,043	17,380	0	84,088	6,387	$107,855	$31,188	$6,745	$3,123	$4,605
FY-12	93	81,507	0	$26.28	$1.49	NA	2,444	121,239	0	123,683	15,460	0	78,388	5,682	$99,530	$24,153	$6,769	$2,063	$4,607
FY-13	78	67,900	0	$26.88	$1.53	NA	2,097	103,594	0	105,691	13,211	0	68,173	4,855	$86,239	$19,452	$6,788	$1,418	$4,608
FY-14	59	51,130	0	$27.49	$1.56	NA	1,622	80,013	0	81,635	10,204	0	49,410	3,750	$63,364	$18,271	$6,806	$1,136	$4,609
FY-15	52	45,656	0	$28.11	$1.61	NA	1,462	73,283	0	74,745	9,343	0	45,248	3,434	$58,025	$16,720	$6,823	$887	$4,610
FY-16	46	40,173	0	$28.75	$1.65	NA	1,323	66,139	0	67,462	8,433	0	41,662	3,099	$53,194	$14,268	$6,837	$646	$4,611
FY-17	11	9,384	0	$29.41	$1.69	NA	$323.00	15,847	0	16,170	2,021	0	9,500	743	$12,264	$3,906	$6,841	$151	$4,611
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$6,841	$0	$4,611
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$6,841	$0	$4,611
Total	12,905	11,256,525	0				262,747	12,552,715	0	12,815,462	1,601,934	437,791	3,345,636	588,712	$5,974,074	$6,841,388		$4,611,032	

PD-NP

Proved Developed Non-Producing

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	12.50%	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	0	0	0	$25.13	$1.41	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-11	0	0	0	$25.70	$1.45	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-12	0	0	0	$26.28	$1.49	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-13	0	0	0	$26.88	$1.53	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-14	0	0	0	$27.49	$1.56	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-15	0	0	0	$28.11	$1.61	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-16	0	0	0	$28.75	$1.65	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-17	0	0	0	$29.41	$1.69	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Total	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	

PUD

Proved Undeveloped

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	12.50%	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	0	0	0	$25.13	$1.41	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-11	0	0	0	$25.70	$1.45	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-12	0	0	0	$26.28	$1.49	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-13	0	0	0	$26.88	$1.53	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-14	0	0	0	$27.49	$1.56	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-15	0	0	0	$28.11	$1.61	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-16	0	0	0	$28.75	$1.65	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-17	0	0	0	$29.41	$1.69	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0		$0	
Total	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	

Unproven

Unproven

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	12.50%	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	0	0	0	$25.13	$1.41	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-11	0	0	0	$25.70	$1.45	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-12	0	0	0	$26.28	$1.49	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-13	0	0	0	$26.88	$1.53	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-14	0	0	0	$27.49	$1.56	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-15	0	0	0	$28.11	$1.61	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-16	0	0	0	$28.75	$1.65	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-17	0	0	0	$29.41	$1.69	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Total	0	0	0			-	0	0	0	0	0	0	0	0	$0	$0		$0	

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	Maintenance Costs				Leasing Program						
					First Sale		Second Sale			Total	
	Annual	NPV @ 7.00%	Surface Income	NPV @ 10.00%	Bonus	Rentals	Bonus	Rentals	Costs	Revenue	NPV @ 10.00%
FY97	(50,000)	(48,337)	27,569	26,286	0	0	0	0	(600,000)	(600,000)	(572,078)
FY98	(50,000)	(45,175)	27,569	23,896	121,638	11058			(127,800)	4,896	4,244
FY99	(50,000)	(42,219)	27,569	21,724		11058	121638	11058	(127,800)	15,954	12,572
FY00	(50,000)	(39,457)	27,569	19,749		11058		11058	0	22,116	15,843
FY1	(50,000)	(36,876)	27,569	17,954		11058		11058	0	22,116	14,403
FY2	(50,000)	(34,463)	27,569	16,322		11058		11058	0	22,116	13,093
FY3	(50,000)	(32,209)	27,569	14,838		14744		11058	0	25,802	13,887
FY4	(50,000)	(30,102)	27,569	13,489		14744		14744	0	29,488	14,428
FY5	(50,000)	(28,132)	27,569	12,263		14744		14744	0	29,488	13,116
FY6	(50,000)	(26,292)	27,569	11,148		14744		14744	0	29,488	11,924
FY7	(50,000)	(24,572)	27,569	10,134		14744		14744	0	29,488	10,840
FY8	(50,000)	(22,964)	27,569	9,213				14744	0	14,744	4,927
FY9	(50,000)	(21,462)	27,569	8,376	121,638	11058			(127,800)	4,896	1,487
FY10	(50,000)	(20,058)	27,569	7,614		11058	121638	11058	(127,800)	15,954	4,406
FY11	(50,000)	(18,746)	27,569	6,922		11058		11058	0	22,116	5,553
FY12	(50,000)	(17,519)	27,569	6,293		11058		11058	0	22,116	5,048
FY13	(50,000)	(16,373)	27,569	5,721		11058		11058	0	22,116	4,589
FY14	(50,000)	(15,302)	27,569	5,201		14744		11058	0	25,802	4,867
FY15	(50,000)	(14,301)	27,569	4,728		14744		14744	0	29,488	5,057
FY16	(50,000)	(13,366)	27,569	4,298		14744		14744	0	29,488	4,597
FY17	(50,000)	(12,491)	27,569	3,907		14744		14744	0	29,488	4,179
FY18	(50,000)	(11,674)	27,569	3,552		14744		14744	0	29,488	3,799
FY19	(50,000)	(10,910)	27,569	3,229				14744	0	14,744	1,727
FY20	(50,000)	(10,197)	27,569	2,936	121,638	11058			(127,800)	4,896	521
FY21	(50,000)	(9,529)	27,569	2,669		11058	121638	11058	(127,800)	15,954	1,544
FY22	(50,000)	(8,906)	27,569	2,426		11058		11058	0	22,116	1,946
FY23	(50,000)	(8,323)	27,569	2,206		11058		11058	0	22,116	1,769
FY24	(50,000)	(7,779)	27,569	2,005		11058		11058	0	22,116	1,608
FY25	(50,000)	(7,270)	27,569	1,823		14744		11058	0	25,802	1,706
FY26	(50,000)	(6,794)	27,569	1,657		14744		14744	0	29,488	1,772
FY27	(50,000)	(6,350)	27,569	1,506		14744		14744	0	29,488	1,611
FY28	(50,000)	(5,934)	27,569	1,369		14744		14744	0	29,488	1,465
FY29	(50,000)	(5,546)	27,569	1,245		14744		14744	0	29,488	1,332
FY30	(50,000)	(5,183)	27,569	1,132				14744	0	14,744	605
TOTAL	($1,700,000)	($664,815)	$937,346	$277,828	$364,914	$387,030	$364,914	$387,030	($1,366,800)	$137,088	($381,611)

Acreage Variables and Assumptions

36,406 acres in NOSR-1
81% of acres offered for leased were actually taken.

Leasing Variables and Assumptions

BLM can lease it in FY98.
$600,000 Environmental costs required to begin leasing.
50% offered each of first two years
$16.50 initial bonus per acre
$1.50 rental per bonus first 5 yrs
$2.00 rental per bonus second 5 yrs
$27,569 per year in surface leases
$50,000 annual costs to maintain fee property
$127,800 Lease sale expenses
50% of bonus and rentals go to state

Results from single lease sale

18,203 Acres offerred
14,744 Acres Leased
$243,276 Bonus
$22,116 Annual rentals 1st 5-yrs
$29,488 Annual Rental 2nd 5-yrs

Value to DOE

	($)	($/acre)
Maintenance	(664,815)	($18.26)
Surface Inc.	277,828	$7.63
Mineral Inc.	190,467	$5.23
NEPA cost	(572,078)	($15.71)
Total	($768,597)	($21.11)

NOSR-3

	Maintenance Costs				Leasing Program						
		NPV @	Surface	NPV @	First Sale		Second Sale			Total	NPV @
	Annual	7.00%	Income	10.00%	Bonus	Rentals	Bonus	Rentals	Costs	Revenue	10.00%
FY97	(25,000)	(24,168)	19,233	18,338	0	0	0	0	(600,000)	(600,000)	(572,078)
FY98	(25,000)	(22,587)	19,233	16,671	176,309	4681			(52,200)	128,790	111,633
FY99	(25,000)	(21,110)	19,233	15,155		4681	176,309	4681	(52,200)	133,471	105,173
FY00	(25,000)	(19,729)	19,233	13,778		4681		4681	0	9,362	6,706
FY1	(25,000)	(18,438)	19,233	12,525		4681		4681	0	9,362	6,097
FY2	(25,000)	(17,232)	19,233	11,386		4681		4681	0	9,362	5,543
FY3	(25,000)	(16,104)	19,233	10,351		6241		4681	0	10,922	5,878
FY4	(25,000)	(15,051)	19,233	9,410		6241		6241	0	12,482	6,107
FY5	(25,000)	(14,066)	19,233	8,555		6241		6241	0	12,482	5,552
FY6	(25,000)	(13,146)	19,233	7,777		6241		6241	0	12,482	5,047
FY7	(25,000)	(12,286)	19,233	7,070		6241		6241	0	12,482	4,588
FY8	(25,000)	(11,482)	19,233	6,427				6241	0	6,241	2,086
FY9	(25,000)	(10,731)	19,233	5,843	176,309	4681			(52,200)	128,790	39,127
FY10	(25,000)	(10,029)	19,233	5,312		4681	176,309	4681	(52,200)	133,471	36,862
FY11	(25,000)	(9,373)	19,233	4,829		4681		4681	0	9,362	2,351
FY12	(25,000)	(8,760)	19,233	4,390		4681		4681	0	9,362	2,137
FY13	(25,000)	(8,187)	19,233	3,991		4681		4681	0	9,362	1,943
FY14	(25,000)	(7,651)	19,233	3,628		6241		4681	0	10,922	2,060
FY15	(25,000)	(7,151)	19,233	3,298		6241		6241	0	12,482	2,141
FY16	(25,000)	(6,683)	19,233	2,998		6241		6241	0	12,482	1,946
FY17	(25,000)	(6,246)	19,233	2,726		6241		6241	0	12,482	1,769
FY18	(25,000)	(5,837)	19,233	2,478		6241		6241	0	12,482	1,608
FY19	(25,000)	(5,455)	19,233	2,253				6241	0	6,241	731
FY20	(25,000)	(5,098)	19,233	2,048	176,309	4681			(52,200)	128,790	13,714
FY21	(25,000)	(4,765)	19,233	1,862		4681	176,309	4681	(52,200)	133,471	12,920
FY22	(25,000)	(4,453)	19,233	1,693		4681		4681	0	9,362	824
FY23	(25,000)	(4,162)	19,233	1,539		4681		4681	0	9,362	749
FY24	(25,000)	(3,889)	19,233	1,399		4681		4681	0	9,362	681
FY25	(25,000)	(3,635)	19,233	1,272		6241		4681	0	10,922	722
FY26	(25,000)	(3,397)	19,233	1,156		6241		6241	0	12,482	750
FY27	(25,000)	(3,175)	19,233	1,051		6241		6241	0	12,482	682
FY28	(25,000)	(2,967)	19,233	955		6241		6241	0	12,482	620
FY29	(25,000)	(2,773)	19,233	869		6241		6241	0	12,482	564
FY30	(25,000)	(2,592)	19,233	790				6241	0	6,241	256
TOTAL	($850,000)	($332,407)	$653,922	$193,822	$528,926	$163,830	528,926	$163,830	($913,200)	$472,311	($182,512)

Acreage Variables and Assumptions

15,410 acres in NOSR-3

81% of acres offered for leased were actually taken.

Leasing Variables and Assumptions

BLM can lease it in FY98.

$600,000 Environmental costs required to begin leasing.

50% offered each of first two years

$56.50 initial bonus per acre

$1.50 rental per bonus first 5 yrs

$2.00 rental per bonus second 5 yrs

$19,233 per year in surface leases

$25,000 annual costs to maintain fee property

$52,200 Lease sale expenses

50% of bonus and rentals go to the state.

Results from single lease sale

7,705 Acres offered

6,241 Acres Leased

$352,617 Bonus

$9,362 Annual rentals 1st 5-yrs

$12,482 Annual Rental 2nd 5-yrs

Value to DOE

	($)	($/acre)
Maintenanc	(332,407)	($21.57)
Surface Inc	193,822	$12.58
Mineral Inc.	389,566	$25.28
NEPA cost	(572,078)	($37.12)
Total	($321,097)	($20.84)

APPENDIX C

LIST OF COMPARABLE SALES OF SURFACE

SUMMARY OF MARKET DATA

	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5	Sale 6	Sale 7	Sale 8	Sale 9	Sale 10	Sale 11	Sale 12	Sale 13	Sale 14
Grantor	Dikeou, Wachsmann	Tuttle Inv. Co.	Douglas Pass Ltd	Union Oil	Haas Ranch	Sun Land & Cattle	O'Neil & Shadid	Adams Wes & Donald	Adams Wes	Quarter Circle Bar	Miller Land Co	Amwest Savings	Bogle Farms	Met Life Ins Co
Grantee	Goodman	Anschutz Philip	Hutchens	Kimbal Mt Outfitter	Biber	Paddis	Anderson Agri-Bus	Farney David	K Ranch LLC	Booth Land&Lvst	Quarter Circle Bar	Walker Ag Grp	Cross Mtn Ranch LLC	Cook
Date of Sale	5/07/96	1/31/96	2/27/96	10/17/95	9/22/95	2/15/95	10/27/94	4/27/94	8/12/94	12/14/93	11/06/92	7/06/92	2/12/92	8/06/90
Recorded		B926 P114	B523 P598 B969 P259	B956 P282		B916 P243	B467 P721	B900 P284	R355 661	B452 P838	B434 P748	B2603P217	B648 P342	B407 P363
County State	Carbon Wyoming	Carbon Wyoming	RB & Gar Colorado	Garfield Colorado	Las Animas Colorado	Carbon Wyoming	Albany Wyoming	Garfield Mesa Colorado	Moffat Uinta CO - UT	Albany Carbon Wyoming	Albany Carbon Wyoming	Las Animas Pueblo Colorado	670 1391 RC MC RBC Colorado	Albany Wyoming
Legal Desc	T21N,R91W E½ of Twp	T17-21N, R83-90W Var Sects	T2-5S, R100&101W Var Sects	T6 & 7S, R100W Var Sects	NE of Trinidad	T22-23N R89-90W Var Sects	T25-26N R76-77W Var Sects	T5-7&9S R102-104W Var Sects	T3-5N R101-104W Var Sects	T16-17N R76-77W Var Sects	T16-17N, R76-77W Var Sects	SE of Pueblo Var T & R	Numerous Twp & Rgs Var Sects	North of Laramie Var T & R
Sale Price	$ 338,475	7,500,000	3,355,000	$ 325,000	2,700,000	$ 489,547	$ 469,000	1,475,000	1,500,000	3,200,000	5,500,000	2,600,000	4,960,000	2,100,000
Size	11,475 A	139,585 A	13,200 A	4,270 A	36,721 A	17,484 A	11,120 A	9,984 A	11,400 A	53,107 A	76,584 A	68,509 A	58,318 A	52,495 A
Price Per Acre	$ 29.50	$ 54.00	$ 269.00	$ 76.00	$ 74.00	$ 28.00	$ 42.18	$ 147.74	$ 132.00	$ 60.00	$ 72.00	$ 38.00	$ 85.00	$ 40.00
Terms	Cash	Cash	Cash Equi Seller	Cash	Cash	Cash	Cash	Cash	Cash	Cash	Cash Equi Seller	Cash	Cash to Assumpt'n	Cash
Water Rights	Livestock	Irrig and Livestock	Irrig and Livestock	Livestock	Irrig and Livestock	Livestock	Livestock	Irrig and Livestock	Irrig and Livestock	Irrig and Livestock	Irrig and Livestock	Livestock	Irrig and Livestock	Irrig and Livestock
Imp Value Per Acre	None	$ 600,000 $ 4.30	$ 350,000 $ 26.50	None	$ 200,000 $ 5.45	None	None	$ 120,000 $ 12.00	$ 142,250 $ 12.48	$ 75,000 $ 1.41	$251,500 $ 3.28	$ 115,330 $ 1.68	$ 150,000 $ 2.57	$ 75,000 $ 1.43
Irrig Meadow	None	2,800 A $ 500/A	585 A $ 700/A	None	2,250 A $ 300/A	None	None	193 A $1,400/A	80 A $ 680/A	700 A $ 400/A	1,240 A $ 450/A	None	995 A $ 350/A	1,200 A $ 300/A
Sub Irr Pasture	None	1,620 A $ 200/A	None	None	None	None	None	None	None	10,390 A $ 150/A	12,835 A $ 200/A	None	823 A $ 200/A	850 A $ 150/A
Mountain Pasture	None	None	12,615 A $ 200/A	None	None	None	None	* 430 A *$ 400/A	6,320 A $ 145/A	None	None	None	16,960 A $ 120/A	None
E Plains Pasture	None	None	None	None	34,471 A $ 53/A	None	None	None	None	None	None	68,509 A $ 35/A	#2,670 A #$ 150/A	None
Foothill Pasture	None	45,165 A $ 50/A	None	4,270 A $ 76/A	None	None	None	9,361 A $ 65/A	5,000 A $ 57/A	None	None	None	10,000 A $ 60/A	None
Desert Pasture	11,475 A $ 27/A	90,000 A $ 28/A	None	None	None	17,484 A $ 25/A	11,120 A $ 41/A	None	None	42,017 A $ 28/A	62,509 A $ 31/A	None	26,870 A $ 29/A	50,455 A $ 29/A
Leases	BLM State	BLM/St/RR	BLM	None	State	BLM State	BLM State	BLM	BLM State	BLM State	BLM State	BLM State	BLM For St	BLM State
$ Value	$ 25,640	$387,900	$274,750		$ 14,400	$ 53,600	$ 8,560	$300,480	$103,850	$ 91,425	$163,215	$ 86,855	$483,180	$ 83,350
Cont/Ac	$ 2.50/A	$ 2.78/A	$ 20.72		$ 0.40	$ 3.07	$ 0.77	$ 30.10	$ 9.11	$ 1.72	$ 2.13	$ 1.27	$ 8.29	$ 1.59

Notes:

* Sale 8 - Land listed as mountain pasture is grazing land associated with farm in Mesa County.

\# Sale 13 - Land listed as E Plains pasture is non irrigated cropland that has been seeded to grass.

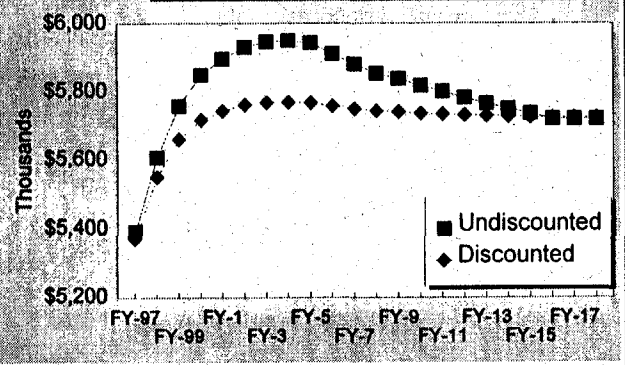
APPENDIX D

DETAILED CASHFLOWS FROM SALE OPTION

Current Parameters

Price=INFL
Case=4
Royalty=not used
Bonus=$5,050,000
Severance=0.00%
Ad Valorem =5.25%
St. Tax Rate=5.00%
Fed Tax Rate= 35%
Mcf/bbl=6
Industry Rate=17.20%

Cumulative Federal Income



Operator Concerns

	RISK Production	Expenses
PDP	100.0%	95.0%
PD-NP	0.0%	0.0%
PUD	0.0%	0.0%
Unproven	0.0%	0.0%

Federal Benefits Model

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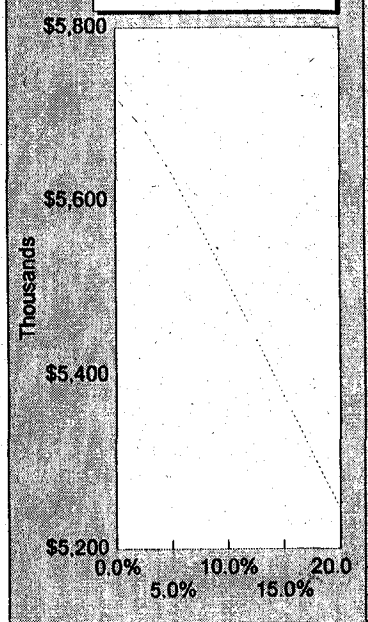
Federal NPV



	Initial Income $	Royalties $	Federal Income Taxes $	Total Federal Income $	Cumulative $000	Discounted	Cumulative Discounted $000
FY-97	5,050,000	0	342,000	5,392,000	5,392	5,371,017	5,371
FY-98		0	216,000	216,000	5,608	178,632	5,550
FY-99		0	151,000	151,000	5,759	110,024	5,660
FY-00		0	90,000	90,000	5,849	57,777	5,717
FY-1		0	47,000	47,000	5,896	26,584	5,744
FY-2		0	35,000	35,000	5,931	17,442	5,761
FY-3		0	16,000	16,000	5,947	7,025	5,769
FY-4		0	3,000	3,000	5,950	1,161	5,770
FY-5		0	(7,000)	(7,000)	5,943	(2,386)	5,767
FY-6		0	(32,000)	(32,000)	5,911	(9,609)	5,758
FY-7		0	(30,000)	(30,000)	5,881	(7,937)	5,750
FY-8		0	(27,000)	(27,000)	5,854	(6,294)	5,743
FY-9		0	(15,000)	(15,000)	5,839	(3,081)	5,740
FY-10		0	(21,000)	(21,000)	5,818	(3,800)	5,737
FY-11		0	(17,000)	(17,000)	5,801	(2,710)	5,734
FY-12		0	(18,000)	(18,000)	5,783	(2,528)	5,731
FY-13		0	(17,000)	(17,000)	5,766	(2,104)	5,729
FY-14		0	(15,000)	(15,000)	5,751	(1,636)	5,728
FY-15		0	(15,000)	(15,000)	5,736	(1,441)	5,726
FY-16		0	(16,000)	(16,000)	5,720	(1,354)	5,725
FY-17		0	0	0	5,720	0	5,725
FY-18		0	0	0	5,720	0	5,725
Thereafter		0	0	0	5,720	0	5,725
TOTAL	5,050,000	0	670,000	5,720,000		5,724,782	
NPV=	5,050,000	0	674,782				

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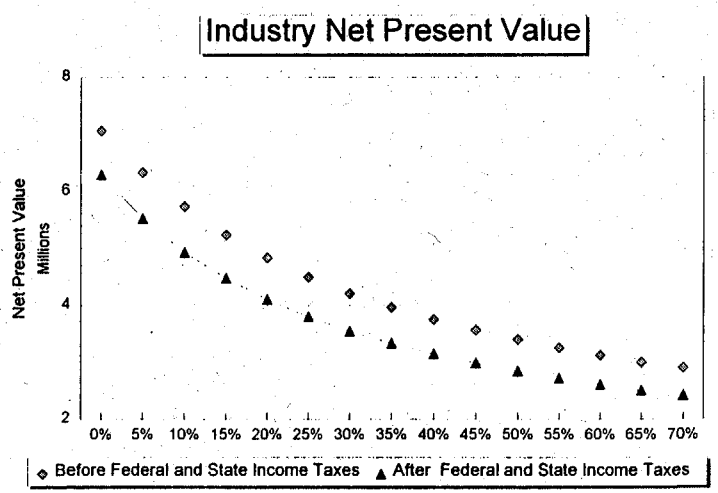
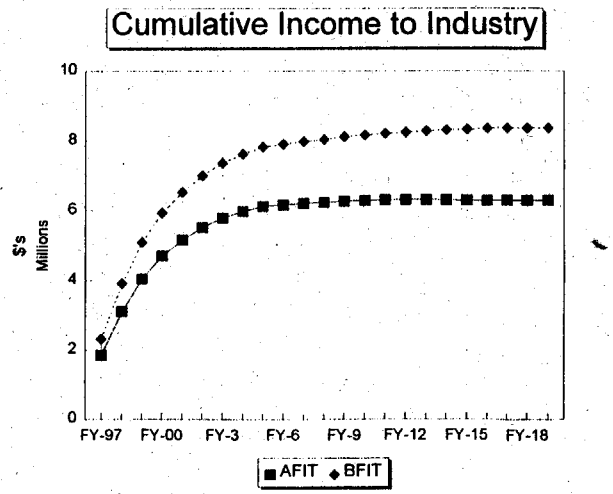
Federal Income Tax Calculations

	Revenue	Royalty, 80% Cap, OpEx, and Prod. Tax	Allocated Overhead	Depreciation	Depletion	Total Deductions	Taxable Income	State Income Taxes	Federal Income Taxes	After Tax Cash Flow	Cumulative	Discounted @ 14.2%	Cumulative Discounted
	$	$	$	$	$	$	$	$	$	$	$000		$000
FY-97	2,794,941	477,929	75,056	0	1,213,268	1,766,253	1,028,688	51,434	342,039	1,848,488	1,848	1,729,751	1,730
FY-98	2,059,527	457,397	82,556	883	869,392	1,410,227	649,300	32,465	215,892	1,265,042	3,114	1,036,587	2,766
FY-99	1,581,302	402,350	74,843	1,513	649,646	1,128,353	452,949	22,647	150,606	930,856	4,044	667,909	3,434
FY-00	1,239,167	390,774	79,798	1,779	496,363	968,713	270,454	13,523	89,926	660,259	4,705	414,842	3,849
FY-1	968,405	361,202	82,834	3,656	378,210	825,901	142,504	7,125	47,383	458,058	5,163	252,013	4,101
FY-2	771,846	296,089	72,250	5,273	293,907	667,518	104,328	5,216	34,689	356,774	5,519	171,882	4,273
FY-3	635,496	275,034	71,295	5,926	235,937	588,192	47,304	2,365	15,729	263,886	5,783	111,323	4,384
FY-4	516,488	246,162	68,868	6,454	186,959	508,443	8,045	402	2,675	191,126	5,974	70,603	4,455
FY-5	433,276	227,127	66,600	6,465	152,917	453,109	(19,833)	(992)	(6,594)	141,449	6,116	45,755	4,501
FY-6	340,618	235,070	75,930	7,884	117,208	436,093	(95,475)	(4,774)	(31,745)	50,560	6,166	14,321	4,515
FY-7	276,821	196,348	69,234	9,936	92,878	368,396	(91,575)	(4,579)	(30,449)	34,384	6,201	8,528	4,524
FY-8	230,593	162,336	63,135	9,940	75,431	310,842	(80,249)	(4,012)	(26,683)	27,631	6,229	6,001	4,530
FY-9	194,088	117,696	52,477	8,131	61,904	240,208	(46,120)	(2,306)	(15,335)	41,556	6,270	7,903	4,537
FY-10	164,465	114,757	54,728	6,080	51,142	226,707	(62,242)	(3,112)	(20,695)	16,706	6,287	2,782	4,540
FY-11	139,043	91,388	51,208	4,815	42,156	189,567	(50,524)	(2,526)	(16,799)	15,773	6,303	2,300	4,543
FY-12	123,683	84,881	51,526	3,800	36,565	176,772	(53,089)	(2,654)	(17,652)	7,583	6,310	968	4,543
FY-13	105,691	73,722	51,203	2,747	30,462	158,133	(52,442)	(2,622)	(17,437)	825	6,311	92	4,544
FY-14	81,635	53,696	49,634	1,447	22,939	127,715	(46,080)	(2,304)	(15,322)	(4,069)	6,307	(398)	4,543
FY-15	74,745	49,172	50,293	551	20,482	120,498	(45,753)	(2,288)	(15,213)	(7,220)	6,300	(619)	4,543
FY-16	67,462	45,204	51,078	186	18,023	114,490	(47,028)	(2,351)	(15,637)	(10,831)	6,289	(813)	4,542
FY-17	16,170	10,349	1,425	93	4,211	16,078	92	5	31	4,361	6,293	287	4,542
FY-18	0	0	0	0	0	0	0	0	0	0	6,293	0	4,542
Thereafter	0	0	0	0	0	0	0	0	0	0	6,293	0	4,542
TOTAL	12,815,462	4,368,683	1,295,968	87,558	5,050,000	10,802,209	2,013,253	100,663	669,407	6,293,194		4,542,017	

Discount Factor	Before Federal and State Income Taxes	After Federal and State Income Taxes
17.20%	5,054,000	
14.20%		4,542,000
0%	7,063,000	6,293,000
5%	6,330,000	5,523,000
10%	5,731,000	4,936,000
15%	5,241,000	4,475,000
20%	4,836,000	4,105,000
25%	4,497,000	3,801,000
30%	4,210,000	3,546,000
35%	3,963,000	3,331,000
40%	3,750,000	3,145,000
45%	3,564,000	2,984,000
50%	3,399,000	2,842,000
55%	3,253,000	2,717,000
60%	3,122,000	2,605,000
65%	3,004,000	2,505,000
70%	2,897,000	2,414,000





PD, PD-NP, PUD plus Unproven Before Federal Income Tax

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	PRODUCTION			REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue before bonus/price	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	none	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	304	265,171	0	5,624	265,171	0	270,795	0	0	27,599	14,217	41,816	228,979	229	228,979	229
Nov-96	294	256,803	0	5,450	257,400	0	262,850	0	0	27,599	13,800	41,399	221,451	450	218,322	447
Dec-96	285	248,838	0	5,294	249,997	0	255,291	0	0	27,599	13,403	41,002	214,289	665	208,276	656
Jan-97	277	241,248	0	5,156	242,935	0	248,091	0	0	27,599	13,025	40,624	207,467	872	198,796	854
Feb-97	268	234,005	0	4,999	236,190	0	241,189	0	0	27,599	12,662	40,261	200,928	1,073	189,809	1,044
Mar-97	260	227,087	0	4,860	229,740	0	234,600	0	0	27,599	12,317	39,916	194,684	1,268	181,312	1,225
Apr-97	253	220,470	0	4,738	223,565	0	228,303	0	0	27,599	11,986	39,585	188,718	1,457	173,272	1,399
May-97	245	214,138	0	4,598	217,649	0	222,247	0	0	27,599	11,668	39,267	182,980	1,639	165,630	1,564
Jun-97	238	207,979	0	4,476	211,880	0	216,356	0	0	27,599	11,359	38,958	177,398	1,817	158,308	1,723
Jul-97	231	201,704	0	4,353	205,966	0	210,319	0	0	27,599	11,042	38,641	171,678	1,989	151,039	1,874
Aug-97	225	196,147	0	4,249	200,757	0	205,006	0	0	27,599	10,763	38,362	166,644	2,155	144,538	2,018
Sep-97	219	190,811	0	4,144	195,750	0	199,894	0	0	27,599	10,494	38,093	161,801	2,317	138,355	2,157
FY-97	3,099	2,704,401	0	57,941	2,737,000	0	2,794,941	0	0	331,193	146,736	477,929	2,317,017		2,156,636	
Oct-97	213	185,683	0	4,039	190,932	0	194,971	0	0	27,178	10,236	37,414	157,557	2,475	132,822	2,289
Nov-97	207	180,751	0	3,933	186,294	0	190,227	0	0	27,178	9,987	37,165	153,062	2,628	127,209	2,417
Dec-97	202	176,007	0	3,846	181,825	0	185,671	0	0	27,178	9,748	36,926	148,745	2,776	121,874	2,539
Jan-98	197	171,438	0	3,758	177,518	0	181,276	0	0	27,178	9,517	36,695	144,581	2,921	116,789	2,655
Feb-98	191	166,915	0	3,651	173,236	0	176,887	0	0	27,178	9,287	36,465	140,422	3,061	111,826	2,767
Mar-98	186	162,524	0	3,563	169,071	0	172,634	0	30,893	26,952	9,063	66,909	105,726	3,167	83,006	2,850
Apr-98	182	158,463	0	3,494	165,230	0	168,724	0	0	26,952	8,858	35,810	132,914	3,300	102,877	2,953
May-98	177	154,542	0	3,405	161,517	0	164,922	0	0	26,952	8,658	35,610	129,312	3,429	98,675	3,052
Jun-98	173	150,756	0	3,335	157,926	0	161,261	0	0	26,952	8,466	35,418	125,843	3,555	94,671	3,146
Jul-98	169	147,098	0	3,264	154,452	0	157,716	0	0	26,952	8,280	35,232	122,484	3,678	90,842	3,237
Aug-98	165	143,561	0	3,193	151,089	0	154,282	0	0	26,952	8,100	35,052	119,230	3,797	87,179	3,324
Sep-98	161	140,142	0	3,122	147,834	0	150,956	0	0	26,952	7,925	34,877	116,079	3,913	83,675	3,408
FY-98	2,223	1,937,880	0	42,603	2,016,924	0	2,059,527	0	30,893	324,558	108,125	463,576	1,595,955		1,251,445	
FY-99	1,660	1,448,071	0	32,589	1,548,713	0	1,581,302	0	0	319,332	83,018	402,350	1,178,952	5,092	792,825	4,201
FY-00	1,268	1,106,402	0	25,458	1,213,709	0	1,239,167	0	24,444	306,163	65,056	395,662	843,505	5,935	483,995	4,685
FY-1	966	843,039	0	19,835	948,570	0	968,405	0	59,022	263,144	50,841	373,006	595,399	6,531	291,497	4,976
FY-2	751	655,123	0	15,771	756,075	0	771,846	0	34,143	228,252	40,522	302,917	468,929	7,000	195,887	5,172
FY-3	603	525,907	0	12,950	622,546	0	635,496	0	35,936	212,922	33,364	282,222	353,274	7,353	125,916	5,298
FY-4	478	416,733	0	10,499	505,989	0	516,488	0	36,273	190,028	27,116	253,417	263,071	7,616	80,005	5,378
FY-5	391	340,853	0	8,783	424,493	0	433,276	0	28,434	181,632	22,747	232,813	200,463	7,817	52,018	5,430
FY-6	300	261,256	0	6,892	333,726	0	340,618	0	77,883	154,882	17,882	250,647	89,971	7,907	19,920	5,450
FY-7	237	207,029	0	5,568	271,253	0	276,821	0	59,415	134,283	14,533	208,231	68,590	7,975	12,957	5,463
FY-8	193	168,136	0	4,637	225,956	0	230,593	0	40,936	117,481	12,106	170,523	60,070	8,035	9,683	5,473
FY-9	158	137,987	0	3,882	190,206	0	194,088	0	0	107,506	10,190	117,696	76,392	8,112	10,506	5,483
FY-10	131	113,995	0	3,292	161,173	0	164,465	0	10,413	97,792	8,634	116,839	47,626	8,159	5,589	5,489
FY-11	108	93,965	0	2,776	136,267	0	139,043	0	0	84,088	7,300	91,388	47,655	8,207	4,772	5,494
FY-12	93	81,507	0	2,444	121,239	0	123,683	0	0	78,388	6,493	84,881	38,802	8,246	3,315	5,497
FY-13	78	67,900	0	2,097	103,594	0	105,691	0	0	68,173	5,549	73,722	31,969	8,278	2,330	5,499
FY-14	59	51,130	0	1,622	80,013	0	81,635	0	0	49,410	4,286	53,696	27,939	8,306	1,738	5,501
FY-15	52	45,656	0	1,462	73,283	0	74,745	0	0	45,248	3,924	49,172	25,573	8,331	1,357	5,502
FY-16	46	40,173	0	1,323	66,139	0	67,462	0	0	41,662	3,542	45,204	22,258	8,353	1,008	5,503
FY-17	11	9,384	0	323	15,847	0	16,170	0	0	9,500	849	10,349	5,821	8,359	225	5,504
FY-18	0	0	0	0	0	0	0	0	0	0	0	0	0	8,359	0	5,504
Thereafter	0	0	0	0	0	0	0	0	0	0	0	0	0	8,359	0	5,504
TOTAL	12,905	11,256,525	0	262,747	12,552,715	0	12,815,462	0	437,791	3,345,636	672,813	4,456,241	8,359,231		5,503,624	

Cash Flows

PDP

Proved Developed Producing

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	304	265,171	0	$18.50	$1.00	NA	5,624	265,171	0	270,795	0	0	27,599	14,217	$41,816	$228,979	$229	$228,979	$229
Nov-96	294	256,803	0	$18.54	$1.00	NA	5,450	257,400	0	262,850	0	0	27,599	13,800	$41,399	$221,451	$450	$218,321	$447
Dec-96	285	248,838	0	$18.58	$1.00	NA	5,294	249,997	0	255,291	0	0	27,599	13,403	$41,002	$214,289	$665	$208,275	$656
Jan-97	277	241,248	0	$18.61	$1.01	NA	5,156	242,935	0	248,091	0	0	27,599	13,025	$40,624	$207,467	$872	$198,795	$854
Feb-97	268	234,005	0	$18.65	$1.01	NA	4,999	236,190	0	241,189	0	0	27,599	12,662	$40,261	$200,928	$1,073	$189,809	$1,044
Mar-97	260	227,087	0	$18.69	$1.01	NA	4,860	229,740	0	234,600	0	0	27,599	12,317	$39,916	$194,684	$1,268	$181,312	$1,225
Apr-97	253	220,470	0	$18.73	$1.01	NA	4,738	223,565	0	228,303	0	0	27,599	11,986	$39,585	$188,718	$1,457	$173,272	$1,399
May-97	245	214,138	0	$18.77	$1.02	NA	4,598	217,649	0	222,247	0	0	27,599	11,668	$39,267	$182,980	$1,639	$165,630	$1,564
Jun-97	238	207,979	0	$18.81	$1.02	NA	4,476	211,880	0	216,356	0	0	27,599	11,359	$38,958	$177,398	$1,817	$158,308	$1,723
Jul-97	231	201,704	0	$18.84	$1.02	NA	4,353	205,966	0	210,319	0	0	27,599	11,042	$38,641	$171,678	$1,989	$151,038	$1,874
Aug-97	225	196,147	0	$18.88	$1.02	NA	4,249	200,757	0	205,006	0	0	27,599	10,763	$38,362	$166,644	$2,155	$144,538	$2,018
Sep-97	219	190,811	0	$18.92	$1.03	NA	4,144	195,750	0	199,894	0	0	27,599	10,494	$38,093	$161,801	$2,317	$138,354	$2,157
FY-97	3,099	2,704,401	0				57,941	2,737,000	0	2,794,941	0	0	331,193	146,736	$477,929	$2,317,012		$2,156,631	
Oct-97	213	185,683	0	$18.96	$1.03	NA	4,039	190,932	0	194,971	0	0	27,178	10,236	$37,414	$157,557	$2,475	$132,822	$2,289
Nov-97	207	180,751	0	$19.00	$1.03	NA	3,933	186,294	0	190,227	0	0	27,178	9,987	$37,165	$153,062	$2,628	$127,209	$2,417
Dec-97	202	176,007	0	$19.04	$1.03	NA	3,846	181,825	0	185,671	0	0	27,178	9,748	$36,926	$148,745	$2,776	$121,874	$2,539
Jan-98	197	171,438	0	$19.08	$1.04	NA	3,758	177,518	0	181,276	0	0	27,178	9,517	$36,695	$144,581	$2,921	$116,789	$2,655
Feb-98	191	166,915	0	$19.12	$1.04	NA	3,651	173,236	0	176,887	0	0	27,178	9,287	$36,465	$140,422	$3,061	$111,826	$2,767
Mar-98	186	162,524	0	$19.16	$1.04	NA	3,563	169,071	0	172,634	0	30,893	26,952	9,063	$66,909	$105,726	$3,167	$83,006	$2,850
Apr-98	182	158,463	0	$19.20	$1.04	NA	3,494	165,230	0	168,724	0	0	26,952	8,858	$35,810	$132,914	$3,300	$102,877	$2,953
May-98	177	154,542	0	$19.24	$1.05	NA	3,405	161,517	0	164,922	0	0	26,952	8,658	$35,610	$129,312	$3,429	$98,674	$3,052
Jun-98	173	150,756	0	$19.28	$1.05	NA	3,335	157,926	0	161,261	0	0	26,952	8,466	$35,418	$125,843	$3,555	$94,670	$3,146
Jul-98	169	147,098	0	$19.31	$1.05	NA	3,264	154,452	0	157,716	0	0	26,952	8,280	$35,232	$122,484	$3,678	$90,841	$3,237
Aug-98	165	143,561	0	$19.35	$1.05	NA	3,193	151,089	0	154,282	0	0	26,952	8,100	$35,052	$119,230	$3,797	$87,178	$3,324
Sep-98	161	140,142	0	$19.39	$1.05	NA	3,122	147,834	0	150,956	0	0	26,952	7,925	$34,877	$116,079	$3,913	$83,675	$3,408
FY-98	2,223	1,937,880	0				42,603	2,016,924	0	2,059,527	0	30,893	324,558	108,125	$463,576	$1,595,951		$1,251,441	
FY-99	1,660	1,448,071	0	$19.63	$1.07	NA	32,589	1,548,713	0	1,581,302	0	0	319,332	83,018	$402,350	$1,178,952	$5,092	$792,824	$4,201
FY-00	1,268	1,106,402	0	$20.08	$1.10	NA	25,458	1,213,709	0	1,239,167	0	24,444	306,163	65,056	$395,662	$843,505	$5,935	$483,995	$4,685
FY-1	966	843,039	0	$20.53	$1.13	NA	19,835	948,570	0	968,405	0	59,022	263,144	50,841	$373,006	$595,399	$6,531	$291,497	$4,976
FY-2	751	655,123	0	$21.00	$1.15	NA	15,771	756,075	0	771,846	0	34,143	228,252	40,522	$302,917	$468,929	$7,000	$195,887	$5,172
FY-3	603	525,907	0	$21.48	$1.18	NA	12,950	622,546	0	635,496	0	35,936	212,922	33,364	$282,222	$353,274	$7,353	$125,917	$5,298
FY-4	478	416,733	0	$21.96	$1.21	NA	10,499	505,989	0	516,488	0	36,273	190,028	27,116	$253,417	$263,071	$7,616	$80,005	$5,378
FY-5	391	340,853	0	$22.46	$1.25	NA	8,783	424,493	0	433,276	0	28,434	181,632	22,747	$232,813	$200,463	$7,817	$52,017	$5,430
FY-6	300	261,256	0	$22.97	$1.28	NA	6,892	333,726	0	340,618	0	77,883	154,882	17,882	$250,647	$89,971	$7,907	$19,920	$5,450
FY-7	237	207,029	0	$23.49	$1.31	NA	5,568	271,253	0	276,821	0	59,415	134,283	14,533	$208,231	$68,590	$7,975	$12,957	$5,463
FY-8	193	168,136	0	$24.03	$1.34	NA	4,637	225,956	0	230,593	0	40,936	117,481	12,108	$170,523	$60,070	$8,035	$9,682	$5,473
FY-9	158	137,887	0	$24.57	$1.38	NA	3,882	190,206	0	194,088	0	0	107,506	10,190	$117,696	$76,392	$8,112	$10,506	$5,483
FY-10	131	113,995	0	$25.13	$1.41	NA	3,292	161,173	0	164,465	0	10,413	97,792	8,634	$116,839	$47,626	$8,159	$5,589	$5,489
FY-11	108	93,965	0	$25.70	$1.45	NA	2,776	136,267	0	139,043	0	0	84,088	7,300	$91,388	$47,655	$8,207	$4,771	$5,494
FY-12	93	81,507	0	$26.28	$1.49	NA	2,444	121,239	0	123,683	0	0	78,388	6,493	$84,881	$38,802	$8,246	$3,315	$5,497
FY-13	78	67,800	0	$26.88	$1.53	NA	2,097	103,594	0	105,691	0	0	68,173	5,549	$73,722	$31,969	$8,278	$2,330	$5,499
FY-14	59	51,130	0	$27.49	$1.56	NA	1,622	80,013	0	81,635	0	0	40,410	4,286	$53,696	$27,939	$8,306	$1,738	$5,501
FY-15	52	45,656	0	$28.11	$1.61	NA	1,462	73,283	0	74,745	0	0	45,248	3,924	$49,172	$25,573	$8,331	$1,357	$5,502
FY-16	46	40,173	0	$28.75	$1.65	NA	1,323	66,139	0	67,462	0	0	41,662	3,542	$45,204	$22,258	$8,353	$1,008	$5,503
FY-17	11	9,384	0	$29.41	$1.69	NA	$323.00	15,847	0	16,170	0	0	9,500	849	$10,349	$5,821	$8,359	$225	$5,504
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$8,359	$0	$5,504
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$8,359	$0	$5,504
Total	12,905	11,256,525	0				262,747	12,552,715	0	12,815,462	0	437,791	3,345,636	672,813	$4,456,241	$8,359,221		$5,503,612	

PD-NP

Proved Developed Non-Producing

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	0	0	0	$25.13	$1.41	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-11	0	0	0	$25.70	$1.45	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-12	0	0	0	$26.28	$1.49	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-13	0	0	0	$26.88	$1.53	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-14	0	0	0	$27.49	$1.56	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-15	0	0	0	$28.11	$1.61	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-16	0	0	0	$28.75	$1.65	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-17	0	0	0	$29.41	$1.69	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Total	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	

PUD

Proved Undeveloped

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	0	0	0	$25.13	$1.41	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-11	0	0	0	$25.70	$1.45	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-12	0	0	0	$26.28	$1.49	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-13	0	0	0	$26.88	$1.53	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-14	0	0	0	$27.49	$1.56	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-15	0	0	0	$28.11	$1.61	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-16	0	0	0	$28.75	$1.65	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-17	0	0	0	$29.41	$1.69	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Total	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	

Unproven

Unproven

NOSR-3

	PRODUCTION			PRICES			GROSS REVENUE				COSTS					Future Net Income			
	Oil	Gas	NGLS	Oil	Gas	NGLS	Oil	Gas	NGLS	Total	Royalty @	CapEx	OpEx	Prod. Taxes	Total	Net Revenue	Cumulative	Discounted @	Cumulative Discounted
	bbls	mcf	gals	$	$	$	$	$	$	$	not used	$	$	5.25%	$	$	$000	17.20%	$000
Oct-96	0	0	0	$18.50	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-96	0	0	0	$18.54	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-96	0	0	0	$18.58	$1.00	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-97	0	0	0	$18.61	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-97	0	0	0	$18.65	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-97	0	0	0	$18.69	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-97	0	0	0	$18.73	$1.01	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-97	0	0	0	$18.77	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-97	0	0	0	$18.81	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-97	0	0	0	$18.84	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-97	0	0	0	$18.88	$1.02	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-97	0	0	0	$18.92	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-97	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
Oct-97	0	0	0	$18.96	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Nov-97	0	0	0	$19.00	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Dec-97	0	0	0	$19.04	$1.03	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jan-98	0	0	0	$19.08	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Feb-98	0	0	0	$19.12	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Mar-98	0	0	0	$19.16	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Apr-98	0	0	0	$19.20	$1.04	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
May-98	0	0	0	$19.24	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jun-98	0	0	0	$19.28	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Jul-98	0	0	0	$19.31	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Aug-98	0	0	0	$19.35	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Sep-98	0	0	0	$19.39	$1.05	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-98	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	
FY-99	0	0	0	$19.63	$1.07	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-00	0	0	0	$20.08	$1.10	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-1	0	0	0	$20.53	$1.13	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-2	0	0	0	$21.00	$1.15	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-3	0	0	0	$21.48	$1.18	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-4	0	0	0	$21.96	$1.21	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-5	0	0	0	$22.46	$1.25	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-6	0	0	0	$22.97	$1.28	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-7	0	0	0	$23.49	$1.31	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-8	0	0	0	$24.03	$1.34	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-9	0	0	0	$24.57	$1.38	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-10	0	0	0	$25.13	$1.41	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-11	0	0	0	$25.70	$1.45	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-12	0	0	0	$26.28	$1.49	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-13	0	0	0	$26.88	$1.53	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-14	0	0	0	$27.49	$1.56	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-15	0	0	0	$28.11	$1.61	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-16	0	0	0	$28.75	$1.65	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-17	0	0	0	$29.41	$1.69	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
FY-18	0	0	0	$30.07	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Thereafter	0	0	0	$30.76	NA	NA	0	0	0	0	0	0	0	0	$0	$0	$0	$0	$0
Total	0	0	0				0	0	0	0	0	0	0	0	$0	$0		$0	

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	Maintenance Costs				Leasing Program						
					First Sale		Second Sale			Total	
	Annual	NPV @ 7.00%	Surface Income	NPV @ 13.20%	Bonus	Rentals	Bonus	Rentals	Costs	Revenue	NPV @ 13.20%
FY97	(50,000)	(48,337)	27,569	25,912	0	0	0	0	0	0	0
FY98	(50,000)	(45,175)	27,569	22,890	243,276	22116			(127,800)	137,592	114,241
FY99	(50,000)	(42,219)	27,569	20,221		22116	243276	22116	(127,800)	159,708	117,141
FY00	(50,000)	(39,457)	27,569	17,863		22116		22116	0	44,232	28,660
FY1	(50,000)	(36,876)	27,569	15,780		22116		22116	0	44,232	25,318
FY2	(50,000)	(34,463)	27,569	13,940		22116		22116	0	44,232	22,366
FY3	(50,000)	(32,209)	27,569	12,315		29488		22116	0	51,604	23,051
FY4	(50,000)	(30,102)	27,569	10,879		29488		29488	0	58,976	23,272
FY5	(50,000)	(28,132)	27,569	9,610		29488		29488	0	58,976	20,558
FY6	(50,000)	(26,292)	27,569	8,489		29488		29488	0	58,976	18,161
FY7	(50,000)	(24,572)	27,569	7,500		29488		29488	0	58,976	16,043
FY8	(50,000)	(22,964)	27,569	6,625				29488	0	29,488	7,086
FY9	(50,000)	(21,462)	27,569	5,852	243,276	22116			(127,800)	137,592	29,209
FY10	(50,000)	(20,058)	27,569	5,170		22116	243276	22116	(127,800)	159,708	29,950
FY11	(50,000)	(18,746)	27,569	4,567		22116		22116	0	44,232	7,328
FY12	(50,000)	(17,519)	27,569	4,035		22116		22116	0	44,232	6,473
FY13	(50,000)	(16,373)	27,569	3,564		22116		22116	0	44,232	5,718
FY14	(50,000)	(15,302)	27,569	3,149		29488		22116	0	51,604	5,893
FY15	(50,000)	(14,301)	27,569	2,781		29488		29488	0	58,976	5,950
FY16	(50,000)	(13,366)	27,569	2,457		29488		29488	0	58,976	5,256
FY17	(50,000)	(12,491)	27,569	2,171		29488		29488	0	58,976	4,643
FY18	(50,000)	(11,674)	27,569	1,917		29488		29488	0	58,976	4,102
FY19	(50,000)	(10,910)	27,569	1,694				29488	0	29,488	1,812
FY20	(50,000)	(10,197)	27,569	1,496	243,276	22116			(127,800)	137,592	7,468
FY21	(50,000)	(9,529)	27,569	1,322		22116	243276	22116	(127,800)	159,708	7,658
FY22	(50,000)	(8,906)	27,569	1,168		22116		22116	0	44,232	1,873
FY23	(50,000)	(8,323)	27,569	1,032		22116		22116	0	44,232	1,655
FY24	(50,000)	(7,779)	27,569	911		22116		22116	0	44,232	1,462
FY25	(50,000)	(7,270)	27,569	805		29488		22116	0	51,604	1,507
FY26	(50,000)	(6,794)	27,569	711		29488		29488	0	58,976	1,521
FY27	(50,000)	(6,350)	27,569	628		29488		29488	0	58,976	1,344
FY28	(50,000)	(5,934)	27,569	555		29488		29488	0	58,976	1,187
FY29	(50,000)	(5,546)	27,569	490		29488		29488	0	58,976	1,049
FY30	(50,000)	(5,183)	27,569	433				29488	0	29,488	463
TOTAL	($1,700,000)	($664,815)	$937,346	$218,933	$729,828	$774,060	$729,828	$774,060	($766,800)	$2,240,976	$549,418

Acreage Variables and Assumptions

36,406 acres in NOSR-1
81% of acres offered for leased were actually taken.

Leasing Variables and Assumptions

BLM can lease it in FY98.
$0 Environmental costs required to begin leasing.
50% offered each of first two years
$16.50 initial bonus per acre
$1.50 rental per bonus first 5 yrs
$2.00 rental per bonus second 5 yrs
$27,569 per year in surface leases
$50,000 annual costs to maintain fee property
$127,800 Lease sale expenses

Results from single lease sale

18,203 Acres offerred
14,744 Acres Leased
$243,276 Bonus
$22,116 Annual rentals 1st 5-yrs
$29,488 Annual Rental 2nd 5-yrs

Value to DOE

	($)	($/acre)
Maintenance	(664,815)	($18.26)
Surface Inc.	218,933	$6.01
Mineral Inc.	549,418	$15.09
NEPA cost	0	$0.00
Total	$103,536	$2.84

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	Maintenance Costs				Leasing Program						
					First Sale		Second Sale			Total	
	Annual	NPV @ 7.00%	Surface Income	NPV @ 13.20%	Bonus	Rentals	Bonus	Rentals	Costs	Revenue	NPV @ 13.20%
FY97	(25,000)	(24,168)	19,233	18,077	0	0	0	0	0	0	0
FY98	(25,000)	(22,587)	19,233	15,969	352,617	9362			(52,200)	309,779	257,207
FY99	(25,000)	(21,110)	19,233	14,107		9362	352,617	9362	(52,200)	319,141	234,081
FY00	(25,000)	(19,729)	19,233	12,462		9362		9362	0	18,724	12,132
FY1	(25,000)	(18,438)	19,233	11,009		9362		9362	0	18,724	10,717
FY2	(25,000)	(17,232)	19,233	9,725		9362		9362	0	18,724	9,468
FY3	(25,000)	(16,104)	19,233	8,591		12482		9362	0	21,844	9,757
FY4	(25,000)	(15,051)	19,233	7,589		12482		12482	0	24,964	9,851
FY5	(25,000)	(14,066)	19,233	6,704		12482		12482	0	24,964	8,702
FY6	(25,000)	(13,146)	19,233	5,923		12482		12482	0	24,964	7,687
FY7	(25,000)	(12,286)	19,233	5,232		12482		12482	0	24,964	6,791
FY8	(25,000)	(11,482)	19,233	4,622				12482	0	12,482	3,000
FY9	(25,000)	(10,731)	19,233	4,083	352,617	9362			(52,200)	309,779	65,761
FY10	(25,000)	(10,029)	19,233	3,607		9362	352,617	9362	(52,200)	319,141	59,849
FY11	(25,000)	(9,373)	19,233	3,186		9362		9362	0	18,724	3,102
FY12	(25,000)	(8,760)	19,233	2,815		9362		9362	0	18,724	2,740
FY13	(25,000)	(8,187)	19,233	2,486		9362		9362	0	18,724	2,421
FY14	(25,000)	(7,651)	19,233	2,197		12482		9362	0	21,844	2,495
FY15	(25,000)	(7,151)	19,233	1,940		12482		12482	0	24,964	2,519
FY16	(25,000)	(6,683)	19,233	1,714		12482		12482	0	24,964	2,225
FY17	(25,000)	(6,246)	19,233	1,514		12482		12482	0	24,964	1,965
FY18	(25,000)	(5,837)	19,233	1,338		12482		12482	0	24,964	1,736
FY19	(25,000)	(5,455)	19,233	1,182				12482	0	12,482	767
FY20	(25,000)	(5,098)	19,233	1,044	352,617	9362			(52,200)	309,779	16,814
FY21	(25,000)	(4,765)	19,233	922		9362	352,617	9362	(52,200)	319,141	15,302
FY22	(25,000)	(4,453)	19,233	815		9362		9362	0	18,724	793
FY23	(25,000)	(4,162)	19,233	720		9362		9362	0	18,724	701
FY24	(25,000)	(3,889)	19,233	636		9362		9362	0	18,724	619
FY25	(25,000)	(3,635)	19,233	562		12482		9362	0	21,844	638
FY26	(25,000)	(3,397)	19,233	496		12482		12482	0	24,964	644
FY27	(25,000)	(3,175)	19,233	438		12482		12482	0	24,964	569
FY28	(25,000)	(2,967)	19,233	387		12482		12482	0	24,964	503
FY29	(25,000)	(2,773)	19,233	342		12482		12482	0	24,964	444
FY30	(25,000)	(2,592)	19,233	302				12482	0	12,482	196
TOTAL	($850,000)	($332,407)	$653,922	$152,734	$1,057,851	$327,660	1,057,851	$327,660	($313,200)	$2,457,822	$752,194

Acreage Variables and Assumptions

15,410 acres in NOSR-3

81% of acres offered for leased were actually taken.

Leasing Variables and Assumptions

BLM can lease it in FY98.

$0 Environmental costs required to begin leasing.

50% offered each of first two years

$56.50 initial bonus per acre

$1.50 rental per bonus first 5 yrs

$2.00 rental per bonus second 5 yrs

$19,233 per year in surface leases

$25,000 annual costs to maintain fee property

$52,200 Lease sale expenses

Results from single lease sale

7,705 Acres offerred

6,241 Acres Leased

$352,617 Bonus

$9,362 Annual rentals 1st 5-yrs

$12,482 Annual Rental 2nd 5-yrs

Value to DOE

	($)	($/acre)
Maintenanc	(332,407)	($21.57)
Surface Inc	152,734	$9.91
Mineral Inc.	752,194	$48.81
NEPA cost	0	$0.00
Total	$572,521	$37.15

APPENDIX E

DISCUSSION OF DISCOUNT RATES

DISCUSSION OF DISCOUNT RATES

Concept of Discounting Cashflow vs. Market Values

Although the concept of discounting is widely accepted, the selection of the appropriate discount rate has been the source of considerable debate and much disagreement. Gustavson Associates, for the purposes of valuing the NPR-2 & 3 as well as NOSR-1,2 & 3 properties, applied different discount rates to the different sites due to (a) the relative risk associated with developing and producing them and (b) the different ownership and operator under the retention and sale scenarios. These discount rates were built up as described in detail below.

Gustavson Associates have studied the market for producing oil and gas properties. It has been found that recent market transactions (sales and purchases) have recently been conducted at net present values of the future cashflows determined at discount rates in the 17 to 18 percent range. These rates are applied on a pre-tax basis and to a cashflow based on nominal oil prices. At the same time the weighted cost of capital has been 10 to 11 percent.

Further, it has been found that the market discount rate has been varying over the last decade as a direct function of the weighted cost of capital for the oil sector. For example, in the early to mid-1980s during high inflation rates and with the cost of capital being in the 15 percent range, producing properties sold at discount rates around 22 to 23 percent, again a mark-up of about 7 percent.

It is apparent that the oil sector in general requires a reasonable reward or profit corresponding to about seven percentage points for taking the risk of putting its capital to work. The same seven point mark-up for risk has also been experienced in other extractive industries of high unit-value commodities such as copper. Interviews with financial executives have revealed that these industries target their internal rate of return at the same general level, namely 17 to 18 percent. They discount at higher rates for more risky properties such as non-producing reserves and at lower discount rates for less risky (thereby buying at higher purchase prices).

We have analyzed these seven percentage points which the oil sector wants to realize above and beyond the return of its capital, with interest. But first, we will discuss the cost of capital.

COST OF CAPITAL

Cost of capital rates vary, but can be generalized for particular industries. This is the case with the oil industry, where the cost of capital as surveyed by the Society of Petroleum Evaluation Engineers (SPEE) is averaging 10.2 percent in 1996 (Spring). This number is weighted for debt at 30 percent. On the other hand, it was hypothesized that the government's cost of capital should approximate Treasury bill rates, that is, be weighted as 100 percent debt. Further, the financial industry will normally not make commercial oil loans much past five years due to oilfield reserve half-life generally being around five years. A rate of 6.5 percent (an average of the 5-year U.S. Treasury-bill interest rate over the last several years) was considered appropriate for this analysis. That rate (6.5 percent) is readily reconciled with the 7 percent suggested as a fall-back by the OM&B.

As mentioned above, producing U.S. oil properties sell at 7 percent above the industry cost of capital. We make the assumption that the Federal Government will be exposed to the same risks as an oil operator as will a large oil company.

In this Consultant's opinion, this risk associated with oil and gas production can be further summarized as follows. The risks relate to the realization of the predicted cashflow. Cashflow (net revenue before income taxes) is predominantly the produced net quantity of oil or gas multiplied by the market prices of the commodity less the operating cost. Local taxes play less of a role. Therefore, there are three risk categories inherent in oil and gas production, namely market price risk, operating cost risk, and production rate (quantity) risk. Market price risk is that risk associated with the rise and fall of oil and/or gas prices worldwide, in the operating region or both. The second category, operating cost risk, is that risk associated with the fluctuations in the cost of operations. Finally, there is production rate or engineering risks inherent in any oil and gas project, namely that risk associated with the ability to forecast and meet a specific rate of production subject to reservoir dynamics.

Based on market research, these various subcategories of risks have been broadly quantified as follows: market price risk weighs heavily and makes up about 3 percent of the total of 7 percent while operating cost and production rate risks are approximately 2 percent each.

A few market examples help support the numbers presented above. The 2 percent adjustment for operating cost risk can be clearly seen through the following example. Oil company and other investors are often given the choice between purchasing full working interest in a particular property, or merely a royalty interest in a producing property. Full working interest indicates that the investor will be responsible for all costs and will share in the net revenue interest from the production. A royalty interest conveys the right to receive oil or cash from the production without being responsible for any operating cost. Therefore, royalty interests usually sell at a 15 percent discount rate or expected rate of return), while total working interests sell at 17 percent discount rates as discussed above. This 2 percent difference represents the market's operating cost risk adjustment. In other words, when there is no operating cost risk the market values a producing property at a higher value corresponding to a 2 percent reduction in the discount rate.

Production rate risk can be quantified by comparing the oil industry with another extractive industry, where the rate of production of the commodity is rarely a factor, for instance, the aggregate industry. Only sand and gravel price and cost of production and transportation are major risks and not reserves or short-term rates of production. Aggregate industry operators usually experience a discount rate of around 15 percent for discounting the net cashflows associated with an operating mine or quarry. Production rate risk is again the difference between these two numbers, namely 2 percent.

Finally, the remaining three percent can in discount rate adjustment for risks be attributed to price risk. This is further proved by looking at the newly formed oil and gas derivatives market. A knowledgeable investor who understands and has experience in the derivative markets can nearly eliminate all market price risk associated with oil and gas investments, by locking into a set price for the commodity well into the future. This has had a profound effect on the valuation of oil and gas properties; the cumulative effect of efficiently using derivatives to hedge against price

fluctuations has increased the value of subject properties by about 3 percent (when applied to future net cash flow) lending further proof to the discussion above.

A summation of the three major risk factors and their corresponding effect on discounted present value yield a total of a 7 percent adjustment, equal to the difference between cost of capital and market price.

APPLICATION TO DOE STUDY

The composition of both the public (government) and private (US oil company) discount rates used in the DOE study are summarized in Table E-1. All of the specific discount rates used in the study for all of the different properties are summarized under different use scenarios in Table E-2. As discussed throughout the DOE study, Gustavson Associates studies four general scenarios available to the DOE for each of the five properties. The property could be retained by DOE (Scenario 1), the property could be transferred to the DOI for leasing by the BLM (Scenario 2), or to another department or agency (Scenario 3) or the property could be sold outright to the private sector (Scenario 4). For purposes of discounting future cashflow (income and expenses), Scenarios 2 and 3 can be treated as one.

Table E-2 includes eight different "income" categories for all five properties (not all are applicable to all properties), and one expense category (surface maintenance) with varying discount rates applied depending on the characteristics of the property and the owner. Each category as well as its determined discount rate can be explained as follows:

> "**Royalties**" is defined as that royalty income to be received by the DOE or another government agency/department (only possible under Scenarios 1, 2 and/or 3 and/or for NPR-2, NPR-3 and NOSR-3), from existing and future production on a property currently operated by a third party; thus only those properties which are currently producing or predicted to produce are applicable. The appropriate rate to be used to discount this expected income stream would be the government's or public sector cost of capital (6.5

TABLE E-1 COMPOSITION OF A DISCOUNT RATE

	ENTITY TYPE	
DISCOUNT RATE COMPONENT	**PUBLIC (US GOVERNMENT)**	**PRIVATE (US OIL COMPANY)**
COST OF CAPITAL	6.50%	10.20%
PROJECT RISK:		
PRICE RISK	3.00%	3.00%
OPERATING COST RISK	2.00%	2.00%
PRODUCTION RATE	2.00%	2.00%
TOTALS	**13.50%**	**17.20%**

TABLE E-2 DISCOUNT RATE SUMMARY

		SCENARIO		
	INCOME CATEGORY	(1) RETENTION	(2) and (3) LEASING	(4) SALE
NPR-2	Royalties	11.5	11.5	N/A
	Surface Maintenance	7	7	N/A
	Grazing	N/A	10	13.2
	Income Taxes	N/A	N/A	13.5
	Mineral Leasing (Bonuses & Rentals)	N/A	10	13.2
	Rental of Existing Leases	10	10	13.2
	Royalties (to Estimate Bonus/Sale Price)	N/A	N/A	15.2
NPR-3	Production	13.5	N/A	N/A
	Grazing	10	10	13.2
	Income Taxes	N/A	13.5	13.5
	Mineral Leasing (Bonuses & Rentals)	N/A	10	13.2
	Royalties	N/A	11.5	N/A
	Production (to Estimate Bonus/Sale Price)	N/A	17.2	17.2
NOSR-2	Royalties	N/A	N/A	N/A
	Surface Maintenance	7	7	N/A
	Grazing	10	10	13.2
	Income Taxes	N/A	N/A	N/A
	Mineral Leasing (Bonuses & Rentals)	N/A	10	13.2
	Rental of Existing Leases	N/A	N/A	N/A
NOSR-1	Production	N/A	N/A	N/A
	Surface Maintenance	7	7	N/A
	Grazing	10	10	13.2
	Income Taxes	N/A	N/A	N/A
	Mineral Leasing (Bonuses & Rentals)	N/A	10	13.2
	Royalties	N/A	N/A	N/A
	Production (to Estimate Bonus/Sale Price)	N/A	N/A	N/A
NOSR-3	Production	13.5	N/A	N/A
	Surface Maintenance	7	7	N/A
	Grazing	10	10	13.2
	Income Taxes	N/A	13.5	13.5
	Mineral Leasing (Bonuses & Rentals)	N/A	10	13.5
	Royalties	N/A	11.5	N/A
	Production (to Estimate Bonus/Sale Price)	N/A	17.2	17.2

percent, see above) plus price risk (3 percent) and production rate risk (2 percent) which relate to the amount of royalty. The total adjusted discount rate equals 11.5 percent total. Since DOE would not operate these properties, its royalty revenue is not subject to operating cost risk.

"**Royalties (to estimate bonus/sale price)**", is the same royalty income as above; however, the property has been sold to the private sector (not the public sector) (Scenario 4 - only for NPR-2), and thus should be discounted as an investment from the private sector's perspective. Thus, instead of starting at the public sector's cost of capital, we start with the private sector's (10.2 percent, see above) and add price and production rate risks (3 and 2 percent, respectively) which equals a total of 15.2 percent. This revenue is likewise not subject to any operating cost risk.

"**Grazing**", is considered income received by allowing ranchers grazing privileges for their livestock (Scenarios 1,2, 3 and 4 applied to all properties). A discount rate of 10 percent is used for Scenarios 1, 2 and 3. The Office of Management and Budget (OMB) Circular No. A-94 recommends using a discount rate of 7 percent for "public investments": conveying independent rights to graze on government property is considered to constitute such an investment. To this 7 percent must be added an additional "livestock price risk" component of 3 percent, the only difference being that the commodity in question under this analysis is livestock and not oil or gas. We have not studied the commodity market and hedging for best prices, but this approach was substantiated based on interviews with a few representatives of the ranching community. For Scenario 4, however, we start with the private sector's cost of capital (10.2 percent) and account for "price risk" (3 percent) which equals 13.2 percent total.

"**Production**" is that working interest income received from produced oil and/or gas (Scenario 1 and only applicable to NPR-3 and NOSR-3) on those currently produced properties which are operated by NPOSR. The discount rate adjustment used for these scenarios is 2 percent higher than that used for royalty income (as explained above) due to the fact that the DOE is now the operator and does indeed face operating cost risk.

"**Production (to estimate bonus/sale price)**", is based on the exact same income as under "Production" but as transferred to another department and leased/sold or to the private sector (Scenarios 2, 3 and 4 for NPR-3 and NOSR-3). We must account for the value to that third party. In other words, this category assumes an industry operator who continues producing the field until an economic limit is reached. The appropriate discount rate is therefore the same as the "Royalties (to estimate bonus/sale price)" plus an additional 2 percent due to the fact that operating cost risk must be accounted for, adjusting to a total of 17.2 percent for these scenarios.

"**Mineral leasing (bonuses & rentals)**", are those particular scenarios whereby a party (either another government agency/department or a private investor) would lease the property out to the other oil companies for their purpose of mineral extraction (Scenarios 2, 3 and 4 for all properties). Under Scenarios 2 and 3 (another government agency/department), a discount rate is found by taking the Office of Management and Budget (OMB) recommendation for the appropriate discount rate used above for public investments, which is 7 percent. To this must added price risk, because a potential oil company lessor would be faced with commodity price risk. This is the same derivation used under the "grazing" scenario above. It is assumed that if prices for the commodity (be it livestock or oil) suddenly became depressed, the chances to lease the land for a particular use (be it grazing or oil production) is directly affected by the price of that commodity; thus, perception of price risk must be included when discounting the expected future income stream. This same methodology is also used under Scenario 4; however, since the property has been sold to the private sector under this case, we begin with *industry's* cost of capital (10.2 percent). When perception of price risk is included, as above the total selected discount rate under this income category and Scenario will equal 13.2 percent.

"**Rental of existing leases**", applies to those oil and gas leases that are pre-existing (applicable under all Scenarios for NPR-2). The appropriate discount rates are derived under the exact same methodology as "Mineral leasing" described in the preceding paragraph.

"**Income taxes**", refers to the federal tax income accruing to the Federal Government from first transferring and leasing or outright selling a property to an oil company and then expecting that taxpayer to produce the oil and/or gas. The latter would in turn pay income taxes to the government (applicable for the three producing properties - NPR-2, NPR-3 and NOSR-3 for Scenarios 2, 3 and 4). The first component of the discount rate, therefore, would be the *government's* cost of capital, since the government is the "owner" of the tax rights. The risk components, however, should include all risk components outlined above (3 percent price risk + 2 percent operating cost risk + 2 percent production rate risk = 7 percent) because they all directly affect the net taxable total revenue generated, and therefore the perception of the risk of receiving the income tax to be paid to the government. The selected discount rate used under the "Income tax" scenario is thus 13.5 percent.

"**Surface maintenance**" is actually an "expense" category, and involves the perception of the government's future incurred expenses due to maintaining the surface land on all of the five properties. This future expenditure stream must be discounted in the same manner as the future income streams defined above for risk perception above the cost of capital; the appropriate discount rate is simply the base rate recommended by the OMB for public investments, namely 7 percent for each of the properties, under Scenarios 1, 2 and 3 (the government retains the property under some form). There is no probability that the surface maintenance shall not be paid.