U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

An Assessment of In-Place Gas Resources in Low-Permeability Upper Cretaceous and Lower Tertiary Sandstone Reservoirs, Wind River Basin, Wyoming

by

Ronald C. Johnson, Thomas M. Finn, Robert A. Crovelli, and Richard H. Balay[1]

Open-File Report 96-264

This report is preliminary and has not been reviewed for conformity with the U.S. Geological Survey editorial standards (or with the North American Stratigraphic Code). Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government

[1]USGS, Denver CO

CONTENTS

	Page
Abstract	1
Introduction	2
Defining the limits of basin-centered hydrocarbon accumulations	5
Using gas shows from mudlogs to define the limits of the basin-centered hydrocarbon	6
Using mudweights to define limits of overpressuring in a basin-centered gas accumulation	9
Using levels of thermal maturity to help define the basin-centered gas accumulation	14
Using present-day formation temperatures to help define the basin-centered gas accumulation	14
Limits on using variations in thermal maturity to define the basin-centered gas accumulation	17
Probabilistic methodology for gas resource assessment	18
Definition of gas plays in the Wind River Basin	19
Calculating Z factor	29
Calculating the probability distributions of estimates for each play	29
Frontier Formation plays	30
Frontier Formation highly overpressured play	30
Frontier Formation moderately overpressured play	30
Frontier Formation transition play	30
Cody Shale Plays	33
Cody Shale highly overpressured play	33
Cody Shale moderately overpressured play	36
Cody Shale transition play	36
Fales Sandstone Member Play	36
Fales Member highly overpressured play	37
Fales Member moderately overpressured play	39
Fales Member transition play	39
Marginal marine part of Mesaverde Formation plays	39
Marine part of Mesaverde Formation highly overpressured play	42
Marine part of Mesaverde Formation moderately overpressured play	42
Marine part of Mesaverde Formation transition play	42
Nonmarine part of Mesaverde Formation plays	43
Nonmarine part of Mesaverde Formation highly overpressured play	43
Nonmarine part of Mesaverde Formation	

Page
moderately overpressured play..... 43
Nonmarine part of Mesaverde Formation
transition overpressured play..... 43
Meeteetse Formation plays..... 47
Meeteetse Formation highly overpressured plays..... 47
Meeteetse Formation moderately overpressured plays..... 47
Meeteetse Formation transition plays..... 47
Lance Formation Plays..... 50
Lance Formation moderately overpressured play..... 50
Lance Formation transition play..... 54
Lower Member of Fort Union Formation plays..... 54
Lower Member of Fort Union Formation
Waltman Shale present play..... 54
Lower Member of Fort Union Formation, Waltman Shale
not present play..... 57
Conclusions..... 57
Acknowledgments..... 58
References cited..... 59

LIST OF FIGURES

Figure 1: Index map showing location of Wind River Basin
and surrounding uplifts..... 3
Figure 2: Generalized stratigraphic chart of Cretaceous and Lower Tertiary rocks,
Wind River Basin, Wyoming..... 4
Figure 3: Map showing locations of oil and gas fields in the Wind River Basin
that produce gas from Upper Cretaceous and Lower Tertiary rocks..... 7
Figure 4: Map showing extent of the Waltman Shale Member of the Paleocene
Fort Union Formation and correlative deltaic rocks..... 8
Figure 5: Map of the Wind River Basin showing elevations at which 10 lb per
gallon mud and 12 lb per gallon mud were first used during drilling..... 11
Figure 6: Schematic north-south cross section.of the Wind River Basin..... 12
Figure 7: Schematic east-west cross section.of the Wind River Basin..... 13
Figure 8: Map showing approximate elevation of the Rm 0.73% vitrinite
reflectance level in the Wind River Basin..... 15
Figure 9: Map showing approximate elevation of the Rm 1.1% vitrinite
reflectance level in the Wind River Basin..... 16
Figure 10: Detailed east-west correlation diagram for the Wind River Basin..... 21
Figure 11: Structure contour map on the top of the marginal marine interval
of the Upper Cretaceous Mesaverde Formation..... 22
Figure 12: Structure contour map on the middle of the nonmarine interval
of the Upper Cretaceous Mesaverde Formation..... 23
Figure 13: Structure contour map on the base on the top of the Upper Cretaceous

Lance Formation..... 24
Figure 14: Structure contour map on the middle of the Upper Cretaceous Lance Formation..... 25
Figure 15: Structure contour map of the base of the Upper Cretaceous Lance Formation..... 26
Figure 16: Structure contour map on the middle of the lower unnamed member of the Paleocene Fort Union Formation..... 27
Figure 17: Generalized map showing areas of Frontier Formation highly overpressured, moderately overpressured, and transition plays..... 31
Figure 18: Detailed map showing subplays in the Frontier Formation plays..... 32
Figure 19: Generalized map showing areas of Cody Shale highly overpressured, moderately overpressured, and transition plays..... 34
Figure 20: Detailed map showing subplays in Cody Shale plays..... 35
Figure 21: Generalized map showing areas of Fales Member of the Mesaverde Formation highly overpressured, moderately overpressured, and transition plays in the eastern part of the Wind River Basin..... 37
Figure 22: Detailed map showing subplays in Fales Member of the Mesaverde Formation..... 38
Figure 23: Generalized map showing areas of marginal marine interval of the Mesaverde Formation highly overpressured, moderately overpressured, and transition plays..... 40
Figure 24: Detailed map showing subplays in the marginal marine interval of the Mesaverde Formation..... 41
Figure 25: Generalized map showing areas of the nonmarine interval of the Mesaverde Formation highly overpressured, moderately overpressured, and transition plays..... 44
Figure 26: Detailed map showing subplays in the nonmarine interval of the Mesaverde Formation..... 45
Figure 27: Cross section showing plays in the nonmarine interval of the Mesaverde Formation in the western part of the basin..... 46
Figure 28: Generalized map showing areas of Meeteetse Formation highly overpressured, moderately overpressured, and transition plays..... 48
Figure 29: Detailed map showing subplays in the Meeteetse Formation..... 49
Figure 30: Generalized map showing areas of Lance Formation moderately overpressured and transition plays..... 51
Figure 31: Detailed map showing subplays in the Lance Formation..... 52
Figure 32: Cross sections of the Lance plays showing the variation in the geometry of the plays between the western and eastern parts of the basin. 53
Figure 33: Generalized map showing areas of lower unnamed member of the Fort Union Formation plays..... 55
Figure 34: Detailed map showing subplays in the lower unnamed member of the Fort Union Formation..... 56

LIST OF TABLES

.....Page

Table 1: List of subplays in the Frontier highly overpressured play with mean estimates for the six play attributes..... 68

Table 2: List of subplays in the Frontier highly overpressured play with estimates of ranges in percent for the six play attributes..... 71

Table 3: List of subplays in the Frontier highly overpressured play with calculated fractiles for in-place gas..... 74

Table 4: List of subplays in the Frontier moderately overpressured play with mean estimates for the six play attributes..... 77

Table 5: List of subplays in the Frontier moderately overpressured play with estimates of ranges in percent for the six play attributes..... 79

Table 6: List of subplays in the Frontier moderately overpressured play with calculated fractiles for in-place gas..... 81

Table 7: List of subplays in the Frontier transition play with mean estimates for the six play attributes..... 83

Table 8: List of subplays in the Frontier transition play with estimates of ranges in percent for the six play attributes..... 85

Table 9: List of subplays in the Frontier transition play with calculated fractiles for in-place gas..... 87

Table 10: List of subplays in the Cody highly overpressured play with mean estimates for the six play attributes..... 89

Table 11: List of subplays in the Cody highly overpressured play with estimates of ranges in percent for the six play attributes..... 91

Table 12: List of subplays in the Cody highly overpressured play with calculated fractiles for in-place gas..... 93

Table 13: List of subplays in the Cody moderately overpressured play with mean estimates for the six play attributes..... 95

Table 14: List of subplays in the Cody moderately overpressured play with estimates of ranges in percent for the six play attributes..... 97

Table 15: List of subplays in the Cody moderately overpressured play with calculated fractiles for in-place gas..... 99

Table 16: List of subplays in the Cody transition play with mean estimates for the six play attributes..... 101

Table 17: List of subplays in the Cody transition play with estimates of ranges in percent for the six play attributes..... 103

Table 18: List of subplays in the Cody transition play with calculated fractiles for in-place gas..... 105

Table 19: List of subplays in the Fales highly overpressured play with mean estimates for the six play attributes..... 107

Table 20: List of subplays in the Fales highly overpressured play with estimates of ranges in percent for the six play attributes..... 108

Table 21: List of subplays in the Fales highly overpressured play with calculated fractiles for in-place gas..... 109

Table 22: List of subplays in the Fales moderately overpressured play with mean estimates for the six play attributes..... 110
Table 23: List of subplays in the Fales moderately overpressured play with estimates of ranges in percent for the six play attributes..... 111
Table 24: List of subplays in the Fales moderately overpressured play with calculated fractiles for in-place gas..... 112
Table 25: List of subplays in the Fales transition play with mean estimates for the six play attributes..... 113
Table 26: List of subplays in the Fales transition play with estimates of ranges in percent for the six play attributes..... 114
Table 27: List of subplays in the Fales transition play with calculated fractiles for in-place gas..... 115
Table 28: List of subplays in the marginal marine interval of the Mesaverde Formation play highly overpressured with mean estimates for the six play attributes..... 116
Table 29: List of subplays in the marginal marine interval of the Mesaverde Formation highly overpressured play with estimates of ranges in percent for the six play attributes..... 118
Table 30: List of subplays in the marginal marine interval of the Mesaverde Formation highly overpressured play with calculated fractiles for in-place gas..... 120
Table 31: List of subplays in the marine interval of the Mesaverde Formation moderately overpressured play with mean estimates for the six play attributes..... 122
Table 32: List of subplays in the marine interval of the Mesaverde Formation moderately overpressured play with estimates of ranges in percent for the six play attributes..... 125
Table 33: List of subplays in the marine interval of the Mesaverde Formation moderately overpressured play with calculated fractiles for in-place gas. 128
Table 34: List of subplays in the marginal marine interval of the Mesaverde Formation transition overpressured play with mean estimates for the six play attributes..... 131
Table 35: List of subplays in the marginal marine interval of the Mesaverde Formation transition play with estimates of ranges in percent for the six play attributes..... 134
Table 36: List of subplays in the marginal marine interval of the Mesaverde Formation transition play with calculated fractiles for in-place gas..... 136
Table 37: List of subplays in the nonmarine interval of the Mesavede Formation play highly overpressured play with mean estimates for the six play attributes..... 138
Table 38: List of subplays in the nonmarine interval of the Mesaverde Formation highly overpressured play with estimates of ranges in percent for the six play attributes..... 139
Table 39: List of subplays in the nonmarine interval of the Mesaverde Formation highly overpressured play with calculated fractiles for in-place gas..... 140

Table 40: List of subplays in the nonmarine interval of the Mesaverde Formation moderately overpressured play with mean estimates for the six play attributes..... 141
Table 41: List of subplays in the nonmarine interval of the Mesaverde Formation moderately overpressured play with estimates of ranges in percent for the six play attributes..... 144
Table 42: List of subplays in the nonmarine interval of the Mesaverde Formation moderately overpressured play with calculated fractiles for in-place gas. 146
Table 43: List of subplays in the nonmarine interval of the Mesaverde Formation transition play with mean estimates for the six play attributes..... 148
Table 44: List of subplays in the nonmarine interval of the Mesaverde Formation transition play with estimates of ranges in percent for the six play attributes..... 151
Table 45: List of subplays in the nonmarine interval of the Mesaverde Formation transition play with calculated fractiles for in-place gas..... 154
Table 46: List of subplays in the Meeteetse Formation highly overpressured play with mean estimates for the six play attributes..... 157
Table 47: List of subplays in the Meeteetse Formation highly overpressured play with estimates of ranges in percent for the six play attributes..... 159
Table 48: List of subplays in the Meeteetse Formation highly overpressured play with calculated fractiles for in-place gas..... 160
Table 49: List of subplays in the Meeteetse Formation moderately overpressured play with mean estimates for the six play attributes..... 161
Table 50: List of subplays in the Meeteetse Formation moderately overpressured play with estimates of ranges in percent for the six play attributes..... 163
Table 51: List of subplays in the Meeteetse Formation moderately overpressured play with calculated fractiles for in-place gas..... 165
Table 52: List of subplays in the Meeteetse Formation transition play with mean estimates for the six play attributes..... 167
Table 53: List of subplays in the Meeteetse Formation transition play with estimates of ranges in percent for the six play attributes..... 169
Table 54: List of subplays in the Meeteetse Formation transition play with calculated fractiles for in-place gas..... 171
Table 55: List of subplays in the Lance Formation moderately overpressured play with mean estimates for the six play attributes..... 173
Table 56: List of subplays in the Lance Formation moderately overpressured play with estimates of ranges in percent for the six play attributes..... 176
Table 57: List of subplays in the Lance Formation moderately overpressured play with calculated fractiles for in-place gas..... 179
Table 58: List of subplays in the Lance Formation transition play with mean estimates for the six play attributes..... 182
Table 59: List of subplays in the Lance Formation transition play with estimates of ranges in percent for the six play attributes..... 185
Table 60: List of subplays in the Lance Formation transition play with calculated fractiles for in-place gas..... 188

Table 61: List of subplays in the lower unnamed member of the Fort Union Formation where the Waltman seal is present play with mean estimates for the six play attributes..... 191
Table 62: List of subplays in the lower unnamed member of the Fort Union Formation where the Waltman seal is present play with estimates of ranges in percent for the six play attributes..... 194
Table 63: List of subplays in the lower unnamed member of the Fort Union Formation where the Waltman seal is present play with calculated fractiles for in-place gas..... 197
Table 64: List of subplays in the lower unnamed member where the Waltman seal is absent play with mean estimates for the six play attributes..... 200
Table 65: List of subplays in the lower unnamed member where the Waltman seal is absent play with estimates of ranges in percent for the six play attributes..... 202
Table 66: List of subplays in the lower unnamed member where the Waltman seal is absent play with calculated fractiles for in-place gas..... 203
Table 67: List of mean in-place gas and the five fractiles for in-place gas for each of the 22 plays in the Wind River Basin..... 204

AN ASSESSMENT OF IN-PLACE GAS RESOURCES IN LOW-PERMEABILITY UPPER CRETACEOUS AND LOWER TERTIARY SANDSTONE RESERVOIRS, WIND RIVER BASIN WYOMING

by

Ronald C. Johnson, Thomas M. Finn, Robert A. Crovelli, and Richard H. Balay

ABSTRACT

A volumetric approach was used to estimate in-place gas in the Upper Cretaceous through lower Tertiary age basin-centered, low-permeability gas accumulation in the Wind River Basin of central Wyoming. The accumulation was subdivided into a total of 22 plays. Eight different stratigraphic units were considered. These units were then subdivided into as many as three plays based on variations in thermal maturity, present-day formation temperatures, and in the case of the lower member of the Paleocene Fort Union Formation, the presence or absence of an overlying shale seal. Highly overpressured plays occur where present-day formation temperatures exceed 300° F. Pressure gradients in these plays average about 0.73 pound per square inch per foot of depth (psi per ft). Moderately overpressured plays (0.52 psi/ft average pressure gradient) occur where present-day thermal maturity using vitrinite reflectance is 1.1% or greater. Transition plays occur where present-day vitrinite reflectance values are between 1.1% and 0.73%. These plays include a combination of tight gas reservoirs, gas reservoirs with conventional permeabilities, and water-bearing reservoirs,

The lower member of the Paleocene Fort Union Formation, the stratigraphically youngest unit included in the basin-centered gas accumulation, is unique in that gas occurs where thermal maturates are as low as a vitrinite reflectance of 0.5 to 0.6%. The overlying lacustrine Waltman Shale Member of the Fort Union Formation appears to be acting as a seal inhibiting the vertical migration of gas out of the basin-centered accumulation. The lower member was divided into two plays, the first where the overlying Waltman Shale is present, and the second where the lacustrine shale has been replaced marginward by deltaic and fluvial deposits. The seal is assumed to be absent in the second play.

A combination of overburden maps and isopach maps of total sandstone in beds 10 ft thick or greater is used to subdivide each play into as many as 120 subplay areas, each with a unique sandstone thickness and average depth. Point estimates were made of each attribute for each subplay using the maps, and a point estimate or mean estimate of in-place gas for each subplay was then calculated. The gas in-place in each of the subplays in a play was summed to derive a mean estimate of total gas in-place for a play. Estimates were then made of the ranges for each play attribute at the 95th and 5th percentile levels. The attributes were treated as independent continuous random variables, and ranges of gas in-place for each subplay were then calculated using probability theory. The subplays were aggregated assuming perfect positive correlation to calculate the range of gas in-place for each play. Finally, all of the plays were

aggregated assuming perfect positive correlation to assess the total in-place gas in all of the plays in the Wind River Basin.

Estimates of mean gas in-place for the twenty two plays are: 1) Upper Cretaceous Frontier Formation highly overpressured- 118. trillion cubic feet (tcf); 2) Frontier moderately overpressured- 29.2 tcf; 3) Frontier transition- 3.95 tcf; 4) Upper Cretaceous Cody Shale highly overpressured- 30.6 tcf; 5) Cody moderately overpressured- 19.2 tcf; 6) Cody transition- 1.97 tcf; 7) Fales Sandstone Member of the Upper Cretaceous Mesaverde Formation highly overpressured- 1.18 tcf; 8) Fales moderately overpressured- 7.31 tcf; 9) Fales transition- 0.54 tcf; 10) marginal marine part of the Mesaverde Formation highly overpressured- 34.7 tcf; 11) marginal marine Mesaverde moderately overpressured- 17.2 tcf; 12) marginal marine transition- 3.84 tcf; 13) nonmarine part of the Mesaverde Formation highly overpressured- 48.9 tcf; 14) nonmarine Mesaverde moderately overpressured- 71.8 tcf; 15) nonmarine transition- 17.4 tcf; 16) Upper Cretaceous Meeteetse Formation highly overpressured- 51.3 tcf; 17) Meeteetse moderately overpressured- 59.7 tcf; 18) Meeteetse transition- 12.5 tcf; 19) Upper Cretaceous Lance Formation moderately overpressured- 316 tcf; 20) Lance transition- 48.9 tcf; 21) lower member of the Paleocene Fort Union Formation where Waltman Shale is present- 83 tcf; and 22) lower member where Waltman is absent- 18.2 tcf. Mean total in-place gas for all twenty two plays in the Wind River Basin is 995 tcf. There is a 95% chance of at least 603 tcf of gas in-place and a 5% chance of as much as 1,530 tcf of gas in place.

INTRODUCTION

The Wind River Basin is a complex structural and sedimentary basin formed during the Laramide orogeny in latest Cretaceous through early Eocene time (Figure 1) It is bounded on the north by the Absaroka Range, Owl Creek Mountains, and Bighorn Mountains; on the east by the Casper Arch; on the south by the Granite Mountains; and on the west by the Wind River Range. The Wind River Basin is asymmetrical, with the deep trough adjacent to the east-west trending Owl Creek Mountains, which were uplifted and thrust southward over the sedimentary basin. The west and southwest margins dip fairly gently away from the Wind River Range and the south margin dips away from the Granite Mountains. Numerous northwest-trending anticlines, many of which are bounded by reverse faults, occur along the basin margins (Johnson and others, 1996, Plate 1).

The Wind River Basin is one of several Rocky Mountain basins that contain significant resources of gas in very low-permeability (tight) sandstone reservoirs of Cretaceous and Tertiary age (Figure 2). Tight gas reservoirs have an in-situ permeability to gas of 0.1 (md) or less and cover vast areas of the structurally deeper parts of these Rocky Mountain Basins. These accumulations differ from conventional hydrocarbon accumulations in that they (1) cut across stratigraphic units, (2) commonly are structurally down dip from more permeable water-filled reservoirs, (3) have no obvious structural and stratigraphic trapping mechanism, and (4) commonly are either overpressured or underpressured. The abnormal pressures of these reservoirs indicate that water in hydrodynamic equilibrium with outcrop is not the pressuring agent.

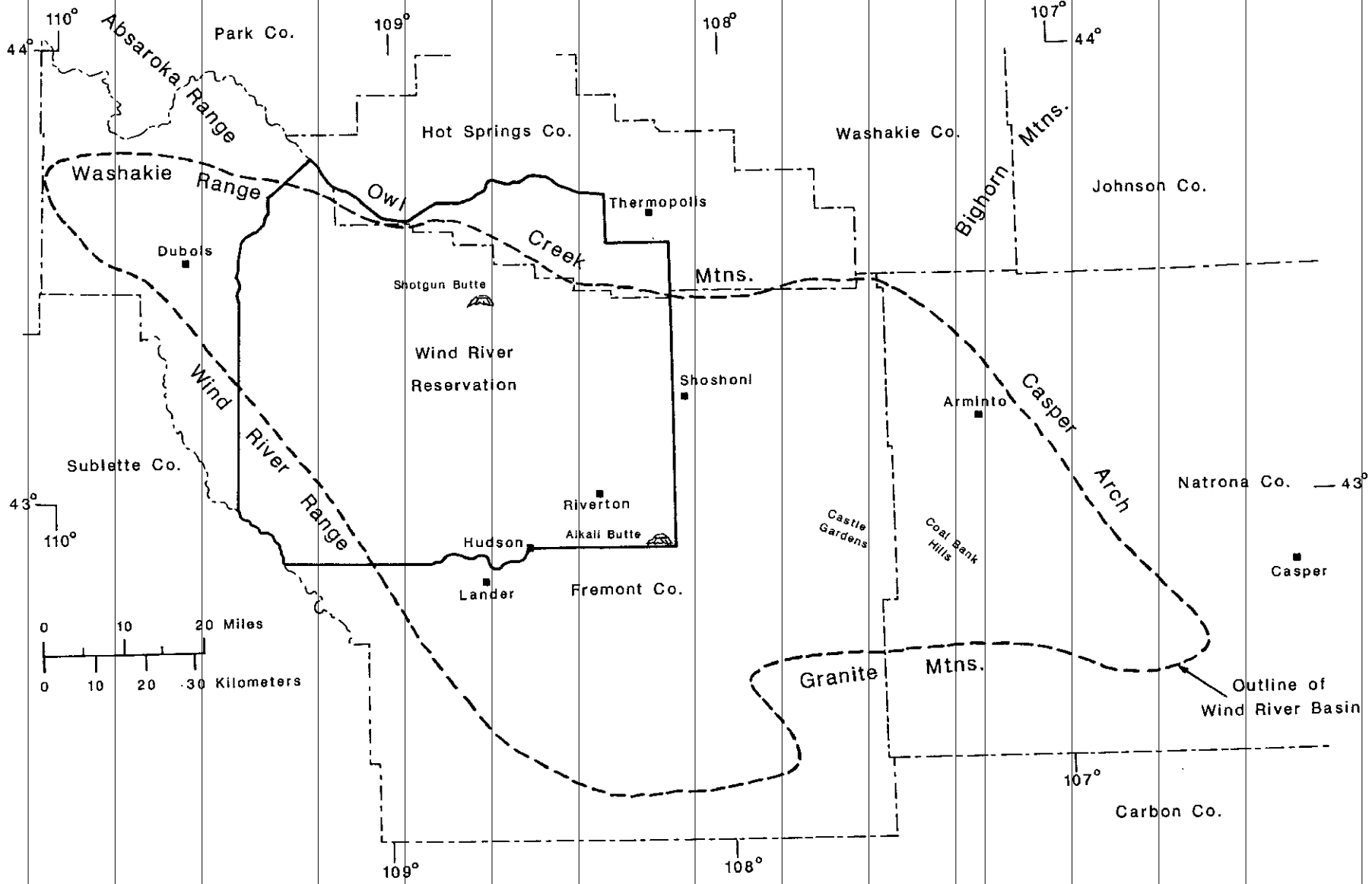


Figure 1: Index map showing location of Wind River Basin and surrounding uplifts. Location of Wind River Reservation is also shown.

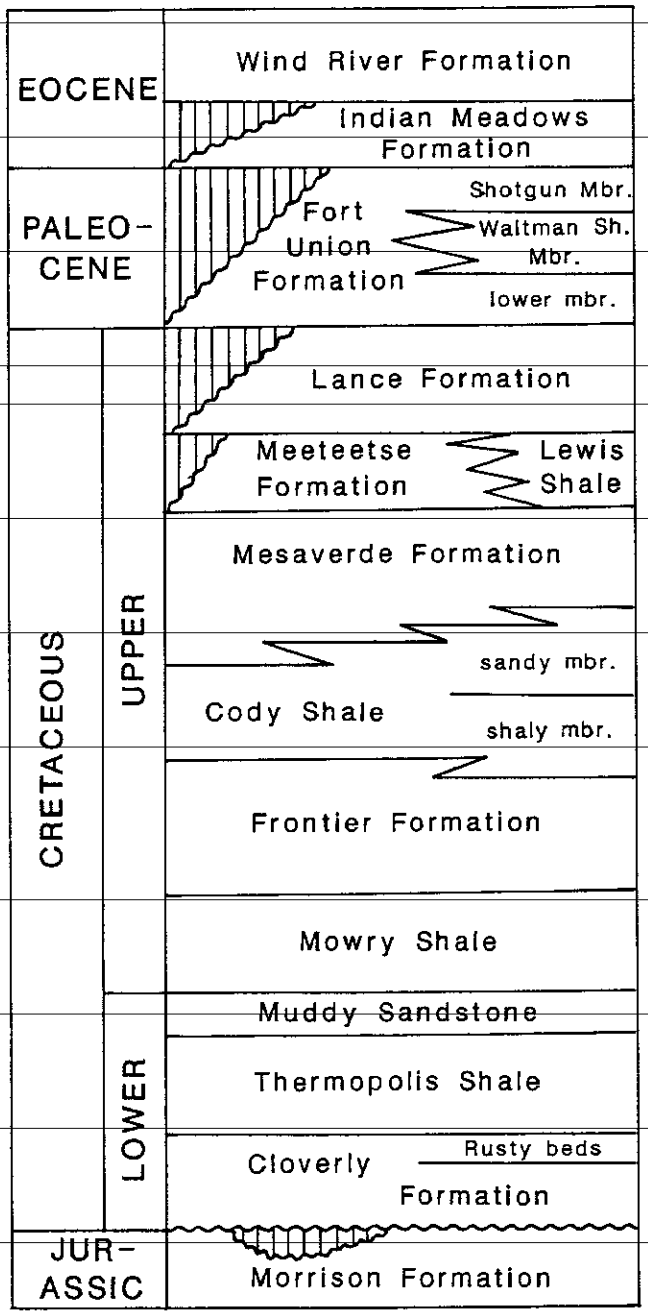


Figure 2: Generalized stratigraphic chart of Cretaceous and Lower Tertiary rocks, Wind River Basin, Wyoming.

Instead, hydrocarbons within the tight reservoirs are thought to pressure these rocks (Spencer, 1987).

Masters (1979) was one of the first to study these unique deposits, which occur downdip from more permeable, water-wet rocks, and proposed that gas generated in the deep, thermally mature areas of sedimentary basins is inhibited from migrating upwards and out of the basin by a capillary seal. Masters pointed out that low-permeability rocks (1 md), with 40% water saturation, are only three-tenths as permeable to gas as they are to water, and at 65% water saturation, the rock is almost completely impervious to the flow of gas. The concepts for the development of basin-centered gas accumulations in the Rocky Mountains has been further refined by a number of workers such as Jiao and others (1993), Meissner (1980; 1981; 1984), Mcpeek (1981), Law and others (1979; 1980), Law and Dickenson (1985), MacGowan and others (1993), Spencer and Law (1981), Spencer (1985), and Yin and Surdam (1993). In general, these models suggest that overpressuring in these basin-centered accumulations is a result of volumetric increases during hydrocarbon generation by the coals, carbonaceous shales and marine shales that are interbedded with the sandstone reservoir rocks, and that migration distances from source rock to reservoir rock is not great. Much of the water that fills the pore spaces is driven out of these basin-centered hydrocarbon accumulations as the hydrocarbons are generated. The capillary seal is activated as gas replaces water in the pore space, and hence the basin-centered gas accumulations seal themselves as they form. Some workers believe that these seals are so efficient that they may be able to maintain abnormally high pressures for tens of millions of years (MacGowan and others, 1993). An overpressured accumulation can evolve into one that is underpressured if a basin undergoes significant cooling.

Since 1977, the U.S. Department of Energy (DOE) has supported the U.S. Geological Survey in its comprehensive tight-gas sand research in Rocky Mountain basins such as the Uinta Basin of Utah and Colorado, the Piceance Basin of Colorado, the Greater Green River Basin of Wyoming, Colorado, and Utah, and most recently, the Wind River Basin of Wyoming. A geologic summary of the Upper Cretaceous and Paleocene age tight gas sands interval in the Wind River Basin was recently published (Johnson and others, 1996). The purpose of this report is to assess the gas in-place (GIP) in the basin-centered tight gas interval of the Wind River Basin. The geologic framework needed for this assessment was described in the geologic summary report, and many of the maps in this assessment rely on information from the summary report.

DEFINING THE LIMITS OF BASIN-CENTERED HYDROCARBON ACCUMULATIONS

In order to estimate GIP resources in a basin-centered gas play the limits or boundaries of the accumulation must first be defined. These limits can be fairly well defined in heavily drilled areas using mud-log gas shows, results from drillstem and perforation tests, and geophysical well log analysis. Basin-centered gas accumulations are characterized by nearly continuous shows in mud logs (Masters, 1979; 1984), and mud logs are typically more reliable than geophysical logs in helping to define gas

productive intervals (Dunleavy and Gilbertson, 1986; Reinecke and others, 1991). Drillstem tests are useful in defining basin-centered hydrocarbon accumulations in that they can detect zones of overpressuring and underpressuring. A change in sonic log response has been used to define overpressured conditions in shales (Surdam and others, 1994).

Although all Rocky Mountain basin-centered gas accumulations share many characteristics in common, each basin is unique in many ways. Because of these unique characteristics a "rule of thumb" developed to help define the limits of a basin-centered gas accumulation in one basin may not work well in another. A good understanding of the basic geologic framework of a particular basin can be very helpful. The Cretaceous and lower Tertiary basin-centered gas accumulation in the Wind River Basin is sparsely drilled when compared to other Rocky Mountain basins such as the Piceance Basin, San Juan Basin and Greater Green River Basin. Many gas fields are single well fields (Figure 3) that have never been connected to a pipeline and produced. The sparse drillhole information makes defining the limits of the basin-centered accumulation in the Wind River Basin a challenge. Only a few permeability measurements from core have been published, and none of these measurements were made under in-situ pressure conditions. Available drillstem tests in the basin are too sparse to define the limits of the basin-centered accumulation throughout the basin.

All geologic formations in the Upper Cretaceous through lower Tertiary interval in the Wind River Basin have produced gas somewhere in the basin, however, much of this production is from reservoirs which clearly have conventional permeabilities. Many units in the basin, including the Upper Cretaceous Mesaverde, Meeteetse, and Lance Formations, and the Paleocene Fort Union Formation, were designated as tight in the 1980s and early 1990s when a tax credit was given for gas produced from tight formations. The most compelling evidence for a widespread basin-centered hydrocarbon accumulation in the Wind River Basin is the high mudweights universally used while drilling deep tests in the basin. These high mudweights indicate that moderately overpressured to highly overpressured conditions are pervasive throughout the deep central part of the basin. Three different methods in this study were used to try to define the limits of the basin-centered accumulation: 1) hydrocarbon shows and mudweights from mud logs; 2) thermal maturity variations; and 3) present-day formation temperature variations. and the onset of sustained gas shows on mud logs has generally been more reliable than geophysical logs in defining the top of basin-centered gas accumulations (Dunleavy and Gilbertson, 1986, p. 111-113; Reinecke and others, 1991, p. 218).

Using gas shows from mudlogs to define the limits of the basin-centered gas accumulation

Mudlogs are not widely distributed and are not routinely made available to the public, and most of the mudlogs used in this study were obtained by contacting oil and gas producers directly. We would like to thank these producers for providing us with this valuable information. The Waltman Shale Member of the Fort Union Formation covers much of the central part of the basin (Figures 2 and 4) and is a key stratigraphic marker in this discussion. In the area where the Waltman is present, very few gas shows occur in the largely fluvial and deltaic Eocene and Paleocene interval above the Waltman and few gas shows occur within the largely low permeability shales of the Waltman.

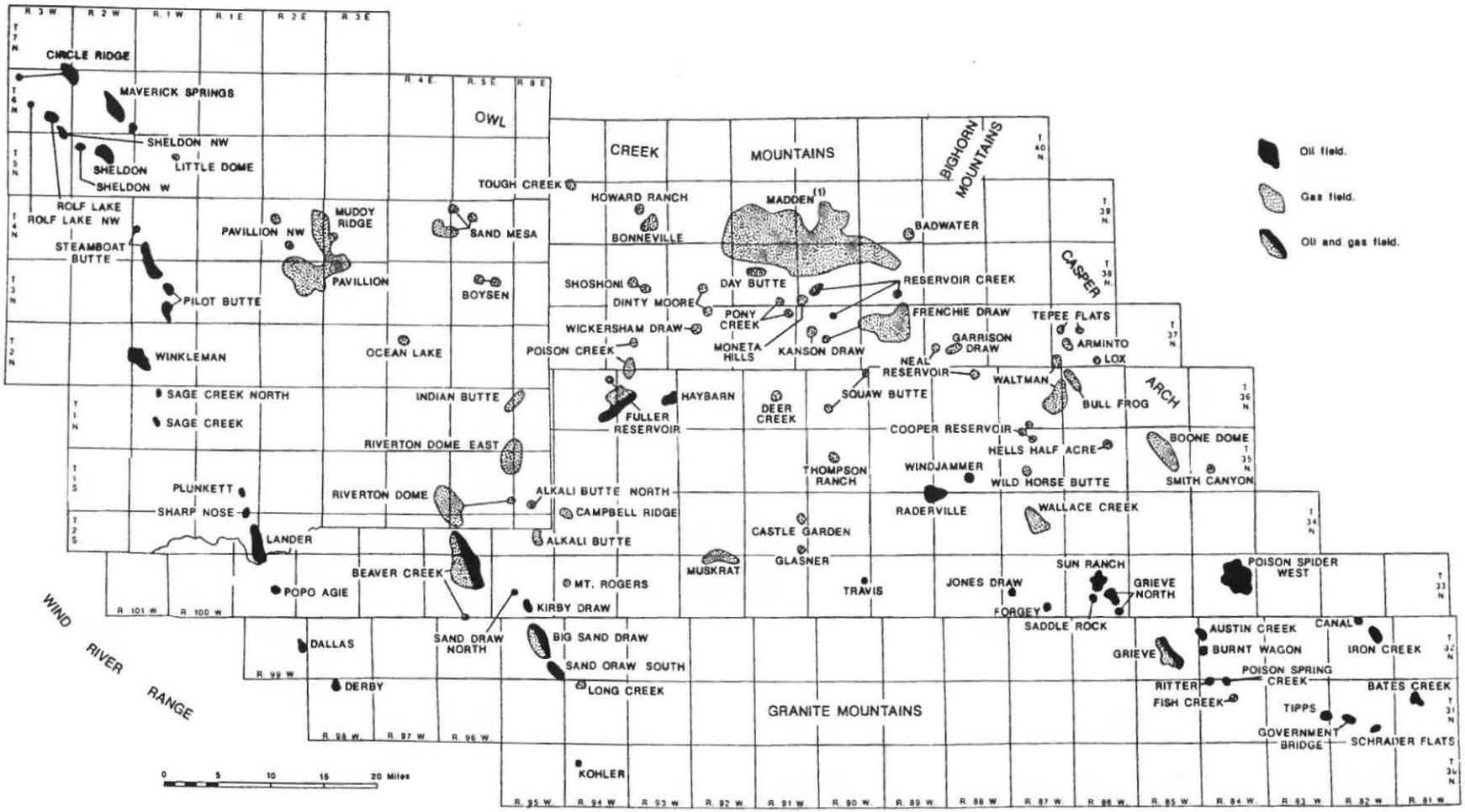


Figure 3: Map showing locations of oil and gas fields in the Wind River Basin that produce gas from Upper Cretaceous and Lower Tertiary rocks. Modified from De Bruin and Hostetler (1991).

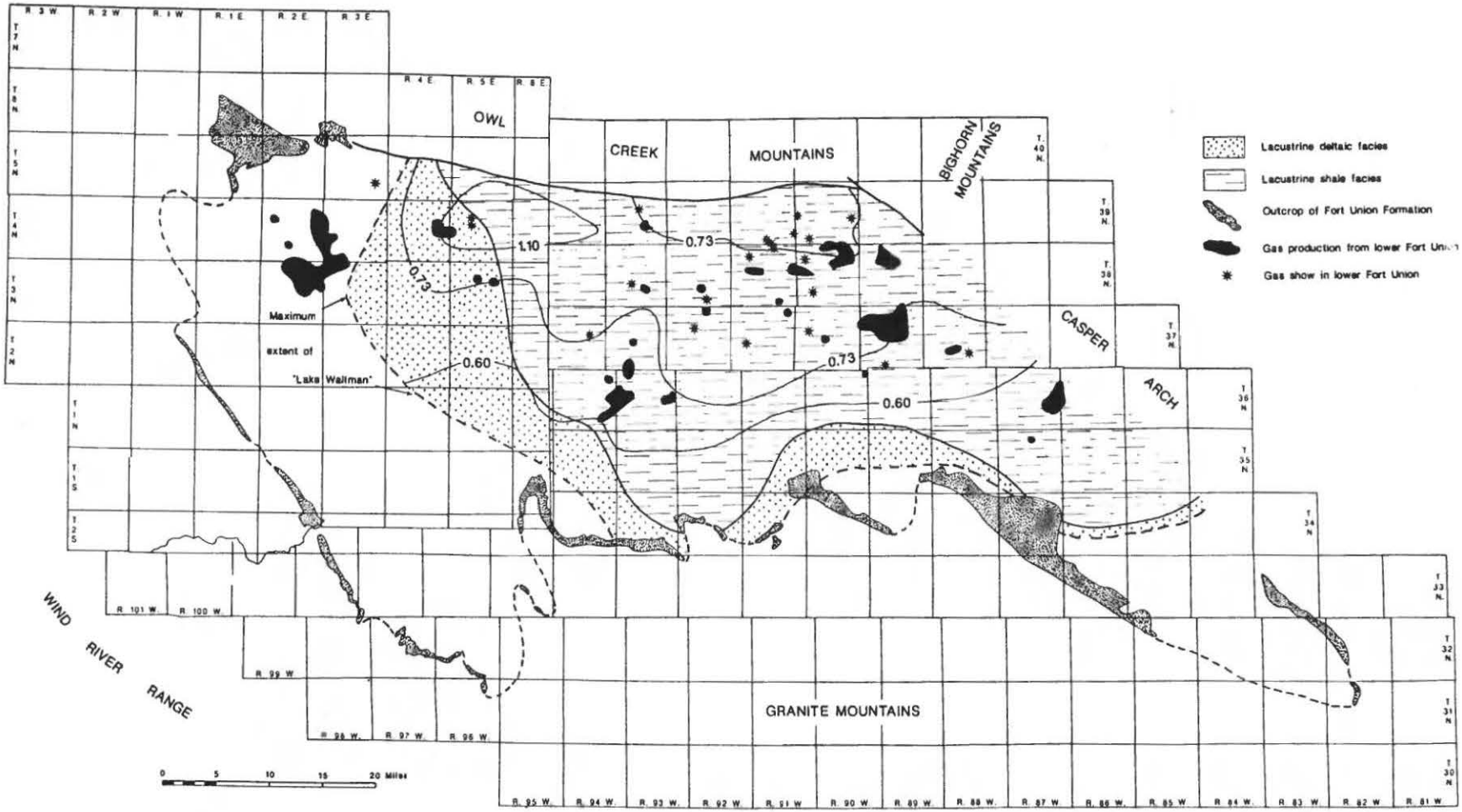


Figure 4: Map showing extent of the Waltman Shale Member of the Paleocene Fort Union Formation and correlative deltaic rocks. Gas production and gas shows in the underlying lower unnamed member of the Fort Union are also shown. Vitrinite reflectance levels at the base of the Waltman are also shown (from Nuccio and Finn, in press).

Hydrocarbon production from the Waltman Shale and above is confined to a few small oil and gas fields. Significant gas shows, however, occur throughout the sandstones, shales, and coals of the underlying lower unnamed member of the Fort Union Formation, and this interval is gas productive in many areas throughout the basin (Figure 4). These results are consistent with the Waltman Shale acting as a regional seal inhibiting the vertical migration of gas throughout the central part of the basin. Little data are available for the areas of the basin where the Waltman is absent, but the limited data supports the lack of a regional seal in these areas. In the Pavillion and Muddy Ridge fields area, west of the pintchout of the Waltman Shale (Figure 3), gas shows occur scattered throughout the Paleocene and Eocene interval, and the Pavillion field has produced large amounts of gas from the Eocene Wind River Formation at depths of as shallow as less than 2,000 ft.

Recent work on the chemical and isotopic compositions of gases in the Wind River Basin by Johnson and Rice (1993) supports the concept that the Waltman Shale is acting as a regional seal. At Fuller Reservoir field in the west-central part of the basin (Figure 3), nonassociated gases from below the Waltman Shale are distinctively heavier isotopically than the small amounts of associated gas produced with heavy waxy oil from deltaic sandstones within the Waltman. The heavy gases probably were generated by the carbonaceous shales and coal beds in the lower member or migrated vertically from more mature Upper Cretaceous age source rocks below. Vertical migration of gases is also apparent at Madden field in the north-central part of the basin (Figure 3). Gases change little isotopically through 12,000 ft of section beneath the Waltman Shale. Gases produced from the lower Eocene Wind River Formation at Pavillion field west of the pinchout of the Waltman Shale, in contrast, are isotopically heavy and similar to gases produced from deeper, Paleocene and Upper Cretaceous age formations in the area; these gases probably migrated vertically into Wind River reservoirs from deeper, more mature source rocks. Johnson and others (1994a; 1994b) cite other examples in other Rocky Mountain basins where gases in shallow thermally immature reservoirs were apparently sourced by deeper more mature source rocks.

Shale seals are seldom mentioned in conjunction with basin-centered hydrocarbon accumulations. However, Masters (1984, p. 10) stressed the importance of the Lower Cretaceous Joli Fou Shale as a regional seal inhibiting the vertical migration of hydrocarbons out of the basin-centered hydrocarbon accumulation in the Alberta Deep Basin. The presence of the regional Waltman seal in the Wind River Basin appears to be responsible for extending the boundaries of the basin-centered gas accumulation into strata with thermal maturities lower than typically found. Nuccio and Finn (in press) show thermal maturities as low as a vitrinite reflectance (Rm) of 0.5 to 0.6 in the upper part of the lower unnamed member of the Fort Union Formation beneath the Waltman in the Wind River Basin.

Using mudweights to define limits of overpressuring in a basin-centered gas accumulation

Basin-centered gas accumulations can be both underpressured and overpressured. Underpressured reservoirs are hard to detect using mudweights because drillers seldom drill underbalanced; however, high mud weights used during drilling are generally an

indication of overpressure conditions. Extremely tight formations, however, can be drilled using normal weight muds without dire consequences, and overpressuring is not detected until a permeable bed or a fracture is encountered. Hence plotting the point at which mud weights are increased during drilling in a basin will generally define the minimum extent of an overpressured pocket. Mud logs for wells in the Wind River Basin were acquired from data files and from oil and gas companies operating in the basin. Figure 5 shows the elevations at which mud weights of 10-lb per gallon, representing mild overpressuring, and 12-lb per gallon, representing moderate overpressuring, were first used while drilling. These elevations were derived by subtracting drilling depth from sea level. Clearly there is a need for more mud weight data in the basin but some general trends are apparent. Elevations where 10-lb mud was first used generally fall between -5,500 and -8,500 ft except on Madden Anticline where 10 lb mud was used at elevations of +290 to -1,935 ft and in some wells along the north margin of the basin where 10 lb mud was not first used until elevations of from -11,000 to -12,395 ft. Overpressuring on Madden Anticline begins at the base of the Waltman Shale, further evidence of the importance of the Waltman as a seal against the vertical migration of gas.

Overpressuring at relatively shallow depths has traditionally been attributed to 1) the inability of formation water to be expelled fast enough during subsidence and compaction (compaction disequilibrium); and 2) a long gas column. The first usually occurs in young, rapidly subsiding basins such as the present-day Gulf Coast and would not be applicable here. The second requires a single long continuous gas column in contact with an underlying column of water, a situation which commonly occurs on large closed structures such as the Madden Anticline in the northern part of the Wind River Basin (Plate 1). A long gas column seems unlikely at Madden Anticline, however, and there are many indications that the lower member of the Fort Union Formation beneath the Waltman Shale at Madden is part of the tight, basin-centered gas accumulation. The lower member is about 3,000 to 3,500 ft thick at Madden yet every sandstone tested is capable of producing some gas; and recent completions are still encountering virgin reservoir pressures (Ron Baugh, personnel communication, Sept., 1995). In addition, a single water column does not appear to underly the anticline. According to Schmitt (1975) water has been recovered from as little as 200 ft below the crest of the anticline which has over 1,000 ft of closure at the lower Fort Union level (Plate 1). Trying to define potentially productive intervals in the lower member at Madden using geophysical logs has proven unreliable (Dunleavy and Gilbertson, 1986, p.111-112), another common characteristic of low-permeability reservoirs. Unfortunately there are no reliable permeability data available for the lower member of the Fort Union Formation at Madden (Brown and Shannon, 1989).

Twelve pound mud was first used generally between elevations of -10,000 and -12,700 ft (Figure 5) except on the Madden Anticline where 12 lb mud was used at somewhat higher elevations and along the north margin of the basin where 12 lb mud was used at somewhat lower elevations. Figures 6 and 7 are schematic north-south and east-west cross sections through the basin showing the approximate positions were 10 lb and 12 lb mud were used. The shallow depth for the onset of overpressuring on Madden

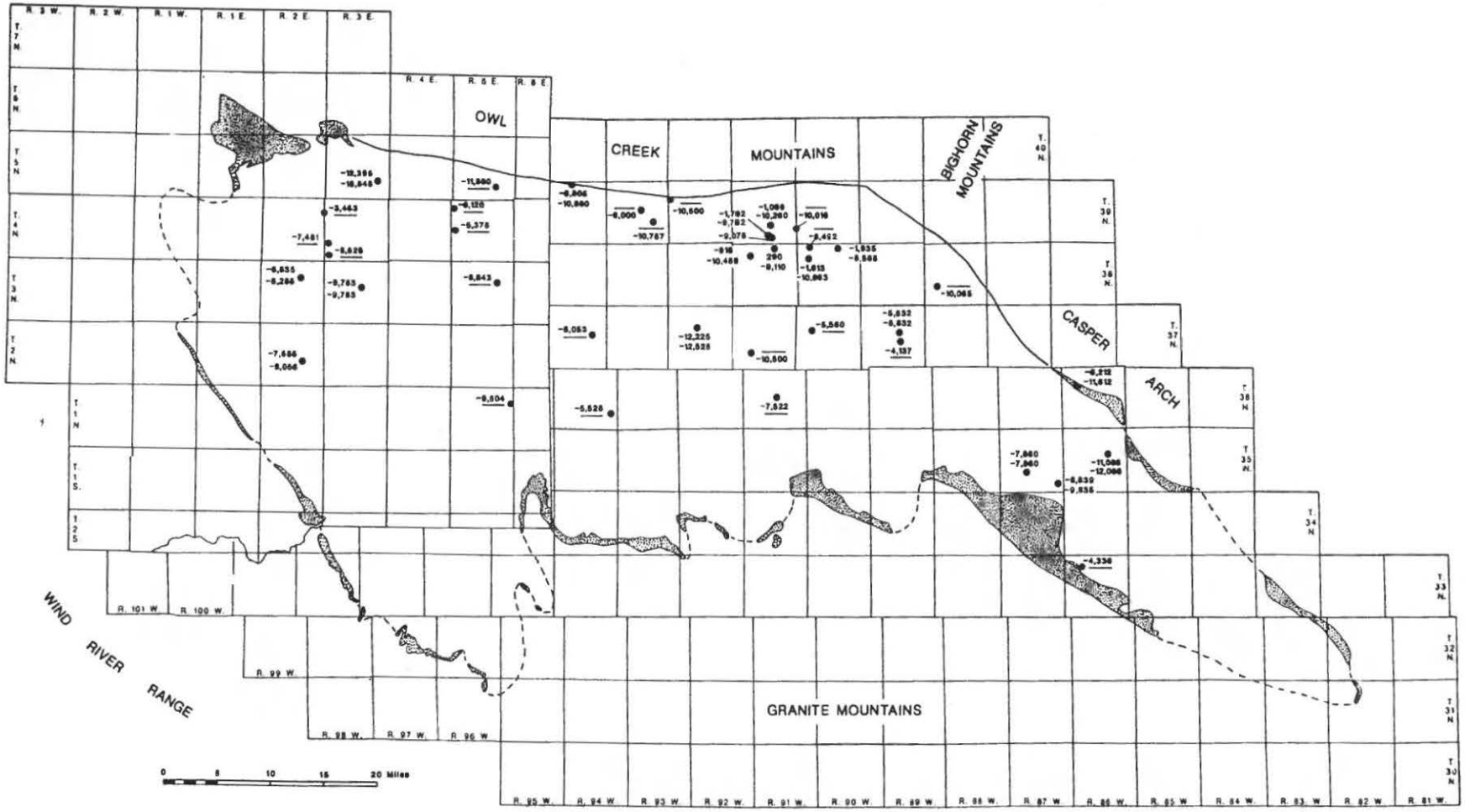


Figure 5: Map of the Wind River Basin showing elevations in feet at which 10 lb per gallon mud (upper number) and 12 lb per gallon mud (lower number) were first used during drilling. Queried where data is poor. Dashed line indicates that position where 10 lb or 12 lb mud was first used could not be determined.

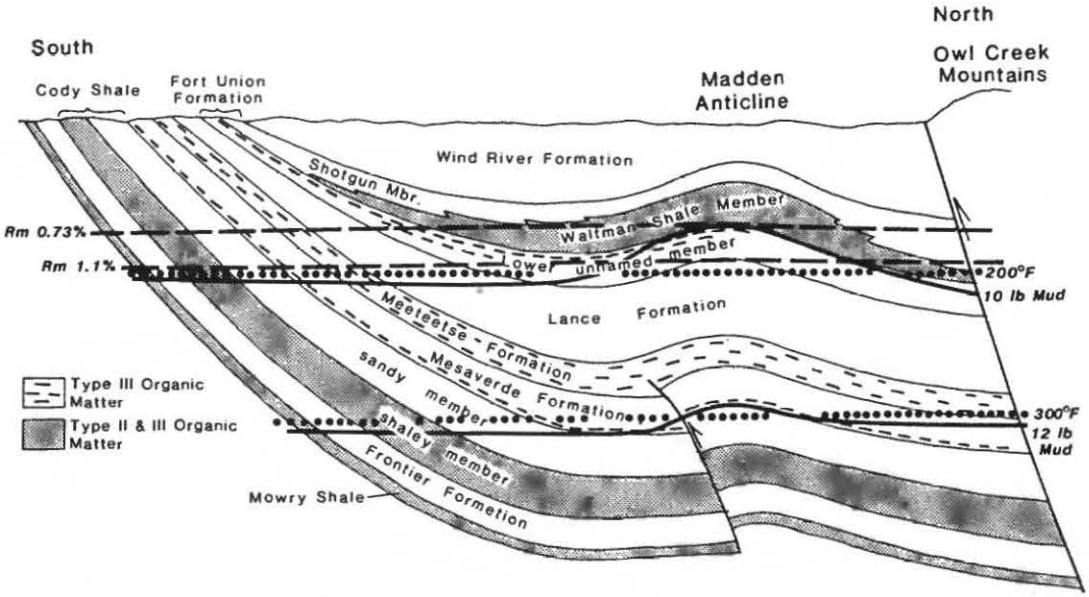


Figure 6: Schematic north-south cross section through the Wind River Basin, Wyoming showing Upper Cretaceous and Lower Tertiary stratigraphic units, potential source rocks, approximate positions where 10 lb and 12 lb mud were first used during drilling, approximate positions of Rm. 0.73% and Rm 1.1% vitrinite reflectance levels, and approximate positions of 200° F and 300° F present-day isotherms.

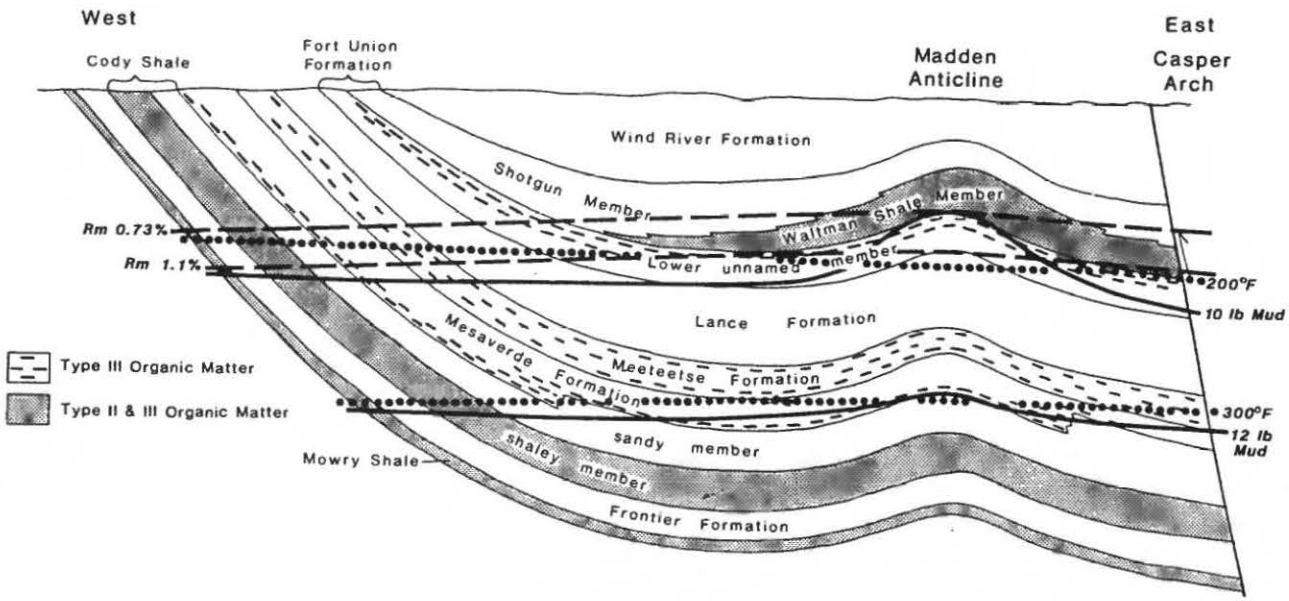


Figure 7: Schematic east-west cross section through the Wind River Basin, Wyoming showing Upper Cretaceous and Lower Tertiary stratigraphic units, potential source rocks, approximate positions where 10 lb and 12 lb mud was first used during drilling, approximate positions of Rm. 0.73% and Rm 1.1% vitrinite reflectance levels, and approximate positions of 200° F and 300° F present-day isotherms.

Anticline is clearly anomalous when compared to the onset of overpressuring in the rest of the basin.

Using levels of thermal maturity to help define the basin-centered gas accumulation

Levels of thermal maturity define areas where potential source rocks have generated gas at some time in the past and are commonly used as an indirect method of defining the limits of a basin-centered gas accumulation. Masters (1984, p. 27, Fig. 25) in a study of the basin-centered gas accumulation in the Deep Basin of Alberta, indicated that an Rm of 1.0% corresponds approximately to the limit of the accumulation. In the Piceance Basin of western Colorado, Johnson and others (1987) used a vitrinite reflectance (Rm) of 1.1% to define the limits of the basin-centered gas accumulation, while an Rm of from 0.73 to 1.1% was used to define a transition zone containing both tight reservoirs and reservoirs with conventional permeabilities. In the Greater Green River Basin of Wyoming, Colorado, and Utah, Law and others (1989) used an Rm of 0.80% to define the top of overpressuring in the basin-centered gas accumulation.

The approximate elevations of the Rm 0.73% and Rm 1.1% levels in the Wind River Basin are shown on Figures 8 and 9. The diagrams are from Johnson and others (1996), and Nuccio and others (1996). Much of the Rm data used to construct these diagrams are from Pawlewicz (1993). Additional data are from Nuccio and others (1996). The elevations for these two Rm levels are highest in the central part of the basin and lowest in the western and eastern parts. The Rm 0.73% and Rm 1.1% are also plotted on the schematic north-south and east-west cross sections (Figures 6 and 7). The position of the Rm 1.1% thermal maturity level is approximately 1,000 to 2,000 ft above the 10 lb mud level throughout much of the basin except at Madden Anticline, where it dips below the 10 lb mud level, and in the western part of the basin where the 10 lb mud level and the position of the Rm 1.1% level are nearly the same. The elevation of the Rm 0.73% thermal maturity level varies from about 3,000 ft above the 10 lb mud level in the eastern and western parts of the basin to about the same as the 10 lb mud level at Madden Anticline in the central part.

Using present-day formation temperatures to help define the basin-centered gas accumulation

Rates of present-day gas generation by source rocks are directly related to temperature, and present-day formation temperatures have been used to help define the boundaries of basin-centered gas accumulations. Spencer (1989) suggested that rates of gas generation need to exceed rates of gas loss in order to maintain abnormally high pressures in Rocky Mountain basin-centered gas accumulations, and that this balance generally occurs at present-day formation temperatures of about 200° F or greater. A corrected geothermal gradient map of the basin, recently constructed by Pawlewicz (1993), showed that present-day gradients vary irregularly across the basin from less than 1.2° F/100 ft to over 2.0° F/100 ft. Geothermal gradients are on average somewhat

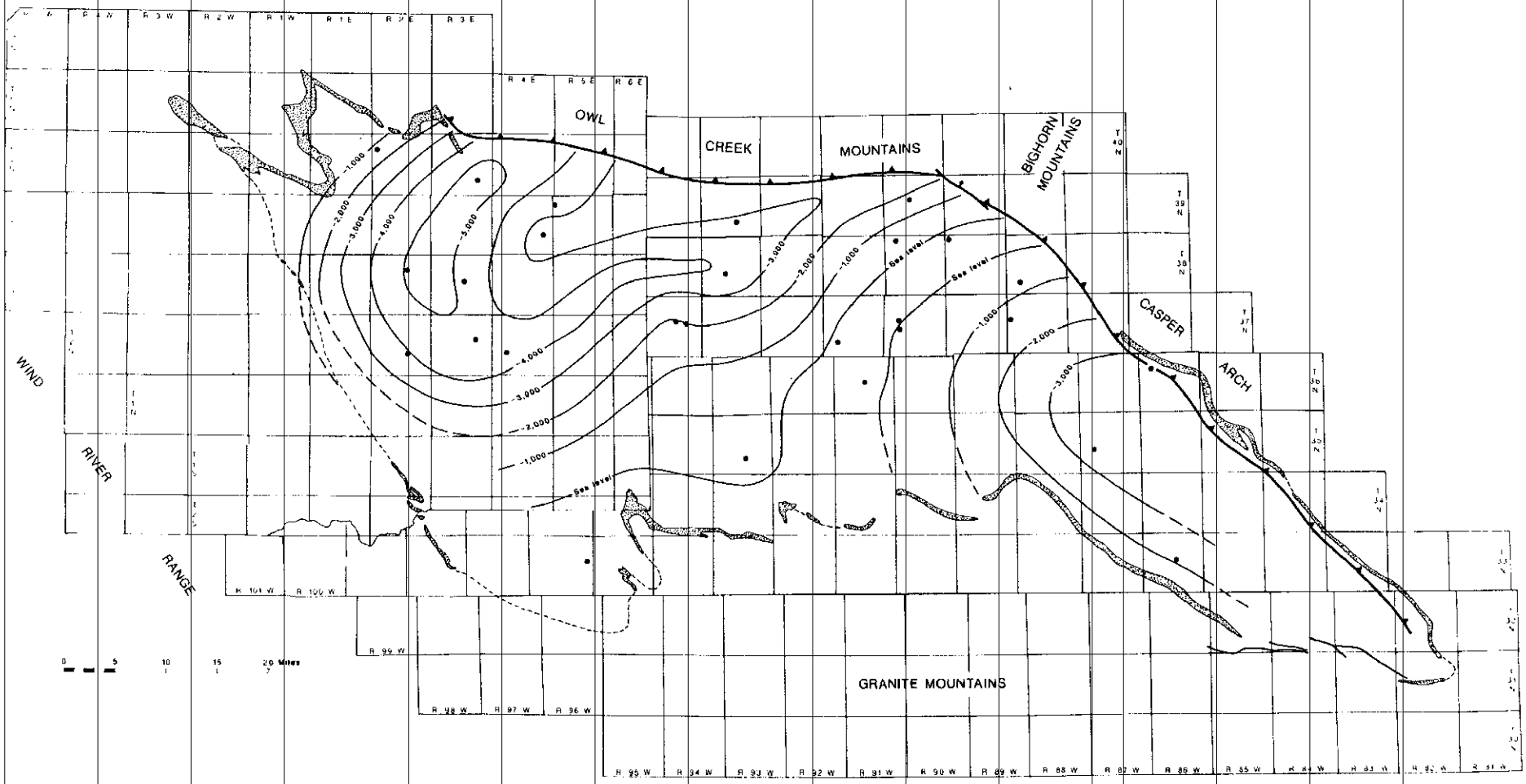


Figure 8: Map showing approximate elevation of the Rm 0.73% vitrinite reflectance level in the Wind River Basin. Contour interval: 1,000 ft. Data from Pawlewicz (1993) and Nuccio and others (1996).

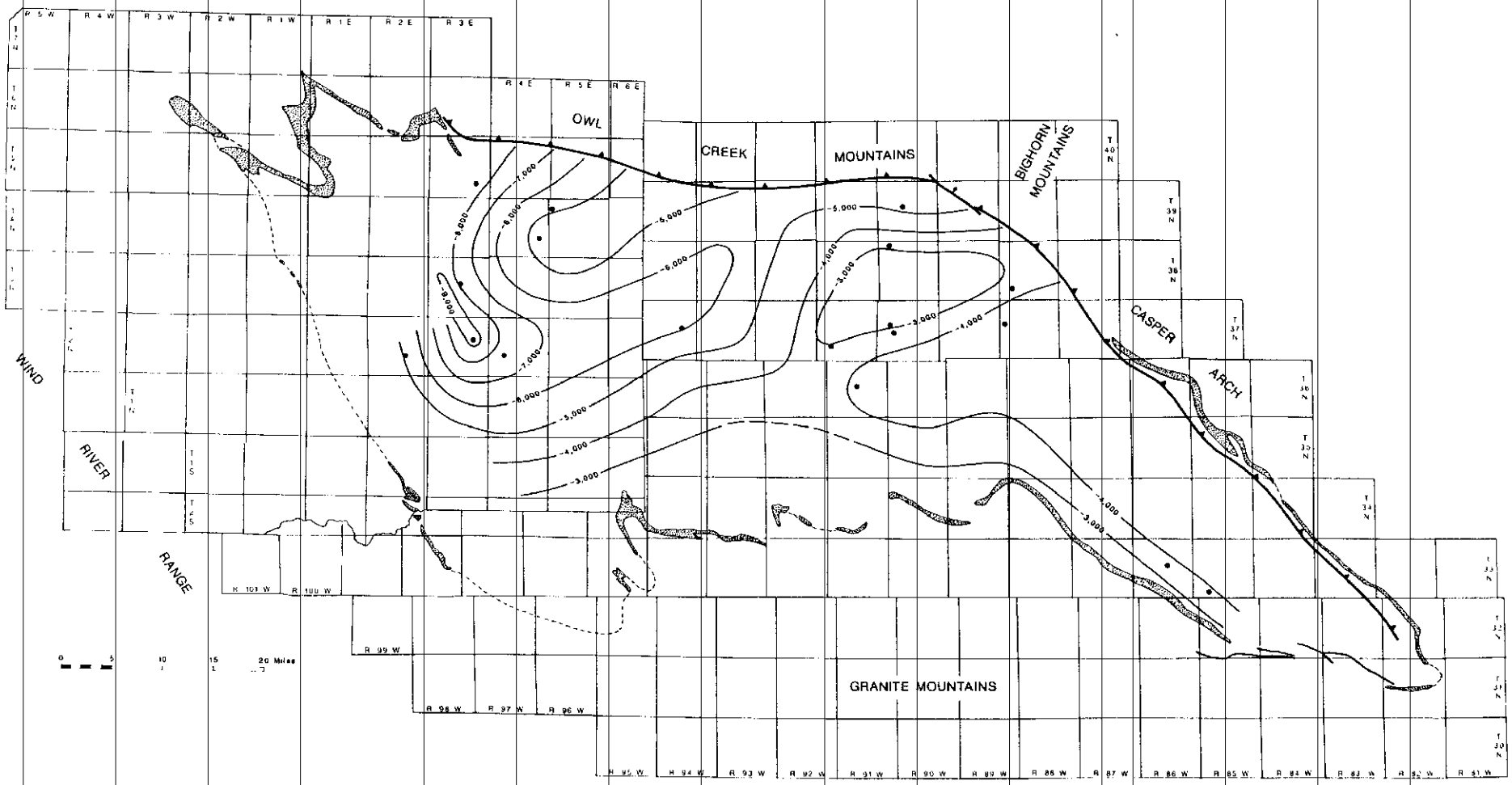


Figure 9: Map showing approximate elevation of the Rm 1.1% vitrinite reflectance level in the Wind River Basin. Contour interval: 1,000 ft. Data from Pawlewicz (1993) and Nuccio and others (1996).

higher in the central part of the basin where elevations of the Rm 0.73 and Rm 1.1 thermal maturity levels are greatest (Figures 8 and 9) but there is considerable scatter.

The geothermal gradient map of Pawlewicz (1993) was used to determine the approximate positions of two isotherms, the 200° F and the 300° F on the two schematic cross sections (Figures 6 and 7). The isotherms are not greatly affected by present-day topographic variations because topographic relief in the basin is fairly subdued. On both cross sections, the 300° F isotherm fairly closely follows the 12 lb mud weight line. The 200° F isotherm closely follows the Rm 1.1% level on the north-south cross section in the central part of the basin. However, on the east-west cross section, the distance between the 200° isotherm and the Rm 1.1% level increases towards the east and west end of the basin. Because variations in present-day thermal gradients do not closely follow variations in thermal maturity throughout the basin, it is likely that thermal gradients in the basin have changed significantly since the presently observed thermal maturaties were established.

A comparison between variations in thermal maturity, present-day temperatures, and overpressuring as indicated by mud weights indicates that both the 200° F isotherm and the Rm 1.1% thermal maturity level fairly closely follow the limits of the overpressured pocket in the central part of the basin. However, toward the western margin of the basin, only the Rm 1.1% line fairly closely tracks the 10 lb mud line. This suggests that the position of the Rm 1.1% thermal maturity level in the basin may fairly closely correspond to the onset of overpressuring, and the top of the Rm 1.1% thermal maturity level is used here to define the limits of the overpressured basin-centered gas accumulation. The 300° isotherm is used to define the limits of the deep highly overpressured portion of the basin-centered accumulation. The transition zone, which includes low-permeability gas reservoirs, gas reservoirs with conventional permeabilities, and water charged reservoirs is defined as occurring between the Rm 0.73 and Rm. 1.1 thermal maturity levels. The gas plays are defined somewhat differently in the Paleocene Fort Union Formation because of the presence of the Waltman seal. Two plays are defined in the lower unnamed member of the Fort Union, one where the Waltman seal is present and the other where the Waltman is absent.

Limitations on using variations in thermal maturity to define the basin-centered gas accumulation

Although thermal maturity variations have been used to help define the limits of basin-centered gas accumulations in several Rocky Mountain basins, there are many limitations to this approach. These limitations were summarized by Johnson and others (1987) and will be reviewed here. Variations in lithology and environments of deposition can affect the limits of a basin-centered gas accumulation. In the Alberta Deep Basin, coarse-and permeable conglomeratic intervals are water-wet further into the basin than finer grained intervals (Masters, 1979). Environments of deposition can also have a major impact on the limits of the accumulation. Sandstones which are laterally persistent between outcrop and the basin-centered gas accumulation, tend to be water-wet further into the basin than sandstones which do not persist to outcrop. In the Piceance Basin of western Colorado, the regionally persistent regressive marine Rollins or Trout

Creek Sandstone appears to be water-wet even in the deepest part of the basin-centered gas accumulation (Johnson and others, 1987; Reinecke and others, 1991). In the Wind River Basin, marginal marine sandstones in the lower part of the Mesaverde Formation, and shelf sandstones in the upper part of the underlying Cody Shale are laterally persistent in a north-south direction (Johnson and others, in press) and may be subject to recharge along the south margin of the basin and appear to be water-bearing further into the basin than adjacent fluvial intervals. These facies variations are addressed in the probabilistic models used in the assessment by varying the percentage of sandstones that are assumed to be water-bearing. This will be discussed in more detail later.

Availability of rich source rocks can also impact a basin-centered gas accumulation. Law (1984), in his discussion of overpressuring in the Green River Basin, noted that pressures are less in organically lean intervals than organically rich intervals. MacGowan and others (1993) cited the lack of source rocks as a major reason why the Pennsylvanian Minnelusa Formation in the Powder River Basin is normally pressured while the overlying Cretaceous section is overpressured. Rich source rocks occur throughout the Upper Cretaceous and lower Tertiary interval in the Wind River Basin. They include in ascending order: 1) the Upper Cretaceous Mowry Shale (Type II and III organic matter); 2) the shaley member of the Upper Cretaceous Cody Shale (Type II and III organic matter); 3) the lower part of the Upper Cretaceous Mesaverde Formation (Type III organic matter); 4) the Upper Cretaceous Meeteetse Formation (Type III organic matter); 5) the coaly interval in the upper part of the lower unnamed member of the Paleocene Fort Union Formation (Type III organic matter); and 6) the Waltman Shale Member of the Fort Union Formation (Type II and III organic matter). These organic-rich zones are shown on the schematic cross sections (Figures 6 and 7). Some coal and carbonaceous shale also occur in the Upper Cretaceous Lance Formation.

PROBABILISTIC METHODOLOGY FOR GAS RESOURCE ASSESSMENT

Probabilistic methodology is developed for an assessment of the total in-place gas resources in the study area. The study area is subdivided into a set of geologic plays, and the separate plays are analyzed. Every play is partitioned geologically into parts, called subplays. Each subplay is assessed individually, and then all of the subplays of a play are aggregated to make an assessment of the overall play. Finally, all of the plays are aggregated for an assessment of the total in-place gas resources in the study area.

Each subplay is assessed individually using a reservoir engineering equation. The hydrocarbon-volume attributes (Table 1) are (1) area of subplay, (2) thickness of reservoir rock, (3) effective porosity, (4) trap fill, (5) hydrocarbon saturation, and (6) depth to reservoir. The hydrocarbon-volume attributes jointly determine the volume of the hydrocarbon accumulation within the subplay. The following reservoir engineering equation is used to calculate the in-place volume of gas in cubic feet:

$$\text{Gas in-place} = 1.5378 * 640 * A * H * P * F * S_h * P_e / (T * Z),$$

here

A = area of closure (square miles)
H = reservoir thickness (feet)
P = effective porosity (percent)
F = trap fill (percent)
S_h = hydrocarbon saturation (percent)
P_e = original reservoir pressure (psi)
T = reservoir temperature (degrees Rankine)
Z = gas compressibility factor (no units)

The equation consists of a product of factors that are functions of the hydrocarbon-volume attributes. The geologic variables P_e, T, and Z are each taken to be linear functions of reservoir depth D (feet) in the form $a * D + b$.

To obtain a point estimate of the in-place gas of a subplay, point estimates are made of the six attributes A, H, P, F, S_h, and D which may vary from subplay to subplay within a play. The parameters a and b for each of the variables P_e, T, and Z (i.e., three pairs of a and b) are estimated for a play, and the one set of parameter values is used in all subplays of the play. The point estimate of the in-place gas of a subplay is taken to be a mean estimate.

To obtain an interval estimate of the in-place gas of a subplay, estimates are made of the ranges (range = F5–F95) of the six attributes A, H, P, F, S_h, and D. Like the parameters a and b, there is only one set of ranges for a play that is used in all subplays of the play. The attributes are treated as independent continuous random variables. The probabilistic methodology used to process the geologic data is an analytic method derived from probability theory. The analytic methodology is developed by the application of the laws of expectation and variance. The methodology systematically tracks through the geologic model and computes all of the means and variances of the appropriate random variables. An estimate of the standard deviation of the in-place gas of a subplay is computed and varies from subplay to subplay. The lognormal distribution is used as a probability model in order to generate probability fractiles for gas in-place.

All of the means, standard deviations, and fractiles of the subplays of a play are aggregated, assuming complete dependency or perfect positive correlation, to make an assessment of the play. Finally, all of the plays are aggregated, assuming complete dependency, by applying a separate methodology for an assessment of the total in-place gas resources in the study area. This probabilistic methodology for gas resource assessment lends itself as an ideal application for spreadsheet software.

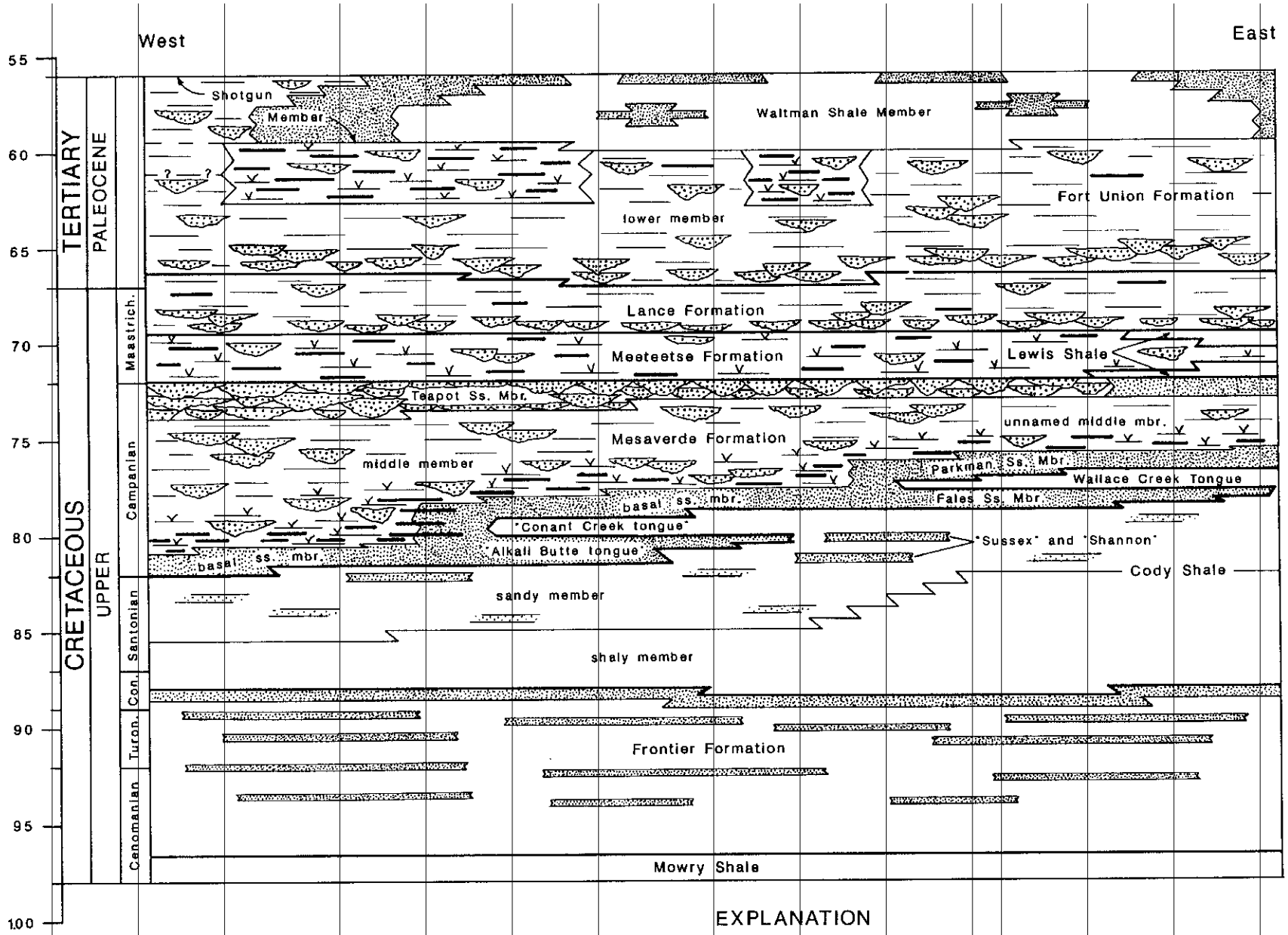
DEFINITION OF GAS PLAYS IN THE WIND RIVER BASIN

The basin-centered gas accumulation in the Wind River Basin is divided into eight stratigraphic plays: 1) the Upper Cretaceous Frontier Formation; 2) the Upper

Cretaceous Cody Shale; 3) the Fales Sandstone Member of the Mesaverde Formation; 4) the marginal marine sandstone interval of the Upper Cretaceous Mesaverde Formation; 5) the nonmarine interval of the Upper Cretaceous Mesaverde Formation; 6) the Upper Cretaceous Meeteetse Formation; 7) the Upper Cretaceous to possibly lower Paleocene Lance Formation; and 8) the lower unnamed member of the Paleocene Fort Union Formation (Figure 10). Stratigraphic plays one through six were subdivided into three separate plays: 1) greater than 300° F present-day temperature, which represents the highly overpressured play; 2) Rm greater than 1.1%, which represents the moderately overpressured play; and 3) Rm from 0.73 to 1.1% which represents the marginal, transition zone of the basin-centered gas accumulation. Stratigraphic play number seven, or the Lance Formation, does not appear to be over 300° F anywhere in the basin and hence was only subdivided into two plays, the moderately overpressured play and the transition zone play. The lower unnamed member of the Fort Union Formation was subdivided into two plays: 1) where the Waltman Shale Member is present; and 2) where the Waltman Shale Member is absent. Thermal maturates in the lower unnamed member vary from as low as about Rm 0.5% to greater than Rm 1.1% (Nuccio and others; 1996). Highly overpressured conditions do not appear to exist in the lower member anywhere in the basin. This is consistent with present-day temperatures which do not exceed 300° F in the lower member.

Formation pressure and temperature estimates for each play required overburden estimates, and these estimates were made by converting structure contour maps into overburden maps. To do this an average surface elevation of 5,500 ft was assumed for the entire basin. Topographic relief in the Wind River Basin is not great, and this is within about 800 ft of true elevation throughout almost all of the basin. If a stratigraphic play was relatively thin, then a structure contour map on the top or base of the play was used. For the thicker stratigraphic plays, a structure contour map on the middle of the play was made. Three of the structure contour maps used, the top of the Frontier Formation, the top of the Cody Shale, and top of the Teapot Sandstone Member of the Mesaverde Formation, are from Johnson and others (1996, Plate 1). Six new structure contour maps were generated for the assessment: 1) top of the marginal marine interval of the Mesaverde Formation (Figure 11); middle of the nonmarine part of the Mesaverde Formation (Figure 12); 3) top of the Lance Formation (Figure 13); 4) middle of the Lance Formation (Figure 14); 5) base of the Lance Formation (Figure 15); and 6) middle of the lower unnamed member of the Fort Union Formation (Figure 16). These maps were generated by using isopach maps and one of the four structure maps from Johnson and others (1996).

The boundaries of the highly overpressured plays, where a stratigraphic interval exceeds 300° F, were defined by overlaying the overburden maps on the thermal gradient map of Pawlewicz (1993). The boundaries of the areas where the stratigraphic intervals have an Rm of 0.73% or greater and an Rm. of 1.1% or greater were defined by overlaying the contour maps showing the elevations of the Rm 0.73% and Rm 1.1% in the basin from Johnson and others (1995) and Nuccio and Finn (1996) on the structure contour maps for the stratigraphic plays. Isopach maps of total sandstone in beds 10 ft thick or greater from Johnson and others (1996) are plotted on the play maps for each stratigraphic unit.



EXPLANATION

Marine, marginal marine, or lacustrine sandstones.

Paludal and floodplain — carbonaceous shales, and mudstones.

Floodplain siltstones, and mudstones.

Fluvial sandstones.

Marine or lacustrine shale.

Coal.

Figure 10: Detailed east-west correlation diagram for the Wind River Basin showing both stratigraphic units and generalized sedimentary facies.

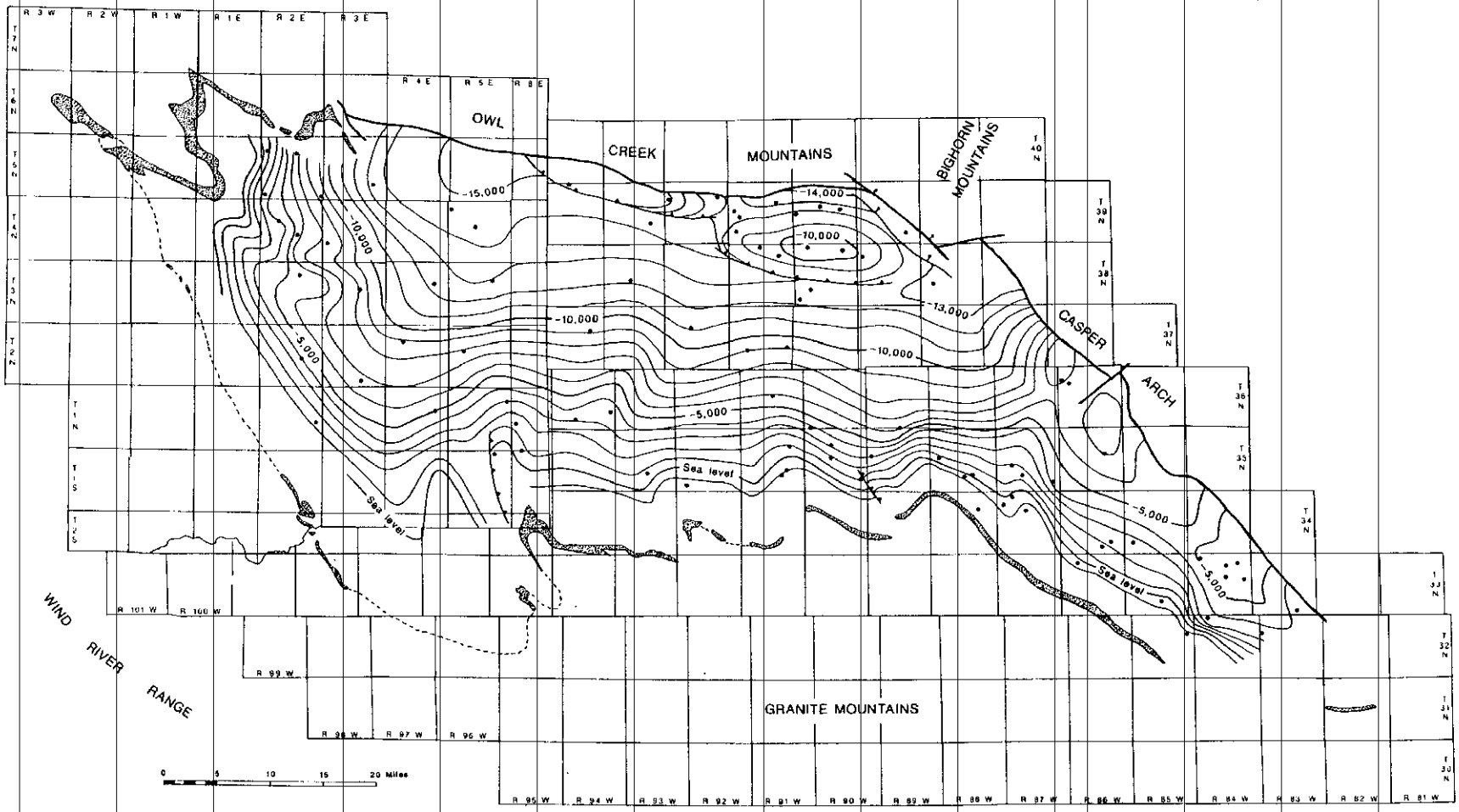


Figure 11: Structure contour map on the top of the marginal marine interval of the Upper Cretaceous Mesaverde Formation. Contour interval: 1,000 ft.

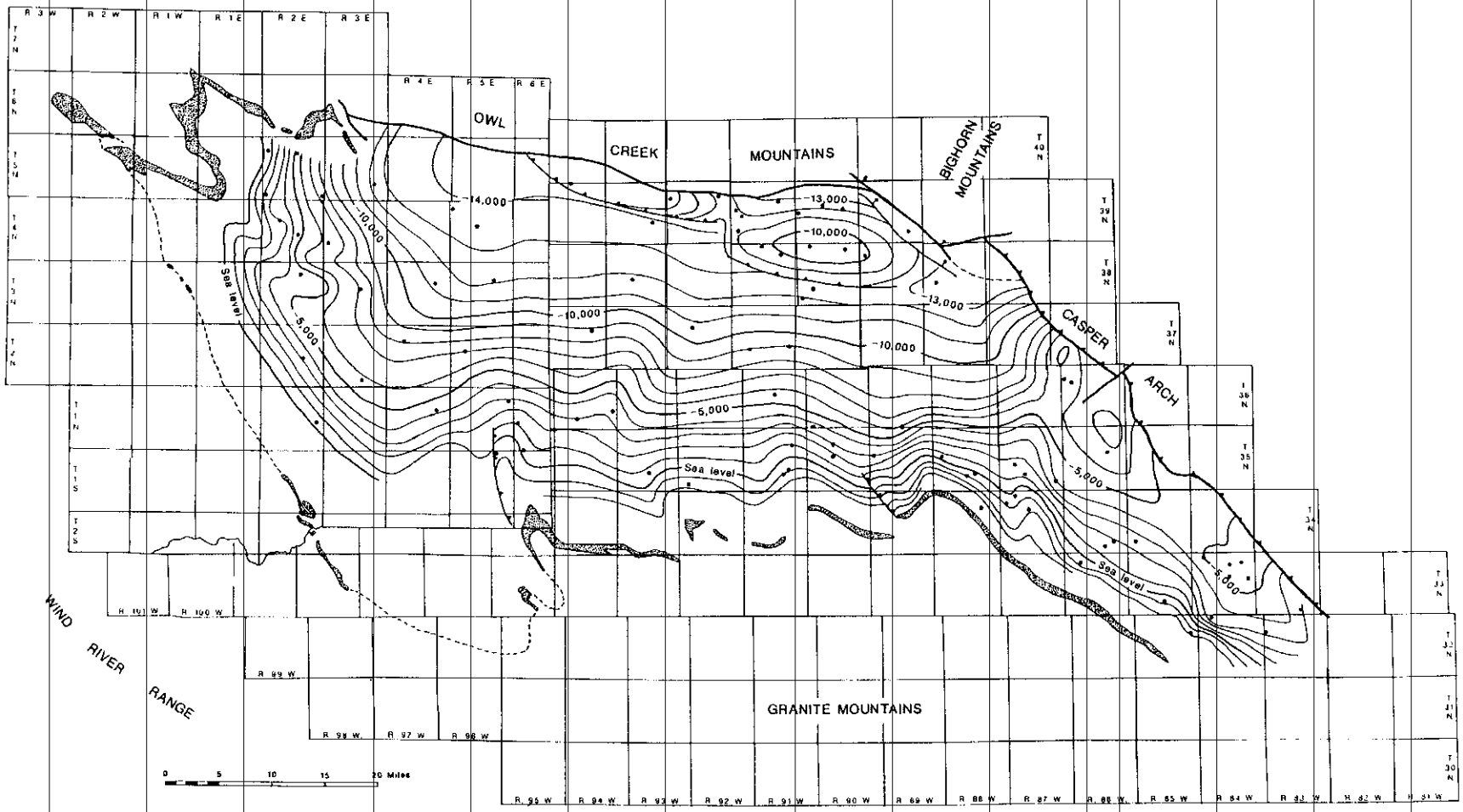


Figure 12: Structure contour map on the middle of the nonmarine interval of the Upper Cretaceous Mesaverde Formation. Contour interval: 1,000 ft.

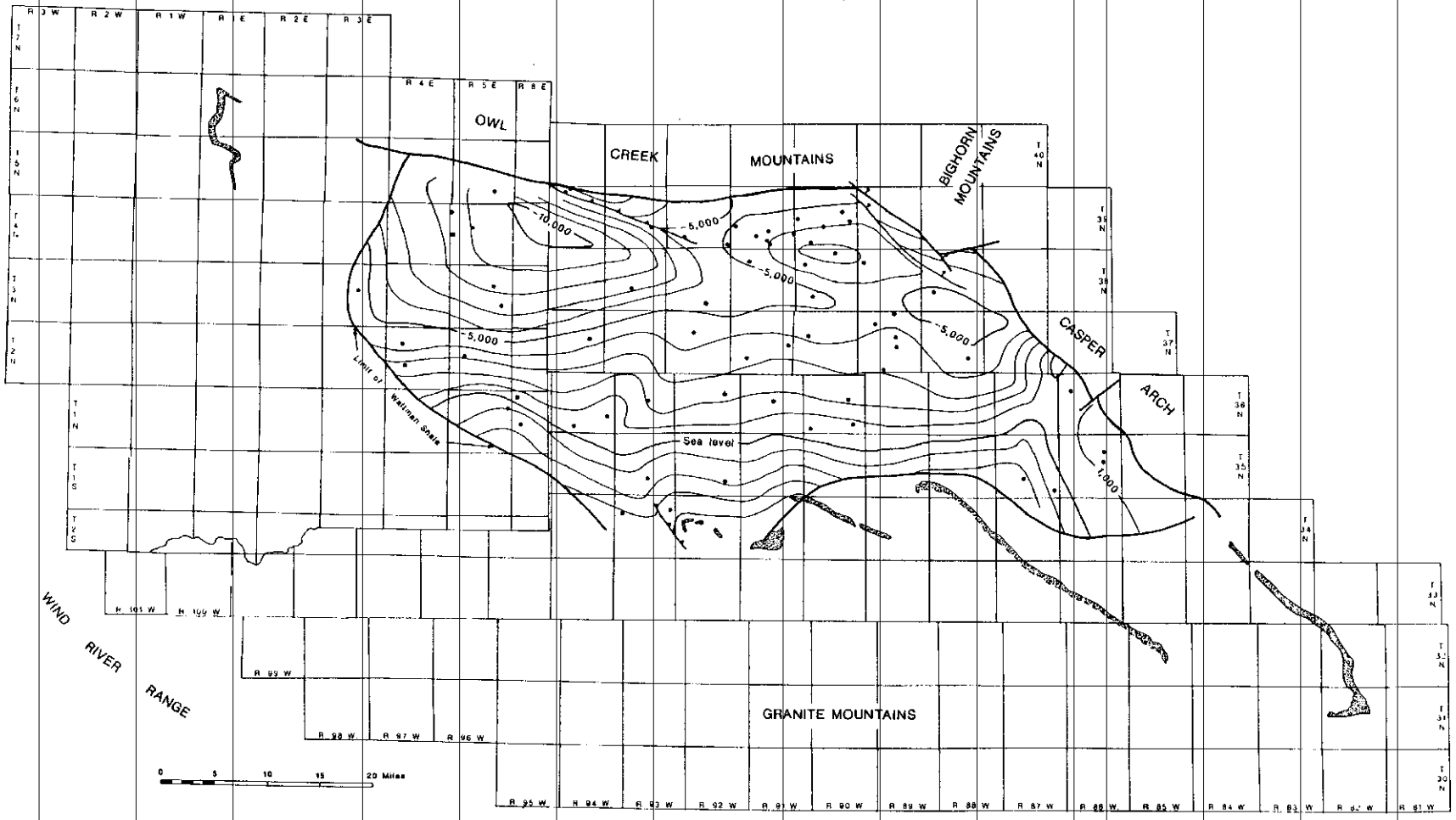


Figure 13: Structure contour map on the base on the top of the Upper Cretaceous Lance Formation. Contour interval: 1,000 ft.

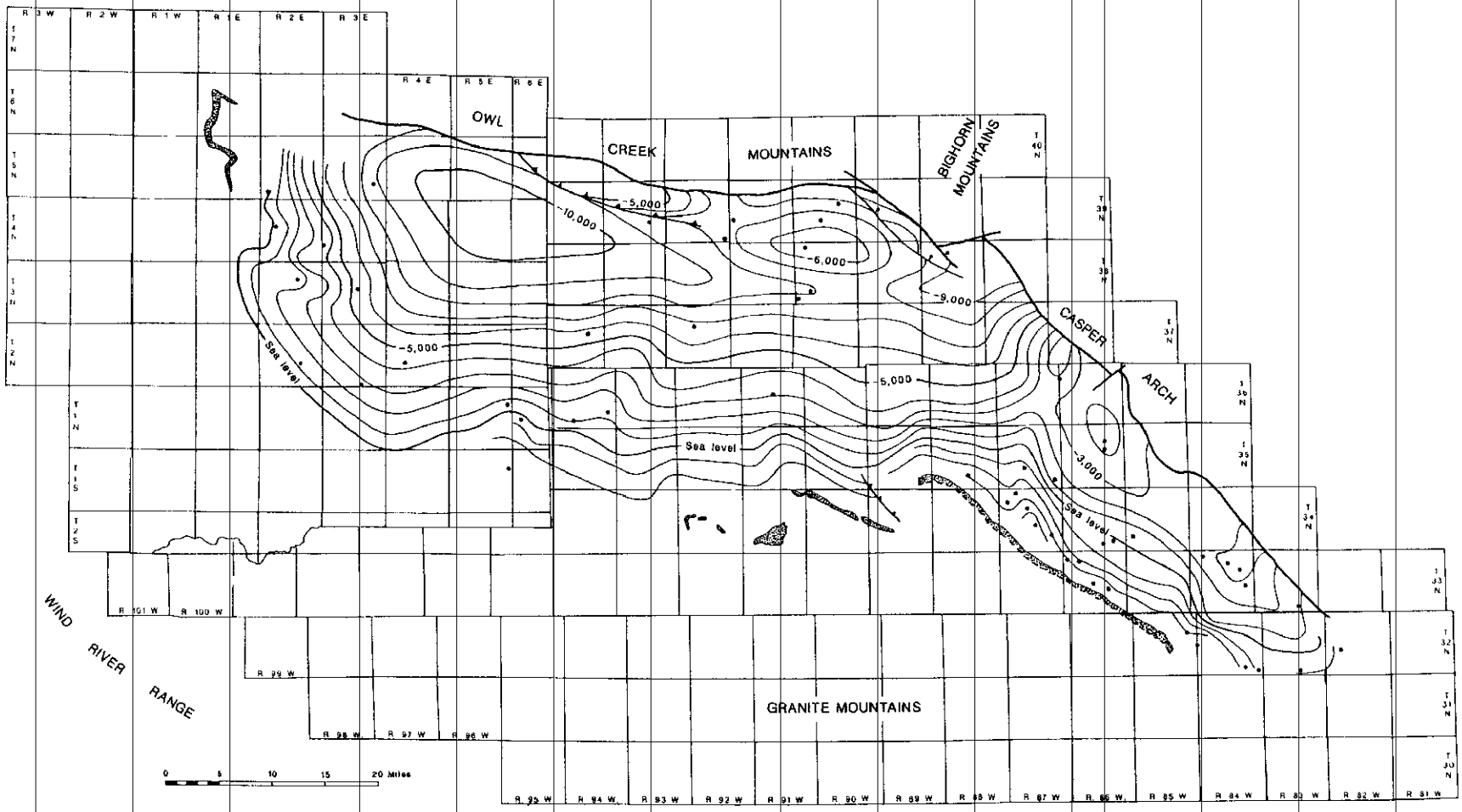


Figure 14: Structure contour map on the middle of the Upper Cretaceous Lance Formation. Contour interval: 1,000 ft.

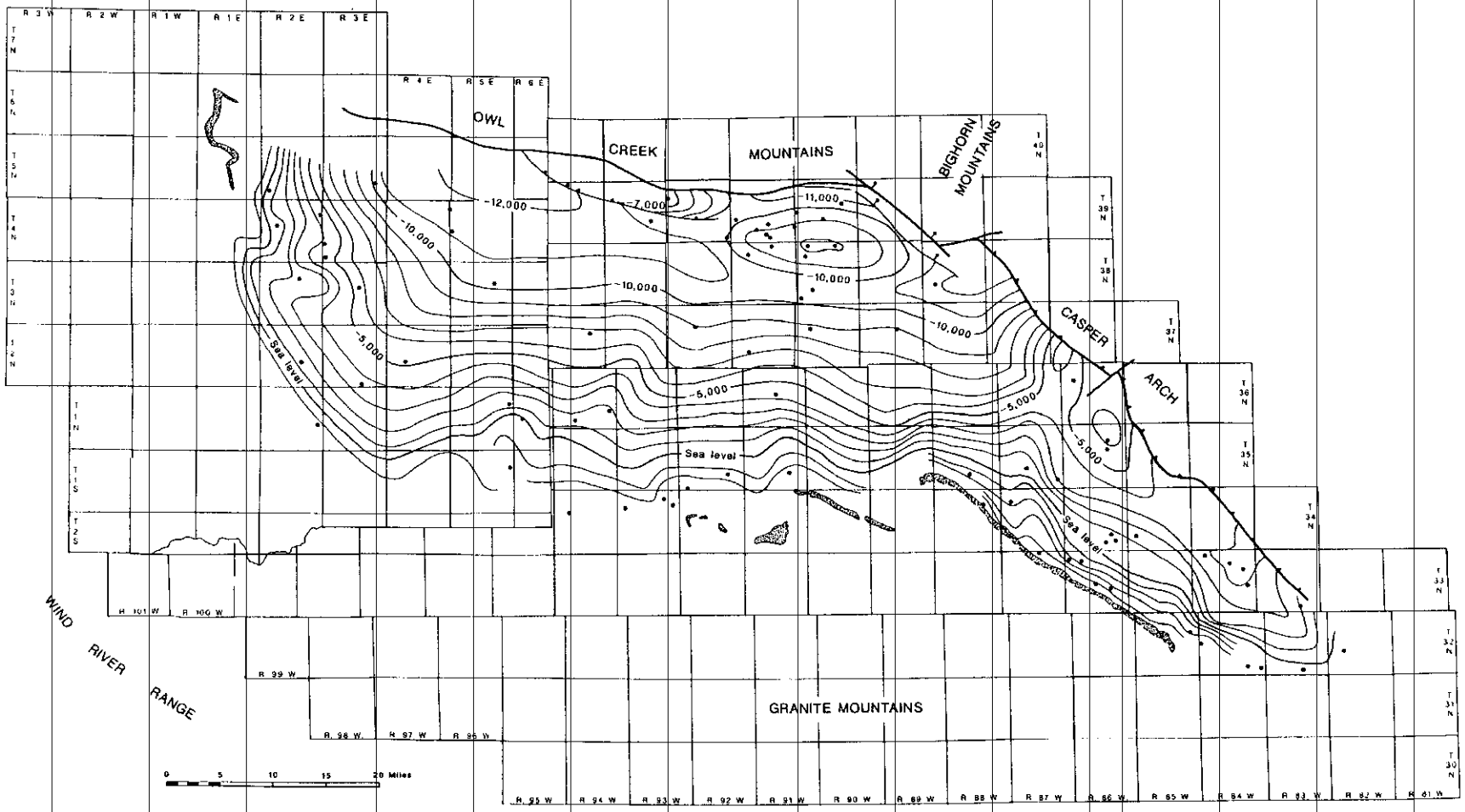


Figure 15: Structure contour map of the base of the Upper Cretaceous Lance Formation. Contour interval: 1,000 ft.

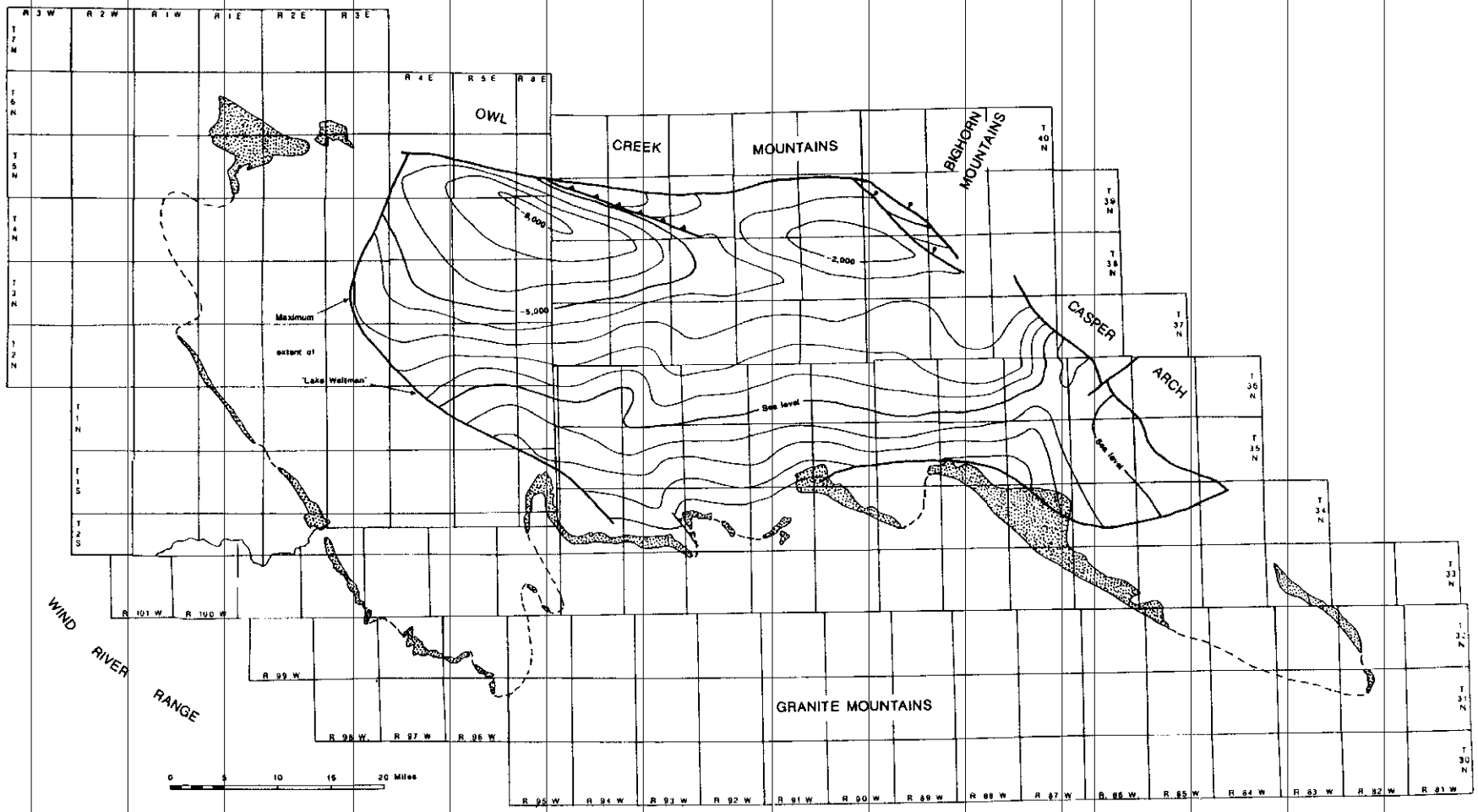


Figure 16: Structure contour map on the middle of the lower unnamed member of the Paleocene Fort Union Formation. Contour interval: 1,000 ft.

The play map for each stratigraphic interval therefore includes three different types of information: 1) overburden contours generated from structure contour maps; 2) play boundaries defined by thermal maturity and present-day temperature; and 3) sandstone isopach lines. Each of the two to three plays in each stratigraphic interval is divided into as many as 117 areas or subplays by the crosscutting overburden and sandstone thickness lines. The area of each subplay was measured in square miles using a planimeter. An estimate of mean in-place gas for each of these subplays was calculated using the formula presented earlier, and the mean in-place gas for a play was estimated by summing the gas in each of the subplays within the play. Complex geometric problems arose with the calculations of in-place gas for some of the plays, and these are discussed under the discussion of each play.

In order to estimate the in-place gas in each of the subplays within a play, overburden estimates and sandstone thickness estimates were made using the overburden and sandstone contours that define the area. For example if a subplay is defined by the 7,000 and 8,000 ft overburden lines and the 100 and 200 ft sandstone thickness lines, then an average overburden of 7,500 ft and an average sandstone thickness of 150 ft is assumed for the area. If the subplay was closer to the 100 ft thickness line than it was to the 200 ft line, then some average thickness value between 100 and 150 ft would be chosen.

The probability program used here requires that the same temperature gradient and pressure gradient by assigned to all of the subplays within a play. Average pressure gradients used were: 1) 0.727 psi/ft of depth for the highly overpressured plays; 2) 0.52 psi/ft of depth for the moderately overpressured plays; and 3) a normal pressure gradient of 0.41 psi/ft of depth for the transition plays. A normal pressure gradient was assumed for both Fort Union plays although slightly overpressured conditions exist locally in the Fort Union play where the Waltman seal is present. Thermal gradients in the basin are within 0.2^0 F of 1.6^0 F/100 ft over about 80% of the basin, and hence a thermal gradient of 1.6^0 F was assumed for the entire basin. The need to assume a constant thermal gradient for all of the subplays within a play created some relatively minor inconsistencies. This is because the 300^0 F line, used to define the boundaries of the highly overpressured plays, was determined using variable thermal gradients while a constant gradient had to be assumed for all of the subplays in a play when calculating in-place gas. Temperatures of the subplays are listed on the tables for each of the plays in degrees Rankin. A temperature of 300^0 F corresponds to a temperature of 760^0 Rankin. Therefore, all of the subplays listed on the tables within each highly overpressured play should have a temperature of 760^0 Rankin or greater, and all of the subplays within the moderately overpressured zones, defined by the Rm 1.1% and 300^0 F lines, should have a temperature of 760^0 Rankin or less. Most of the discrepancies occur in the northwest part of the basin where thermal gradients of less than 1.2^0 F/100 ft occur.

The north boundary of all the plays along the Owl Creek Mountains is placed at the complex of down to the north normal faults that cut off the Owl Creek thrust. For a seismic cross section showing the relationship between the Owl Creek thrust and the younger normal faults see Ray and Keefer (1985). Many of the stratigraphic units included in the basin-centered gas accumulation continue beneath the thrust, north of the

normal faults. This part of the subthrust area was not included in the assessment because there is no drillhole information. There is some drillhole information further to the east along the Owl Creek thrust, on the Casper Arch, and here, the subthrust area is included in the assessment.

CALCULATING Z FACTOR

Gases in nature seldom if ever obey the ideal gas equation and the gas compressibility factor or Z factor is a correction factor which was derived to quantify this deviation. The value of Z varies with pressure, temperature, and gas composition (Standing, 1977). An average gas composition for each of the plays was estimated using data from Johnson and Rice (1993). For the shallower plays (Rm 0.73 to 1.1 and Rm>1.1) it was found that Z factor varied only slightly between the various subplays, and only a very modest error in in-place gas for the subplays was introduced if a single value for Z was applied to all of the subplays. For the highly overpressured plays, however, the Z factor varied markedly between the shallower and deeper subplays. For instance, in the highly overpressured Frontier play, Z varies from 1.92 to 0.96 between the deepest and shallowest parts of the play. In order to closely approximate the in-place gas in each of the subplays for the highly overpressured plays, the Z factor for each play was varied using simple linear equations which closely approximates the variation using the equations in Standing (1977).

CALCULATION OF PROBABILITY DISTRIBUTIONS OF ESTIMATES FOR EACH PLAY

In order to calculate probability distributions, estimates were made of the ranges for each play attribute at the 95th and 5th percentile levels. For the Lance > 1.1 play for instance, probability estimates for the play attributes at the 95th and 5th percentile levels are depth: 30%, closure: 30%, sandstone thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation-40%. If, for instance, the mean thickness of sandstone in a subplay is 1000 ft then the thickness at the 95th and 5th percentile probabilities vary from this mean by 50% or 500 ft. Another way of expressing this variation would be 1,000 plus or minus 250 ft. The play attributes in each play were given different probability ranges based on geologic inference. However, because of limitations in the complex spread sheet program used, the same ranges had to be applied to every subplay within a play. The play attributes of porosity, trap fill, and hydrocarbon saturation were given large ranges in the relatively shallow transition plays where complex mixes of tight gas reservoirs, gas reservoirs with conventional permeabilities, and water-bearing reservoirs occur. These play attributes are considered less variable in the deeper, mostly gas saturated plays.

The attributes were treated as independent continuously random variables, and ranges of in-place gas for each subplay were then calculated using probability theory. The subplays were aggregated assuming perfectly positive correlation to calculate the range of in-place gas for each play. Finally, all of the plays were aggregated assuming

perfect positive correlation to assess the total in-place gas in all of the plays in the Wind River Basin.

FRONTIER FORMATION PLAYS

The Frontier Formation is the deepest formation considered in the assessment and includes all three plays, a highly overpressured, a moderately overpressured, and a transition play (Figures 17 and 18). The isopach map of total sandstone in the Frontier Formation 10 ft thick or greater is from Johnson and others (1996). Overburden was calculated using the structure contour map on the top of the Frontier Formation from Johnson and others (1996, Plate 1). Because the Frontier is only from 700 to 1,200 ft thick in the basin it was not considered worthwhile to construct a structure contour map on the middle of the Frontier for overburden calculations.

Frontier Formation highly overpressured play: The highly overpressured Frontier play included a total of 117 subplays (Figure 18, Tables 1-3) for a total area of 2,093 square miles. Average depth of the subplays ranges from 12,000 to 24,000 ft and sandstone thicknesses range from 95 to 280 ft. An average porosity of 6%, trap fill of 100%, and hydrocarbon saturation of 50% is assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 2). Estimated total mean in-place gas is 118 tcf (Table 1). Estimates of total in-place gas at the 95th and 5th percentile levels are 76.5 tcf and 170 tcf respectively (Table 3)

Frontier Formation moderately overpressured play (Rm>1.1%): The moderately overpressured Frontier play included a total of 68 subplays (Figure 18, Tables 4-6) for a total area of 694.5 square miles. Average depth ranges from 7,000 to 22,000 ft with the greatest average depths occurring in the northwest part of the basin where thermal gradients are low. Average sandstone thickness ranges from 85 to 270 ft. An average porosity of 7%, trap fill of 100% and hydrocarbon saturation of 50% is assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 5). Estimated total mean in-place gas is 29.2 tcf (Table 4). Estimates of total in-place gas at the 95th and 5th percentile levels are 18.8 tcf and 42.6 tcf respectively (Table 3)

Frontier Formation transition play (Rm 0.73 to 1.1%): The Frontier Formation transition play includes 49 subplays (Figure 18, Tables 7-9) for a total area of 269.2 square miles. Average depth ranges from 6,000 to 10,000 ft, and sandstone thicknesses range from 90 to 250 ft. An average porosity of 7%, and hydrocarbon saturation of 50% is assumed for all of the subplays (Table 7). These numbers may be somewhat conservative since many of the reservoirs have near conventional to conventional porosities and permeabilities. Trap fill for all of the subplays was assumed to be 50%. In other words, only half of the available sandstone volume will be gas-bearing, while half will contain only water. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 100%, and hydrocarbon saturation: 80% (Table 8). This transition play is much more heterogeneous than the deeper overpressured plays and, as a result, ranges for porosity,

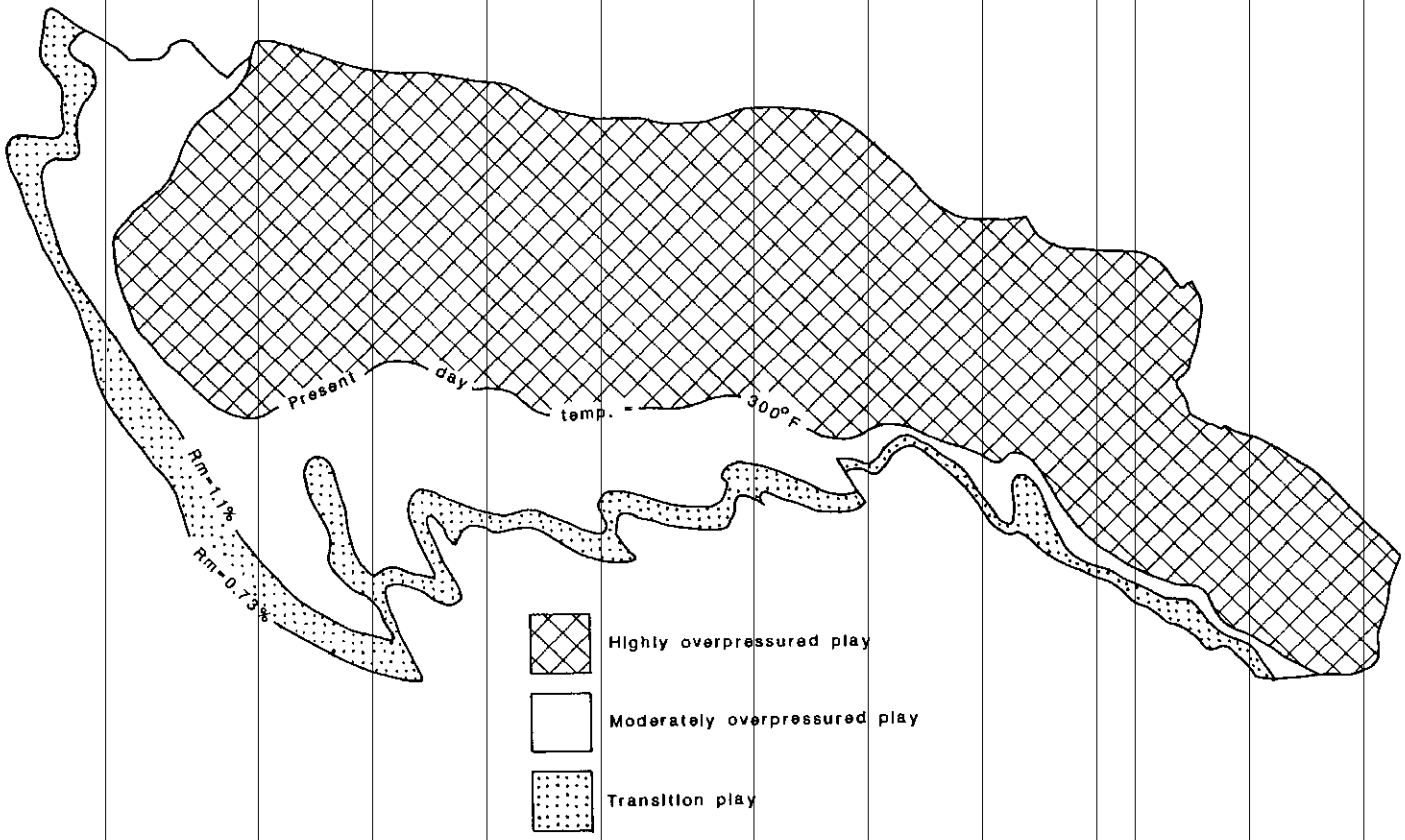


Figure 17: Generalized map showing areas of Frontier Formation highly overpressured, moderately overpressured, and transition plays.

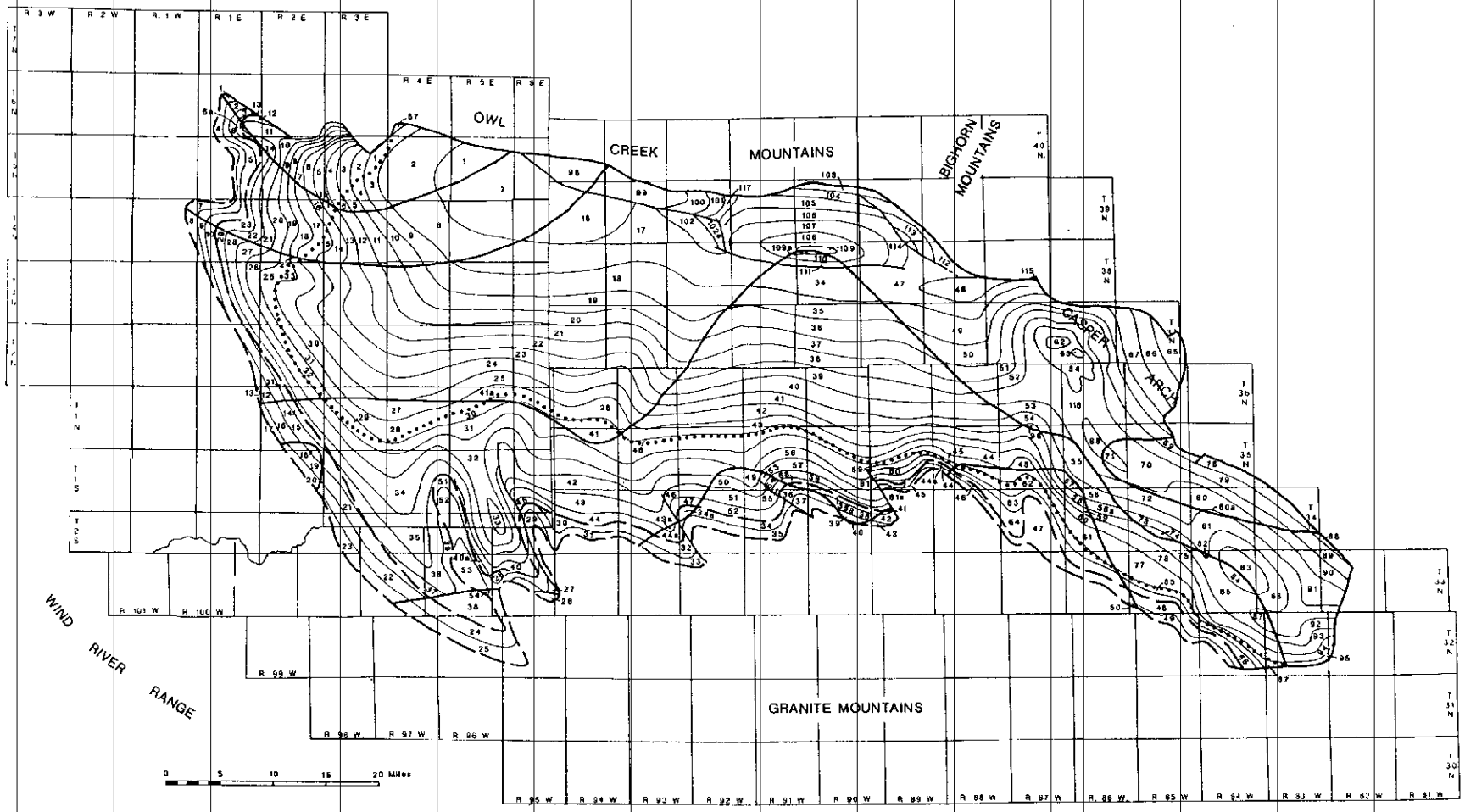


Figure 18: Detailed map showing subplays in the Frontier Formation plays. Light-weight solid lines are average overburden contours derived from the structure contour map on the top of the Frontier Formation (Johnson and others, 1996, Plate 1). Heavy-weight solid lines are from the isopach map of total sandstone in the Frontier Formation (Johnson and others, 1996, Figure 9). Dashed lines and dotted line are from Figure 17. Subplay identification numbers are keyed to Tables 1-3.

trap fill, and hydrocarbon saturation are large. Estimated total mean in-place gas is 29.2 tcf (Table 4). Estimates of total in-place gas at the 95th and 5th percentile levels are 1.65 tcf and 7.6 tcf respectively (Table 9).

CODY SHALE PLAYS

The Cody Shale includes all three plays, the highly overpressured, the moderately overpressured, and the transition play (Figures 19 and 20). For convenience sandstones which occur in the informally named "Alkali Butte tongue" or "Alkali Butte member" of the Mesaverde Formation in the west central part of the basin are included in the Cody Shale assessment. The "Alkali Butte member" trends generally north-south across the basin and extends in an east-west direction for from 7 to 12 miles. This member is separated from the overlying main body of the Mesaverde Formation by the informally named "Conant Creek tongue" of the Cody Shale (Hogle and Jones, 1991; Szmajter, 1993; Johnson and others, 1996) and includes both marginal marine and fluvial sandstones.

The "Alkali Butte member" grades to the east into the upper part of the Cody Shale which contains several laterally persistent shelf sandstones, including the "Sussex" and "Shannon" sandstones in the Madden Anticline area in the north-central part of the basin. These names are commonly applied to these sandstone at Madden Anticline (Dunleavy and Gilbertson, 1986), but they are probably not equivalent to the Sussex Sandstone Member and Shannon Sandstone Member of the Cody Shale in the Powder River Basin to the east.

In the western part of the basin and west of where the "Alkali Butte member' joins the main body of the Mesaverde Formation, significant sandstone in the Cody Shale occurs only in a relatively small area in the southeast corner of the Wind River Reservation (Figure 20). The Fales Sandstone Member of the Mesaverde Formation splits off from the main body of the Mesaverde in the eastern part of the basin. Unlike the "Alkali Butte member", the Fales Sandstone Member was considered separately in the assessment and not included in the Cody assessment.

Overburden was calculated using the structure contour map on the top of the Cody Shale from Johnson and others (1996, Plate 1). Sandstones occur through an interval in the upper part of the Cody which is as much as 1,800 ft thick and hence the overburdens calculated from the structure map are minimum values.

Cody Shale highly overpressured play: This play covers 413.2 square miles and is divided into 47 subplays with an average depth of from 20,000 to 15,500 ft (Figure 20, Tables 10 -12). Total thickness of sandstone in beds 10 ft thick or greater varies from 425 to 70 ft. A porosity of 6%, trap fill of 100%, and hydrocarbon saturation of 50% is assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation-40% (Table 11). Estimated total mean in-place gas is 30.6 tcf (Table 1). Estimates of total in-place gas at the 95th and 5th percentile levels are 19.9 tcf and 44.2 tcf respectively (Table 12). As previously discussed, this play includes the highly gas productive "Sussex sandstone" and "Shannon sandstone" reservoirs on Madden Anticline. The "Sussex" and "Shannon" sandstones are the only sandstones in the Cody at Madden and hence an estimate of in-place gas in these sandstone at Madden can be made by adding up the subplays that cover the closure.

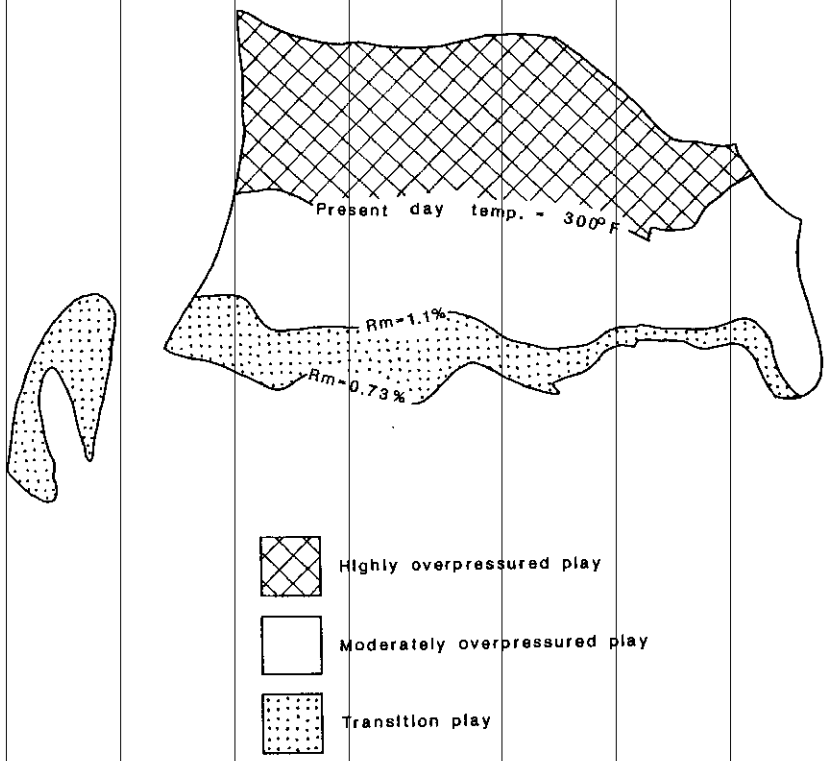


Figure 19: Generalized map showing areas of Cody Shale highly overpressured, moderately overpressured, and transition plays.

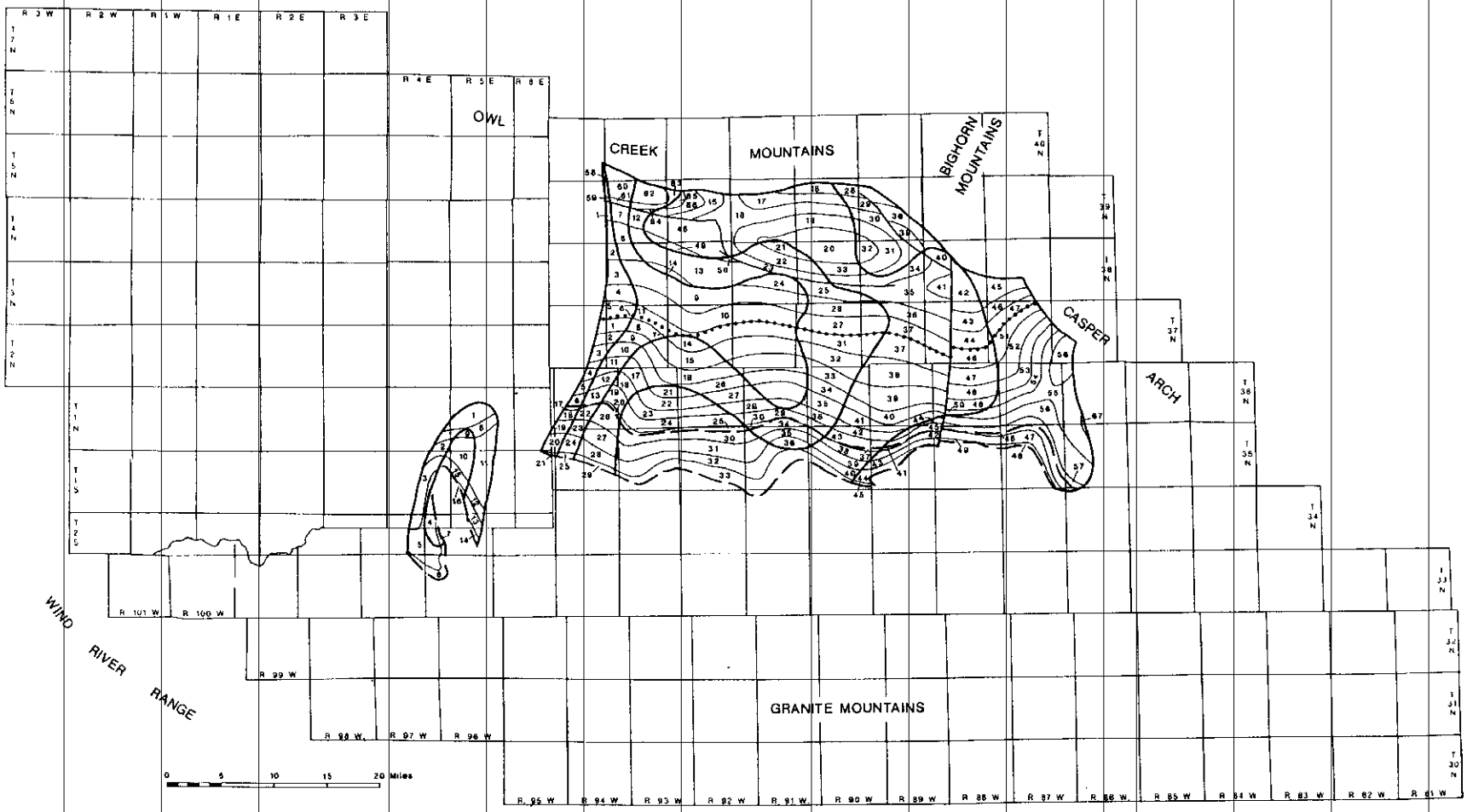


Figure 20: Detailed map showing subplays in Cody Shale plays. Light-weight solid lines are average overburden contours derived from the structure contour map on the top of the Cody Shale (Johnson and others, 1996, Plate 1). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 20). Dashed lines and dotted line are from Figure 20. Subplay identification numbers are keyed to Tables 4-6.

Approximately 3.7 tcf of gas is present in the "Sussex" and "Shannon" within the closure at Madden Anticline (subplays 19-22, 31-33, Table 10). As of 1/1/89 the "Sussex" and "Shannon" at Madden had produced 31.7 bcf of gas (Brown and Shannon, 1989) or less than 1% of our estimated in-place gas. As of 1989, the Cody over much of the structure has yet to be drilled, and the ultimate recovery of gas for the entire structure was not known (Brown and Shannon, 1989). The low recovery factor does point out, however, the difficulty in producing gas from tight formations.

Cody Shale moderately overpressured play (Rm>1.1%): This play covers 413.0 square miles and includes 66 subplays (Figure 20, Tables 13-15) which range in average depth from 9,500 to 16,000 ft. A porosity of 7% and hydrocarbon saturation of 50% was assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 14). Estimated total mean in-place gas is 19.2 tcf (Table 13). Estimates of total in-place gas at the 95th and 5th percentile levels are 12.4 tcf and 28 tcf respectively (Table 15). Most of the moderately overpressured plays assumed a trap fill of 100%. However, an average trap fill of only 70% was assumed for the Cody moderately overpressured play because many of the marginal marine and shelf sandstones in this interval are laterally persistent in a north south direction and are subject to possible surface water recharge from outcrops along the south margin of the basin (Johnson and others, 1996). Laterally persistent sandstones which persist to outcrop are commonly water-bearing within basin-centered gas accumulations (Johnson and others, in press).

Cody Shale transition play (Rm 0.73-1.1%): The Cody transition play covers 232.51 square miles and includes 49 subplays (Figure 20, Tables 16-18). A porosity of 7% and hydrocarbon saturation of 50% is assumed for all of the subplays. An average trap fill of only 30% was assumed for the subplays because of the high probability of surface recharge into the sandstones from the south margin of the basin. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth-30%, closure-30%, thickness-50%, porosity-60%, trap fill-100%, and hydrocarbon saturation-80% (Table 2). Estimated total mean in-place gas is 1.97 tcf (Table 16). Estimates of total in-place gas at the 95th and 5th percentile levels are 0.83 tcf and 3.79 tcf respectively (Table 18).

FALES SANDSTONE MEMBER PLAYS

The Fales Sandstone Member of the Mesaverde Formation is present only in the eastern part of the basin where it is separated from the main body of the Mesaverde Formation by the Wallace Creek Tongue of the Cody Shale (Figure 10). It includes both fluvial and marginal marine sandstone in its western part but grades to the east into a single marginal marine sandstone. The structure contour map on the top of the Cody Shale was used to estimate overburden on the Fales plays.

Fales Member highly overpressured play: The Fales highly overpressured play (Figures 21 and 22) includes only three subplays for a total area of 41.4 square miles (Tables 19-21). A porosity of 6%, trap fill of 100%, and hydrocarbon saturation of 50% was assumed for all three subplays. Estimated total sandstone thickness in beds 10 ft thick or greater for all of the subplays was 150 ft. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness:

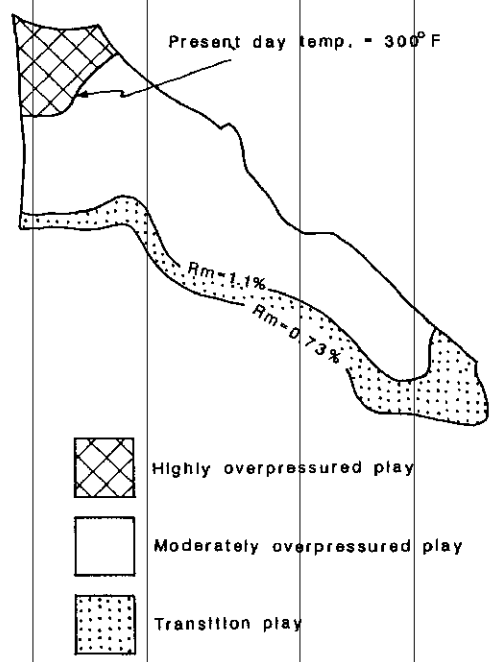


Figure 21: Generalized map showing areas of Fales Member of the Mesaverde Formation highly overpressured, moderately overpressured, and transition plays in the eastern part of the Wind River Basin.

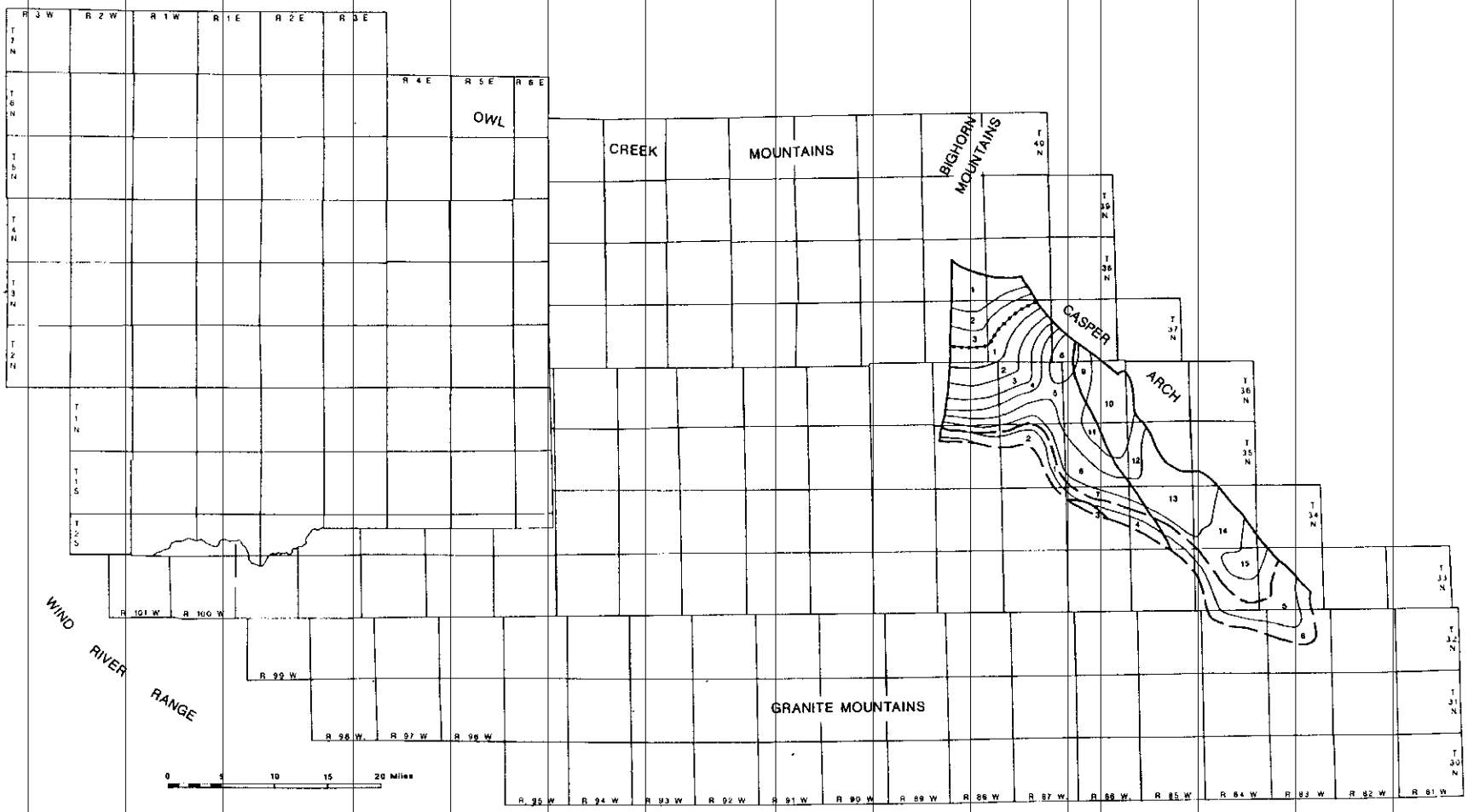


Figure 22: Detailed map showing subplays in Fales Member of the Mesaverde Formation. Light-weight solid lines are average overburden contours derived from the structure contour map on the top of the Cody Shale (Johnson and others, 1996, Plate 1). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 20). Dashed lines and dotted line are from Figure 21. Subplay identification numbers are keyed to Tables 7-9.

50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 20). Estimated total mean in-place gas is 1.18 tcf (Table 19). Estimates of total in-place gas at the 95th and 5th percentile levels are 0.77 tcf and 1.71 tcf respectively (Table 21).

Fales Member moderately overpressured play (Rm>1.1%): This play includes 15 subplays for a total of 284.76 square miles (Figure 22, Tables 22-24). Estimated total sandstone thicknesses in beds 10 ft thick or greater for the subplays ranges from 60 to 150 ft. A porosity of 7%, trap fill of 100% and hydrocarbon saturation of 50% was assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 23). Estimated total mean in-place gas is 7.31 tcf (Table 1). Estimates of total in-place gas at the 95th and 5th percentile levels are 4.7 tcf and 10.7 tcf respectively (Table 24).

Fales Member transition play (Rm 0.73-1.1%): The Fales transition play includes 6 subplays which total of 82.4 square miles (Figure 22, Tables 25-27). Total sandstone thickness ranges from 70 to 200 ft. A porosity of 7%, hydrocarbon saturation of 50% and a trap fill of only 30% was assumed for all of the subplays. This comparatively low trap fill was assumed because the marginal marine sandstones, which compose much of the Fales are probably elongate in a north-south direction or parallel to paleoshoreline and are subject to surface water recharge from outcrops along the south margin of the basin. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 100%, and hydrocarbon saturation: 80% (Table 26). Estimated total mean in-place gas is 0.54 tcf (Table 25). Estimates of total in-place gas at the 95th and 5th percentile levels are 0.23 tcf and 1.03 tcf respectively (Table 27).

MARGINAL MARINE PART OF THE MESAVERDE FORMATION PLAYS

The marginal marine part of the Mesaverde Formation is in the lower part of the unit and is characterized by marginal marine, predominantly shoreface sandstones (Figure 10). It also includes some fluvial sandstones, coal and carbonaceous shale. The highly overpressured, moderately overpressured, and transition plays occur in the marginal marine Mesaverde (Figures 23 and 24). The interval varies widely in thickness across the basin from less than 50 ft to over 1,200 ft (Johnson and others, 1996, Figure 23). Thick buildups of marginal marine sandstones in the Mesaverde Formation occur in three areas of the basin: 1) the western part where the interval is over 400 ft thick and includes over 200 ft of total sandstone in beds 10 ft thick or greater; 2) in the west-central part where the interval is 1,200 ft thick and includes over 500 ft of sandstone, and 3) in the eastern part where the interval is over 500 ft thick and includes over 200 ft of sandstone.

These marginal marine sandstone buildups represent areas where the overall eastern retreat of the Upper Cretaceous seaway stalled for extended periods of time. Marginal marine sandstones in the interval appear to trend generally north-south or parallel to paleoshoreline while fluvial sandstones in the interval trend generally east-west or perpendicular to paleoshoreline. The laterally persistent marginal marine sandstones are subject to surface water recharge from outcrops along the south margin of the basin and appear to be water-wet further into the basin than sandstones that do not

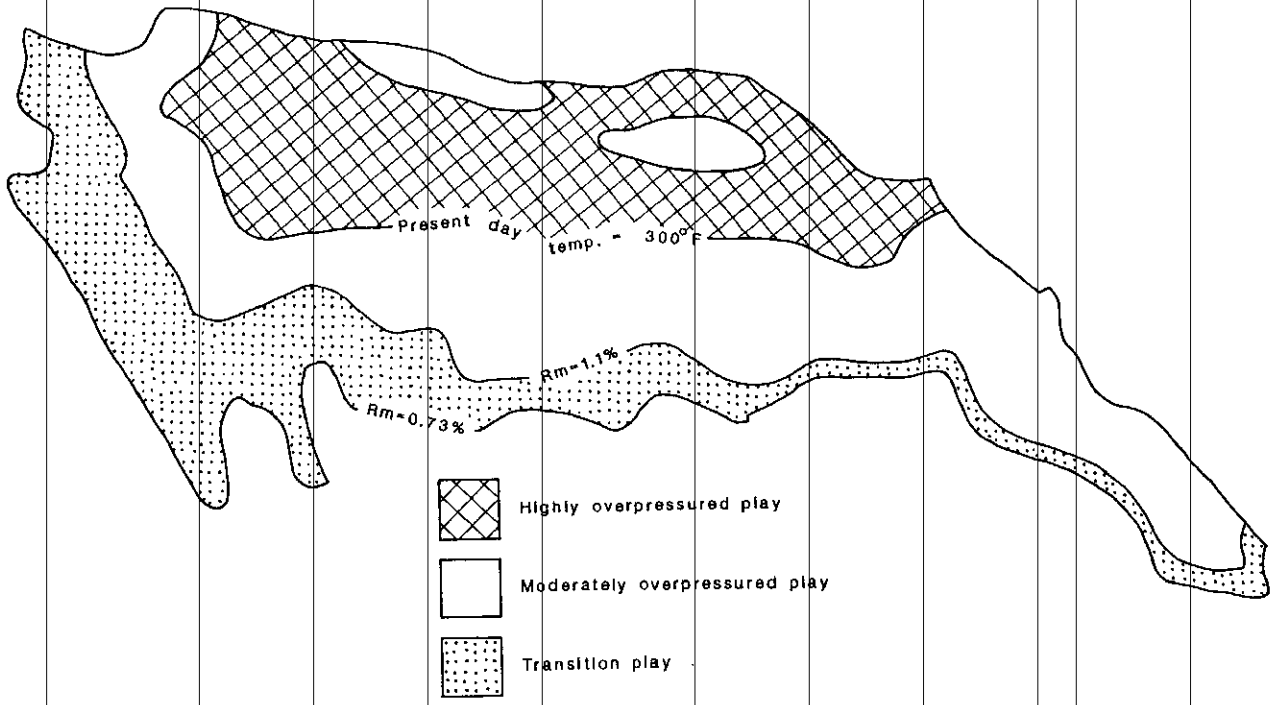


Figure 23: Generalized map showing areas of marginal marine interval of the Mesaverde Formation highly overpressured, moderately overpressured, and transition plays.

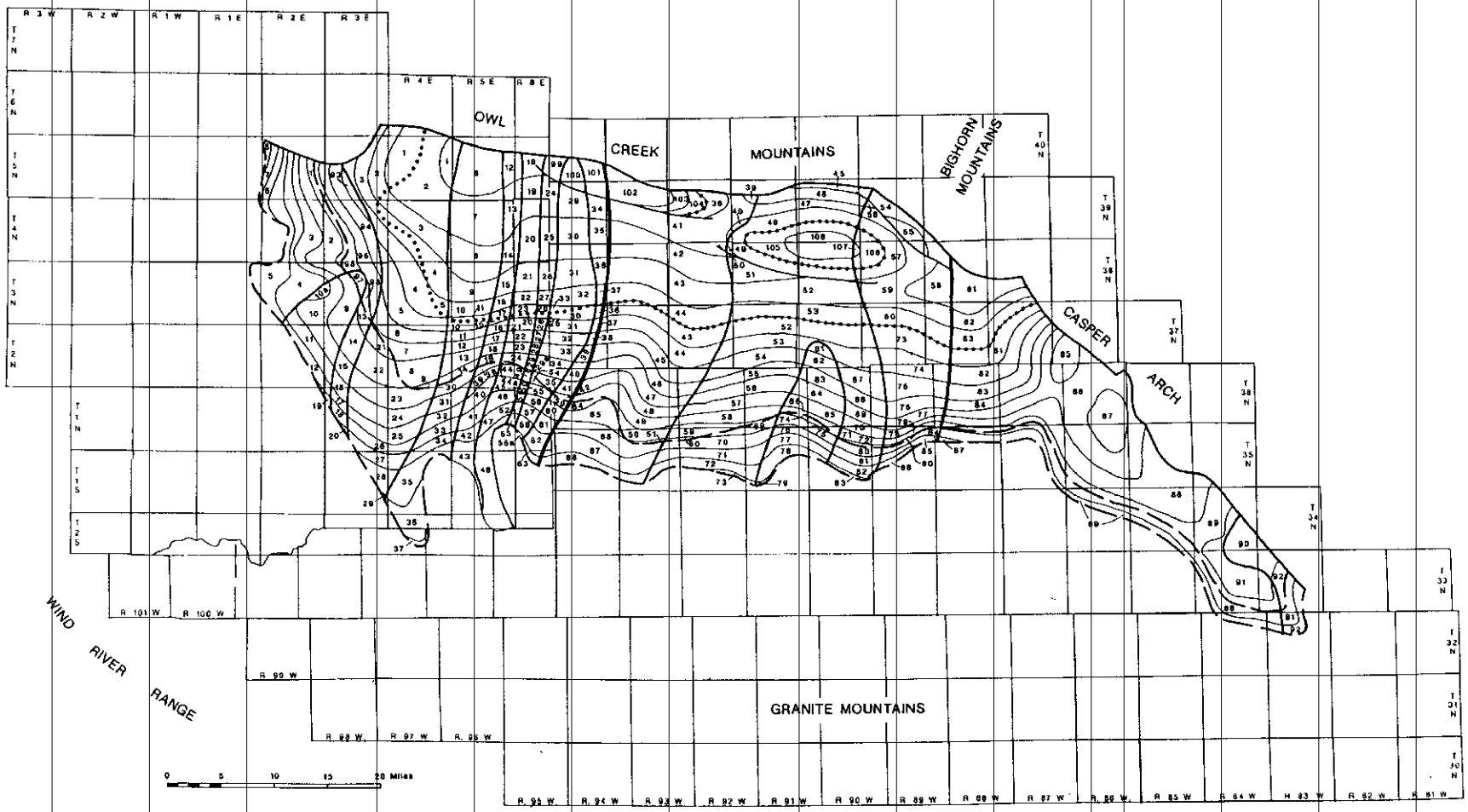


Figure 24: Detailed map showing subplays in the marginal marine interval of the Mesaverde Formation. Light-weight solid lines are average overburden contours derived from the structure contour map on the top of the marginal marine interval (Figure 11). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 27). Dashed lines and dotted line are from Figure 23. Subplay identification numbers are keyed to Tables 10-12.

crop out in this recharge area. A structure contour map on the top of the marginal marine interval is shown on Figure 11 and was used to calculate overburden on the subplays.

Marine part of Mesaverde Formation highly overpressured play: This play is subdivided into 63 subplays for a total area of 636.2 square miles (Figure 24, Tables 28-30), and average depth ranges from 15,000 to 21,000 ft. Estimates of total sandstone thickness in beds 10 ft thick or greater range from 50 to 550 ft. A porosity of 6%, trap fill of 100% and hydrocarbon saturation of 50% was assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 29). Estimated total mean in-place gas is 34.7 tcf (Table 29). Estimates of total in-place gas at the 95th and 5th percentile levels are 22.6 tcf and 50.2 tcf respectively (Table 30).

Marine part of Mesaverde Formation moderately overpressured play (Rm>1.1%): This play is subdivided into 108 subplays with a total area of 960.1 square miles (Figure 24, Tables 31-33). Total sandstone thickness varies from 50 to 550 ft, and average depth ranges from 10,500 to 20,000 ft. A porosity of 7% and hydrocarbon saturation of 50% was assumed for all of the subplays. A comparatively low trap fill of only 50% was assumed for all of the subplays. This is because the marginal marine sandstones which comprise most of the sandstones in this play are laterally persistent in a north-south direction or roughly parallel to paleoshoreline (Johnson and others, 1996). Many of these sandstones crop out along the south margin of the basin, and there is evidence of surface water recharge from these outcrops (Johnson and others, 1996). It is suggested that many of these sandstones are in hydrodynamic equilibrium with this recharge area within this play. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 32). Estimated total mean in-place gas is 17.2 tcf (Table 1). Estimates of total in-place gas at the 95th and 5th percentile levels are 11.1 tcf and 25.2 tcf respectively (Table 33).

Marine part of Mesaverde Formation transition play (Rm 0.73-1.1%): The transition play for the marine part of the Mesaverde Formation was subdivided into 91 subplays for a total area of 533.2 square miles (Figure 24, Tables 34-36). Total sandstone thickness varies from 50 to 525 ft. A porosity of 7%, and hydrocarbon saturation of 50% was assumed for all of the subplays. A trap fill of only 20% was assumed for all of the subplays because of the close proximity to surface water recharge areas along the south margin of the basin. Average depth for the subplays ranges from 5,500 to 13,500 ft. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 100%, and hydrocarbon saturation: 80% (Table 35). Estimated total mean in-place gas is 3.84 tcf (Table 34). Estimates of total in-place gas at the 95th and 5th percentile levels are 1.61 tcf and 7.38 tcf respectively (Table 36).

NONMARINE PART OF THE MESAVERDE FORMATION PLAYS

The nonmarine part of the Mesaverde Formation is all of the formation above the interval that has marginal marine sandstones and includes the Teapot Sandstone Member (Figure 10). It varies in thickness from less than 500 ft in the southeast corner of the basin to over 2,200 ft in the northwest corner. Total sandstone in beds 10 ft thick or

greater varies from less than 100 ft in the southeast corner of the basin to over 1,000 ft in the northwest corner. The nonmarine Mesaverde is divided into three plays: 1) the highly overpressured; 2) the moderately overpressured; and 3) the transition play (Figures 25 and 26). Overburden was estimated by using a structure contour map drawn on the middle of the nonmarine Mesaverde (Figure 12). This map was constructed by overlaying the isopach map of the nonmarine Mesaverde Formation on the structure contour map of the top of the Teapot Sandstone from Johnson and others (1996, Plate 1).

Nonmarine part of Mesaverde Formation highly overpressured play: This play was subdivided into 28 subplays for a total area of 488.7 square miles (Figure 26, Tables 37-39). Total sandstone thickness in beds 10 ft thick or greater for the subplays varies from 180 to 415 ft, and average depth ranges from 17,000 to 20,000 ft. An average porosity of 6%, trap fill of 100%, and hydrocarbon saturation of 50% was estimated for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 38).

In stratigraphically thick intervals such as the nonmarine Mesaverde in the western part of the basin, the positions where the Rm 0.73%, Rm 1.1%, and 300° isotherm intersect the top and the bottom of the interval varies significantly in map view. In these areas, sandstone volume in the stratigraphic interval is approximately equally divided between two plays. The approximately wedge-shaped areas created by these intersections are illustrated in the cross section shown in Figure 27. Wherever wedge-shaped areas such as these are created it is assumed that one-half of the sandstone volume occurs in each of the plays, and an asterisk is used in the Tables at the beginning of the subplay row whenever the sandstone volume in a subplay is split in half between two plays. Assigning half of the sandstones to each of the plays in these subplay areas is only an approximation since the partitioning of sandstone actually varies from almost all occurring in one play at one end of the wedge to almost all occurring in the other play at the other end of the wedge. Estimated total mean in-place gas is 48.9 tcf (Table 37). Estimates of total in-place gas at the 95th and 5th percentile levels are 31.9 tcf and 70.8 tcf respectively (Table 39).

Nonmarine part of Mesaverde Formation moderately overpressured play (Rm>1.1%): This play was divided into 96 subplays for a total area of 1,066.8 square miles (Figure 26, Tables 40-42). Estimated ranges for the play attributes in the 95% to 5% probability range are: depth-30%, closure-30%, thickness-50%, porosity-30%, trap fill-20%, and hydrocarbon saturation-40% (Table 41). Estimated total mean in-place gas is 71.8 tcf (Table 40). Estimates of total in-place gas at the 95th and 5th percentile levels are 46.3 tcf and 105 tcf respectively (Table 42).

Nonmarine part of Mesaverde Formation transition play (Rm 0.73-1.1%): The nonmarine Mesaverde transition play was subdivided into 120 subplays for a total area of 581.82 square miles (Figure 26, Table 43-45). Total sandstone thickness for the subplays ranges from 90 to 620 ft. A porosity of 7%, trap fill of 50% and hydrocarbon saturation of 50% is assumed for all of the subplays. This trap fill is somewhat higher than that for the marginal marine Mesaverde transition play (50% versus 20%) because sandstones in the nonmarine part of the Mesaverde should have less communication with surface recharge areas along the south and west margins of the basin because they tend to be

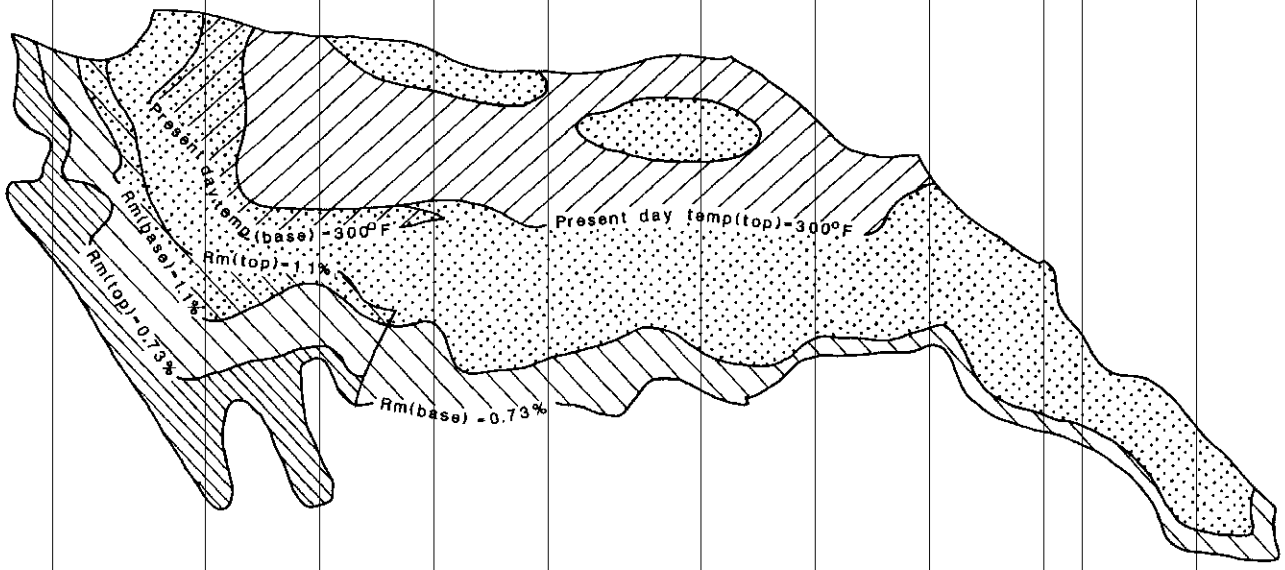


Figure 25: Generalized map showing areas of the nonmarine interval of the Mesaverde Formation highly overpressured, moderately overpressured, and transition plays. Areas were the nonmarine interval is divided between two different plays are also shown. Explanation of symbols used shown on Figure 25.

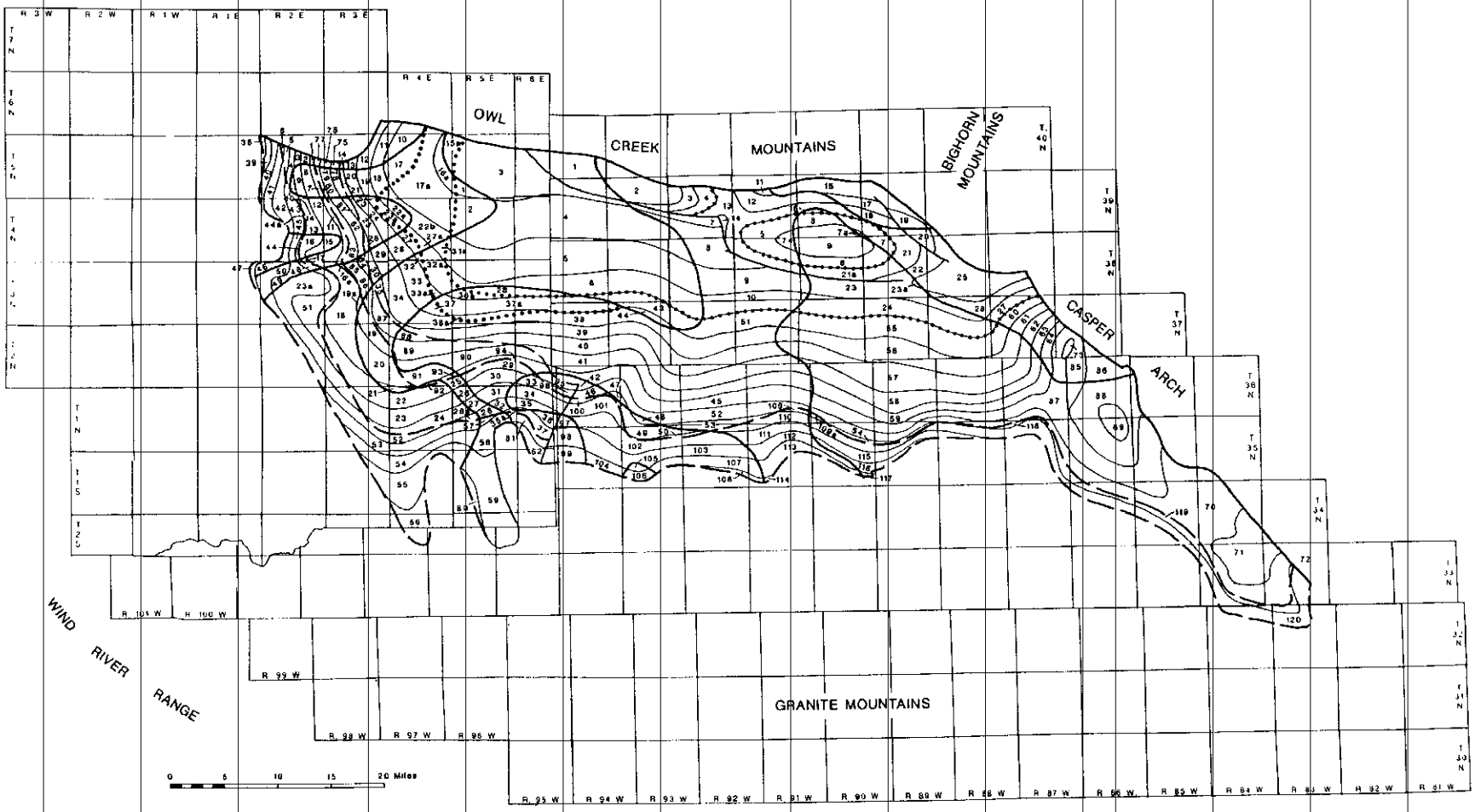


Figure 26: Detailed map showing subplays in the nonmarine interval of the Mesaverde Formation. Light-weight solid lines are average overburden contours derived from the structure contour map on the middle of the nonmarine interval (Figure 12). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 43). Dashed lines and dotted lines are from Figure 25. Subplay identification numbers are keyed to Tables 13-15. Some subplays are divided between two different plays and are listed in both plays.

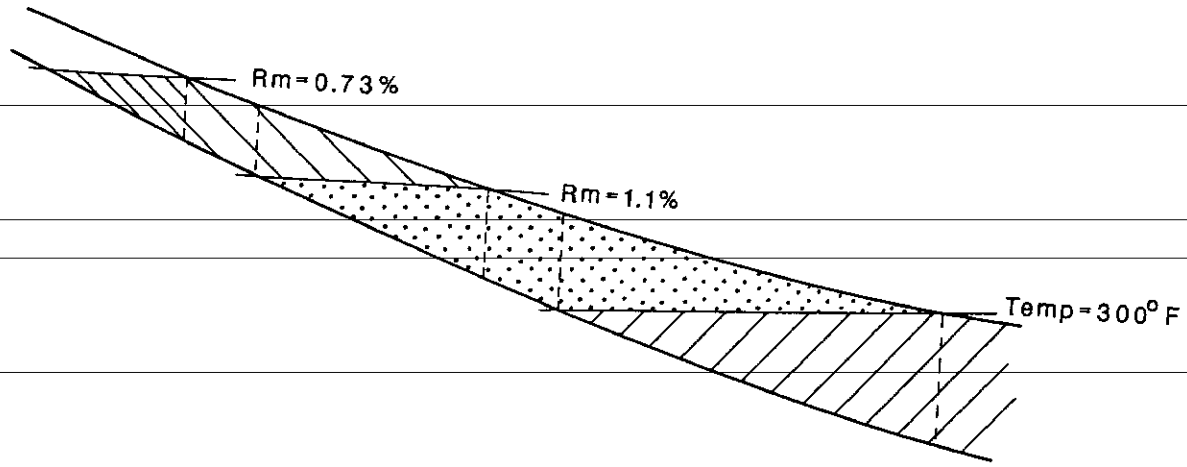


Figure 27: Cross section showing plays in the nonmarine interval of the Mesaverde Formation in the western part of the basin where the interval is locally more than 2,200 ft thick. Wedge-shaped subplay areas are created by intersections of the top and base of the stratigraphic interval with the thermal maturity and present day 300° F lines which define the plays.

elongate perpendicular to paleoshoreline or in a general east-west direction, and hence these sandstones would tend to lens out before reaching outcrop. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 100%, and hydrocarbon saturation: 80% (Table 44). Estimated total mean in-place gas is 17.4 tcf (Table 43). Estimates of total in-place gas at the 95th and 5th percentile levels are 7.3 tcf and 33.5 tcf respectively (Table 45).

MEETEETSE FORMATION PLAYS

The Meeteetse Formation varies from over 1,250 ft thick along the trough of the basin to less than 250 ft thick along the southwest margin of the basin where it is truncated by unconformities. It contains from less than 100 ft to over 500 ft of sandstone in beds 10 ft thick or greater (Johnson and others, 1996, Figure 50). The Meeteetse was divided into three plays: 1) the highly overpressured; the moderately overpressured; and the transition play (Figures 28 and 29). A structure contour map on the top of the Teapot Sandstone Member of the Mesaverde Formation from Johnson and others (1996, Plate 1) was used to estimate overburden.

Meeteetse Formation highly overpressured play: The highly overpressured Meeteetse play was subdivided into 40 subplays for a total area of 498.4 square miles (Figure 29, Tables 46-48). Total sandstone in the subplays ranges from 180 ft to 520 ft (Figure 29). A porosity of 6%, trap fill of 100% and hydrocarbon saturation of 50% was assumed for all of the subplays. Average depth for the subplays varies from 15,500 to 19,000 ft. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 47). Estimated total mean in-place gas is 51.3 tcf (Table 46). Estimates of total in-place gas at the 95th and 5th percentile levels are 33.4 tcf and 74.2 tcf respectively (Table 48).

Meeteetse Formation moderately overpressured play (Rm>1.1%): The Meeteetse moderately overpressured play was subdivided into 68 subplays for a total area of 886.1 square miles (Figure 29, Tables 49-51). Total sandstone thickness in beds 10 ft thick or greater for the subplays ranges from 170 to 450 ft. Average depth for the subplays varies from 9,000 to 18,500 ft. A porosity of 7%, trap fill of 100% and hydrocarbon saturation of 50% was assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 50). Estimated total mean in-place gas is 59.7 tcf (Table 49). Estimates of total in-place gas at the 95th and 5th percentile levels are 38.4 tcf and 87.1 tcf respectively (Table 51).

Meeteetse Formation transition play (Rm 0.73-101%): The Meeteetse transition play was subdivided into 62 subplays for a total area of 470.22 square miles (Figure 29, Tables 52-54). Total sandstone thickness in beds 10 ft thick or greater varies from 100 ft to 520 ft. A porosity of 7%, trap fill of 50%, and hydrocarbon saturation of 50% was assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 100%, and hydrocarbon saturation: 80% (Table 53). Estimated total mean in-place gas is 12.5 tcf (Table 52). Estimates of total in-place gas at the 95th and 5th percentile levels are 5.23 tcf and 24 tcf respectively (Table 54).

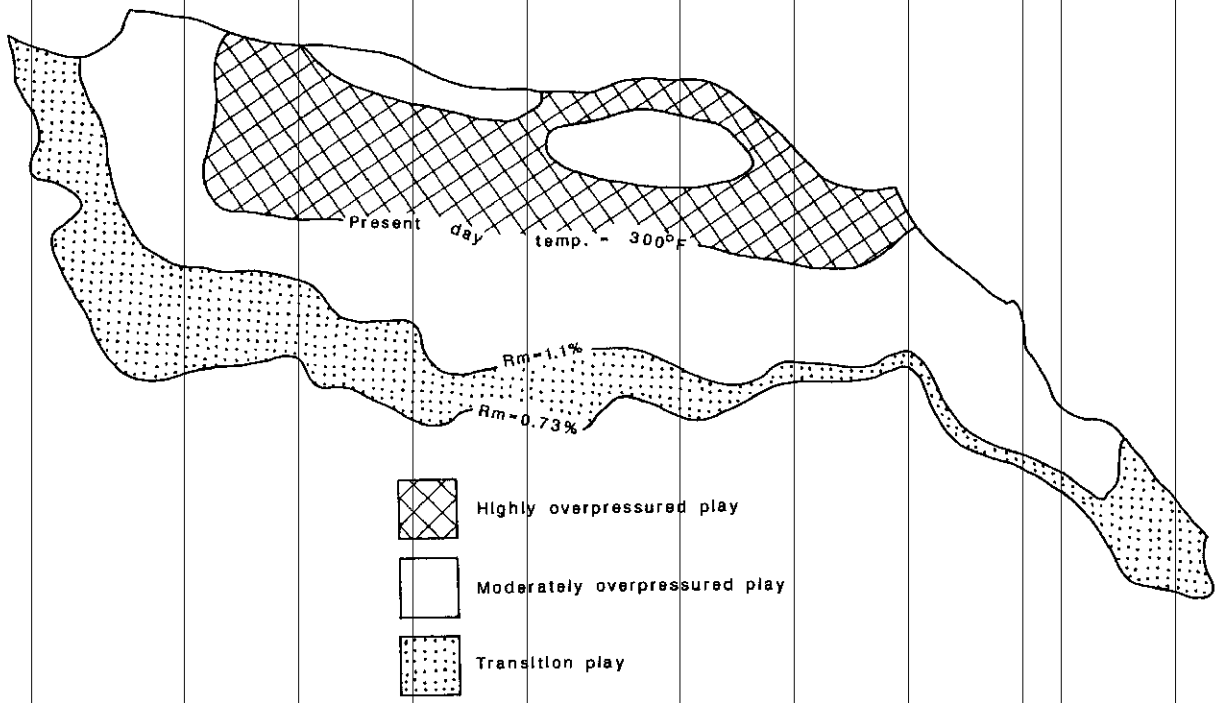


Figure 28: Generalized map showing areas of Meeteetse Formation highly overpressured, moderately overpressured, and transition plays.

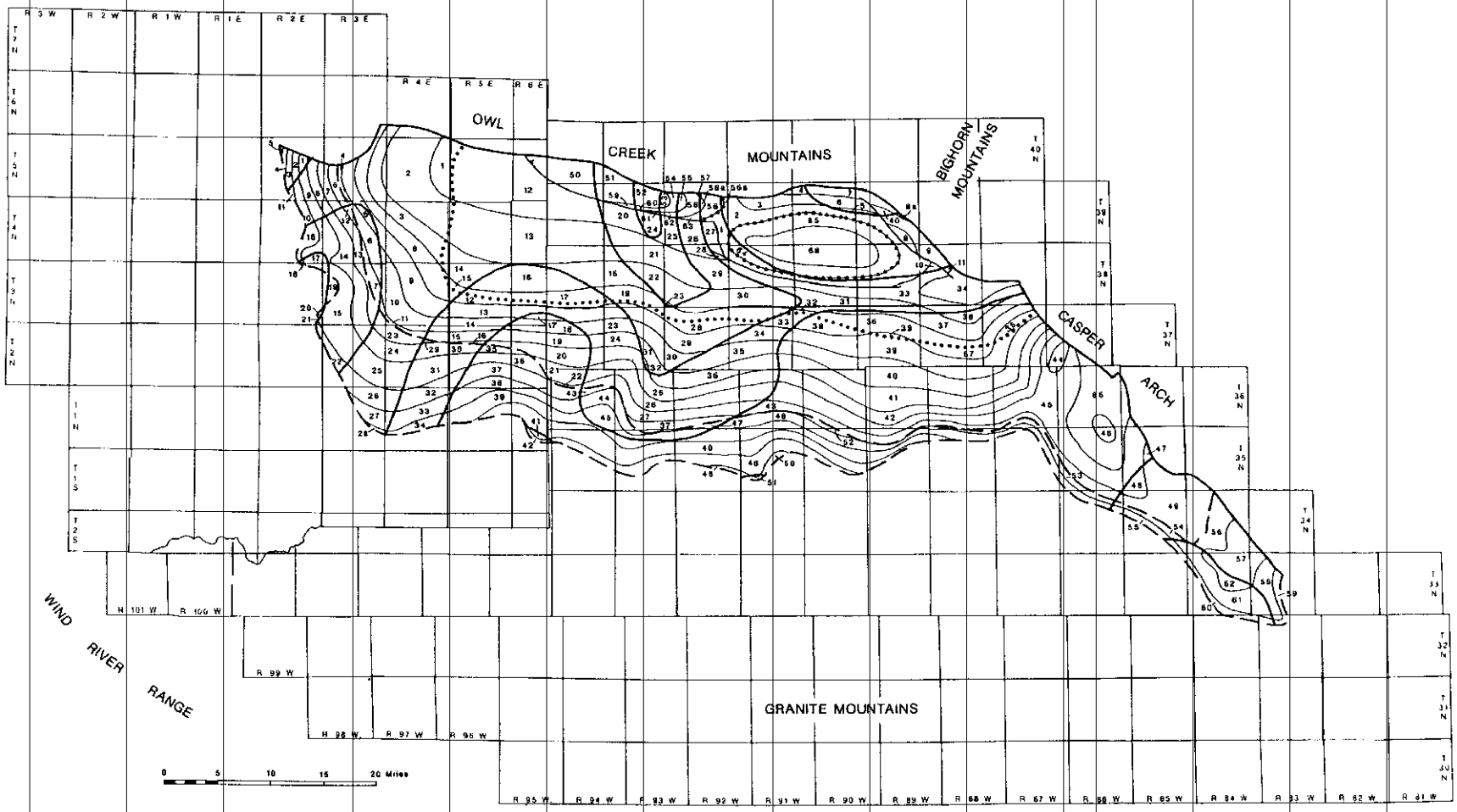


Figure 29: Detailed map showing subplays in the Meeteetse Formation. Light-weight solid lines are average overburden contours derived from the structure contour map on the Teapot Sandstone Member of the underlying Mesaverde Formation (Johnson and others, 1996, Plate 1). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 50). Heavy dashed lines and dotted line are from Figure 28. Subplay identification numbers are keyed to Tables 16-18.

LANCE FORMATION PLAYS

The Lance Formation is over 6,000 ft thick along the northeast margin of the basin adjacent to the Casper Arch but thins toward the southwest and is missing along the southwest margin near the Wind River Range (Johnson and others, 1996). Total sandstone in beds 10 ft thick or greater ranges to over 2,000 ft in the north-central part of the basin adjacent to the Owl Creek Mountains (Johnson and others, 1996, Figure 57). The Lance was divided into two plays: 1) a moderately overpressured play; and 2) a transition play (Figures 30 and 31). The Lance does not include a highly overpressured play because average temperatures for the Lance do not exceed 300° F anywhere in the basin. A structure contour map on the middle of the Lance was used to calculate average overburden (Figure 13).

Because of its great thickness, wedge-shaped volumes are created by the intersection of the Rm 1.1% and Rm 0.73% thermal maturity levels with the top and base of the Lance Formation. Calculating gas volumes in these wedge-shaped subplay areas is more complex than calculating volumes in similar wedge-shaped areas in the nonmarine Mesaverde plays because thermal maturity lines criss-cross on the play map (Figure 31). This complexity is illustrated in two schematic cross sections (Figure 32). In the western part of the basin, the positions where the Rm 0.73% thermal maturity line intersects the top and base of the Lance occur more towards the margin of the basin than the intersection of the Rm 1.1% thermal maturity line with either the top or the base of the Lance. This case is similar to that found in the nonmarine Mesaverde plays. In the eastern part of the basin the geometry is more complex. Here, for instance, the area between where the Rm 0.73% line intersects the top of the Lance and the Rm 1.1% line intersects the base of the Lance is mainly within the transition play but includes a small amount of moderately overpressured play as well as a small amount of non-gas bearing strata. For simplicity subplays in this area are assumed to be entirely within the transition play. Subplays in the area defined by where the Rm 0.73% line intersects the top of the Lance and where the Rm 1.1% thermal line intersects the top of the Lance are assumed to be half in the transition play and half in the overpressured play. Subplays in the area defined by where the Rm 0.73% line intersects the base of the Lance and where the Rm 1.1% line intersects the base of the Lance are assumed to be half in the transition play and half outside the basin-centered gas accumulation.

Lance Formation moderately overpressured play (Rm>1.1%): The moderately overpressured Lance play was subdivided into 95 subplays for a total area of 1,206.3 square miles (Figure 31, Tables 55-57). Forty seven of these subplays are wedge-shaped, and in these plays, the thickness of sandstone indicated on the sandstone isopach is halved before a gas volume is calculated. Total sandstone thickness in beds 10 ft thick or greater varies widely between the subplays from 200 ft to 2,100 ft. Average depth for the subplays varies from 7,000 ft to 16,000 ft. A porosity of 7%, trap fill of 100% and hydrocarbon saturation of 50% is assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 30%, trap fill: 20%, and hydrocarbon saturation: 40% (Table 56). Estimated total mean in-place gas is 316 tcf (Table 55). Estimates of total in-place

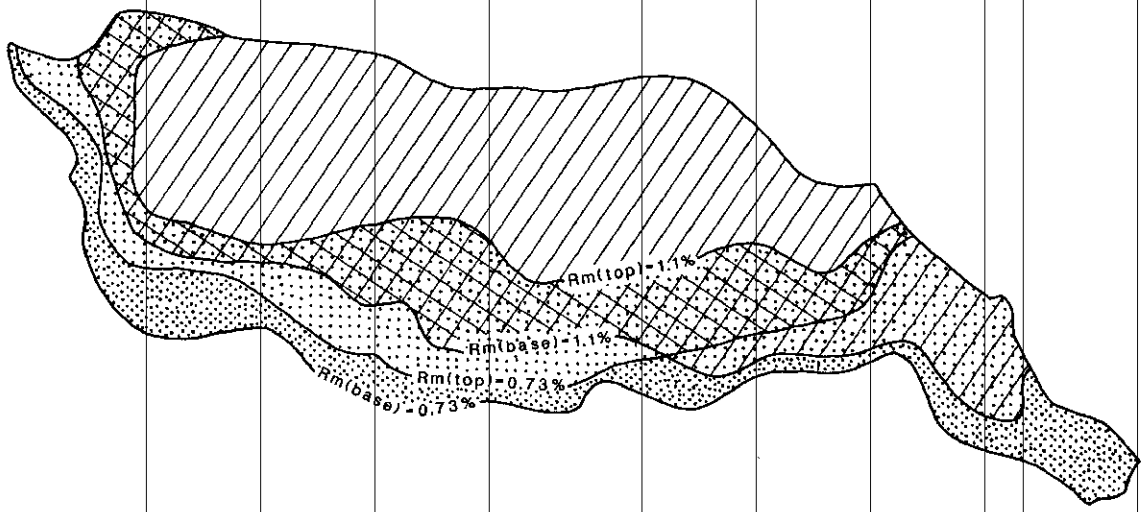


Figure 30: Generalized map showing areas of Lance Formation moderately overpressured and transition plays. Areas where the Lance Formation is divided between two different plays are also shown. Explanation of symbols used shown on Figure 32.

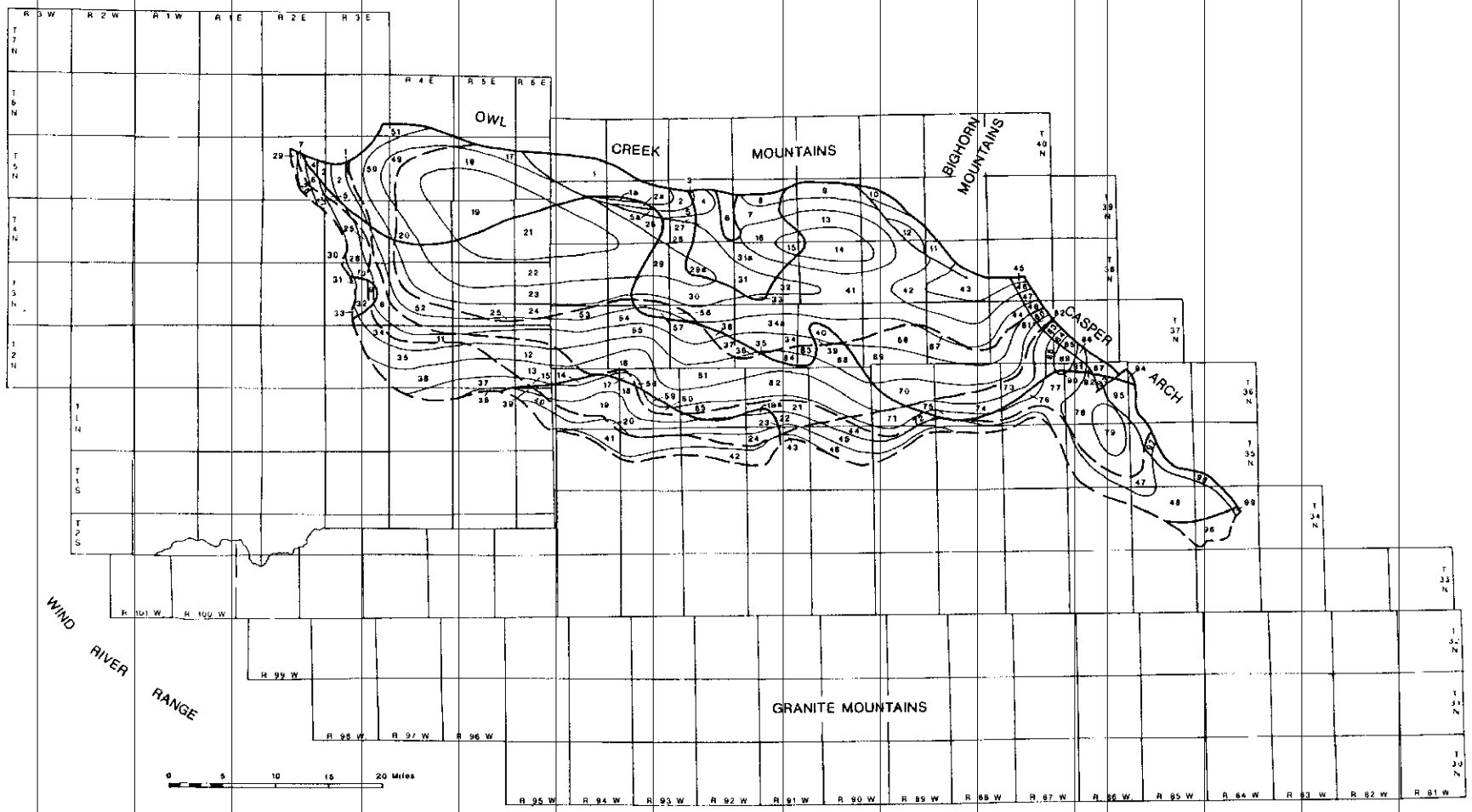


Figure 31: Detailed map showing subplays in the Lance Formation. Light-weight solid lines are average overburden contours derived from the structure contour map on the middle of theLance (Figure 13). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 57). Heavy dashed lines and dotted line are from Figure 30. Subplay identification numbers are listed in Tables 19 and 20. Some subplays are divided between two different plays and are listed in both. In addition, some subplay areas are partly cut off by the Casper Arch thrust along the south flank of the Casper Arch creating roughly wedge-shaped subplay volumes which contain approximately half of the sandstone thickness indicated by the sandstone isopach map.

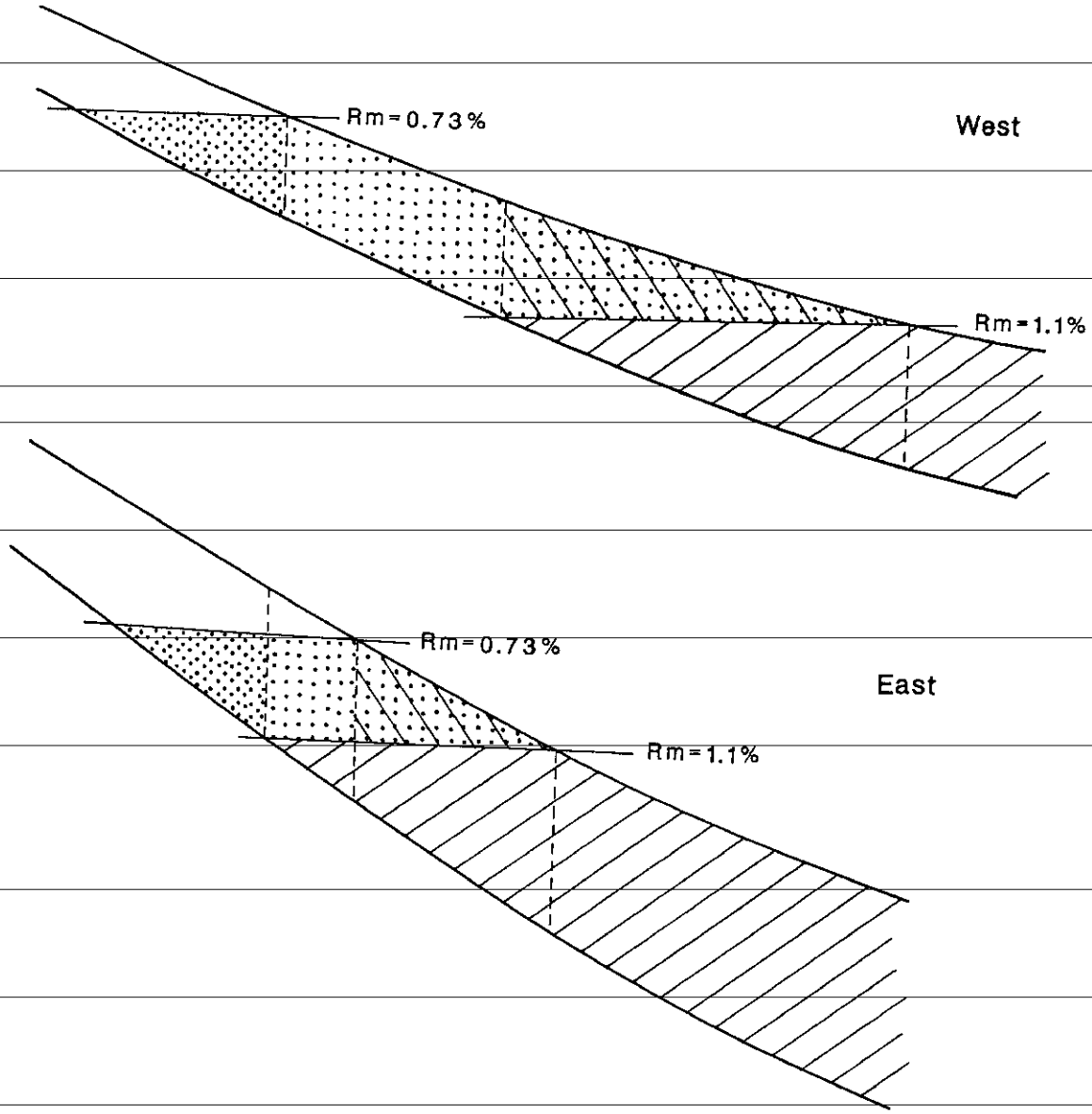


Figure 32: Cross sections of the Lance plays showing the variation in the geometry of the plays between the western and eastern parts of the basin. Wedge-shaped areas are defined by different line intersections in the western and eastern parts of the basin because of varying dips on stratigraphic contacts, and the Rm 0.73% and Rm 1.1% thermal maturity lines

gas at the 95th and 5th percentile levels are 203 tcf and 461 tcf respectively (Table 57). This is far more gas than any of the other plays considered here.

Lance Formation transition play (Rm 0.73-1.1%): The Lance transition play was subdivided into 99 subplays for a total area of 927.3 square miles (Figure 31, Tables 58-60). Fifty of the subplays are wedge-shaped. Average sandstone thickness in beds 10 ft thick or greater varies from 200 to 1,200 ft. A porosity of 7%, trap fill of 50%, and hydrocarbon saturation of 50% was assumed for all of the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 100%, and hydrocarbon saturation: 80% (Table 59). Estimated total mean in-place gas is 48.9 tcf (Table 58). Estimates of total in-place gas at the 95th and 5th percentile levels are 20.5 tcf and 94.1 tcf respectively (Table 60).

LOWER MEMBER OF THE FORT UNION FORMATION PLAYS

Unlike the tight gas sandstone plays for the other stratigraphic units considered here, the plays for the lower member of the Fort Union Formation are not defined by present day levels of thermal maturity and present-day temperatures. Instead, the lower member of the Fort Union is subdivided into two plays based on the presence or absence of the overlying Waltman Shale (Figures 33 and 34). The Waltman Shale appears to be acting as a seal, inhibiting the vertical migration of gases in the basin (Johnson and Rice, 1993). Available mudlogs suggest that gas is more-or-less ubiquitous in the lower member of the Fort Union Formation wherever the Waltman Shale is present, even at thermal maturity levels of only Rm 0.5% to Rm 0.6% (Figure 4). Gases from below the Waltman are isotopically much heavier than gases produced from sandstones within or above the Waltman and are probably sourced by thermally mature coals and carbonaceous shales within the lower member and in the underlying Upper Cretaceous rocks. The isotopically light gases produced from the Waltman and above, in contrast, are probably sourced by the Waltman. Published data indicate that permeabilities in the lower unnamed member vary from conventional to tight. Ptasynski (1989) reported permeabilities from 3 to 186 millidarcies at Waltman field while Specht (1989) reported permeabilities of from 0.1 to 55 millidarcies at Fuller Reservoir field. Low permeabilities are also indicated at Madden field where the lower member is moderately overpressured. All gas in the lower member is assessed here and no attempt was made to distinguish between gas in tight reservoirs and conventional reservoirs. The structure contour map on the middle of the lower member (Figure 14) was used to estimate overburden.

Lower member of Fort Union Formation, Waltman Shale present play: This play was subdivided into 119 subplays for a total area of 1,347.5 square miles (Figures 33, 34, Tables 61-63). Total sandstone in beds 10 ft thick or greater varies from 100 to 1,300 ft. A porosity of 7% and hydrocarbon saturation of 50% is assumed for all of the subplays. Because many of the plays occur very close to outcrop, however, estimated average trap fill is varied from 0 to 70% between the subplays. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth: 30%, closure: 30%, thickness: 50%, porosity: 60%, trap fill: 80%, and hydrocarbon saturation: 80% (Table 2). Estimated total mean in-place gas is 83 tcf (Table 61). Estimates of total in-place gas at the 95th and 5th percentile levels are 37.4 tcf and 153 tcf respectively (Table 63).

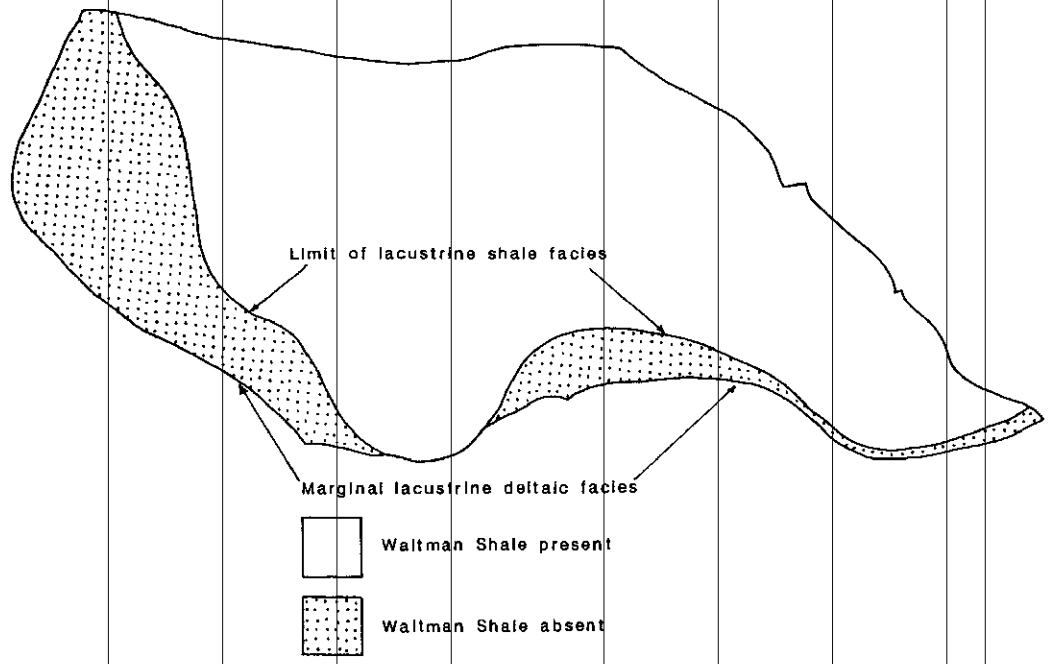


Figure 33: Generalized map showing areas of lower unnamed member of the Fort Union Formation plays. The lower member is divided into two plays: 1) where the Waltman seal is present; and 2) where the Waltman seal is absent.

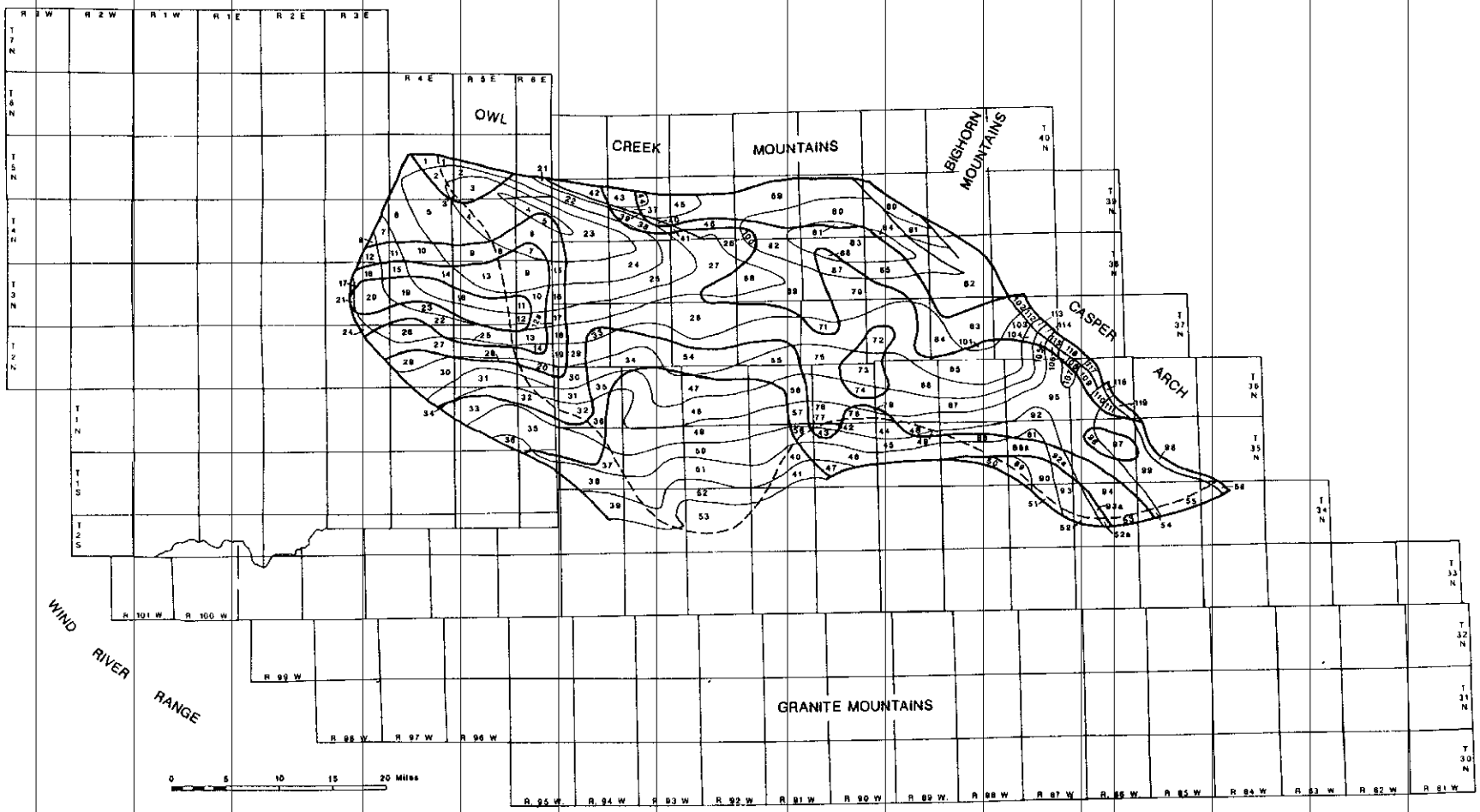


Figure 34: Detailed map showing subplays in the lower unnamed member of the Fort Union Formation. Light-weight solid lines are average overburden contours derived from the structure contour map on the middle of the lower unnamed member (Figure 14). Heavy-weight solid lines are sandstone thickness isopachs from Johnson and others (1996, Figure 64). Heavy dashed lines and dotted line are from Figure 33. Some subplay areas are partly cut off by the Casper Arch thrust along the south flank of the Casper Arch creating wedge-shaped subplay volumes which contain approximately half of the total sandstone indicated by the sandstone isopach map.

Lower member of Fort Union Formation, Waltman Shale not present play: This play occurs marginal to the pinchout of the Waltman Shale Member in a zone from about 0.5 to 14 miles wide where distinctive coarsening upwards lacustrine deltaic cycles occur but recognizable intervals of lacustrine shale are not present. In marginal areas of the basin where both the Waltman Shale and the lacustrine deltas are absent, the Fort Union cannot be subdivided into members. No attempt was made to estimate gas in the Fort Union Formation in these areas. The lower member, Waltman Shale not present play was subdivided into 56 subplays for a total area of 419.66 square miles. Total sandstone in beds 10 ft thick or greater ranges from 100 to 1,300 ft. A porosity of 8% and hydrocarbon saturation of 50% was assumed for all of the plays. As with the first Fort Union play, many of the subplays are very close to outcrop, hence trap fill was varied from 0 to 30%. Estimated ranges for the play attributes in the 95% to 5% probability range are: depth-30%, closure-30%, thickness-50%, porosity-60%, trap fill-100%, and hydrocarbon saturation-80% (Table 65). Estimated total mean in-place gas is 18.2 tcf (Table 64). Estimates of total in-place gas at the 95th and 5th percentile levels are 7.64 tcf and 35.1 tcf respectively (Table 66

CONCLUSIONS

A total of 995 tcf of gas mean in place is estimated for the 22 plays in the Wind River Basin (Table 67). Using probability theory, there is a 95% chance that there is at least 603 tcf of gas in place in the basin centered gas accumulation in the Wind River Basin and a 5% chance that there is as much as 1,530 tcf of gas in place. This is more than twice the estimated 420 tcf of in-place gas for the Piceance Basin of western Colorado (Johnson and others, 1987), which is roughly comparable in size, but less than one-fifth of the estimated in-place gas for the much larger Greater Green River Basin (Law and others, 1989). The tight gas interval is considerably thicker in the Wind River Basin than it is in the Piceance Basin, and this probably accounts for much of the difference in the in-place gas estimates for the two basins. Maximum thickness of the basin-centered gas interval in the Piceance Basin is about 6,000 (Johnson and others, 1987, Figures 3 and 4) whereas the interval is as much as 12,000 ft in the Wind River Basin (Johnson and others, 1996, Figures 7, 23, and 28). These thicknesses do not include the Frontier Formation which was not assessed in the Piceance Basin.

The estimate for the Wind River Basin can be used in far more specific ways than the estimates for the Green River and Piceance Basins because of the spread sheet format and the large number of subplays that each of the stratigraphic plays have been subdivided into. The subplays were used earlier in this report to estimate the in-place gas in the Cody Shale at Madden Anticline. This allowed us to compare the in-place estimate with the total gas produced to date for this very specific area of the basin. In addition, the total gas estimated for a subarea can be divided by the number of acres in the subarea to generate a general estimate of in-place gas per acre within the subplay. This information could be used to help determine optimum well spacing needed to develop the gas resource anywhere in the basin. Any economic analysis is also aided by

the average depth of each subplay which is included on the tables. If, for instance, it is determined that the nonmarine Mesaverde is only economic at depths of less than 12,000 ft, then all of the subplays with average depths greater than 12,000 ft can be easily eliminated. The spread sheet format used to calculate in-place resources is also very flexible and amenable to changes when future drilling helps to more precisely define the parameters used in the estimate.

REFERENCES CITED

Anderson, G. P., 1994, A field study of the Hay Reservoir area, an analog for exploration of Lewis Reservoirs: Natural Gas in the Western United States, First Biennial Conference: Rocky Mountain Association of Geologists and Colorado Oil and Gas Association, Oct. 17-18, Lakewood, Colorado, 2 p.

Barrett, W. J., and Hubley, M. D., 1969, The Madden Gas Field, Fremont County, Wyoming; in Barlow, J. A., Jr., ed., Symposium on Tertiary Rocks of Wyoming: Wyoming Geological Association 21st Field Conference Guidebook, p. 115-120.

Barwin, J. R., 1959, Facies of the Mesaverde Formation, east-central Wyoming: American Association of Petroleum Geologists Rocky Mountain Section Geological Record, Feb., 1959. p. 139-142.

Barwin, J. R., 1961a, Stratigraphy of the (Cretaceous) Mesaverde Formation in the southeastern part of the Wind River Basin, Fremont and Natrona Counties, Wyoming: Laramie Wyoming, Wyoming University unpublished MS thesis, 78 p.

Barwin, J. R., 1961b, Stratigraphy of the Mesaverde Formation in the southern part of the Wind River Basin, Wyoming: Wyoming Geological Association, 16th Annual Field Conference, p. 171-179.

Brenner, R. L., and Davis, D. K., 1973, Storm-generated coquinoid sandstones: genesis of high-energy marine sediments from the Upper Jurassic of Wyoming and Montana: Geological Society of America Bulletin, v. 84, p. 1685-1698.

Brown, R. G., and Shannon, L. T., 1989, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins; Wyoming Geological Association, p. 293-295.

Cobban, W. A., and Kennedy, W. J., 1989, The ammonite Metengonoceras Hyatt, 1903, from the Mowry Shale (Cretaceous) of Montana and Wyoming: U. S. Geological Survey Bulletin 1787-L, 11 p.

De Bruin, R. H., and Hostetler, S. D., 1991, Oil and gas fields map of the Wind River Basin, Wyoming: Wyoming Geological Survey Map Series MS-37, scale: 1:316,800.

Dunleavy, J.M., and Gilbertson, R.L., 1986, Madden anticline: growing giant, in Noll, J.H., and Doyle, K.M., eds., Rocky Mountain Oil and Gas Fields, Wyoming Geological Association 1986 Symposium, Casper, WY, p. 107-157.

Finn, T.M., 1993, Subsurface stratigraphic cross section of Lower and Upper Cretaceous rocks in the southeastern Wind River Basin, Wyoming, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 91-94.

Flores, R.M., Clark, A.C., and Keighin, C.W., 1993, Architecture of Fort Union paleovalley conglomerates related to aquifer potential in the western Wind River Basin, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and

other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 143-162.

Flores, R.M., and Keighin, C.W., 1993, Reservoir anisotropy and facies stratigraphic framework in the Paleocene Fort Union Formation, western Wind River Basin, Wyoming, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 121-142.

Flores, R. M., Roberts, S. B., and Perry, W. J. Jr., 1994, Paleocene paleogeography of the Wind River, Bighorn, and Powder River Basins, Wyoming, in Flores, R. M., Mehring, K. T., Jones, R. W., and Beck, T. L., eds., Organics and the Rockies Field Guide, The Society for Organic Petrology Eleventh Annual Meeting, Jackson, Wyoming: Wyoming State Geological Survey Public Information Circular no. 33, p 1-16.

Forster, J. A., and Horne, J. C., 1994, Controls on natural gas reservoir distribution: Frontier Formation, Green River Basin, Wyoming: Natural Gas in the Western United States, First Biennial Conference: Rocky Mountain Association of Geologists and Colorado Oil and Gas Association, Oct. 17-18, Lakewood, Colorado, 11 p.

Fouch, T.D., Wandrey, C.J., Pitman, J.K., Nuccio, V.F., Schmoker, J.W., Rice, D.D., Johnson, R.C., and Dolton, G.L., 1992, Natural gas accumulations in low-permeability Tertiary, and Cretaceous (Campanian and Maastrichtian) rock, Uinta Basin, Utah: U.S. Department of Energy DOE/MC/20422-3051, 81 p.

Gaskill, C. H., 1989, Tepee Flats, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins; Wyoming Geological Association, p. 501-502.

Gautier, D. L., 1983, Chapter 8- Marine shales, in Rice, D. D., and Gautier, D. L., eds., Patterns of Sedimentation, Diagenesis, and Hydrocarbon Accumulation in Cretaceous Rocks of the Rocky Mountains: Society of Economic Paleontologists and Mineralogists Short Course no. 11, p. 8-1 to 8-41.

Gilbert, N. M., 1989, Bonneville: : in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins; Wyoming Geological Association, p. 68-69.

Gill, J.R., and Cobban, 1966, Regional unconformity in Late Cretaceous, Wyoming, in Geological Survey Research, 1966: U.S. Geological Survey Professional Paper 550-B, p. B20-B27.

Gill, J. R., Merewether, E. A., and Cobban, W. A., 1970, Stratigtraphy and nomenclature of some Upper Cretaceous and lower Tertiary rocks in south-central Wyoming: U. S. Geological Survey Professional Paper 667, 53 p.

Gillespie, J. M., and Fox, J. E., 1991, Tectonically influenced sedimentation in the Lance Formation, eastern Wind River Basin, Wyoming: The Mountain Geologist, v. 28, no. 2/3, p. 53-66.

Gouger, B. L., 1989, Poison Spider West, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins: Wyoming Geological Association, p. 381-383.

Hares, C. J., 1916, Anticlines in central Wyoming: U.S. Geological Survey Bulletin 641-I, p. 233-279.

Hares, C. J., and others, 1946, Geologic map of the southeastern part of the Wind River Basin and adjacent areas in central Wyoming: U.S. Geological Survey Oil and Gas Investigations Map OC-51.

Hartmann, d. J., and MacMillan, L., 1992, Petrophysics of the Wasatch Formation and Mesaverde Group, Natural Buttes producing area, Uinta Basin, Utah, in Fouch, T. D., Nuccio, V. F., and Chidsey, T. C., Jr., eds., Hydrocarbon and mineral resources of the Uinta Basin, Utah and Colorado: Utah Geological Association, Guidebook 20, p. 175-192.

Hogle, D. G., and Jones, R. W., 1991, Subsurface geology of Upper Cretaceous and lower Tertiary coal-bearing rocks, Wind River Basin, Wyoming: The Mountain Geologist, v. 28, no. 2/3, p. 13-35.

Johnson, R. C., Crovelli, R. A., Spencer, C. W., and Mast, R. F., 1987, As assessment of gas resources in low-permeability sandstones of the Upper Cretaceous Mesaverde Group, Piceance Basin, Colorado: U.S. Geological Survey Open-File Report 87-357, 165 p.

Johnson, R. C., and Flores, R. M., 1993, Sratigraphy, areal distribution, and paleodepositional environments of Fort Union Formation coal beds, Wind River Reservation, Wyoming: in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p.281-294.

Johnson, R.C., and Clark, A.C., 1993, Environments of deposition of the uppermost part of the Cody Shale and the Mesaverde and Meeteetse Formations of Late Cretaceous age, Shotgun Butte area, Wind River Reservation, Wyoming: in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 95-109.

Johnson, R. C., Clark, A. C., Barker, C. E., Crysdale, B. L., Higley, D. K., Szmajter, R. J., and Finn, T. M., 1993, Coalbed Methane potential of the Upper Cretaceous Mesaverde and Meeteetse Formations, Wind River Reservation, Wyoming: in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p.215-242.

Johnson, R. C., and Rice, D. D., 1993, Variations in composition and origins of gases from coal bed and conventional reservoirs, Wind River Basin, Wyoming: in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 319-335.

Johnson, R. C., Rice, D. D., and Fouch, T. D., 1994a, Evidence for gas migration from Cretaceous basin-centered accumulations into lower Tertiary reservoirs in Rocky Mountain basins: Rocky Mountain Association of Geologists and Colorado Oil and Gas Association First Biennial Conference, Natural Gas in the Western United States Proceedings, Oct. 17-18,1994, Lakewood, Colorado, 8 p.

Johnson, R. C., Rice, D. D., and Fouch, T. D., 1994b, Gas migrating from basin-center low-permeability hydrocarbon accumulations in the Rocky Mountain basins-where does it go?: American Association of Petroleum Geologists Annual Meeting, Denver Colorado, June 12-15, 1994, Abstracts With Program. p. 181-182.

Johnson, R. C., Flores, R. M., Szmajter, R., and Finn, T. M., 1994c, A preliminary study of coal-forming environments during deposition of the Paleocene Fort Union Formation, Wind River Basin, Wyoming: in Flores, R. M., Mehring, K. T., Jones, R. W., and Beck, T. L., eds., Organics and the Rockies Field Guide, The Society for Organic Petrology Eleventh Annual Meeting, Jackson, Wyoming: Wyoming State Geological Survey Public Information Circular no. 33, p. 69-81.

Johnson, R. C., Finn, T. M., Keefer, W. R., Flores, R. M., Keighin, C. W., Szmajter, R. J., and Nuccio, V. F., (1995), Preliminary geologic characterization of Upper Cretaceous and Lower Tertiary low-permeability (tight) gas bearing rocks in the Wind River Basin, Wyoming: Proceedings of the Natural Gas RD& Contractors Review Meeting, U.S. Department of Energy Office of Fossil Energy, Morgantown West Virginia, and Southern University, DOE/METC-95/1017, Vol. 2, p. 87-101.

Johnson, R. C., Finn, T. M., Keefer, W. R., and Szmajter, R. J., 1996, Geology of Upper Cretaceous and Paleocene gas-bearing rocks, Wind River Basin, Wyoming: U.S. Geological Survey Open-File Report OF-96-090, 120 p. and 3 Plates.

Kaiser, W. R., and Scott, A. R., 1994, Abnormal pressure in the San Juan and Greater Green River Basins: Natural Gas in the Western United States; Rocky Mountain Association of Geologists and Colorado Oil and Gas Association First Biennial Conference, Oct. 17-18, Lakewood Colorado, Extended Abstracts, 5 p.

Katz, B.J., and Liro, L.M., The Waltman Shale Member, Fort Union Formation, Wind River Basin: a Paleocene clastic lacustrine source system, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 163-174.

Keefer, W. R., 1965, Geologic history of Wind River Basin, central Wyoming: American Association of Petroleum Geologists Bulletin, v. 49, no. 11, p. 1878-1892.

Keefer, W.R., 1972, Frontier, Cody and Mesaverde Formations in the Wind River and southern Bighorn Basins, Wyoming: U.S. Geological Survey Professional Paper 495-E, 23 p.

Keefer, W. R., and Troyer, M. L. 1964, Geology of the Shotgun Butte area, Fremont County, Wyoming: U.S. Geological Survey Bulletin 1157, 123 p.

Keefer, W. R., Stratigraphy and correlation of Cretaceous and Paleocene Rocks, northern Wind River Basin, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-146A (in press).

Keefer, W. R., and Rich, E. I., 1957, Stratigraphy of the Cody Shale and younger Cretaceous and Paleocene rocks in the western and southern parts of the Wind River Basin, Wyoming: Wyoming Geological Association 12th. Annual Field Conference Guidebook, p. 71-78.

Keefer, W. R., and Johnson, R. C., Stratigraphy and correlation of Cretaceous and Paleocene rocks, west-central Wind River Basin, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart 146B (in press).

Keighin, C.W., 1993, Petrography of some Upper Cretaceous Mesaverde Formation sandstones, Wind River Basin, Wyoming, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, 1993, Casper, WY, p. 111-119.

Kukal, G. D., Biddison, C. L., Hill, R. E., Monson, E. R., and Simons, K. E., 1983, Critical problems hindering accurate log interpretation of tight gas reservoirs, SPE-11620, in 1983 SPE/DOE symposium on low permeability, proceedings: Society of Petroleum Engineers, p. 181-190.

Law, B. E., 1984, Relationship of source-rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks, greater Green River Basin, Wyoming, Colorado, and Utah: in Woodward, Jane, Meissner, F. F., and Clayton, J. L., eds., Hydrocarbon Source Rocks of the Greater Rocky Mountain Region; Rocky Mountain Association of Geologists Symposium, Denver CO., p. 469-490.

Law, B. E., and Dickinson, W. W., 1985, Conceptual model for the origin of abnormally pressured gas accumulations in low-permeability reservoirs: American Association of Petroleum Geologists Bulletin, v. 69, no. 8, p. 1295-1304.

Law, B. E., Spencer, C. W., and Bostick, N. H., 1979, Preliminary results of organic maturation, temperature, and pressure studies in the Pacific Creek area, Sublette County, Wyoming, in 5th DOE Symposium on Enhanced Oil and Gas Recovery and Improved Drilling Methods, Tulsa, Oklahoma, Proceedings, v. 3 - Gas and Drilling: Tulsa, Oklahoma, Petroleum Publishing Co., p. 1-13.

Law, B. E., Spencer, C. W., Charpentier, R. R., Crovelli, R. A., Mast, R. F., Dolton, G. L., and Wandrey, C. J., 1989, Estimates of gas resources in overpressured low-permeability Cretaceous and Tertiary sandstone reservoirs, Greater Green River Basin, Wyoming, Colorado, and Utah, in Eisert, J. L. ed; Gas Resources of Wyoming: Wyoming Geological Association Fourteenth Field Conference Guidebook, p. 39-61.

Little, Laird, 1989, Riverton Dome East, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins: Wyoming Geological Association, p. 410-412.

Liro, L. M., and Pardus, Y. C., 1990, Seismic facies analysis of fluvial-deltaic lacustrine systems - upper Fort Union Formation (Paleocene), Wind River Basin, Wyoming, in Katz, B. J., ed, Lacustrine Basin Exploration - Case Studies and Modern Analogs: American Association of Petroleum Geologists Memoir 50, p. 225-242.

MacGowan, D. B., Garcia-Conzalez, M., Britton, D. R., and Surdam, R. C., 1993, Timing of hydrocarbon generation, organic-inorganic diagenesis, and the formation of abnormally pressured gas compartments in the Cretaceous of the Greater Green River Basin: a Geochemical Model: Wyoming Geological Association Guidebook, Jubilee Anniversary Field Conference, p. 325-348.

Mann, R. L., and Malinowsky, M. S., 1993, Slant hole completion test, Cozzette and paludal production testing, in Malone, R. D., ed., Proceedings of the Fuels Technology Contractors Review Meeting , U.S. Department of Energy, Office of Fossil Energy, Morgantown West Virginia, DOE/METC-94/1002, p. 186-199.

Masters, J. A., 1979, Deep basin gas trap western Canada: American Association of Petroleum Geologists Bulletin, v. 63, no. 2, p. 151-181.

Masters, J. A., 1984, Lower Cretaceous oil and gas in western Canada, in Masters, J. A., ed., Elmworth - Case Study of a Deep Basin Gas Field: American Association of Petroleum Geologists Memoir 38, p. 1-33.

Merewether, E.A., 1983, The Frontier Formation and mid-Cretaceous orogeny in the foreland of southwestern Wyoming: The Mountain Geologist, v. 20, p. 121-138.

Mcpeek, L. A., 1981, Eastern Green River Basin--a developing giant gas supply from deep, overpressured Upper Cretaceous sandstone: American Association of Petroleum Geologists Bulletin, v. 65, p. 1078-1098.

Meissner, F. F., 1980, Examples of abnormal fluid pressure produced by hydrocarbon generation: American Association of Petroleum Geologists Bulletin, v. 65, p. 749.

Meissner, F. F., 1981, Abnormal pressures produced by hydrocarbon generation and maturation and their relation to processes of migration and accumulation: American Association of Petroleum Geologists Bulletin, v. 65, p. 2467.

Meissner, F. F., 1984, Cretaceous and Lower Tertiary coals as sources for gas accumulations in the Rocky Mountain area, in Woodward, Jane, Meissner, F. F., and Clayton, J. L., eds., Hydrocarbon Source Rocks of the Greater Rocky Mountain Region: Rocky Mountain Association of Geologists Symposium, Denver CO., p. 401-432.

Mercer, J. C., and Frohne, K. H., 1986, Production characterization of tight lenticular gas sands in the Rulison area of western Colorado: Society of Petroleum Engineers SPE Paper 15248, 6 p.

Mueller, Clark, 1989, Frenchie Draw, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins: Wyoming Geological Association, p.174-175.

Mueller, Clark, 1989, Muddy Ridge, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins: Wyoming Geological Association, p.312-315.

Nichols, D. J., and Ott, H. L., 1978, Biostratigraphy and evolution of the *Momities-Caryapollenites* lineage in the early Tertiary in the Wind River Basin, Wyoming: Palynology, v. 2, p. 93-112.

Nichols, D. J., and Flores, R. M., 1993, Palynostratigraphic correlation of the Fort Union Formation (Paleocene) in the Wind River Reservation and Waltman area, Wind River Basin, Wyoming: in Keefer, W. R., Metzger, W. J., and Godwin, L. H., eds, Oil and Gas and Other Resources of the Wind River Basin, Wyoming, Wyoming Geological Association Special Symposium, p. 179-189.

Nuccio, V. F., Finn, T. M., and Johnson, R. C., 1996, Thermal maturity data used for the assessment of gas resources in the Wind River Basin, Wyoming: U.S. Geological Survey Open-File Report 96-064, 57 p.

Nuccio, V. F., Finn, T. M., and Pawlewicz, M. J., 1993, Surface vitrinite reflectance study of the Wind River Basin, central Wyoming, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, Casper, WY, p. 307-317.

Pawlewicz, M., 1993, Vitrinite reflectance study of the Wind River Basin, central Wyoming, in Keefer, W.R., Metzger, W. J., and Godwin, L.H., eds., Oil and gas and other resources of the Wind River Basin, Wyoming: Wyoming Geological Association Special Symposium, Casper, WY, p. 295-306.

Peterson, R. E. ,1984, Geological and production characteristics of the nonmarine part of the Mesaverde Group, Rulison Field area, Piceance Basin, Colorado: SPE/DOE/GRI Paper 12835, 10 p.

Phillips, S. T., 1983, Tectonic influence on sedimentation, Waltman Member, Fort Union Formation, Wind River Basin, Wyoming, in Lowell, J. D. ed., Rocky Mountain Foreland Basins and Uplifts: Rocky Mountain Association of Geologists Field Conference, p. 149-160.

Ptasynski, H., 1989, Waltman Bullfrog Unit, in Cardinal, D. F., Miller, Terry, Stewart, W. W., and Trotter, J. F., eds., Wyoming Oil and Gas Fields Symposium Bighorn and Wind River Basins; Wyoming Geological Association, p. 522-526.

Ray, R. R., 1982, Seismic stratigraphic interpretation of the Fort Union formation, western Wind River basin: example of subtle trap exploration in a nonmarine sequence, in Halbouty, M. T., ed., The Deliberate Search for the Subtle Trap: American Association of Petroleum Geologists Memoir 32, p. 169-180.

Ray, R. R., and Keefer, W. R., 1985, Wind River Basin, central Wyoming: in Gries, R. R., and Dyer, R. C., eds., Seismic Exploration of the Rocky Mountain Region: Rocky Mountain Association of Geologists and the Denver Geophysical Society, p. 201-212.

Reinecke, K. M., Rice, D. D., and Johnson, R. C., 1991, Characteristics and development of fluvial sandstone and coalbed reservoirs of Upper Cretaceous Mesaverde Group, Grand Valley field, Garfield County, Colorado, in Schwochow, S. D., Murray, D. K., and Fahy, M. F. eds., Coalbed Methane of Western North America: Rocky Mountain Association of Geologists 1991 Guidebook, p. 209-225.

Reynolds, M.W., 1966, Stratigraphic relations of Upper Cretaceous rocks, Lamont-Baroil area, south-central Wyoming, in Geological Research, 1966: U.S. Geological Survey Professional Paper 550-B, p. B69-B76.

Rice, D. D., and Shurr, G. W., 1983, Patterns of sedimentation and paleogeography across the Western Interior Seaway during time of deposition of Upper Cretaceous Eagle Sandstone and equivalent rocks, Northern Great Plains, in Reynolds, M. W., and Dolly, E. D., eds., Mesozoic Paleogeography of the West-Central United States, Rocky Mountain Paleogeography Symposium 2: The Rocky Mountain Section, Society of Economic Paleontologists and Mineralogists, p. 337-358.

Rich, E. I., 1958, Stratigraphic relations of latest Cretaceous rocks in parts of Powder River, Wind River, and Big Horn basins, Wyoming: American Association of Petroleum Geologists Bulletin, v. 42, no. 10, p. 2424-2443.

Schmitt, G. T., 1975, Madden-Badwater field: in Bolyard, D. D., ed., Deep Drilling Frontiers of the Central Rocky Mountains: Rocky Mountain Association of Geologists, p. 245-254.

Schmoker, J. W., 1995, Method for assessing continuous-type (unconventional) hydrocarbon accumulations, in Gautier, D. L., Dolton, G. L., Takahashi, K. I., and Varns, K. L., eds., 1995 National assessment of United States oil and gas resources on CD-ROM: U. S. Geological Survey Digital Data Series 30.

Schrayer, G.J., and Zarella, W.M., 1963, Organic geochemistry of shale. I. Distribution of organic matter in the siliceous Mowry Shale of Wyoming: Geochimica. et Cosmochimica. Acta, v. 27, p. 1033-1046.

Shade, M. E., and Hansen, D. K. T., 1992, Drilled sidewall cores aid in interpretation of the Tertiary Wasatch Formation, Natural Buttes field, Utah: in Fouch, T. D., Nuccio, V. F., and Chidsey, T. C., Jr., Hydrocarbon and mineral resources of the Uinta Basin, Utah and Colorado: Utah Geological Association, Guidebook 20, p. 193-217.

Specht, R. W., Fuller Reservoir: Wyoming Oil and Gas Symposium Bighorn and Wind River Basins; Wyoming Geological Association, p. 178-180.

Spencer, C. W., 1985, Geologic aspects of tight gas reservoirs in the Rocky Mountain region: Journal of Petroleum Technology, July, p. 1308-1314.

Spencer, C. W., 1987, Hydrocarbon generation as a mechanism for overpressuring in the Rocky Mountain Region: American Association of Petroleum Geologist Bulletin, v. 71, p. 368-388.

Spencer, C. W., and Law, B. E., 1981, Overpressured, low-permeability gas reservoirs in Green River, Washakie, and Great Divide basins, southwestern Wyoming (abs.) American Association of Petroleum Geologists Bulletin, v. 65, p. 569.

Standing, M. B., 1977, Volumetric and Phase Behavior of Oil Field Hydrocarbon Systems: Society of Petroleum Engineers of AIME, Dallas.

Surdam, R. C., Jiao, Z. S., and Heasler, H. P., 1995, Anomalously pressured gas accumulations in Cretaceous rocks of the Laramide basins of Wyoming, USA: Rocky Mountain Association of Geologists and Colorado Oil and Gas Association First Biennial Conference, Natural Gas in the Western United States Proceedings, Oct. 17-18,1994, Lakewood, Colorado, 2 p.

Thomas, J. B., 1979, Reservoir characterization of the Shannon Sandstone by scanning electron microscopy (SEM), x-ray diffraction (XRD) and thin-section analysis of drill cuttings; Michigan-Wisconsin Lysite 1-9 well: Reservoirs, Inc. service report prepared for Michigan-Wisconsin Pipeline Company, November, 1979, Monsanto Oil Company files.

Thompson, R.M., Love, J.D., and Tourtelot, H.A., 1949, Stratigraphic sections of pre-Cody Upper Cretaceous rocks in central Wyoming: U.S. Geological Survey Oil and Gas Investigations Preliminary Chart 36.

Thompson R. M., and White, V. L., 1954, Geology of the Riverton area, central Wyoming: U.S. Geological Survey Oil and Gas Investigations Map OM-127.

Tyler R., Kaiser, W. R., Scott, A. R., Hamilton, D. S., and Ambrose, W. A., 1995, Geologic and hydrologic assessment of natural gas from coal: Greater Green River, Piceance, Powder River, and Raton Basins, Western United States: Texas Bureau of Economic Geology and the Gas Research Institute Report of Investigations No. 228, 219 p.

Warwick, P. D., and Stanton, R. W., 1988, Depositional models for two Tertiary coal-bearing sequences in the Powder River Basin, Wyoming, USA: Journal of the Geological Society, London, v. 145, p. 613-620.

Woodruff, E. G., 1911, The Lander oil field, Fremont County, in The Lander and Salt Creek oil fields, Wyoming: U.S. Geological Survey Bulletin 452, p. 7-36.

Yenne, K. A., and Pipiringos, G. N., 1954, Stratigraphic sections of Cody Shale and younger Cretaceous and Paleocene rocks in the Wind River Basin, Fremont County, Wyoming: U.S. Geological Survey Oil and Gas Investigations Chart OC-49.

Yin, P., and Surdam, R., 1993, Diagenesis and overpressuring in the Almond Sandstone, Mesaverde Group, in Stroock, Betty, and Andrew, Sam, eds., Wyoming Geological Association Guidebook, Jubilee Anniversary Field Conference, p. 349-357.

\WINDRIVR\ASSESS\GFRONT1.XLS

Play Name :		Frontier > 300F								(Panel 1)
						a =	0.727	0.016	0.00008	
						b =	14.7	505	0	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	15.9	260	6	100	50	24,000	17462.7	889	1.92	1.25E+12
2	33.6	270	6	100	50	23,000	16735.7	873	1.84	2.79E+12
3	8.9	280	6	100	50	22,000	16008.7	857	1.76	7.81E+11
4	3.4	260	6	100	50	21,000	15281.7	841	1.68	2.82E+11
5	2.2	260	6	100	50	20,000	14554.7	825	1.6	1.86E+11
6	0.76	250	6	100	50	19,000	13827.7	809	1.52	6.31E+10
7	68.1	225	6	100	50	24,000	17462.7	889	1.92	4.63E+12
8	30.2	225	6	100	50	23,000	16735.7	873	1.84	2.09E+12
9	11.2	225	6	100	50	22,000	16008.7	857	1.76	7.90E+11
10	8.8	225	6	100	50	21,000	15281.7	841	1.68	6.32E+11
11	9.1	225	6	100	50	20,000	14554.7	825	1.6	6.67E+11
12	7	225	6	100	50	19,000	13827.7	809	1.52	5.23E+11
13	5.4	225	6	100	50	18,000	13100.7	793	1.44	4.12E+11
14	5.7	225	6	100	50	17,000	12373.7	777	1.36	4.43E+11
15	3.2	215	6	100	50	16,000	11646.7	761	1.28	2.43E+11
16	29.5	190	6	100	50	24,000	17462.7	889	1.92	1.69E+12
17	91.8	175	6	100	50	23,000	16735.7	873	1.84	4.94E+12
18	75.8	175	6	100	50	22,000	16008.7	857	1.76	4.16E+12
19	54.6	175	6	100	50	21,000	15281.7	841	1.68	3.05E+12
20	48	175	6	100	50	20,000	14554.7	825	1.6	2.73E+12
21	49	175	6	100	50	19,000	13827.7	809	1.52	2.85E+12
22	56.2	175	6	100	50	18,000	13100.7	793	1.44	3.33E+12
23	60.4	175	6	100	50	17,000	12373.7	777	1.36	3.65E+12
24	70.4	165	6	100	50	16,000	11646.7	761	1.28	4.10E+12
25	28.1	160	6	100	50	15,000	10919.7	745	1.2	1.62E+12
26	19.1	160	6	100	50	14,000	10192.7	729	1.12	1.13E+12
27	12.6	145	6	100	50	15,000	10919.7	745	1.2	6.59E+11
28	18.5	145	6	100	50	14,000	10192.7	729	1.12	9.89E+11
29	3.5	140	6	100	50	13,000	9465.7	713	1.04	1.85E+11
30	25	175	6	100	50	15,000	10919.7	745	1.2	1.58E+12
31	9.5	170	6	100	50	14,000	10192.7	729	1.12	5.95E+11
32	5.3	160	6	100	50	13,000	9465.7	713	1.04	3.20E+11
33	1.5	190	6	100	50	14,500	10556.2	737	1.16	1.04E+11
34	29.5	145	6	100	50	23,000	16735.7	873	1.84	1.32E+12
35	30.7	145	6	100	50	22,000	16008.7	857	1.76	1.39E+12
36	35.4	140	6	100	50	21,000	15281.7	841	1.68	1.58E+12
37	38.4	140	6	100	50	20,000	14554.7	825	1.6	1.75E+12
38	44	135	6	100	50	19,000	13827.7	809	1.52	1.97E+12
39	44.7	130	6	100	50	18,000	13100.7	793	1.44	1.97E+12
40	45.9	130	6	100	50	17,000	12373.7	777	1.36	2.06E+12
41	41.3	125	6	100	50	16,000	11646.7	761	1.28	1.82E+12
42	29.6	125	6	100	50	15,000	10919.7	745	1.2	1.33E+12
43	38.6	125	6	100	50	14,000	10192.7	729	1.12	1.78E+12
44	14.3	110	6	100	50	13,000	9465.7	713	1.04	5.93E+11
45	5.4	110	6	100	50	12,000	8738.7	697	0.96	2.29E+11

46	2.2	100	6	100	50	12,000	8738.7	697	0.96	8.48E+10
47	39.8	160	6	100	50	23,000	16735.7	873	1.84	1.96E+12
48	12.9	160	6	100	50	24,000	17462.7	889	1.92	6.23E+11
49	26.6	165	6	100	50	22,000	16008.7	857	1.76	1.38E+12
50	13.5	165	6	100	50	21,000	15281.7	841	1.68	7.11E+11
51	34.5	175	6	100	50	20,000	14554.7	825	1.6	1.97E+12
52	34.8	175	6	100	50	19,000	13827.7	809	1.52	2.02E+12
53	7.7	165	6	100	50	17,000	12373.7	777	1.36	4.39E+11
54	3.7	155	6	100	50	16,000	11646.7	761	1.28	2.02E+11
55	9.3	130	6	100	50	17,000	12373.7	777	1.36	4.18E+11
56	8.1	125	6	100	50	16,000	11646.7	761	1.28	3.57E+11
57	2.5	95	6	100	50	16,000	11646.7	761	1.28	8.38E+10
58	2.9	95	6	100	50	15,000	10919.7	745	1.2	9.94E+10
59	2.5	95	6	100	50	14,000	10192.7	729	1.12	8.75E+10
60	3.4	95	6	100	50	13,000	9465.7	713	1.04	1.22E+11
61	13.4	95	6	100	50	12,000	8738.7	697	0.96	4.91E+11
62	1.9	175	6	100	50	16,000	11646.7	761	1.28	1.17E+11
63	0.78	175	6	100	50	16,000	11646.7	761	1.28	4.82E+10
64	16.9	175	6	100	50	17,000	12373.7	777	1.36	1.02E+12
65	9.3	175	6	100	50	24,000	17462.7	889	1.92	4.92E+11
66	15	175	6	100	50	23,000	16735.7	873	1.84	8.07E+11
67	15.9	180	6	100	50	22,000	16008.7	857	1.76	8.97E+11
68	3.7	190	6	100	50	19,000	13827.7	809	1.52	2.33E+11
69	2.9	205	6	100	50	20,000	14554.7	825	1.6	1.94E+11
70	30.7	210	6	100	50	18,000	13100.7	793	1.44	2.18E+12
71	2.6	205	6	100	50	19,000	13827.7	809	1.52	1.77E+11
72	12.8	185	6	100	50	17,000	12373.7	777	1.36	8.19E+11
73	5.1	160	6	100	50	15,000	10919.7	745	1.2	2.94E+11
74	1.7	155	6	100	50	14,500	10556.2	737	1.16	9.61E+10
75	19.8	140	6	100	50	13,000	9465.7	713	1.04	1.04E+12
76	18.6	130	6	100	50	12,000	8738.7	697	0.96	9.32E+11
77	20	115	6	100	50	11,000	8011.7	681	0.88	9.08E+11
78	12	220	6	100	50	20,000	14554.7	825	1.6	8.59E+11
79	18.6	215	6	100	50	19,000	13827.7	809	1.52	1.33E+12
80	14.4	205	6	100	50	17,000	12373.7	777	1.36	1.02E+12
81	39.2	175	6	100	50	16,000	11646.7	761	1.28	2.42E+12
82	0.22	150	6	100	50	15,500	11283.2	753	1.24	1.18E+10
83	8.5	155	6	100	50	14,000	10192.7	729	1.12	4.86E+11
84	3.4	145	6	100	50	14,000	10192.7	729	1.12	1.82E+11
85	18.2	140	6	100	50	14,000	10192.7	729	1.12	9.39E+11
86	15.5	170	6	100	50	15,000	10919.7	745	1.2	9.50E+11
87	2.5	150	6	100	50	15,500	11283.2	753	1.24	1.34E+11
88	1.4	195	6	100	50	20,000	14554.7	825	1.6	8.89E+10
89	6.9	190	6	100	50	19,000	13827.7	809	1.52	4.35E+11
90	9.7	185	6	100	50	18,000	13100.7	793	1.44	6.08E+11
91	18.4	180	6	100	50	17,000	12373.7	777	1.36	1.15E+12
92	6.1	160	6	100	50	15,000	10919.7	745	1.2	3.52E+11
93	5.8	160	6	100	50	14,000	10192.7	729	1.12	3.42E+11
94	4.6	160	6	100	50	13,000	9465.7	713	1.04	2.77E+11
95	1.8	160	6	100	50	12,500	9102.2	705	1	1.10E+11

96	0.46	150	6	100	50	15,500	11283.2	753	1.24	2.46E+10
97	0.66	280	6	100	50	21,500	15645.2	849	1.72	5.85E+10
98	10.5	220	6	100	50	18,000	13100.7	793	1.44	7.82E+11
99	18.3	185	6	100	50	19,000	13827.7	809	1.52	1.12E+12
100	5.3	175	6	100	50	20,000	14554.7	825	1.6	3.02E+11
101	3.3	170	6	100	50	21,000	15281.7	841	1.68	1.79E+11
102	9.1	170	6	100	50	22,000	16008.7	857	1.76	4.85E+11
103	5.4	170	6	100	50	25,000	18189.7	905	2	2.72E+11
104	7.2	170	6	100	50	24,000	17462.7	889	1.92	3.70E+11
105	16.6	165	6	100	50	23,000	16735.7	873	1.84	8.43E+11
106	27	165	6	100	50	22,000	16008.7	857	1.76	1.40E+12
107	32.4	160	6	100	50	21,000	15281.7	841	1.68	1.66E+12
108	15.8	155	6	100	50	20,000	14554.7	825	1.6	7.97E+11
109	1.8	150	6	100	50	19,000	13827.7	809	1.52	8.96E+10
110	2.6	145	6	100	50	20,000	14554.7	825	1.6	1.23E+11
111	3.6	145	6	100	50	21,000	15281.7	841	1.68	1.67E+11
112	9.2	170	6	100	50	24,000	17462.7	889	1.92	4.72E+11
113	6.2	170	6	100	50	23,000	16735.7	873	1.84	3.24E+11
114	1.3	165	6	100	50	22,000	16008.7	857	1.76	6.72E+10
115	0.28	175	6	100	50	23,500	17099.2	881	1.88	1.49E+10
116	60.4	175	6	100	50	18,000	13100.7	793	1.44	3.58E+12
117	2.3	170	6	100	50	23,000	16735.7	873	1.84	1.20E+11
									Total =	1.18E+14

Table 1: List of subplays in the Frontier highly overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GFRONT1.XLS

Play Name :		Frontier > 300F								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	10.23	10.94	9.61	254.91	69161.3	36.30	10037.0	2536.95	104.83	1.65E+24
2	10.42	11.12	9.80	1138.35	74583.7	36.30	10037.0	2536.95	108.71	8.26E+24
3	10.61	11.31	10.00	79.87	80210.8	36.30	10037.0	2536.95	112.81	6.47E+23
4	10.82	11.51	10.20	11.66	69161.3	36.30	10037.0	2536.95	117.14	8.45E+22
5	11.03	11.71	10.42	4.88	69161.3	36.30	10037.0	2536.95	121.73	3.68E+22
6	11.24	11.92	10.64	0.58	63943.5	36.30	10037.0	2536.95	126.60	4.22E+21
7	10.23	10.94	9.61	4676.17	51794.3	36.30	10037.0	2536.95	104.83	2.27E+25
8	10.42	11.12	9.80	919.62	51794.3	36.30	10037.0	2536.95	108.71	4.64E+24
9	10.61	11.31	10.00	126.48	51794.3	36.30	10037.0	2536.95	112.81	6.62E+23
10	10.82	11.51	10.20	78.08	51794.3	36.30	10037.0	2536.95	117.14	4.24E+23
11	11.03	11.71	10.42	83.50	51794.3	36.30	10037.0	2536.95	121.73	4.71E+23
12	11.24	11.92	10.64	49.41	51794.3	36.30	10037.0	2536.95	126.60	2.90E+23
13	11.47	12.14	10.88	29.40	51794.3	36.30	10037.0	2536.95	131.76	1.80E+23
14	11.71	12.36	11.12	32.76	51794.3	36.30	10037.0	2536.95	137.25	2.09E+23
15	11.96	12.59	11.38	10.33	47292.6	36.30	10037.0	2536.95	143.10	6.26E+22
16	10.23	10.94	9.61	877.49	36933.8	36.30	10037.0	2536.95	104.83	3.04E+24
17	10.42	11.12	9.80	8497.31	31332.3	36.30	10037.0	2536.95	108.71	2.59E+25
18	10.61	11.31	10.00	5793.41	31332.3	36.30	10037.0	2536.95	112.81	1.83E+25
19	10.82	11.51	10.20	3005.95	31332.3	36.30	10037.0	2536.95	117.14	9.88E+24
20	11.03	11.71	10.42	2323.16	31332.3	36.30	10037.0	2536.95	121.73	7.93E+24
21	11.24	11.92	10.64	2420.96	31332.3	36.30	10037.0	2536.95	126.60	8.60E+24
22	11.47	12.14	10.88	3184.70	31332.3	36.30	10037.0	2536.95	131.76	1.18E+25
23	11.71	12.36	11.12	3678.49	31332.3	36.30	10037.0	2536.95	137.25	1.42E+25
24	11.96	12.59	11.38	4997.37	27853.8	36.30	10037.0	2536.95	143.10	1.78E+25
25	12.21	12.84	11.65	796.18	26191.3	36.30	10037.0	2536.95	149.32	2.79E+24
26	12.48	13.09	11.93	367.84	26191.3	36.30	10037.0	2536.95	155.97	1.35E+24
27	12.21	12.84	11.65	160.08	21510.6	36.30	10037.0	2536.95	149.32	4.60E+23
28	12.48	13.09	11.93	345.10	21510.6	36.30	10037.0	2536.95	155.97	1.04E+24
29	12.77	13.35	12.23	12.35	20052.7	36.30	10037.0	2536.95	163.07	3.62E+22
30	12.21	12.84	11.65	630.20	31332.3	36.30	10037.0	2536.95	149.32	2.64E+24
31	12.48	13.09	11.93	91.00	29567.5	36.30	10037.0	2536.95	155.97	3.76E+23
32	12.77	13.35	12.23	28.32	26191.3	36.30	10037.0	2536.95	163.07	1.08E+23
33	12.35	12.96	11.79	2.27	36933.8	36.30	10037.0	2536.95	152.59	1.14E+22
34	10.42	11.12	9.80	877.49	21510.6	36.30	10037.0	2536.95	108.71	1.84E+24
35	10.61	11.31	10.00	950.33	21510.6	36.30	10037.0	2536.95	112.81	2.06E+24
36	10.82	11.51	10.20	1263.58	20052.7	36.30	10037.0	2536.95	117.14	2.66E+24
37	11.03	11.71	10.42	1486.82	20052.7	36.30	10037.0	2536.95	121.73	3.25E+24
38	11.24	11.92	10.64	1952.10	18645.9	36.30	10037.0	2536.95	126.60	4.13E+24
39	11.47	12.14	10.88	2014.70	17290.3	36.30	10037.0	2536.95	131.76	4.11E+24
40	11.71	12.36	11.12	2124.33	17290.3	36.30	10037.0	2536.95	137.25	4.51E+24
41	11.96	12.59	11.38	1719.87	15985.9	36.30	10037.0	2536.95	143.10	3.52E+24
42	12.21	12.84	11.65	883.45	15985.9	36.30	10037.0	2536.95	149.32	1.89E+24
43	12.48	13.09	11.93	1502.35	15985.9	36.30	10037.0	2536.95	155.97	3.35E+24
44	12.77	13.35	12.23	206.19	12379.5	36.30	10037.0	2536.95	163.07	3.73E+23
45	13.06	13.63	12.54	29.40	12379.5	36.30	10037.0	2536.95	170.67	5.56E+22

46	13.06	13.63	12.54	4.88	10231.0	36.30	10037.0	2536.95	170.67	7.63E+21
47	10.42	11.12	9.80	1597.21	26191.3	36.30	10037.0	2536.95	108.71	4.07E+24
48	10.23	10.94	9.61	167.79	26191.3	36.30	10037.0	2536.95	104.83	4.12E+23
49	10.61	11.31	10.00	713.44	27853.8	36.30	10037.0	2536.95	112.81	2.01E+24
50	10.82	11.51	10.20	183.77	27853.8	36.30	10037.0	2536.95	117.14	5.37E+23
51	11.03	11.71	10.42	1200.15	31332.3	36.30	10037.0	2536.95	121.73	4.10E+24
52	11.24	11.92	10.64	1221.11	31332.3	36.30	10037.0	2536.95	126.60	4.34E+24
53	11.71	12.36	11.12	59.78	27853.8	36.30	10037.0	2536.95	137.25	2.05E+23
54	11.96	12.59	11.38	13.80	24579.9	36.30	10037.0	2536.95	143.10	4.35E+22
55	11.71	12.36	11.12	87.21	17290.3	36.30	10037.0	2536.95	137.25	1.85E+23
56	11.96	12.59	11.38	66.16	15985.9	36.30	10037.0	2536.95	143.10	1.35E+23
57	11.96	12.59	11.38	6.30	9233.4	36.30	10037.0	2536.95	143.10	7.45E+21
58	12.21	12.84	11.65	8.48	9233.4	36.30	10037.0	2536.95	149.32	1.05E+22
59	12.48	13.09	11.93	6.30	9233.4	36.30	10037.0	2536.95	155.97	8.13E+21
60	12.77	13.35	12.23	11.66	9233.4	36.30	10037.0	2536.95	163.07	1.57E+22
61	13.06	13.63	12.54	181.05	9233.4	36.30	10037.0	2536.95	170.67	2.55E+23
62	11.96	12.59	11.38	3.64	31332.3	36.30	10037.0	2536.95	143.10	1.46E+22
63	11.96	12.59	11.38	0.61	31332.3	36.30	10037.0	2536.95	143.10	2.46E+21
64	11.71	12.36	11.12	287.98	31332.3	36.30	10037.0	2536.95	137.25	1.11E+24
65	10.23	10.94	9.61	87.21	31332.3	36.30	10037.0	2536.95	104.83	2.56E+23
66	10.42	11.12	9.80	226.87	31332.3	36.30	10037.0	2536.95	108.71	6.92E+23
67	10.61	11.31	10.00	254.91	33148.3	36.30	10037.0	2536.95	112.81	8.53E+23
68	11.24	11.92	10.64	13.80	36933.8	36.30	10037.0	2536.95	126.60	5.78E+22
69	11.03	11.71	10.42	8.48	42995.6	36.30	10037.0	2536.95	121.73	3.97E+22
70	11.47	12.14	10.88	950.33	45118.6	36.30	10037.0	2536.95	131.76	5.06E+24
71	11.24	11.92	10.64	6.82	42995.6	36.30	10037.0	2536.95	126.60	3.32E+22
72	11.71	12.36	11.12	165.20	35015.5	36.30	10037.0	2536.95	137.25	7.11E+23
73	12.21	12.84	11.65	26.23	26191.3	36.30	10037.0	2536.95	149.32	9.18E+22
74	12.35	12.96	11.79	2.91	24579.9	36.30	10037.0	2536.95	152.59	9.79E+21
75	12.77	13.35	12.23	395.30	20052.7	36.30	10037.0	2536.95	163.07	1.16E+24
76	13.06	13.63	12.54	348.84	17290.3	36.30	10037.0	2536.95	170.67	9.22E+23
77	13.37	13.91	12.87	403.33	13530.5	36.30	10037.0	2536.95	178.83	8.74E+23
78	11.03	11.71	10.42	145.20	49517.9	36.30	10037.0	2536.95	121.73	7.84E+23
79	11.24	11.92	10.64	348.84	47292.6	36.30	10037.0	2536.95	126.60	1.87E+24
80	11.71	12.36	11.12	209.08	42995.6	36.30	10037.0	2536.95	137.25	1.10E+24
81	11.96	12.59	11.38	1549.42	31332.3	36.30	10037.0	2536.95	143.10	6.22E+24
82	12.08	12.72	11.51	0.05	23019.7	36.30	10037.0	2536.95	146.16	1.47E+20
83	12.48	13.09	11.93	72.85	24579.9	36.30	10037.0	2536.95	155.97	2.50E+23
84	12.48	13.09	11.93	11.66	21510.6	36.30	10037.0	2536.95	155.97	3.50E+22
85	12.48	13.09	11.93	333.99	20052.7	36.30	10037.0	2536.95	155.97	9.35E+23
86	12.21	12.84	11.65	242.25	29567.5	36.30	10037.0	2536.95	149.32	9.58E+23
87	12.08	12.72	11.51	6.30	23019.7	36.30	10037.0	2536.95	146.16	1.90E+22
88	11.03	11.71	10.42	1.98	38903.2	36.30	10037.0	2536.95	121.73	8.38E+21
89	11.24	11.92	10.64	48.01	36933.8	36.30	10037.0	2536.95	126.60	2.01E+23
90	11.47	12.14	10.88	94.87	35015.5	36.30	10037.0	2536.95	131.76	3.92E+23
91	11.71	12.36	11.12	341.38	33148.3	36.30	10037.0	2536.95	137.25	1.39E+24
92	12.21	12.84	11.65	37.52	26191.3	36.30	10037.0	2536.95	149.32	1.31E+23
93	12.48	13.09	11.93	33.92	26191.3	36.30	10037.0	2536.95	155.97	1.24E+23
94	12.77	13.35	12.23	21.34	26191.3	36.30	10037.0	2536.95	163.07	8.16E+22
95	12.91	13.49	12.38	3.27	26191.3	36.30	10037.0	2536.95	166.81	1.28E+22

96	12.08	12.72	11.51	0.21	23019.7	36.30	10037.0	2536.95	146.16	6.43E+20
97	10.71	11.41	10.10	0.44	80210.8	36.30	10037.0	2536.95	114.94	3.63E+21
98	11.47	12.14	10.88	111.17	49517.9	36.30	10037.0	2536.95	131.76	6.49E+23
99	11.24	11.92	10.64	337.67	35015.5	36.30	10037.0	2536.95	126.60	1.34E+24
100	11.03	11.71	10.42	28.32	31332.3	36.30	10037.0	2536.95	121.73	9.67E+22
101	10.82	11.51	10.20	10.98	29567.5	36.30	10037.0	2536.95	117.14	3.41E+22
102	10.61	11.31	10.00	83.50	29567.5	36.30	10037.0	2536.95	112.81	2.49E+23
103	10.05	10.76	9.42	29.40	29567.5	36.30	10037.0	2536.95	101.16	7.87E+22
104	10.23	10.94	9.61	52.27	29567.5	36.30	10037.0	2536.95	104.83	1.45E+23
105	10.42	11.12	9.80	277.85	27853.8	36.30	10037.0	2536.95	108.71	7.53E+23
106	10.61	11.31	10.00	735.06	27853.8	36.30	10037.0	2536.95	112.81	2.07E+24
107	10.82	11.51	10.20	1058.49	26191.3	36.30	10037.0	2536.95	117.14	2.91E+24
108	11.03	11.71	10.42	251.72	24579.9	36.30	10037.0	2536.95	121.73	6.74E+23
109	11.24	11.92	10.64	3.27	23019.7	36.30	10037.0	2536.95	126.60	8.52E+21
110	11.03	11.71	10.42	6.82	21510.6	36.30	10037.0	2536.95	121.73	1.60E+22
111	10.82	11.51	10.20	13.07	21510.6	36.30	10037.0	2536.95	117.14	2.95E+22
112	10.23	10.94	9.61	85.34	29567.5	36.30	10037.0	2536.95	104.83	2.37E+23
113	10.42	11.12	9.80	38.76	29567.5	36.30	10037.0	2536.95	108.71	1.12E+23
114	10.61	11.31	10.00	1.70	27853.8	36.30	10037.0	2536.95	112.81	4.79E+21
115	10.32	11.03	9.70	0.08	31332.3	36.30	10037.0	2536.95	106.75	2.37E+20
116	11.47	12.14	10.88	3678.49	31332.3	36.30	10037.0	2536.95	131.76	1.36E+25
117	10.42	11.12	9.80	5.33	29567.5	36.30	10037.0	2536.95	108.71	1.54E+22

Table 2: List of subplays in the Frontier highly overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Frontier > 300F								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.25E+12	9.53E+22	3.09E+11	27.8235	0.24357	8.12E+11	1.03E+12	1.21E+12	1.43E+12	1.81E+12
2	2.79E+12	4.75E+23	6.89E+11	28.6277	0.243417	1.82E+12	2.30E+12	2.71E+12	3.19E+12	4.04E+12
3	7.81E+11	3.72E+22	1.93E+11	27.3542	0.243261	5.08E+11	6.44E+11	7.58E+11	8.93E+11	1.13E+12
4	2.82E+11	4.85E+21	6.97E+10	26.3367	0.243104	1.84E+11	2.33E+11	2.74E+11	3.23E+11	4.09E+11
5	1.86E+11	2.11E+21	4.59E+10	25.9207	0.242945	1.21E+11	1.53E+11	1.81E+11	2.13E+11	2.70E+11
6	6.31E+10	2.42E+20	1.55E+10	24.8382	0.242785	4.11E+10	5.20E+10	6.13E+10	7.21E+10	9.13E+10
7	4.63E+12	1.31E+24	1.14E+12	29.1336	0.24357	3.01E+12	3.81E+12	4.49E+12	5.29E+12	6.71E+12
8	2.09E+12	2.67E+23	5.16E+11	28.3387	0.243417	1.36E+12	1.72E+12	2.03E+12	2.39E+12	3.03E+12
9	7.90E+11	3.80E+22	1.95E+11	27.3653	0.243261	5.14E+11	6.51E+11	7.67E+11	9.03E+11	1.14E+12
10	6.32E+11	2.43E+22	1.56E+11	27.1431	0.243104	4.12E+11	5.21E+11	6.14E+11	7.23E+11	9.16E+11
11	6.67E+11	2.70E+22	1.64E+11	27.1959	0.242945	4.34E+11	5.49E+11	6.47E+11	7.62E+11	9.65E+11
12	5.23E+11	1.66E+22	1.29E+11	26.9532	0.242785	3.41E+11	4.31E+11	5.08E+11	5.98E+11	7.57E+11
13	4.12E+11	1.03E+22	1.01E+11	26.7138	0.242625	2.68E+11	3.39E+11	4.00E+11	4.71E+11	5.96E+11
14	4.43E+11	1.19E+22	1.09E+11	26.7883	0.242463	2.89E+11	3.66E+11	4.31E+11	5.07E+11	6.42E+11
15	2.43E+11	3.57E+21	5.97E+10	26.1865	0.242301	1.58E+11	2.00E+11	2.36E+11	2.78E+11	3.51E+11
16	1.69E+12	1.75E+23	4.19E+11	28.1279	0.24357	1.10E+12	1.39E+12	1.64E+12	1.94E+12	2.45E+12
17	4.94E+12	1.49E+24	1.22E+12	29.1991	0.243417	3.21E+12	4.07E+12	4.80E+12	5.65E+12	7.16E+12
18	4.16E+12	1.05E+24	1.03E+12	29.0262	0.243261	2.70E+12	3.43E+12	4.04E+12	4.75E+12	6.02E+12
19	3.05E+12	5.67E+23	7.53E+11	28.7171	0.243104	1.99E+12	2.51E+12	2.96E+12	3.49E+12	4.42E+12
20	2.73E+12	4.55E+23	6.74E+11	28.6075	0.242945	1.78E+12	2.25E+12	2.66E+12	3.13E+12	3.96E+12
21	2.85E+12	4.92E+23	7.02E+11	28.6478	0.242785	1.85E+12	2.35E+12	2.76E+12	3.26E+12	4.12E+12
22	3.33E+12	6.73E+23	8.20E+11	28.805	0.242625	2.17E+12	2.75E+12	3.23E+12	3.81E+12	4.82E+12
23	3.65E+12	8.09E+23	8.99E+11	28.8976	0.242463	2.38E+12	3.01E+12	3.55E+12	4.18E+12	5.29E+12
24	4.10E+12	1.02E+24	1.01E+12	29.0128	0.242301	2.67E+12	3.38E+12	3.98E+12	4.69E+12	5.93E+12
25	1.62E+12	1.59E+23	3.98E+11	28.085	0.242139	1.06E+12	1.34E+12	1.57E+12	1.85E+12	2.35E+12
26	1.13E+12	7.65E+22	2.77E+11	27.7208	0.241977	7.35E+11	9.29E+11	1.09E+12	1.29E+12	1.63E+12
27	6.59E+11	2.62E+22	1.62E+11	27.1845	0.242139	4.30E+11	5.44E+11	6.40E+11	7.53E+11	9.53E+11
28	9.89E+11	5.90E+22	2.43E+11	27.5904	0.241977	6.45E+11	8.16E+11	9.60E+11	1.13E+12	1.43E+12
29	1.85E+11	2.05E+21	4.53E+10	25.9127	0.241816	1.20E+11	1.52E+11	1.79E+11	2.11E+11	2.67E+11
30	1.58E+12	1.50E+23	3.88E+11	28.0577	0.242139	1.03E+12	1.30E+12	1.53E+12	1.80E+12	2.28E+12
31	5.95E+11	2.14E+22	1.46E+11	27.083	0.241977	3.88E+11	4.91E+11	5.78E+11	6.81E+11	8.61E+11
32	3.20E+11	6.15E+21	7.84E+10	26.4611	0.241816	2.09E+11	2.64E+11	3.10E+11	3.65E+11	4.62E+11
33	1.04E+11	6.51E+20	2.55E+10	25.3374	0.242058	6.78E+10	8.57E+10	1.01E+11	1.19E+11	1.50E+11
34	1.32E+12	1.06E+23	3.25E+11	27.8759	0.243417	8.56E+11	1.08E+12	1.28E+12	1.51E+12	1.91E+12
35	1.39E+12	1.19E+23	3.44E+11	27.9343	0.243261	9.08E+11	1.15E+12	1.35E+12	1.60E+12	2.02E+12
36	1.58E+12	1.53E+23	3.91E+11	28.0606	0.243104	1.03E+12	1.30E+12	1.54E+12	1.81E+12	2.29E+12
37	1.75E+12	1.86E+23	4.32E+11	28.1612	0.242945	1.14E+12	1.44E+12	1.70E+12	2.00E+12	2.53E+12
38	1.97E+12	2.36E+23	4.86E+11	28.2807	0.242785	1.28E+12	1.63E+12	1.91E+12	2.26E+12	2.85E+12
39	1.97E+12	2.35E+23	4.85E+11	28.2788	0.242625	1.28E+12	1.62E+12	1.91E+12	2.25E+12	2.85E+12
40	2.06E+12	2.58E+23	5.08E+11	28.3258	0.242463	1.34E+12	1.70E+12	2.00E+12	2.36E+12	2.99E+12
41	1.82E+12	2.01E+23	4.48E+11	28.2019	0.242301	1.19E+12	1.50E+12	1.77E+12	2.08E+12	2.64E+12
42	1.33E+12	1.08E+23	3.28E+11	27.8902	0.242139	8.70E+11	1.10E+12	1.30E+12	1.53E+12	1.93E+12
43	1.78E+12	1.91E+23	4.37E+11	28.1775	0.241977	1.16E+12	1.47E+12	1.73E+12	2.03E+12	2.57E+12
44	5.93E+11	2.12E+22	1.45E+11	27.079	0.241816	3.87E+11	4.89E+11	5.76E+11	6.78E+11	8.57E+11
45	2.29E+11	3.16E+21	5.62E+10	26.128	0.241657	1.49E+11	1.89E+11	2.22E+11	2.62E+11	3.31E+11

46	8.48E+10	4.33E+20	2.08E+10	25.1348	0.241657	5.54E+10	7.00E+10	8.24E+10	9.70E+10	1.23E+11
47	1.96E+12	2.34E+23	4.84E+11	28.2738	0.243417	1.27E+12	1.61E+12	1.90E+12	2.24E+12	2.84E+12
48	6.23E+11	2.38E+22	1.54E+11	27.1289	0.24357	4.05E+11	5.14E+11	6.05E+11	7.13E+11	9.04E+11
49	1.38E+12	1.15E+23	3.40E+11	27.9202	0.243261	8.95E+11	1.13E+12	1.34E+12	1.57E+12	1.99E+12
50	7.11E+11	3.08E+22	1.76E+11	27.2609	0.243104	4.63E+11	5.86E+11	6.91E+11	8.14E+11	1.03E+12
51	1.97E+12	2.35E+23	4.85E+11	28.2773	0.242945	1.28E+12	1.62E+12	1.91E+12	2.25E+12	2.85E+12
52	2.02E+12	2.48E+23	4.98E+11	28.3056	0.242785	1.32E+12	1.67E+12	1.96E+12	2.31E+12	2.93E+12
53	4.39E+11	1.17E+22	1.08E+11	26.7789	0.242463	2.86E+11	3.62E+11	4.27E+11	5.02E+11	6.36E+11
54	2.02E+11	2.48E+21	4.98E+10	26.0045	0.242301	1.32E+11	1.67E+11	1.97E+11	2.31E+11	2.93E+11
55	4.18E+11	1.06E+22	1.03E+11	26.7293	0.242463	2.72E+11	3.45E+11	4.06E+11	4.78E+11	6.05E+11
56	3.57E+11	7.73E+21	8.79E+10	26.5729	0.242301	2.33E+11	2.95E+11	3.47E+11	4.09E+11	5.17E+11
57	8.38E+10	4.25E+20	2.06E+10	25.1229	0.242301	5.47E+10	6.92E+10	8.14E+10	9.59E+10	1.21E+11
58	9.94E+10	5.96E+20	2.44E+10	25.2927	0.242139	6.48E+10	8.20E+10	9.65E+10	1.14E+11	1.44E+11
59	8.75E+10	4.62E+20	2.15E+10	25.1661	0.241977	5.71E+10	7.22E+10	8.50E+10	1.00E+11	1.27E+11
60	1.22E+11	8.92E+20	2.99E+10	25.4959	0.241816	7.94E+10	1.00E+11	1.18E+11	1.39E+11	1.76E+11
61	4.91E+11	1.45E+22	1.20E+11	26.8903	0.241657	3.20E+11	4.05E+11	4.77E+11	5.61E+11	7.09E+11
62	1.17E+11	8.33E+20	2.89E+10	25.4593	0.242301	7.65E+10	9.68E+10	1.14E+11	1.34E+11	1.70E+11
63	4.82E+10	1.40E+20	1.18E+10	24.569	0.242301	3.14E+10	3.97E+10	4.68E+10	5.51E+10	6.97E+10
64	1.02E+12	6.33E+22	2.52E+11	27.6239	0.242463	6.66E+11	8.43E+11	9.93E+11	1.17E+12	1.48E+12
65	4.92E+11	1.48E+22	1.22E+11	26.8913	0.24357	3.20E+11	4.05E+11	4.77E+11	5.62E+11	7.12E+11
66	8.07E+11	3.98E+22	2.00E+11	27.3876	0.243417	5.25E+11	6.65E+11	7.84E+11	9.24E+11	1.17E+12
67	8.97E+11	4.90E+22	2.21E+11	27.4926	0.243261	5.84E+11	7.39E+11	8.71E+11	1.03E+12	1.30E+12
68	2.33E+11	3.31E+21	5.75E+10	26.1466	0.242785	1.52E+11	1.92E+11	2.27E+11	2.67E+11	3.38E+11
69	1.94E+11	2.28E+21	4.77E+10	25.9593	0.242945	1.26E+11	1.60E+11	1.88E+11	2.21E+11	2.80E+11
70	2.18E+12	2.89E+23	5.38E+11	28.3827	0.242625	1.42E+12	1.80E+12	2.12E+12	2.50E+12	3.16E+12
71	1.77E+11	1.90E+21	4.36E+10	25.8697	0.242785	1.15E+11	1.46E+11	1.72E+11	2.02E+11	2.56E+11
72	8.19E+11	4.06E+22	2.01E+11	27.4016	0.242463	5.34E+11	6.75E+11	7.95E+11	9.36E+11	1.18E+12
73	2.94E+11	5.23E+21	7.23E+10	26.3785	0.242139	1.92E+11	2.43E+11	2.86E+11	3.36E+11	4.26E+11
74	9.61E+10	5.57E+20	2.36E+10	25.259	0.242058	6.26E+10	7.92E+10	9.33E+10	1.10E+11	1.39E+11
75	1.04E+12	6.57E+22	2.56E+11	27.6456	0.241816	6.82E+11	8.62E+11	1.01E+12	1.19E+12	1.51E+12
76	9.32E+11	5.23E+22	2.29E+11	27.5318	0.241657	6.09E+11	7.69E+11	9.06E+11	1.07E+12	1.35E+12
77	9.08E+11	4.95E+22	2.22E+11	27.5052	0.2415	5.93E+11	7.49E+11	8.82E+11	1.04E+12	1.31E+12
78	8.59E+11	4.49E+22	2.12E+11	27.4501	0.242945	5.60E+11	7.08E+11	8.34E+11	9.83E+11	1.24E+12
79	1.33E+12	1.07E+23	3.27E+11	27.885	0.242785	8.65E+11	1.09E+12	1.29E+12	1.52E+12	1.92E+12
80	1.02E+12	6.31E+22	2.51E+11	27.622	0.242463	6.65E+11	8.42E+11	9.91E+11	1.17E+12	1.48E+12
81	2.42E+12	3.55E+23	5.96E+11	28.4862	0.242301	1.58E+12	2.00E+12	2.35E+12	2.77E+12	3.50E+12
82	1.18E+10	8.38E+18	2.89E+09	23.1598	0.24222	7.68E+09	9.71E+09	1.14E+10	1.35E+10	1.70E+10
83	4.86E+11	1.42E+22	1.19E+11	26.8794	0.241977	3.17E+11	4.01E+11	4.72E+11	5.55E+11	7.02E+11
84	1.82E+11	1.99E+21	4.46E+10	25.8964	0.241977	1.19E+11	1.50E+11	1.76E+11	2.08E+11	2.63E+11
85	9.39E+11	5.32E+22	2.31E+11	27.539	0.241977	6.13E+11	7.75E+11	9.12E+11	1.07E+12	1.36E+12
86	9.50E+11	5.45E+22	2.34E+11	27.5507	0.242139	6.20E+11	7.84E+11	9.23E+11	1.09E+12	1.37E+12
87	1.34E+11	1.08E+21	3.29E+10	25.5903	0.24222	8.72E+10	1.10E+11	1.30E+11	1.53E+11	1.94E+11
88	8.89E+10	4.80E+20	2.19E+10	25.181	0.242945	5.79E+10	7.33E+10	8.63E+10	1.02E+11	1.29E+11
89	4.35E+11	1.15E+22	1.07E+11	26.7698	0.242785	2.83E+11	3.59E+11	4.23E+11	4.98E+11	6.30E+11
90	6.08E+11	2.24E+22	1.50E+11	27.1038	0.242625	3.96E+11	5.01E+11	5.90E+11	6.95E+11	8.80E+11
91	1.15E+12	7.94E+22	2.82E+11	27.7371	0.242463	7.46E+11	9.44E+11	1.11E+12	1.31E+12	1.66E+12
92	3.52E+11	7.48E+21	8.65E+10	26.5575	0.242139	2.30E+11	2.90E+11	3.42E+11	4.02E+11	5.09E+11
93	3.42E+11	7.06E+21	8.40E+10	26.529	0.241977	2.23E+11	2.82E+11	3.32E+11	3.91E+11	4.95E+11
94	2.77E+11	4.63E+21	6.81E+10	26.3195	0.241816	1.81E+11	2.29E+11	2.69E+11	3.17E+11	4.01E+11
95	1.10E+11	7.25E+20	2.69E+10	25.3926	0.241736	7.16E+10	9.06E+10	1.07E+11	1.25E+11	1.59E+11

96	2.46E+10	3.66E+19	6.05E+09	23.8974	0.24222	1.61E+10	2.03E+10	2.39E+10	2.81E+10	3.56E+10
97	5.85E+10	2.08E+20	1.44E+10	24.762	0.243183	3.80E+10	4.82E+10	5.68E+10	6.69E+10	8.47E+10
98	7.82E+11	3.71E+22	1.93E+11	27.3563	0.242625	5.10E+11	6.45E+11	7.60E+11	8.95E+11	1.13E+12
99	1.12E+12	7.67E+22	2.77E+11	27.7185	0.242785	7.32E+11	9.27E+11	1.09E+12	1.29E+12	1.63E+12
100	3.02E+11	5.54E+21	7.45E+10	26.404	0.242945	1.97E+11	2.49E+11	2.93E+11	3.45E+11	4.37E+11
101	1.79E+11	1.95E+21	4.42E+10	25.882	0.243104	1.17E+11	1.48E+11	1.74E+11	2.05E+11	2.59E+11
102	4.85E+11	1.43E+22	1.20E+11	26.8774	0.243261	3.15E+11	3.99E+11	4.71E+11	5.55E+11	7.02E+11
103	2.72E+11	4.54E+21	6.74E+10	26.3008	0.243722	1.77E+11	2.24E+11	2.64E+11	3.12E+11	3.95E+11
104	3.70E+11	8.36E+21	9.14E+10	26.6064	0.24357	2.40E+11	3.05E+11	3.59E+11	4.23E+11	5.36E+11
105	8.43E+11	4.33E+22	2.08E+11	27.4301	0.243417	5.48E+11	6.94E+11	8.18E+11	9.64E+11	1.22E+12
106	1.40E+12	1.19E+23	3.45E+11	27.9351	0.243261	9.08E+11	1.15E+12	1.36E+12	1.60E+12	2.02E+12
107	1.66E+12	1.67E+23	4.08E+11	28.1056	0.243104	1.08E+12	1.36E+12	1.61E+12	1.89E+12	2.40E+12
108	7.97E+11	3.86E+22	1.97E+11	27.375	0.242945	5.19E+11	6.57E+11	7.74E+11	9.12E+11	1.15E+12
109	8.96E+10	4.88E+20	2.21E+10	25.1896	0.242785	5.84E+10	7.39E+10	8.70E+10	1.03E+11	1.30E+11
110	1.23E+11	9.16E+20	3.03E+10	25.5038	0.242945	7.99E+10	1.01E+11	1.19E+11	1.40E+11	1.78E+11
111	1.67E+11	1.69E+21	4.11E+10	25.8099	0.243104	1.08E+11	1.37E+11	1.62E+11	1.91E+11	2.41E+11
112	4.72E+11	1.36E+22	1.17E+11	26.8515	0.24357	3.07E+11	3.89E+11	4.59E+11	5.40E+11	6.85E+11
113	3.24E+11	6.42E+21	8.01E+10	26.4751	0.243417	2.11E+11	2.67E+11	3.15E+11	3.71E+11	4.70E+11
114	6.72E+10	2.75E+20	1.66E+10	24.9016	0.243261	4.37E+10	5.54E+10	6.53E+10	7.69E+10	9.74E+10
115	1.49E+10	1.36E+19	3.69E+09	23.3974	0.243494	9.71E+09	1.23E+10	1.45E+10	1.71E+10	2.16E+10
116	3.58E+12	7.77E+23	8.82E+11	28.8771	0.242625	2.33E+12	2.95E+12	3.48E+12	4.09E+12	5.18E+12
117	1.20E+11	8.83E+20	2.97E+10	25.4835	0.243417	7.82E+10	9.91E+10	1.17E+11	1.38E+11	1.74E+11
P.P.C.	1.18E+14	8.39E+26	2.90E+13			7.65E+13	9.69E+13	1.14E+14	1.34E+14	1.70E+14

Table 3: List of subplays in the Frontier highly overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Front 2 > 1.1								(Panel 1)
						a =	0.52	0.016	0	
						b =	14.7	505	1.095	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	3.6	270	7	100	50	22,000	11454.7	857	1.095	4.09E+11
2	3.7	270	7	100	50	21,000	10934.7	841	1.095	4.09E+11
3	5.5	265	7	100	50	20,000	10414.7	825	1.095	5.79E+11
4	6.3	265	7	100	50	19,000	9894.7	809	1.095	6.42E+11
5	6.3	265	7	100	50	18,000	9374.7	793	1.095	6.21E+11
6	4.8	265	7	100	50	17,000	8854.7	777	1.095	4.56E+11
7	4.1	265	7	100	50	16,000	8334.7	761	1.095	3.74E+11
8	3.5	265	7	100	50	15,000	7814.7	745	1.095	3.06E+11
9	3.4	265	7	100	50	14,000	7294.7	729	1.095	2.84E+11
10	4.3	265	7	100	50	13,000	6774.7	713	1.095	3.41E+11
11	5.7	255	7	100	50	12,000	6254.7	697	1.095	4.10E+11
12	1.3	255	7	100	50	11,000	5734.7	681	1.095	8.78E+10
13	0.13	255	7	100	50	10,500	5474.7	673	1.095	8.48E+09
14	1.8	255	7	100	50	11,000	5734.7	681	1.095	1.22E+11
15	1	245	7	100	50	18,000	9374.7	793	1.095	9.11E+10
16	2.5	245	7	100	50	17,000	8854.7	777	1.095	2.20E+11
17	8.5	230	7	100	50	16,000	8334.7	761	1.095	6.74E+11
18	7.1	225	7	100	50	15,000	7814.7	745	1.095	5.27E+11
19	6.9	225	7	100	50	14,000	7294.7	729	1.095	4.89E+11
20	8.2	225	7	100	50	13,000	6774.7	713	1.095	5.51E+11
21	7.8	225	7	100	50	12,000	6254.7	697	1.095	4.95E+11
22	7.5	225	7	100	50	11,000	5734.7	681	1.095	4.47E+11
23	7.6	225	7	100	50	10,000	5214.7	665	1.095	4.22E+11
24	0.65	200	7	100	50	15,000	7814.7	745	1.095	4.29E+10
25	7.7	190	7	100	50	14,000	7294.7	729	1.095	4.61E+11
26	11.5	185	7	100	50	13,000	6774.7	713	1.095	6.36E+11
27	14.4	175	7	100	50	12,000	6254.7	697	1.095	7.11E+11
28	12.1	175	7	100	50	11,000	5734.7	681	1.095	5.61E+11
29	7.2	175	7	100	50	10,000	5214.7	665	1.095	3.11E+11
30	7.9	140	7	100	50	14,000	7294.7	729	1.095	3.48E+11
31	54	140	7	100	50	13,000	6774.7	713	1.095	2.26E+12
32	96	125	7	100	50	12,000	6254.7	697	1.095	3.39E+12
33	2.7	135	7	100	50	13,000	6774.7	713	1.095	1.09E+11
34	77.7	130	7	100	50	11,000	5734.7	681	1.095	2.68E+12
35	35.7	130	7	100	50	10,000	5214.7	665	1.095	1.14E+12
36	23.1	130	7	100	50	9,000	4694.7	649	1.095	6.83E+11
37	3.5	145	7	100	50	8,000	4174.7	633	1.095	1.05E+11
38	13.2	155	7	100	50	8,000	4174.7	633	1.095	4.24E+11
39	5.7	145	7	100	50	9,000	4694.7	649	1.095	1.88E+11
40	5.1	145	7	100	50	10,000	5214.7	665	1.095	1.82E+11
40a	0.7	150	7	100	50	7,500	3914.7	625	1.095	2.07E+10
40b	1	140	7	100	50	9,000	4694.7	649	1.095	3.19E+10
40c	1.5	140	7	100	50	8,000	4174.7	633	1.095	4.36E+10
41	9.1	155	7	100	50	13,000	6774.7	713	1.095	4.22E+11
41a	4.4	150	7	100	50	13,500	7034.7	721	1.095	2.03E+11

42	30.5	125	7	100	50	10,000	5214.7	665	1.095	9.40E+11
43	20.7	120	7	100	50	9,000	4694.7	649	1.095	5.65E+11
43a	0.5	100	7	100	50	8,500	4434.7	641	1.095	1.09E+10
44	12.5	125	7	100	50	8,000	4174.7	633	1.095	3.24E+11
44a	3	100	7	100	50	8,000	4174.7	633	1.095	6.22E+10
45	2.3	125	7	100	50	7,000	3654.7	617	1.095	5.36E+10
46	5.2	115	7	100	50	9,000	4694.7	649	1.095	1.36E+11
47	2.8	110	7	100	50	8,000	4174.7	633	1.095	6.39E+10
48	4.8	130	7	100	50	13,500	7034.7	721	1.095	1.92E+11
49	4.1	95	7	100	50	11,000	5734.7	681	1.095	1.03E+11
50	5.1	95	7	100	50	10,000	5214.7	665	1.095	1.20E+11
51	9.3	95	7	100	50	9,000	4694.7	649	1.095	2.01E+11
52	8.3	90	7	100	50	8,000	4174.7	633	1.095	1.55E+11
53	0.7	100	7	100	50	10,000	5214.7	665	1.095	1.73E+10
54	0.9	100	7	100	50	9,000	4694.7	649	1.095	2.05E+10
55	1	100	7	100	50	8,000	4174.7	633	1.095	2.07E+10
56	10	110	7	100	50	11,000	5734.7	681	1.095	2.91E+11
57	10.9	110	7	100	50	10,000	5214.7	665	1.095	2.96E+11
58	6.6	105	7	100	50	9,000	4694.7	649	1.095	1.58E+11
59	3.2	115	7	100	50	11,000	5734.7	681	1.095	9.75E+10
60	4	110	7	100	50	10,000	5214.7	665	1.095	1.09E+11
61	3.2	110	7	100	50	9,000	4694.7	649	1.095	8.01E+10
61a	0.4	110	7	100	50	8,500	4434.7	641	1.095	9.58E+09
62	10.5	90	7	100	50	11,000	5734.7	681	1.095	2.50E+11
63	12.5	90	7	100	50	10,000	5214.7	665	1.095	2.78E+11
64	6.7	85	7	100	50	9,000	4694.7	649	1.095	1.30E+11
65	7.5	120	7	100	50	11,000	5734.7	681	1.095	2.38E+11
66	7	120	7	100	50	10,000	5214.7	665	1.095	2.07E+11
67	2	140	7	100	50	12,000	6254.7	697	1.095	7.90E+10
68	3.4	105	7	100	50	8,500	4434.7	641	1.095	7.77E+10
									Total =	2.92E+13

Table 4: List of subplays in the Frontier moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GFRONT2.XLS

Play Name :		Front 2 > 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	12.21	11.06	13.22	13.07	74583.7	49.41	10037.0	2536.95	149.43	1.77E+23
2	11.87	10.74	12.88	13.80	74583.7	49.41	10037.0	2536.95	141.42	1.77E+23
3	11.53	10.41	12.53	30.50	71847.0	49.41	10037.0	2536.95	133.32	3.56E+23
4	11.17	10.06	12.16	40.02	71847.0	49.41	10037.0	2536.95	125.17	4.39E+23
5	10.80	9.71	11.77	40.02	71847.0	49.41	10037.0	2536.95	116.95	4.10E+23
6	10.41	9.34	11.37	23.23	71847.0	49.41	10037.0	2536.95	108.69	2.21E+23
7	10.00	8.96	10.95	16.95	71847.0	49.41	10037.0	2536.95	100.41	1.49E+23
8	9.58	8.56	10.51	12.35	71847.0	49.41	10037.0	2536.95	92.12	9.96E+22
9	9.14	8.15	10.04	11.66	71847.0	49.41	10037.0	2536.95	83.84	8.56E+22
10	8.68	7.72	9.56	18.64	71847.0	49.41	10037.0	2536.95	75.61	1.23E+23
11	8.20	7.27	9.05	32.76	66526.9	49.41	10037.0	2536.95	67.45	1.79E+23
12	7.69	6.80	8.51	1.70	66526.9	49.41	10037.0	2536.95	59.41	8.21E+21
13	7.43	6.56	8.23	0.02	66526.9	49.41	10037.0	2536.95	55.45	7.66E+19
14	7.69	6.80	8.51	3.27	66526.9	49.41	10037.0	2536.95	59.41	1.57E+22
15	10.80	9.71	11.77	1.01	61411.4	49.41	10037.0	2536.95	116.95	8.83E+21
16	10.41	9.34	11.37	6.30	61411.4	49.41	10037.0	2536.95	108.69	5.13E+22
17	10.00	8.96	10.95	72.85	54121.8	49.41	10037.0	2536.95	100.41	4.82E+23
18	9.58	8.56	10.51	50.83	51794.3	49.41	10037.0	2536.95	92.12	2.96E+23
19	9.14	8.15	10.04	48.01	51794.3	49.41	10037.0	2536.95	83.84	2.54E+23
20	8.68	7.72	9.56	67.80	51794.3	49.41	10037.0	2536.95	75.61	3.24E+23
21	8.20	7.27	9.05	61.35	51794.3	49.41	10037.0	2536.95	67.45	2.61E+23
22	7.69	6.80	8.51	56.72	51794.3	49.41	10037.0	2536.95	59.41	2.13E+23
23	7.16	6.32	7.95	58.24	51794.3	49.41	10037.0	2536.95	51.53	1.89E+23
24	9.58	8.56	10.51	0.43	40923.9	49.41	10037.0	2536.95	92.12	1.96E+21
25	9.14	8.15	10.04	59.78	36933.8	49.41	10037.0	2536.95	83.84	2.26E+23
26	8.68	7.72	9.56	133.35	35015.5	49.41	10037.0	2536.95	75.61	4.30E+23
27	8.20	7.27	9.05	209.08	31332.3	49.41	10037.0	2536.95	67.45	5.38E+23
28	7.69	6.80	8.51	147.63	31332.3	49.41	10037.0	2536.95	59.41	3.35E+23
29	7.16	6.32	7.95	52.27	31332.3	49.41	10037.0	2536.95	51.53	1.03E+23
30	9.14	8.15	10.04	62.93	20052.7	49.41	10037.0	2536.95	83.84	1.29E+23
31	8.68	7.72	9.56	2940.25	20052.7	49.41	10037.0	2536.95	75.61	5.43E+24
32	8.20	7.27	9.05	9292.63	15985.9	49.41	10037.0	2536.95	67.45	1.22E+25
33	8.68	7.72	9.56	7.35	18645.9	49.41	10037.0	2536.95	75.61	1.26E+22
34	7.69	6.80	8.51	6087.49	17290.3	49.41	10037.0	2536.95	59.41	7.62E+24
35	7.16	6.32	7.95	1285.09	17290.3	49.41	10037.0	2536.95	51.53	1.40E+24
36	6.61	5.81	7.35	538.05	17290.3	49.41	10037.0	2536.95	43.86	4.97E+23
37	6.02	5.28	6.72	12.35	21510.6	49.41	10037.0	2536.95	36.47	1.18E+22
38	6.02	5.28	6.72	175.69	24579.9	49.41	10037.0	2536.95	36.47	1.92E+23
39	6.61	5.81	7.35	32.76	21510.6	49.41	10037.0	2536.95	43.86	3.77E+22
40	7.16	6.32	7.95	26.23	21510.6	49.41	10037.0	2536.95	51.53	3.54E+22
40a	5.72	5.01	6.39	0.49	23019.7	49.41	10037.0	2536.95	32.90	4.56E+20
40b	6.61	5.81	7.35	1.01	20052.7	49.41	10037.0	2536.95	43.86	1.08E+21
40c	6.02	5.28	6.72	2.27	20052.7	49.41	10037.0	2536.95	36.47	2.02E+21
41	8.68	7.72	9.56	83.50	24579.9	49.41	10037.0	2536.95	75.61	1.89E+23
41a	8.91	7.93	9.80	19.52	23019.7	49.41	10037.0	2536.95	79.72	4.37E+22

42	7.16	6.32	7.95	937.98	15985.9	49.41	10037.0	2536.95	51.53	9.42E+23
43	6.61	5.81	7.35	432.05	14732.6	49.41	10037.0	2536.95	43.86	3.40E+23
43a	6.32	5.55	7.04	0.25	10231.0	49.41	10037.0	2536.95	40.12	1.26E+20
44	6.02	5.28	6.72	157.55	15985.9	49.41	10037.0	2536.95	36.47	1.12E+23
44a	6.02	5.28	6.72	9.07	10231.0	49.41	10037.0	2536.95	36.47	4.13E+21
45	5.41	4.73	6.05	5.33	15985.9	49.41	10037.0	2536.95	29.42	3.06E+21
46	6.61	5.81	7.35	27.26	13530.5	49.41	10037.0	2536.95	43.86	1.97E+22
47	6.02	5.28	6.72	7.91	12379.5	49.41	10037.0	2536.95	36.47	4.35E+21
48	8.91	7.93	9.80	23.23	17290.3	49.41	10037.0	2536.95	79.72	3.90E+22
49	7.69	6.80	8.51	16.95	9233.4	49.41	10037.0	2536.95	59.41	1.13E+22
50	7.16	6.32	7.95	26.23	9233.4	49.41	10037.0	2536.95	51.53	1.52E+22
51	6.61	5.81	7.35	87.21	9233.4	49.41	10037.0	2536.95	43.86	4.30E+22
52	6.02	5.28	6.72	69.46	8287.1	49.41	10037.0	2536.95	36.47	2.56E+22
53	7.16	6.32	7.95	0.49	10231.0	49.41	10037.0	2536.95	51.53	3.17E+20
54	6.61	5.81	7.35	0.82	10231.0	49.41	10037.0	2536.95	43.86	4.47E+20
55	6.02	5.28	6.72	1.01	10231.0	49.41	10037.0	2536.95	36.47	4.58E+20
56	7.69	6.80	8.51	100.83	12379.5	49.41	10037.0	2536.95	59.41	9.04E+22
57	7.16	6.32	7.95	119.80	12379.5	49.41	10037.0	2536.95	51.53	9.31E+22
58	6.61	5.81	7.35	43.92	11279.6	49.41	10037.0	2536.95	43.86	2.65E+22
59	7.69	6.80	8.51	10.33	13530.5	49.41	10037.0	2536.95	59.41	1.01E+22
60	7.16	6.32	7.95	16.13	12379.5	49.41	10037.0	2536.95	51.53	1.25E+22
61	6.61	5.81	7.35	10.33	12379.5	49.41	10037.0	2536.95	43.86	6.83E+21
61a	6.32	5.55	7.04	0.16	12379.5	49.41	10037.0	2536.95	40.12	9.77E+19
62	7.69	6.80	8.51	111.17	8287.1	49.41	10037.0	2536.95	59.41	6.67E+22
63	7.16	6.32	7.95	157.55	8287.1	49.41	10037.0	2536.95	51.53	8.20E+22
64	6.61	5.81	7.35	45.26	7391.9	49.41	10037.0	2536.95	43.86	1.79E+22
65	7.69	6.80	8.51	56.72	14732.6	49.41	10037.0	2536.95	59.41	6.05E+22
66	7.16	6.32	7.95	49.41	14732.6	49.41	10037.0	2536.95	51.53	4.57E+22
67	8.20	7.27	9.05	4.03	20052.7	49.41	10037.0	2536.95	67.45	6.65E+21
68	6.32	5.55	7.04	11.66	11279.6	49.41	10037.0	2536.95	40.12	6.43E+21

Table 5: List of subplays in the Frontier moderately overpressured play with estimates of ranges in percent for the six play attributes.

\WINDRIVR\ASSESS\GFRONT2.XLS

Play Name :		Front 2 > 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	4.09E+11	1.04E+22	1.02E+11	26.7059	0.246271	2.64E+11	3.36E+11	3.96E+11	4.68E+11	5.95E+11
2	4.09E+11	1.05E+22	1.02E+11	26.7057	0.246493	2.64E+11	3.36E+11	3.96E+11	4.68E+11	5.95E+11
3	5.79E+11	2.10E+22	1.45E+11	27.0538	0.246727	3.74E+11	4.75E+11	5.61E+11	6.63E+11	8.43E+11
4	6.42E+11	2.60E+22	1.61E+11	27.1579	0.246975	4.15E+11	5.28E+11	6.23E+11	7.36E+11	9.35E+11
5	6.21E+11	2.43E+22	1.56E+11	27.1238	0.247238	4.01E+11	5.10E+11	6.02E+11	7.11E+11	9.04E+11
6	4.56E+11	1.31E+22	1.15E+11	26.8151	0.247517	2.94E+11	3.74E+11	4.42E+11	5.23E+11	6.65E+11
7	3.74E+11	8.88E+21	9.42E+10	26.6177	0.247813	2.41E+11	3.07E+11	3.63E+11	4.29E+11	5.46E+11
8	3.06E+11	5.95E+21	7.71E+10	26.4163	0.248127	1.97E+11	2.51E+11	2.97E+11	3.51E+11	4.46E+11
9	2.84E+11	5.12E+21	7.16E+10	26.34	0.248461	1.83E+11	2.33E+11	2.75E+11	3.25E+11	4.14E+11
10	3.41E+11	7.41E+21	8.61E+10	26.523	0.248817	2.19E+11	2.79E+11	3.30E+11	3.91E+11	4.97E+11
11	4.10E+11	1.08E+22	1.04E+11	26.7092	0.249197	2.64E+11	3.36E+11	3.98E+11	4.71E+11	5.99E+11
12	8.78E+10	4.96E+20	2.23E+10	25.1674	0.249602	5.65E+10	7.19E+10	8.51E+10	1.01E+11	1.28E+11
13	8.48E+09	4.63E+18	2.15E+09	22.8302	0.249815	5.45E+09	6.95E+09	8.22E+09	9.73E+09	1.24E+10
14	1.22E+11	9.50E+20	3.08E+10	25.4928	0.249602	7.82E+10	9.96E+10	1.18E+11	1.39E+11	1.78E+11
15	9.11E+10	5.23E+20	2.29E+10	25.2048	0.247238	5.88E+10	7.48E+10	8.84E+10	1.04E+11	1.33E+11
16	2.20E+11	3.05E+21	5.52E+10	26.0843	0.247517	1.42E+11	1.80E+11	2.13E+11	2.52E+11	3.20E+11
17	6.74E+11	2.87E+22	1.70E+11	27.2052	0.247813	4.35E+11	5.53E+11	6.53E+11	7.72E+11	9.82E+11
18	5.27E+11	1.76E+22	1.33E+11	26.96	0.248127	3.40E+11	4.32E+11	5.11E+11	6.04E+11	7.69E+11
19	4.89E+11	1.52E+22	1.23E+11	26.8842	0.248461	3.15E+11	4.01E+11	4.74E+11	5.60E+11	7.13E+11
20	5.51E+11	1.94E+22	1.39E+11	27.0049	0.248817	3.55E+11	4.52E+11	5.35E+11	6.32E+11	8.05E+11
21	4.95E+11	1.57E+22	1.25E+11	26.8976	0.249197	3.19E+11	4.06E+11	4.80E+11	5.68E+11	7.24E+11
22	4.47E+11	1.28E+22	1.13E+11	26.7948	0.249602	2.87E+11	3.66E+11	4.33E+11	5.13E+11	6.53E+11
23	4.22E+11	1.15E+22	1.07E+11	26.7366	0.250035	2.71E+11	3.45E+11	4.09E+11	4.84E+11	6.17E+11
24	4.29E+10	1.17E+20	1.08E+10	24.4513	0.248127	2.77E+10	3.52E+10	4.16E+10	4.92E+10	6.26E+10
25	4.61E+11	1.35E+22	1.16E+11	26.8248	0.248461	2.97E+11	3.78E+11	4.47E+11	5.28E+11	6.72E+11
26	6.36E+11	2.58E+22	1.61E+11	27.1474	0.248817	4.09E+11	5.21E+11	6.17E+11	7.29E+11	9.28E+11
27	7.11E+11	3.24E+22	1.80E+11	27.2594	0.249197	4.58E+11	5.83E+11	6.90E+11	8.16E+11	1.04E+12
28	5.61E+11	2.02E+22	1.42E+11	27.0217	0.249602	3.61E+11	4.60E+11	5.44E+11	6.43E+11	8.20E+11
29	3.11E+11	6.23E+21	7.89E+10	26.4312	0.250035	2.00E+11	2.55E+11	3.01E+11	3.57E+11	4.55E+11
30	3.48E+11	7.72E+21	8.79E+10	26.545	0.248461	2.24E+11	2.86E+11	3.38E+11	3.99E+11	5.08E+11
31	2.26E+12	3.26E+23	5.71E+11	28.4153	0.248817	1.45E+12	1.85E+12	2.19E+12	2.59E+12	3.30E+12
32	3.39E+12	7.35E+23	8.57E+11	28.8201	0.249197	2.18E+12	2.78E+12	3.28E+12	3.88E+12	4.95E+12
33	1.09E+11	7.58E+20	2.75E+10	25.3832	0.248817	7.02E+10	8.93E+10	1.06E+11	1.25E+11	1.59E+11
34	2.68E+12	4.60E+23	6.78E+11	28.5841	0.249602	1.72E+12	2.19E+12	2.59E+12	3.07E+12	3.91E+12
35	1.14E+12	8.46E+22	2.91E+11	27.735	0.250035	7.35E+11	9.38E+11	1.11E+12	1.31E+12	1.67E+12
36	6.83E+11	3.02E+22	1.74E+11	27.2189	0.250499	4.39E+11	5.59E+11	6.62E+11	7.84E+11	1.00E+12
37	1.05E+11	7.21E+20	2.68E+10	25.3485	0.250995	6.75E+10	8.61E+10	1.02E+11	1.21E+11	1.54E+11
38	4.24E+11	1.17E+22	1.08E+11	26.7426	0.250995	2.72E+11	3.47E+11	4.11E+11	4.87E+11	6.22E+11
39	1.88E+11	2.29E+21	4.79E+10	25.9288	0.250499	1.21E+11	1.54E+11	1.82E+11	2.16E+11	2.75E+11
40	1.82E+11	2.15E+21	4.63E+10	25.8983	0.250035	1.17E+11	1.49E+11	1.77E+11	2.09E+11	2.67E+11
40a	2.07E+10	2.79E+19	5.28E+09	23.7213	0.251256	1.33E+10	1.69E+10	2.00E+10	2.37E+10	3.03E+10
40b	3.19E+10	6.57E+19	8.11E+09	24.1532	0.250499	2.04E+10	2.61E+10	3.09E+10	3.66E+10	4.66E+10
40c	4.36E+10	1.23E+20	1.11E+10	24.4661	0.250995	2.79E+10	3.56E+10	4.22E+10	5.00E+10	6.38E+10
41	4.22E+11	1.14E+22	1.07E+11	26.7364	0.248817	2.71E+11	3.46E+11	4.09E+11	4.83E+11	6.15E+11
41a	2.03E+11	2.62E+21	5.12E+10	26.0035	0.248636	1.30E+11	1.66E+11	1.96E+11	2.32E+11	2.96E+11

42	9.40E+11	5.71E+22	2.39E+11	27.5384	0.250035	6.04E+11	7.70E+11	9.12E+11	1.08E+12	1.38E+12
43	5.65E+11	2.07E+22	1.44E+11	27.0292	0.250499	3.63E+11	4.63E+11	5.48E+11	6.49E+11	8.27E+11
43a	1.09E+10	7.68E+18	2.77E+09	23.0789	0.250742	6.98E+09	8.91E+09	1.05E+10	1.25E+10	1.59E+10
44	3.24E+11	6.83E+21	8.27E+10	26.473	0.250995	2.08E+11	2.65E+11	3.14E+11	3.72E+11	4.75E+11
44a	6.22E+10	2.52E+20	1.59E+10	24.8228	0.250995	3.99E+10	5.09E+10	6.03E+10	7.14E+10	9.11E+10
45	5.36E+10	1.87E+20	1.37E+10	24.6727	0.251526	3.43E+10	4.38E+10	5.19E+10	6.15E+10	7.85E+10
46	1.36E+11	1.20E+21	3.46E+10	25.6051	0.250499	8.73E+10	1.11E+11	1.32E+11	1.56E+11	1.99E+11
47	6.39E+10	2.66E+20	1.63E+10	24.8491	0.250995	4.10E+10	5.23E+10	6.19E+10	7.33E+10	9.36E+10
48	1.92E+11	2.34E+21	4.84E+10	25.9474	0.248636	1.23E+11	1.57E+11	1.86E+11	2.20E+11	2.80E+11
49	1.03E+11	6.84E+20	2.62E+10	25.3286	0.249602	6.63E+10	8.45E+10	1.00E+11	1.18E+11	1.51E+11
50	1.20E+11	9.22E+20	3.04E+10	25.4755	0.250035	7.68E+10	9.79E+10	1.16E+11	1.37E+11	1.75E+11
51	2.01E+11	2.62E+21	5.12E+10	25.9954	0.250499	1.29E+11	1.65E+11	1.95E+11	2.31E+11	2.94E+11
52	1.55E+11	1.56E+21	3.95E+10	25.7351	0.250995	9.94E+10	1.27E+11	1.50E+11	1.78E+11	2.27E+11
53	1.73E+10	1.92E+19	4.39E+09	23.5409	0.250035	1.11E+10	1.41E+10	1.67E+10	1.98E+10	2.53E+10
54	2.05E+10	2.72E+19	5.21E+09	23.7114	0.250499	1.31E+10	1.68E+10	1.98E+10	2.35E+10	3.00E+10
55	2.07E+10	2.80E+19	5.29E+09	23.7242	0.250995	1.33E+10	1.70E+10	2.01E+10	2.38E+10	3.04E+10
56	2.91E+11	5.46E+21	7.39E+10	26.3668	0.249602	1.87E+11	2.39E+11	2.82E+11	3.34E+11	4.26E+11
57	2.96E+11	5.64E+21	7.51E+10	26.3816	0.250035	1.90E+11	2.42E+11	2.87E+11	3.39E+11	4.33E+11
58	1.58E+11	1.61E+21	4.01E+10	25.7526	0.250499	1.01E+11	1.29E+11	1.53E+11	1.81E+11	2.31E+11
59	9.75E+10	6.11E+20	2.47E+10	25.2718	0.249602	6.27E+10	7.99E+10	9.45E+10	1.12E+11	1.42E+11
60	1.09E+11	7.60E+20	2.76E+10	25.3791	0.250035	6.97E+10	8.89E+10	1.05E+11	1.25E+11	1.59E+11
61	8.01E+10	4.16E+20	2.04E+10	25.0752	0.250499	5.14E+10	6.56E+10	7.76E+10	9.19E+10	1.17E+11
61a	9.58E+09	5.95E+18	2.44E+09	22.9511	0.250742	6.14E+09	7.84E+09	9.28E+09	1.10E+10	1.40E+10
62	2.50E+11	4.03E+21	6.35E+10	26.2149	0.249602	1.61E+11	2.05E+11	2.43E+11	2.87E+11	3.66E+11
63	2.78E+11	4.97E+21	7.05E+10	26.3179	0.250035	1.78E+11	2.27E+11	2.69E+11	3.18E+11	4.06E+11
64	1.30E+11	1.09E+21	3.30E+10	25.5563	0.250499	8.32E+10	1.06E+11	1.26E+11	1.49E+11	1.90E+11
65	2.38E+11	3.65E+21	6.04E+10	26.1661	0.249602	1.53E+11	1.95E+11	2.31E+11	2.73E+11	3.48E+11
66	2.07E+11	2.77E+21	5.26E+10	26.0258	0.250035	1.33E+11	1.70E+11	2.01E+11	2.38E+11	3.03E+11
67	7.90E+10	4.00E+20	2.00E+10	25.0622	0.249197	5.09E+10	6.48E+10	7.66E+10	9.06E+10	1.15E+11
68	7.77E+10	3.92E+20	1.98E+10	25.0447	0.250742	4.98E+10	6.36E+10	7.53E+10	8.92E+10	1.14E+11
P.P.C.	2.92E+13	5.46E+25	7.39E+12			1.88E+13	2.39E+13	2.83E+13	3.35E+13	4.26E+13

Table 6: List of subplays in the Frontier moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

\WINDRIVR\ASSESS\GFRONT3.XLS

Play Name :		Front .73-1.1								(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.9074	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	0.6	250	7	50	50	8,000	3294.7	633	0.9074	1.48E+10
2	1.1	250	7	50	50	9,000	3704.7	649	0.9074	2.98E+10
3	1	255	7	50	50	10,000	4114.7	665	0.9074	2.99E+10
4	9.4	225	7	50	50	8,000	3294.7	633	0.9074	2.09E+11
5	10.1	225	7	50	50	9,000	3704.7	649	0.9074	2.46E+11
6	3.5	245	7	50	50	10,000	4114.7	665	0.9074	1.01E+11
6a	0.5	250	7	50	50	11,500	4729.7	689	0.9074	1.63E+10
7	5.2	215	7	50	50	7,000	2884.7	617	0.9074	9.92E+10
8	3	195	7	50	50	7,000	2884.7	617	0.9074	5.19E+10
9	4.1	190	7	50	50	8,000	3294.7	633	0.9074	7.70E+10
10	12.6	175	7	50	50	9,000	3704.7	649	0.9074	2.39E+11
11	1.7	160	7	50	50	10,000	4114.7	665	0.9074	3.19E+10
12	3	155	7	50	50	8,000	3294.7	633	0.9074	4.59E+10
13	0.26	150	7	50	50	7,000	2884.7	617	0.9074	3.46E+09
14	3	140	7	50	50	10,000	4114.7	665	0.9074	4.93E+10
15	9.4	125	7	50	50	9,000	3704.7	649	0.9074	1.27E+11
16	5.1	125	7	50	50	8,000	3294.7	633	0.9074	6.30E+10
17	2.1	125	7	50	50	7,000	2884.7	617	0.9074	2.33E+10
18	1	100	7	50	50	8,500	3499.7	641	0.9074	1.04E+10
19	4	95	7	50	50	8,000	3294.7	633	0.9074	3.75E+10
20	3.2	90	7	50	50	7,000	2884.7	617	0.9074	2.56E+10
21	12.7	120	7	50	50	8,000	3294.7	633	0.9074	1.51E+11
22	13.7	125	7	50	50	7,000	2884.7	617	0.9074	1.52E+11
23	10.4	135	7	50	50	6,000	2474.7	601	0.9074	1.10E+11
24	15.5	170	7	50	50	7,000	2884.7	617	0.9074	2.34E+11
25	15	170	7	50	50	6,000	2474.7	601	0.9074	1.99E+11
26	1.6	145	7	50	50	9,000	3704.7	649	0.9074	2.51E+10
27	2.2	150	7	50	50	7,000	2884.7	617	0.9074	2.93E+10
28	1.1	150	7	50	50	7,000	2884.7	617	0.9074	1.46E+10
29	5	135	7	50	50	9,000	3704.7	649	0.9074	7.31E+10
30	8.2	120	7	50	50	7,000	2884.7	617	0.9074	8.73E+10
31	9.6	120	7	50	50	6,000	2474.7	601	0.9074	9.00E+10
32	5.1	95	7	50	50	7,000	2884.7	617	0.9074	4.30E+10
33	5.4	95	7	50	50	6,000	2474.7	601	0.9074	4.01E+10
34	8.6	90	7	50	50	7,000	2884.7	617	0.9074	6.87E+10
34a	1.5	100	7	50	50	7,500	3089.7	625	0.9074	1.41E+10
35	11	90	7	50	50	6,000	2474.7	601	0.9074	7.74E+10
36	3.9	100	7	50	50	7,000	2884.7	617	0.9074	3.46E+10
37	4.4	95	7	50	50	6,000	2474.7	601	0.9074	3.27E+10
38	2.9	100	7	50	50	7,000	2884.7	617	0.9074	2.57E+10
38a	2.7	100	7	50	50	7,500	3089.7	625	0.9074	2.53E+10
39	1.3	100	7	50	50	6,000	2474.7	601	0.9074	1.02E+10
40	0.2	100	7	50	50	6,000	2474.7	601	0.9074	1.56E+09
41	0.32	100	7	50	50	7,500	3089.7	625	0.9074	3.00E+09
42	2.1	100	7	50	50	7,000	2884.7	617	0.9074	1.86E+10

43	0.49	100	7	50	50	6,500	2679.7	609	0.9074	4.09E+09
44	2.9	110	7	50	50	8,000	3294.7	633	0.9074	3.15E+10
44a	0.5	100	7	50	50	9,000	3704.7	649	0.9074	5.42E+09
45	1.9	110	7	50	50	7,000	2884.7	617	0.9074	1.85E+10
46	0.73	90	7	50	50	7,500	3089.7	625	0.9074	6.16E+09
47	22.9	90	7	50	50	9,000	3704.7	649	0.9074	2.23E+11
48	10.7	120	7	50	50	9,000	3704.7	649	0.9074	1.39E+11
49	6	120	7	50	50	8,000	3294.7	633	0.9074	7.11E+10
50	0.2	100	7	50	50	8,500	3499.7	641	0.9074	2.07E+09
51	4.5	125	7	50	50	9,000	3704.7	649	0.9074	6.09E+10
52	13.5	140	7	50	50	8,000	3294.7	633	0.9074	1.87E+11
53	7.8	150	7	50	50	7,000	2884.7	617	0.9074	1.04E+11
54	0.37	150	7	50	50	7,500	3089.7	625	0.9074	5.21E+09
									Total =	3.95E+12

Table 7: List of subplays in the Frontier transition play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GFRONT3.XLS

Play Name :		Front .73-1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	5.74	5.03	6.40	0.36	63943.5	50.63	2731.0	2647.82	33.07	2.72E+20
2	6.29	5.54	7.00	1.22	63943.5	50.63	2731.0	2647.82	39.77	1.10E+21
3	6.82	6.02	7.57	1.01	66526.9	50.63	2731.0	2647.82	46.72	1.11E+21
4	5.74	5.03	6.40	89.09	51794.3	50.63	2731.0	2647.82	33.07	5.41E+22
5	6.29	5.54	7.00	102.86	51794.3	50.63	2731.0	2647.82	39.77	7.51E+22
6	6.82	6.02	7.57	12.35	61411.4	50.63	2731.0	2647.82	46.72	1.26E+22
6a	7.57	6.70	8.36	0.25	63943.5	50.63	2731.0	2647.82	57.49	3.29E+20
7	5.15	4.51	5.76	27.26	47292.6	50.63	2731.0	2647.82	26.69	1.22E+22
8	5.15	4.51	5.76	9.07	38903.2	50.63	2731.0	2647.82	26.69	3.34E+21
9	5.74	5.03	6.40	16.95	36933.8	50.63	2731.0	2647.82	33.07	7.34E+21
10	6.29	5.54	7.00	160.08	31332.3	50.63	2731.0	2647.82	39.77	7.07E+22
11	6.82	6.02	7.57	2.91	26191.3	50.63	2731.0	2647.82	46.72	1.26E+21
12	5.74	5.03	6.40	9.07	24579.9	50.63	2731.0	2647.82	33.07	2.62E+21
13	5.15	4.51	5.76	0.07	23019.7	50.63	2731.0	2647.82	26.69	1.49E+19
14	6.82	6.02	7.57	9.07	20052.7	50.63	2731.0	2647.82	46.72	3.01E+21
15	6.29	5.54	7.00	89.09	15985.9	50.63	2731.0	2647.82	39.77	2.01E+22
16	5.74	5.03	6.40	26.23	15985.9	50.63	2731.0	2647.82	33.07	4.92E+21
17	5.15	4.51	5.76	4.45	15985.9	50.63	2731.0	2647.82	26.69	6.73E+20
18	6.02	5.29	6.70	1.01	10231.0	50.63	2731.0	2647.82	36.39	1.33E+20
19	5.74	5.03	6.40	16.13	9233.4	50.63	2731.0	2647.82	33.07	1.75E+21
20	5.15	4.51	5.76	10.33	8287.1	50.63	2731.0	2647.82	26.69	8.10E+20
21	5.74	5.03	6.40	162.63	14732.6	50.63	2731.0	2647.82	33.07	2.81E+22
22	5.15	4.51	5.76	189.25	15985.9	50.63	2731.0	2647.82	26.69	2.86E+22
23	4.54	3.96	5.09	109.06	18645.9	50.63	2731.0	2647.82	20.71	1.49E+22
24	5.15	4.51	5.76	242.25	29567.5	50.63	2731.0	2647.82	26.69	6.78E+22
25	4.54	3.96	5.09	226.87	29567.5	50.63	2731.0	2647.82	20.71	4.93E+22
26	6.29	5.54	7.00	2.58	21510.6	50.63	2731.0	2647.82	39.77	7.83E+20
27	5.15	4.51	5.76	4.88	23019.7	50.63	2731.0	2647.82	26.69	1.06E+21
28	5.15	4.51	5.76	1.22	23019.7	50.63	2731.0	2647.82	26.69	2.66E+20
29	6.29	5.54	7.00	25.21	18645.9	50.63	2731.0	2647.82	39.77	6.63E+21
30	5.15	4.51	5.76	67.80	14732.6	50.63	2731.0	2647.82	26.69	9.46E+21
31	4.54	3.96	5.09	92.93	14732.6	50.63	2731.0	2647.82	20.71	1.01E+22
32	5.15	4.51	5.76	26.23	9233.4	50.63	2731.0	2647.82	26.69	2.29E+21
33	4.54	3.96	5.09	29.40	9233.4	50.63	2731.0	2647.82	20.71	1.99E+21
34	5.15	4.51	5.76	74.57	8287.1	50.63	2731.0	2647.82	26.69	5.85E+21
34a	5.45	4.77	6.09	2.27	10231.0	50.63	2731.0	2647.82	29.84	2.46E+20
35	4.54	3.96	5.09	122.01	8287.1	50.63	2731.0	2647.82	20.71	7.43E+21
36	5.15	4.51	5.76	15.34	10231.0	50.63	2731.0	2647.82	26.69	1.49E+21
37	4.54	3.96	5.09	19.52	9233.4	50.63	2731.0	2647.82	20.71	1.32E+21
38	5.15	4.51	5.76	8.48	10231.0	50.63	2731.0	2647.82	26.69	8.21E+20
38a	5.45	4.77	6.09	7.35	10231.0	50.63	2731.0	2647.82	29.84	7.96E+20
39	4.54	3.96	5.09	1.70	10231.0	50.63	2731.0	2647.82	20.71	1.28E+20
40	4.54	3.96	5.09	0.04	10231.0	50.63	2731.0	2647.82	20.71	3.03E+18
41	5.45	4.77	6.09	0.10	10231.0	50.63	2731.0	2647.82	29.84	1.12E+19
42	5.15	4.51	5.76	4.45	10231.0	50.63	2731.0	2647.82	26.69	4.31E+20

43	4.85	4.23	5.43	0.24	10231.0	50.63	2731.0	2647.82	23.65	2.08E+19
44	5.74	5.03	6.40	8.48	12379.5	50.63	2731.0	2647.82	33.07	1.23E+21
44a	6.29	5.54	7.00	0.25	10231.0	50.63	2731.0	2647.82	39.77	3.64E+19
45	5.15	4.51	5.76	3.64	12379.5	50.63	2731.0	2647.82	26.69	4.27E+20
46	5.45	4.77	6.09	0.54	8287.1	50.63	2731.0	2647.82	29.84	4.71E+19
47	6.29	5.54	7.00	528.77	8287.1	50.63	2731.0	2647.82	39.77	6.18E+22
48	6.29	5.54	7.00	115.44	14732.6	50.63	2731.0	2647.82	39.77	2.40E+22
49	5.74	5.03	6.40	36.30	14732.6	50.63	2731.0	2647.82	33.07	6.27E+21
50	6.02	5.29	6.70	0.04	10231.0	50.63	2731.0	2647.82	36.39	5.32E+18
51	6.29	5.54	7.00	20.42	15985.9	50.63	2731.0	2647.82	39.77	4.60E+21
52	5.74	5.03	6.40	183.77	20052.7	50.63	2731.0	2647.82	33.07	4.32E+22
53	5.15	4.51	5.76	61.35	23019.7	50.63	2731.0	2647.82	26.69	1.34E+22
54	5.45	4.77	6.09	0.14	23019.7	50.63	2731.0	2647.82	29.84	3.36E+19

Table 8: List of subplays in the Frontier transition play with estimates of ranges in percent for the six play attributes.

Play Name :		Front .73-1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.48E+10	5.26E+19	7.26E+09	23.3117	0.463542	6.21E+09	9.74E+09	1.33E+10	1.82E+10	2.85E+10
2	2.98E+10	2.13E+20	1.46E+10	24.0103	0.463275	1.25E+10	1.96E+10	2.68E+10	3.66E+10	5.73E+10
3	2.99E+10	2.14E+20	1.46E+10	24.0156	0.463026	1.26E+10	1.97E+10	2.69E+10	3.68E+10	5.76E+10
4	2.09E+11	1.05E+22	1.02E+11	25.9579	0.463542	8.75E+10	1.37E+11	1.88E+11	2.56E+11	4.02E+11
5	2.46E+11	1.45E+22	1.20E+11	26.1222	0.463275	1.03E+11	1.62E+11	2.21E+11	3.02E+11	4.74E+11
6	1.01E+11	2.43E+21	4.92E+10	25.2283	0.463026	4.22E+10	6.62E+10	9.05E+10	1.24E+11	1.94E+11
6a	1.63E+10	6.33E+19	7.96E+09	23.4066	0.462683	6.84E+09	1.07E+10	1.46E+10	2.00E+10	3.13E+10
7	9.92E+10	2.36E+21	4.86E+10	25.213	0.463828	4.15E+10	6.52E+10	8.91E+10	1.22E+11	1.91E+11
8	5.19E+10	6.47E+20	2.54E+10	24.5653	0.463828	2.17E+10	3.41E+10	4.66E+10	6.37E+10	1.00E+11
9	7.70E+10	1.42E+21	3.77E+10	24.9591	0.463542	3.22E+10	5.06E+10	6.91E+10	9.45E+10	1.48E+11
10	2.39E+11	1.37E+22	1.17E+11	26.092	0.463275	1.00E+11	1.57E+11	2.15E+11	2.93E+11	4.60E+11
11	3.19E+10	2.44E+20	1.56E+10	24.0801	0.463026	1.34E+10	2.10E+10	2.87E+10	3.92E+10	6.15E+10
12	4.59E+10	5.06E+20	2.25E+10	24.4432	0.463542	1.92E+10	3.02E+10	4.13E+10	5.64E+10	8.84E+10
13	3.46E+09	2.88E+18	1.70E+09	21.8572	0.463828	1.45E+09	2.27E+09	3.11E+09	4.25E+09	6.67E+09
14	4.93E+10	5.82E+20	2.41E+10	24.5145	0.463026	2.07E+10	3.24E+10	4.43E+10	6.05E+10	9.49E+10
15	1.27E+11	3.88E+21	6.23E+10	25.4626	0.463275	5.34E+10	8.37E+10	1.14E+11	1.56E+11	2.45E+11
16	6.30E+10	9.51E+20	3.08E+10	24.7587	0.463542	2.64E+10	4.14E+10	5.66E+10	7.73E+10	1.21E+11
17	2.33E+10	1.30E+20	1.14E+10	23.7639	0.463828	9.75E+09	1.53E+10	2.09E+10	2.86E+10	4.49E+10
18	1.04E+10	2.57E+19	5.07E+09	22.9541	0.463406	4.34E+09	6.81E+09	9.31E+09	1.27E+10	1.99E+10
19	3.75E+10	3.38E+20	1.84E+10	24.2413	0.463542	1.57E+10	2.47E+10	3.37E+10	4.61E+10	7.23E+10
20	2.56E+10	1.57E+20	1.25E+10	23.8566	0.463828	1.07E+10	1.68E+10	2.30E+10	3.14E+10	4.92E+10
21	1.51E+11	5.43E+21	7.37E+10	25.6302	0.463542	6.31E+10	9.89E+10	1.35E+11	1.85E+11	2.90E+11
22	1.52E+11	5.54E+21	7.45E+10	25.6394	0.463828	6.36E+10	9.98E+10	1.36E+11	1.87E+11	2.93E+11
23	1.10E+11	2.89E+21	5.38E+10	25.3136	0.464134	4.59E+10	7.21E+10	9.85E+10	1.35E+11	2.11E+11
24	2.34E+11	1.31E+22	1.15E+11	26.0703	0.463828	9.79E+10	1.54E+11	2.10E+11	2.87E+11	4.50E+11
25	1.99E+11	9.55E+21	9.77E+10	25.9104	0.464134	8.34E+10	1.31E+11	1.79E+11	2.45E+11	3.84E+11
26	2.51E+10	1.51E+20	1.23E+10	23.8403	0.463275	1.05E+10	1.65E+10	2.26E+10	3.09E+10	4.84E+10
27	2.93E+10	2.06E+20	1.43E+10	23.9928	0.463828	1.23E+10	1.92E+10	2.63E+10	3.60E+10	5.64E+10
28	1.46E+10	5.15E+19	7.17E+09	23.2996	0.463828	6.13E+09	9.62E+09	1.31E+10	1.80E+10	2.82E+10
29	7.31E+10	1.28E+21	3.58E+10	24.9083	0.463275	3.07E+10	4.81E+10	6.57E+10	8.98E+10	1.41E+11
30	8.73E+10	1.83E+21	4.28E+10	25.0853	0.463828	3.66E+10	5.74E+10	7.84E+10	1.07E+11	1.68E+11
31	9.00E+10	1.95E+21	4.41E+10	25.1158	0.464134	3.77E+10	5.91E+10	8.08E+10	1.11E+11	1.73E+11
32	4.30E+10	4.44E+20	2.11E+10	24.3768	0.463828	1.80E+10	2.82E+10	3.86E+10	5.28E+10	8.28E+10
33	4.01E+10	3.86E+20	1.97E+10	24.3068	0.464134	1.68E+10	2.63E+10	3.60E+10	4.92E+10	7.72E+10
34	6.87E+10	1.13E+21	3.37E+10	24.8453	0.463828	2.88E+10	4.51E+10	6.17E+10	8.43E+10	1.32E+11
34a	1.41E+10	4.75E+19	6.89E+09	23.2602	0.463683	5.90E+09	9.25E+09	1.26E+10	1.73E+10	2.71E+10
35	7.74E+10	1.44E+21	3.79E+10	24.9642	0.464134	3.24E+10	5.08E+10	6.95E+10	9.50E+10	1.49E+11
36	3.46E+10	2.88E+20	1.70E+10	24.1598	0.463828	1.45E+10	2.27E+10	3.11E+10	4.25E+10	6.67E+10
37	3.27E+10	2.57E+20	1.60E+10	24.102	0.464134	1.37E+10	2.15E+10	2.93E+10	4.01E+10	6.29E+10
38	2.57E+10	1.59E+20	1.26E+10	23.8636	0.463828	1.08E+10	1.69E+10	2.31E+10	3.16E+10	4.96E+10
38a	2.53E+10	1.54E+20	1.24E+10	23.8479	0.463683	1.06E+10	1.66E+10	2.28E+10	3.11E+10	4.88E+10
39	1.02E+10	2.48E+19	4.98E+09	22.9341	0.464134	4.25E+09	6.67E+09	9.12E+09	1.25E+10	1.96E+10
40	1.56E+09	5.87E+17	7.66E+08	21.0623	0.464134	6.54E+08	1.03E+09	1.40E+09	1.92E+09	3.01E+09
41	3.00E+09	2.16E+18	1.47E+09	21.7153	0.463683	1.26E+09	1.97E+09	2.70E+09	3.69E+09	5.78E+09
42	1.86E+10	8.34E+19	9.13E+09	23.5408	0.463828	7.80E+09	1.22E+10	1.67E+10	2.29E+10	3.59E+10

43	4.09E+09	4.02E+18	2.01E+09	22.0248	0.463978	1.71E+09	2.69E+09	3.67E+09	5.02E+09	7.88E+09
44	3.15E+10	2.38E+20	1.54E+10	24.0663	0.463542	1.32E+10	2.07E+10	2.83E+10	3.87E+10	6.07E+10
44a	5.42E+09	7.03E+18	2.65E+09	22.3056	0.463275	2.27E+09	3.56E+09	4.87E+09	6.65E+09	1.04E+10
45	1.85E+10	8.26E+19	9.09E+09	23.536	0.463828	7.77E+09	1.22E+10	1.67E+10	2.28E+10	3.57E+10
46	6.16E+09	9.12E+18	3.02E+09	22.4346	0.463683	2.58E+09	4.05E+09	5.54E+09	7.57E+09	1.19E+10
47	2.23E+11	1.19E+22	1.09E+11	26.0245	0.463275	9.36E+10	1.47E+11	2.01E+11	2.74E+11	4.30E+11
48	1.39E+11	4.63E+21	6.81E+10	25.5513	0.463275	5.83E+10	9.14E+10	1.25E+11	1.71E+11	2.68E+11
49	7.11E+10	1.21E+21	3.48E+10	24.8804	0.463542	2.98E+10	4.67E+10	6.39E+10	8.73E+10	1.37E+11
50	2.07E+09	1.03E+18	1.01E+09	21.3447	0.463406	8.69E+08	1.36E+09	1.86E+09	2.54E+09	3.99E+09
51	6.09E+10	8.89E+20	2.98E+10	24.726	0.463275	2.55E+10	4.01E+10	5.47E+10	7.48E+10	1.17E+11
52	1.87E+11	8.36E+21	9.14E+10	25.8454	0.463542	7.82E+10	1.23E+11	1.68E+11	2.29E+11	3.59E+11
53	1.04E+11	2.59E+21	5.09E+10	25.2584	0.463828	4.35E+10	6.82E+10	9.32E+10	1.27E+11	2.00E+11
54	5.21E+09	6.51E+18	2.55E+09	22.2659	0.463683	2.18E+09	3.42E+09	4.68E+09	6.39E+09	1.00E+10
P.P.C.	3.95E+12	3.74E+24	1.93E+12			1.65E+12	2.60E+12	3.55E+12	4.85E+12	7.60E+12

Table 9: List of subplays in the Frontier transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :	Cody > 300									(Panel 1)
						a =	0.727	0.016	0.00008	
						b =	14.7	505	0	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	0.9	400	6	100	50	20,000	14554.7	825	1.6	1.17E+11
2	3	415	6	100	50	19,000	13827.7	809	1.52	4.13E+11
3	4.1	420	6	100	50	18,000	13100.7	793	1.44	5.83E+11
4	4.7	425	6	100	50	17,000	12373.7	777	1.36	6.91E+11
5	4.5	425	6	100	50	16,000	11646.7	761	1.28	6.75E+11
6	0.62	425	6	100	50	15,500	11283.2	753	1.24	9.40E+10
7	2.8	350	6	100	50	20,000	14554.7	825	1.6	3.19E+11
8	5.6	350	6	100	50	19,000	13827.7	809	1.52	6.51E+11
9	33.3	350	6	100	50	18,000	13100.7	793	1.44	3.95E+12
10	28	350	6	100	50	17,000	12373.7	777	1.36	3.39E+12
11	4.7	350	6	100	50	16,000	11646.7	761	1.28	5.81E+11
12	3.1	250	6	100	50	20,000	14554.7	825	1.6	2.52E+11
13	27	250	6	100	50	19,000	13827.7	809	1.52	2.24E+12
14	2.4	290	6	100	50	18,500	13464.2	801	1.48	2.33E+11
15	5.9	180	6	100	50	17,000	12373.7	777	1.36	3.67E+11
16	4.5	115	6	100	50	20,000	14554.7	825	1.6	1.68E+11
17	10.9	135	6	100	50	19,000	13827.7	809	1.52	4.89E+11
18	23.7	160	6	100	50	18,000	13100.7	793	1.44	1.28E+12
19	17.1	170	6	100	50	17,000	12373.7	777	1.36	1.01E+12
20	18.9	150	6	100	50	16,000	11646.7	761	1.28	1.00E+12
21	3.7	215	6	100	50	16,000	11646.7	761	1.28	2.81E+11
22	8.5	240	6	100	50	17,000	12373.7	777	1.36	7.05E+11
23	7.2	245	6	100	50	18,000	13100.7	793	1.44	5.98E+11
24	6.5	310	6	100	50	19,000	13827.7	809	1.52	6.69E+11
25	7.6	250	6	100	50	19,000	13827.7	809	1.52	6.31E+11
26	11.2	250	6	100	50	18,000	13100.7	793	1.44	9.48E+11
27	13.7	250	6	100	50	17,000	12373.7	777	1.36	1.18E+12
28	5	80	6	100	50	20,000	14554.7	825	1.6	1.30E+11
29	3.3	90	6	100	50	19,000	13827.7	809	1.52	9.86E+10
30	10.5	80	6	100	50	18,000	13100.7	793	1.44	2.85E+11
31	10.8	85	6	100	50	17,000	12373.7	777	1.36	3.17E+11
32	4.4	90	6	100	50	16,000	11646.7	761	1.28	1.40E+11
33	4.6	150	6	100	50	17,000	12373.7	777	1.36	2.39E+11
34	10.3	130	6	100	50	18,000	13100.7	793	1.44	4.54E+11
35	22	150	6	100	50	19,000	13827.7	809	1.52	1.10E+12
36	10.6	170	6	100	50	18,000	13100.7	793	1.44	6.10E+11
37	9	170	6	100	50	17,000	12373.7	777	1.36	5.29E+11
38	7.8	70	6	100	50	19,000	13827.7	809	1.52	1.81E+11
39	2.9	75	6	100	50	18,000	13100.7	793	1.44	7.37E+10
40	2.8	105	6	100	50	19,000	13827.7	809	1.52	9.76E+10
41	3.7	125	6	100	50	20,000	14554.7	825	1.6	1.51E+11
42	9.3	115	6	100	50	19,000	13827.7	809	1.52	3.55E+11
43	5.7	120	6	100	50	18,000	13100.7	793	1.44	2.32E+11
44	6.5	120	6	100	50	17,000	12373.7	777	1.36	2.70E+11
45	9.2	75	6	100	50	19,000	13827.7	809	1.52	2.29E+11

46	5.2	75	6	100	50	18,000	13100.7	793	1.44	1.32E+11
47	5.5	75	6	100	50	17,000	12373.7	777	1.36	1.43E+11
48	18.3	180	6	100	50	20,000	14554.7	825	1.6	1.07E+12
49	2.8	200	6	100	50	19,500	14191.2	817	1.56	1.84E+11
50	0.6	200	6	100	50	19,500	14191.2	817	1.56	3.95E+10
									Total =	3.06E+13

Table 10: List of subplays in the Cody highly overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GCODY1.XLS

Play Name :		Cody > 300								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	11.03	11.71	10.42	0.82	163695.5	36.30	10037.0	2536.95	121.73	1.46E+22
2	11.24	11.92	10.64	9.07	176202.8	36.30	10037.0	2536.95	126.60	1.81E+23
3	11.47	12.14	10.88	16.95	180474.2	36.30	10037.0	2536.95	131.76	3.61E+23
4	11.71	12.36	11.12	22.27	184796.8	36.30	10037.0	2536.95	137.25	5.06E+23
5	11.96	12.59	11.38	20.42	184796.8	36.30	10037.0	2536.95	143.10	4.83E+23
6	12.08	12.72	11.51	0.39	184796.8	36.30	10037.0	2536.95	146.16	9.37E+21
7	11.03	11.71	10.42	7.91	125329.3	36.30	10037.0	2536.95	121.73	1.08E+23
8	11.24	11.92	10.64	31.62	125329.3	36.30	10037.0	2536.95	126.60	4.49E+23
9	11.47	12.14	10.88	1118.11	125329.3	36.30	10037.0	2536.95	131.76	1.65E+25
10	11.71	12.36	11.12	790.52	125329.3	36.30	10037.0	2536.95	137.25	1.22E+25
11	11.96	12.59	11.38	22.27	125329.3	36.30	10037.0	2536.95	143.10	3.58E+23
12	11.03	11.71	10.42	9.69	63943.5	36.30	10037.0	2536.95	121.73	6.75E+22
13	11.24	11.92	10.64	735.06	63943.5	36.30	10037.0	2536.95	126.60	5.33E+24
14	11.36	12.03	10.76	5.81	86042.4	36.30	10037.0	2536.95	129.14	5.78E+22
15	11.71	12.36	11.12	35.10	33148.3	36.30	10037.0	2536.95	137.25	1.43E+23
16	11.03	11.71	10.42	20.42	13530.5	36.30	10037.0	2536.95	121.73	3.01E+22
17	11.24	11.92	10.64	119.80	18645.9	36.30	10037.0	2536.95	126.60	2.53E+23
18	11.47	12.14	10.88	566.36	26191.3	36.30	10037.0	2536.95	131.76	1.75E+24
19	11.71	12.36	11.12	294.84	29567.5	36.30	10037.0	2536.95	137.25	1.07E+24
20	11.96	12.59	11.38	360.18	23019.7	36.30	10037.0	2536.95	143.10	1.06E+24
21	11.96	12.59	11.38	13.80	47292.6	36.30	10037.0	2536.95	143.10	8.36E+22
22	11.71	12.36	11.12	72.85	58930.4	36.30	10037.0	2536.95	137.25	5.28E+23
23	11.47	12.14	10.88	52.27	61411.4	36.30	10037.0	2536.95	131.76	3.79E+23
24	11.24	11.92	10.64	42.60	98319.6	36.30	10037.0	2536.95	126.60	4.75E+23
25	11.24	11.92	10.64	58.24	63943.5	36.30	10037.0	2536.95	126.60	4.22E+23
26	11.47	12.14	10.88	126.48	63943.5	36.30	10037.0	2536.95	131.76	9.54E+23
27	11.71	12.36	11.12	189.25	63943.5	36.30	10037.0	2536.95	137.25	1.49E+24
28	11.03	11.71	10.42	25.21	6547.8	36.30	10037.0	2536.95	121.73	1.80E+22
29	11.24	11.92	10.64	10.98	8287.1	36.30	10037.0	2536.95	126.60	1.03E+22
30	11.47	12.14	10.88	111.17	6547.8	36.30	10037.0	2536.95	131.76	8.59E+22
31	11.71	12.36	11.12	117.61	7391.9	36.30	10037.0	2536.95	137.25	1.07E+23
32	11.96	12.59	11.38	19.52	8287.1	36.30	10037.0	2536.95	143.10	2.07E+22
33	11.71	12.36	11.12	21.34	23019.7	36.30	10037.0	2536.95	137.25	6.04E+22
34	11.47	12.14	10.88	106.97	17290.3	36.30	10037.0	2536.95	131.76	2.18E+23
35	11.24	11.92	10.64	488.02	23019.7	36.30	10037.0	2536.95	126.60	1.27E+24
36	11.47	12.14	10.88	113.29	29567.5	36.30	10037.0	2536.95	131.76	3.95E+23
37	11.71	12.36	11.12	81.67	29567.5	36.30	10037.0	2536.95	137.25	2.97E+23
38	11.24	11.92	10.64	61.35	5013.2	36.30	10037.0	2536.95	126.60	3.49E+22
39	11.47	12.14	10.88	8.48	5754.9	36.30	10037.0	2536.95	131.76	5.76E+21
40	11.24	11.92	10.64	7.91	11279.6	36.30	10037.0	2536.95	126.60	1.01E+22
41	11.03	11.71	10.42	13.80	15985.9	36.30	10037.0	2536.95	121.73	2.41E+22
42	11.24	11.92	10.64	87.21	13530.5	36.30	10037.0	2536.95	126.60	1.34E+23
43	11.47	12.14	10.88	32.76	14732.6	36.30	10037.0	2536.95	131.76	5.69E+22
44	11.71	12.36	11.12	42.60	14732.6	36.30	10037.0	2536.95	137.25	7.71E+22
45	11.24	11.92	10.64	85.34	5754.9	36.30	10037.0	2536.95	126.60	5.57E+22

46	11.47	12.14	10.88	27.26	5754.9	36.30	10037.0	2536.95	131.76	1.85E+22
47	11.71	12.36	11.12	30.50	5754.9	36.30	10037.0	2536.95	137.25	2.16E+22
48	11.03	11.71	10.42	337.67	33148.3	36.30	10037.0	2536.95	121.73	1.22E+24
49	11.13	11.81	10.53	7.91	40923.9	36.30	10037.0	2536.95	124.13	3.60E+22
50	11.13	11.81	10.53	0.36	40923.9	36.30	10037.0	2536.95	124.13	1.65E+21

Table 11: List of subplays in the Cody highly overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Cody > 300								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.17E+11	8.35E+20	2.89E+10	25.4576	0.242945	7.63E+10	9.66E+10	1.14E+11	1.34E+11	1.70E+11
2	4.13E+11	1.04E+22	1.02E+11	26.7181	0.242785	2.69E+11	3.41E+11	4.01E+11	4.73E+11	5.98E+11
3	5.83E+11	2.06E+22	1.44E+11	27.0625	0.242625	3.80E+11	4.81E+11	5.66E+11	6.67E+11	8.44E+11
4	6.91E+11	2.89E+22	1.70E+11	27.2314	0.242463	4.50E+11	5.69E+11	6.71E+11	7.90E+11	9.99E+11
5	6.75E+11	2.76E+22	1.66E+11	27.2089	0.242301	4.40E+11	5.57E+11	6.56E+11	7.72E+11	9.77E+11
6	9.40E+10	5.34E+20	2.31E+10	25.2374	0.24222	6.13E+10	7.75E+10	9.13E+10	1.07E+11	1.36E+11
7	3.19E+11	6.19E+21	7.87E+10	26.4591	0.242945	2.08E+11	2.63E+11	3.10E+11	3.65E+11	4.62E+11
8	6.51E+11	2.57E+22	1.60E+11	27.1719	0.242785	4.24E+11	5.36E+11	6.32E+11	7.44E+11	9.42E+11
9	3.95E+12	9.45E+23	9.72E+11	28.9748	0.242625	2.57E+12	3.26E+12	3.83E+12	4.51E+12	5.71E+12
10	3.39E+12	6.95E+23	8.34E+11	28.8219	0.242463	2.21E+12	2.79E+12	3.29E+12	3.87E+12	4.90E+12
11	5.81E+11	2.04E+22	1.43E+11	27.0582	0.242301	3.79E+11	4.79E+11	5.64E+11	6.64E+11	8.40E+11
12	2.52E+11	3.87E+21	6.22E+10	26.2244	0.242945	1.64E+11	2.08E+11	2.45E+11	2.89E+11	3.65E+11
13	2.24E+12	3.05E+23	5.52E+11	28.4085	0.242785	1.46E+12	1.85E+12	2.18E+12	2.56E+12	3.24E+12
14	2.33E+11	3.31E+21	5.75E+10	26.1466	0.242705	1.52E+11	1.92E+11	2.27E+11	2.67E+11	3.38E+11
15	3.67E+11	8.16E+21	9.03E+10	26.5997	0.242463	2.39E+11	3.03E+11	3.57E+11	4.20E+11	5.31E+11
16	1.68E+11	1.73E+21	4.15E+10	25.8206	0.242945	1.10E+11	1.39E+11	1.64E+11	1.93E+11	2.44E+11
17	4.89E+11	1.45E+22	1.20E+11	26.8853	0.242785	3.18E+11	4.03E+11	4.74E+11	5.59E+11	7.07E+11
18	1.28E+12	1.00E+23	3.16E+11	27.8519	0.242625	8.37E+11	1.06E+12	1.25E+12	1.47E+12	1.86E+12
19	1.01E+12	6.12E+22	2.47E+11	27.6067	0.242463	6.55E+11	8.29E+11	9.76E+11	1.15E+12	1.45E+12
20	1.00E+12	6.06E+22	2.46E+11	27.6025	0.242301	6.52E+11	8.25E+11	9.72E+11	1.14E+12	1.45E+12
21	2.81E+11	4.77E+21	6.91E+10	26.3317	0.242301	1.83E+11	2.32E+11	2.73E+11	3.21E+11	4.06E+11
22	7.05E+11	3.01E+22	1.74E+11	27.2525	0.242463	4.60E+11	5.82E+11	6.85E+11	8.06E+11	1.02E+12
23	5.98E+11	2.16E+22	1.47E+11	27.0866	0.242625	3.89E+11	4.93E+11	5.80E+11	6.83E+11	8.65E+11
24	6.69E+11	2.72E+22	1.65E+11	27.1996	0.242785	4.36E+11	5.52E+11	6.50E+11	7.65E+11	9.68E+11
25	6.31E+11	2.42E+22	1.55E+11	27.1408	0.242785	4.11E+11	5.20E+11	6.13E+11	7.21E+11	9.13E+11
26	9.48E+11	5.45E+22	2.34E+11	27.5487	0.242625	6.18E+11	7.82E+11	9.21E+11	1.08E+12	1.37E+12
27	1.18E+12	8.49E+22	2.91E+11	27.7706	0.242463	7.72E+11	9.76E+11	1.15E+12	1.35E+12	1.71E+12
28	1.30E+11	1.03E+21	3.21E+10	25.563	0.242945	8.48E+10	1.07E+11	1.26E+11	1.49E+11	1.89E+11
29	9.86E+10	5.90E+20	2.43E+10	25.285	0.242785	6.42E+10	8.13E+10	9.57E+10	1.13E+11	1.43E+11
30	2.85E+11	4.91E+21	7.01E+10	26.3447	0.242625	1.85E+11	2.35E+11	2.76E+11	3.25E+11	4.12E+11
31	3.17E+11	6.10E+21	7.81E+10	26.454	0.242463	2.07E+11	2.62E+11	3.08E+11	3.63E+11	4.59E+11
32	1.40E+11	1.18E+21	3.44E+10	25.6341	0.242301	9.11E+10	1.15E+11	1.36E+11	1.60E+11	2.02E+11
33	2.39E+11	3.45E+21	5.87E+10	26.1685	0.242463	1.55E+11	1.97E+11	2.32E+11	2.73E+11	3.45E+11
34	4.54E+11	1.25E+22	1.12E+11	26.811	0.242625	2.95E+11	3.74E+11	4.40E+11	5.19E+11	6.56E+11
35	1.10E+12	7.29E+22	2.70E+11	27.6929	0.242785	7.14E+11	9.03E+11	1.06E+12	1.25E+12	1.59E+12
36	6.10E+11	2.26E+22	1.50E+11	27.1079	0.242625	3.98E+11	5.03E+11	5.93E+11	6.98E+11	8.83E+11
37	5.29E+11	1.69E+22	1.30E+11	26.9648	0.242463	3.45E+11	4.36E+11	5.14E+11	6.05E+11	7.65E+11
38	1.81E+11	2.00E+21	4.47E+10	25.8938	0.242785	1.18E+11	1.49E+11	1.76E+11	2.07E+11	2.62E+11
39	7.37E+10	3.29E+20	1.81E+10	24.9935	0.242625	4.80E+10	6.07E+10	7.15E+10	8.42E+10	1.07E+11
40	9.76E+10	5.79E+20	2.41E+10	25.2748	0.242785	6.36E+10	8.05E+10	9.48E+10	1.12E+11	1.41E+11
41	1.51E+11	1.38E+21	3.71E+10	25.7082	0.242945	9.80E+10	1.24E+11	1.46E+11	1.72E+11	2.18E+11
42	3.55E+11	7.66E+21	8.75E+10	26.5662	0.242785	2.31E+11	2.93E+11	3.45E+11	4.06E+11	5.14E+11
43	2.32E+11	3.25E+21	5.71E+10	26.1393	0.242625	1.51E+11	1.91E+11	2.25E+11	2.65E+11	3.35E+11
44	2.70E+11	4.40E+21	6.64E+10	26.2911	0.242463	1.76E+11	2.22E+11	2.62E+11	3.08E+11	3.90E+11
45	2.29E+11	3.19E+21	5.64E+10	26.1279	0.242785	1.49E+11	1.89E+11	2.22E+11	2.62E+11	3.32E+11

46	1.32E+11	1.06E+21	3.25E+10	25.5774	0.242625	8.61E+10	1.09E+11	1.28E+11	1.51E+11	1.91E+11
47	1.43E+11	1.23E+21	3.51E+10	25.654	0.242463	9.29E+10	1.18E+11	1.38E+11	1.63E+11	2.06E+11
48	1.07E+12	6.99E+22	2.64E+11	27.6714	0.242945	6.98E+11	8.84E+11	1.04E+12	1.23E+12	1.55E+12
49	1.84E+11	2.06E+21	4.54E+10	25.9093	0.242866	1.20E+11	1.52E+11	1.79E+11	2.11E+11	2.67E+11
50	3.95E+10	9.46E+19	9.72E+09	24.3688	0.242866	2.57E+10	3.25E+10	3.83E+10	4.51E+10	5.71E+10
P.P.C.	3.06E+13	5.67E+25	7.53E+12			1.99E+13	2.52E+13	2.97E+13	3.50E+13	4.42E+13

Table 12: List of subplays in the Cody highly overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Cody > 1.1								(Panel 1)
						a =	0.52	0.016	0	
						b =	14.7	505	1.12	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	3.4	420	7	70	50	15,000	7814.7	745	1.12	3.22E+11
2	2.6	420	7	70	50	14,000	7294.7	729	1.12	2.35E+11
3	2.4	420	7	70	50	13,000	6774.7	713	1.12	2.06E+11
4	2.2	420	7	70	50	12,000	6254.7	697	1.12	1.79E+11
5	1.7	420	7	70	50	11,000	5734.7	681	1.12	1.29E+11
6	1.5	420	7	70	50	10,000	5214.7	665	1.12	1.06E+11
7	1.8	350	7	70	50	15,500	8074.7	753	1.12	1.45E+11
8	3.9	350	7	70	50	15,000	7814.7	745	1.12	3.08E+11
9	2.7	350	7	70	50	14,000	7294.7	729	1.12	2.04E+11
10	3.5	350	7	70	50	13,000	6774.7	713	1.12	2.51E+11
11	3.5	350	7	70	50	12,000	6254.7	697	1.12	2.37E+11
12	2.6	350	7	70	50	11,000	5734.7	681	1.12	1.65E+11
13	2.8	350	7	70	50	10,000	5214.7	665	1.12	1.65E+11
14	4.3	280	7	70	50	16,000	8334.7	761	1.12	2.84E+11
15	10.4	275	7	70	50	15,000	7814.7	745	1.12	6.46E+11
16	12.8	250	7	70	50	14,000	7294.7	729	1.12	6.89E+11
17	4.1	250	7	70	50	12,000	6254.7	697	1.12	1.98E+11
18	2.9	250	7	70	50	11,000	5734.7	681	1.12	1.31E+11
19	3.1	250	7	70	50	10,000	5214.7	665	1.12	1.31E+11
20	0.5	240	7	70	50	9,500	4954.7	657	1.12	1.95E+10
21	3	190	7	70	50	13,000	6774.7	713	1.12	1.17E+11
22	6.7	190	7	70	50	12,000	6254.7	697	1.12	2.46E+11
23	8.5	185	7	70	50	11,000	5734.7	681	1.12	2.85E+11
24	12.5	180	7	70	50	10,000	5214.7	665	1.12	3.80E+11
25	5	180	7	70	50	9,500	4954.7	657	1.12	1.46E+11
26	12.7	250	7	70	50	13,000	6774.7	713	1.12	6.49E+11
27	5	250	7	70	50	12,000	6254.7	697	1.12	2.41E+11
28	5.1	250	7	70	50	11,000	5734.7	681	1.12	2.31E+11
29	8.3	250	7	70	50	10,000	5214.7	665	1.12	3.50E+11
30	0.71	225	7	70	50	9,500	4954.7	657	1.12	2.59E+10
31	12.4	250	7	70	50	16,000	8334.7	761	1.12	7.31E+11
32	10.5	250	7	70	50	15,000	7814.7	745	1.12	5.93E+11
33	6.1	250	7	70	50	14,000	7294.7	729	1.12	3.29E+11
34	4.3	250	7	70	50	13,000	6774.7	713	1.12	2.20E+11
35	5	250	7	70	50	12,000	6254.7	697	1.12	2.41E+11
36	3.6	250	7	70	50	11,000	5734.7	681	1.12	1.63E+11
37	14.6	170	7	70	50	16,000	8334.7	761	1.12	5.85E+11
38	17.2	170	7	70	50	15,000	7814.7	745	1.12	6.60E+11
39	16.1	160	7	70	50	14,000	7294.7	729	1.12	5.55E+11
40	10.1	140	7	70	50	13,000	6774.7	713	1.12	2.89E+11
41	9.2	150	7	70	50	12,000	6254.7	697	1.12	2.67E+11
42	5.7	150	7	70	50	10,000	5214.7	665	1.12	1.44E+11
43	4.9	160	7	70	50	10,000	5214.7	665	1.12	1.32E+11
44	2.4	100	7	70	50	11,000	5734.7	681	1.12	4.35E+10
45	3.6	90	7	70	50	10,000	5214.7	665	1.12	5.47E+10

46	7.8	120	7	70	50	16,000	8334.7	761	1.12	2.21E+11
47	7.2	120	7	70	50	15,000	7814.7	745	1.12	1.95E+11
48	5.5	115	7	70	50	14,000	7294.7	729	1.12	1.36E+11
49	4.3	110	7	70	50	13,000	6774.7	713	1.12	9.68E+10
50	1.1	100	7	70	50	12,500	6514.7	705	1.12	2.19E+10
51	7.8	70	7	70	50	16,000	8334.7	761	1.12	1.29E+11
52	10.3	75	7	70	50	15,000	7814.7	745	1.12	1.74E+11
53	9.9	65	7	70	50	14,000	7294.7	729	1.12	1.39E+11
54	9.4	55	7	70	50	13,000	6774.7	713	1.12	1.06E+11
55	28.8	35	7	70	50	12,000	6254.7	697	1.12	1.95E+11
56	21.9	40	7	70	50	11,000	5734.7	681	1.12	1.59E+11
57	9.5	50	7	70	50	10,000	5214.7	665	1.12	8.02E+10
58	0.9	400	7	70	50	13,500	7034.7	721	1.12	7.56E+10
59	0.2	400	7	70	50	15,000	7814.7	745	1.12	1.81E+10
60	6.3	350	7	70	50	14,000	7294.7	729	1.12	4.75E+11
61	0.9	350	7	70	50	15,000	7814.7	745	1.12	7.11E+10
62	5.8	260	7	70	50	14,000	7294.7	729	1.12	3.25E+11
63	3.3	240	7	70	50	15,000	7814.7	745	1.12	1.79E+11
64	0.4	225	7	70	50	15,500	8074.7	753	1.12	2.08E+10
65	1.3	195	7	70	50	15,500	8074.7	753	1.12	5.85E+10
66	4.5	190	7	70	50	16,000	8334.7	761	1.12	2.02E+11
67	0.5	5	7	70	50	12,500	6514.7	705	1.12	4.97E+08
68	12.8	340	7	70	50	16,000	8334.7	761	1.12	1.03E+12
69	13	330	7	70	50	15,000	7814.7	745	1.12	9.69E+11
70	10.8	320	7	70	50	14,000	7294.7	729	1.12	7.45E+11
71	6.8	320	7	70	50	13,000	6774.7	713	1.12	4.45E+11
72	6.2	310	7	70	50	12,000	6254.7	697	1.12	3.71E+11
73	2	305	7	70	50	11,000	5734.7	681	1.12	1.11E+11
									Total =	1.92E+13

Table 13: List of subplays in the Cody moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GCODY2.XLS

Play Name :		Cody > 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	9.37	8.37	10.27	11.66	180474.2	49.41	4918.1	2536.95	88.05	1.11E+23
2	8.93	7.96	9.82	6.82	180474.2	49.41	4918.1	2536.95	80.14	5.89E+22
3	8.48	7.54	9.34	5.81	180474.2	49.41	4918.1	2536.95	72.27	4.52E+22
4	8.01	7.11	8.85	4.88	180474.2	49.41	4918.1	2536.95	64.48	3.39E+22
5	7.52	6.65	8.32	2.91	180474.2	49.41	4918.1	2536.95	56.79	1.78E+22
6	7.00	6.18	7.77	2.27	180474.2	49.41	4918.1	2536.95	49.25	1.20E+22
7	9.57	8.56	10.49	3.27	125329.3	49.41	4918.1	2536.95	92.01	2.25E+22
8	9.37	8.37	10.27	15.34	125329.3	49.41	4918.1	2536.95	88.05	1.01E+23
9	8.93	7.96	9.82	7.35	125329.3	49.41	4918.1	2536.95	80.14	4.41E+22
10	8.48	7.54	9.34	12.35	125329.3	49.41	4918.1	2536.95	72.27	6.68E+22
11	8.01	7.11	8.85	12.35	125329.3	49.41	4918.1	2536.95	64.48	5.96E+22
12	7.52	6.65	8.32	6.82	125329.3	49.41	4918.1	2536.95	56.79	2.90E+22
13	7.00	6.18	7.77	7.91	125329.3	49.41	4918.1	2536.95	49.25	2.91E+22
14	9.78	8.76	10.70	18.64	80210.8	49.41	4918.1	2536.95	95.98	8.57E+22
15	9.37	8.37	10.27	109.06	77371.7	49.41	4918.1	2536.95	88.05	4.44E+23
16	8.93	7.96	9.82	165.20	63943.5	49.41	4918.1	2536.95	80.14	5.06E+23
17	8.01	7.11	8.85	16.95	63943.5	49.41	4918.1	2536.95	64.48	4.17E+22
18	7.52	6.65	8.32	8.48	63943.5	49.41	4918.1	2536.95	56.79	1.84E+22
19	7.00	6.18	7.77	9.69	63943.5	49.41	4918.1	2536.95	49.25	1.82E+22
20	6.73	5.93	7.48	0.25	58930.4	49.41	4918.1	2536.95	45.56	4.04E+20
21	8.48	7.54	9.34	9.07	36933.8	49.41	4918.1	2536.95	72.27	1.45E+22
22	8.01	7.11	8.85	45.26	36933.8	49.41	4918.1	2536.95	64.48	6.44E+22
23	7.52	6.65	8.32	72.85	35015.5	49.41	4918.1	2536.95	56.79	8.65E+22
24	7.00	6.18	7.77	157.55	33148.3	49.41	4918.1	2536.95	49.25	1.54E+23
25	6.73	5.93	7.48	25.21	33148.3	49.41	4918.1	2536.95	45.56	2.27E+22
26	8.48	7.54	9.34	162.63	63943.5	49.41	4918.1	2536.95	72.27	4.49E+23
27	8.01	7.11	8.85	25.21	63943.5	49.41	4918.1	2536.95	64.48	6.21E+22
28	7.52	6.65	8.32	26.23	63943.5	49.41	4918.1	2536.95	56.79	5.69E+22
29	7.00	6.18	7.77	69.46	63943.5	49.41	4918.1	2536.95	49.25	1.31E+23
30	6.73	5.93	7.48	0.51	51794.3	49.41	4918.1	2536.95	45.56	7.16E+20
31	9.78	8.76	10.70	155.04	63943.5	49.41	4918.1	2536.95	95.98	5.68E+23
32	9.37	8.37	10.27	111.17	63943.5	49.41	4918.1	2536.95	88.05	3.74E+23
33	8.93	7.96	9.82	37.52	63943.5	49.41	4918.1	2536.95	80.14	1.15E+23
34	8.48	7.54	9.34	18.64	63943.5	49.41	4918.1	2536.95	72.27	5.14E+22
35	8.01	7.11	8.85	25.21	63943.5	49.41	4918.1	2536.95	64.48	6.21E+22
36	7.52	6.65	8.32	13.07	63943.5	49.41	4918.1	2536.95	56.79	2.83E+22
37	9.78	8.76	10.70	214.93	29567.5	49.41	4918.1	2536.95	95.98	3.64E+23
38	9.37	8.37	10.27	298.30	29567.5	49.41	4918.1	2536.95	88.05	4.64E+23
39	8.93	7.96	9.82	261.37	26191.3	49.41	4918.1	2536.95	80.14	3.28E+23
40	8.48	7.54	9.34	102.86	20052.7	49.41	4918.1	2536.95	72.27	8.90E+22
41	8.01	7.11	8.85	85.34	23019.7	49.41	4918.1	2536.95	64.48	7.56E+22
42	7.00	6.18	7.77	32.76	23019.7	49.41	4918.1	2536.95	49.25	2.22E+22
43	7.00	6.18	7.77	24.21	26191.3	49.41	4918.1	2536.95	49.25	1.86E+22
44	7.52	6.65	8.32	5.81	10231.0	49.41	4918.1	2536.95	56.79	2.01E+21
45	7.00	6.18	7.77	13.07	8287.1	49.41	4918.1	2536.95	49.25	3.19E+21

46	9.78	8.76	10.70	61.35	14732.6	49.41	4918.1	2536.95	95.98	5.18E+22
47	9.37	8.37	10.27	52.27	14732.6	49.41	4918.1	2536.95	88.05	4.05E+22
48	8.93	7.96	9.82	30.50	13530.5	49.41	4918.1	2536.95	80.14	1.97E+22
49	8.48	7.54	9.34	18.64	12379.5	49.41	4918.1	2536.95	72.27	9.96E+21
50	8.25	7.33	9.10	1.22	10231.0	49.41	4918.1	2536.95	68.36	5.10E+20
51	9.78	8.76	10.70	61.35	5013.2	49.41	4918.1	2536.95	95.98	1.76E+22
52	9.37	8.37	10.27	106.97	5754.9	49.41	4918.1	2536.95	88.05	3.24E+22
53	8.93	7.96	9.82	98.82	4322.6	49.41	4918.1	2536.95	80.14	2.04E+22
54	8.48	7.54	9.34	89.09	3094.9	49.41	4918.1	2536.95	72.27	1.19E+22
55	8.01	7.11	8.85	836.34	1253.3	49.41	4918.1	2536.95	64.48	4.04E+22
56	7.52	6.65	8.32	483.60	1637.0	49.41	4918.1	2536.95	56.79	2.68E+22
57	7.00	6.18	7.77	91.00	2557.7	49.41	4918.1	2536.95	49.25	6.85E+21
58	8.71	7.76	9.58	0.82	163695.5	49.41	4918.1	2536.95	76.20	6.08E+21
59	9.37	8.37	10.27	0.04	163695.5	49.41	4918.1	2536.95	88.05	3.47E+20
60	8.93	7.96	9.82	40.02	125329.3	49.41	4918.1	2536.95	80.14	2.40E+23
61	9.37	8.37	10.27	0.82	125329.3	49.41	4918.1	2536.95	88.05	5.38E+21
62	8.93	7.96	9.82	33.92	69161.3	49.41	4918.1	2536.95	80.14	1.12E+23
63	9.37	8.37	10.27	10.98	58930.4	49.41	4918.1	2536.95	88.05	3.40E+22
64	9.57	8.56	10.49	0.16	51794.3	49.41	4918.1	2536.95	92.01	4.59E+20
65	9.57	8.56	10.49	1.70	38903.2	49.41	4918.1	2536.95	92.01	3.64E+21
66	9.78	8.76	10.70	20.42	36933.8	49.41	4918.1	2536.95	95.98	4.32E+22
67	8.25	7.33	9.10	0.25	25.6	49.41	4918.1	2536.95	68.36	2.63E+17
68	9.78	8.76	10.70	165.20	118270.0	49.41	4918.1	2536.95	95.98	1.12E+24
69	9.37	8.37	10.27	170.41	111415.2	49.41	4918.1	2536.95	88.05	9.98E+23
70	8.93	7.96	9.82	117.61	104765.1	49.41	4918.1	2536.95	80.14	5.90E+23
71	8.48	7.54	9.34	46.62	104765.1	49.41	4918.1	2536.95	72.27	2.11E+23
72	8.01	7.11	8.85	38.76	98319.6	49.41	4918.1	2536.95	64.48	1.47E+23
73	7.52	6.65	8.32	4.03	95173.6	49.41	4918.1	2536.95	56.79	1.30E+22

Table 14: List of subplays in the Cody moderately overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Cody > 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	3.22E+11	6.60E+21	8.13E+10	26.4685	0.248127	2.08E+11	2.65E+11	3.13E+11	3.70E+11	4.70E+11
2	2.35E+11	3.52E+21	5.94E+10	26.1531	0.248461	1.52E+11	1.93E+11	2.28E+11	2.70E+11	3.43E+11
3	2.06E+11	2.72E+21	5.21E+10	26.0212	0.248817	1.33E+11	1.69E+11	2.00E+11	2.36E+11	3.01E+11
4	1.79E+11	2.04E+21	4.52E+10	25.8769	0.249197	1.15E+11	1.46E+11	1.73E+11	2.05E+11	2.61E+11
5	1.29E+11	1.08E+21	3.28E+10	25.5554	0.249602	8.32E+10	1.06E+11	1.25E+11	1.48E+11	1.89E+11
6	1.06E+11	7.30E+20	2.70E+10	25.3588	0.250035	6.83E+10	8.71E+10	1.03E+11	1.22E+11	1.56E+11
7	1.45E+11	1.34E+21	3.66E+10	25.6723	0.247967	9.38E+10	1.19E+11	1.41E+11	1.67E+11	2.12E+11
8	3.08E+11	6.03E+21	7.77E+10	26.4234	0.248127	1.99E+11	2.53E+11	2.99E+11	3.53E+11	4.50E+11
9	2.04E+11	2.64E+21	5.14E+10	26.0085	0.248461	1.31E+11	1.67E+11	1.97E+11	2.33E+11	2.97E+11
10	2.51E+11	4.01E+21	6.33E+10	26.2161	0.248817	1.61E+11	2.05E+11	2.43E+11	2.87E+11	3.66E+11
11	2.37E+11	3.59E+21	5.99E+10	26.1589	0.249197	1.52E+11	1.94E+11	2.29E+11	2.71E+11	3.46E+11
12	1.65E+11	1.75E+21	4.18E+10	25.7979	0.249602	1.06E+11	1.35E+11	1.60E+11	1.89E+11	2.41E+11
13	1.65E+11	1.77E+21	4.20E+10	25.8007	0.250035	1.06E+11	1.35E+11	1.60E+11	1.90E+11	2.42E+11
14	2.84E+11	5.10E+21	7.14E+10	26.3412	0.247813	1.83E+11	2.33E+11	2.75E+11	3.25E+11	4.14E+11
15	6.46E+11	2.65E+22	1.63E+11	27.1631	0.248127	4.16E+11	5.30E+11	6.26E+11	7.40E+11	9.42E+11
16	6.89E+11	3.03E+22	1.74E+11	27.2282	0.248461	4.44E+11	5.65E+11	6.68E+11	7.90E+11	1.01E+12
17	1.98E+11	2.51E+21	5.01E+10	25.9806	0.249197	1.27E+11	1.62E+11	1.92E+11	2.27E+11	2.89E+11
18	1.31E+11	1.11E+21	3.33E+10	25.5707	0.249602	8.45E+10	1.08E+11	1.27E+11	1.51E+11	1.92E+11
19	1.31E+11	1.10E+21	3.32E+10	25.566	0.250035	8.40E+10	1.07E+11	1.27E+11	1.50E+11	1.91E+11
20	1.95E+10	2.45E+19	4.95E+09	23.6615	0.250263	1.25E+10	1.60E+10	1.89E+10	2.24E+10	2.85E+10
21	1.17E+11	8.68E+20	2.95E+10	25.4511	0.248817	7.51E+10	9.56E+10	1.13E+11	1.34E+11	1.70E+11
22	2.46E+11	3.88E+21	6.23E+10	26.1973	0.249197	1.58E+11	2.02E+11	2.38E+11	2.82E+11	3.59E+11
23	2.85E+11	5.22E+21	7.23E+10	26.3449	0.249602	1.83E+11	2.34E+11	2.76E+11	3.27E+11	4.17E+11
24	3.80E+11	9.31E+21	9.65E+10	26.6318	0.250035	2.44E+11	3.11E+11	3.68E+11	4.36E+11	5.55E+11
25	1.46E+11	1.38E+21	3.71E+10	25.6764	0.250263	9.38E+10	1.20E+11	1.42E+11	1.68E+11	2.14E+11
26	6.49E+11	2.69E+22	1.64E+11	27.1685	0.248817	4.18E+11	5.32E+11	6.30E+11	7.45E+11	9.48E+11
27	2.41E+11	3.74E+21	6.11E+10	26.1791	0.249197	1.55E+11	1.98E+11	2.34E+11	2.77E+11	3.53E+11
28	2.31E+11	3.43E+21	5.86E+10	26.1352	0.249602	1.49E+11	1.89E+11	2.24E+11	2.65E+11	3.38E+11
29	3.50E+11	7.92E+21	8.90E+10	26.5508	0.250035	2.25E+11	2.87E+11	3.40E+11	4.02E+11	5.12E+11
30	2.59E+10	4.35E+19	6.59E+09	23.9476	0.250263	1.67E+10	2.12E+10	2.51E+10	2.98E+10	3.79E+10
31	7.31E+11	3.38E+22	1.84E+11	27.2869	0.247813	4.72E+11	6.00E+11	7.09E+11	8.38E+11	1.07E+12
32	5.93E+11	2.23E+22	1.49E+11	27.0774	0.248127	3.82E+11	4.86E+11	5.75E+11	6.79E+11	8.65E+11
33	3.29E+11	6.87E+21	8.29E+10	26.487	0.248461	2.12E+11	2.69E+11	3.19E+11	3.77E+11	4.79E+11
34	2.20E+11	3.09E+21	5.56E+10	26.0855	0.248817	1.42E+11	1.80E+11	2.13E+11	2.52E+11	3.21E+11
35	2.41E+11	3.74E+21	6.11E+10	26.1791	0.249197	1.55E+11	1.98E+11	2.34E+11	2.77E+11	3.53E+11
36	1.63E+11	1.71E+21	4.14E+10	25.7869	0.249602	1.05E+11	1.34E+11	1.58E+11	1.87E+11	2.38E+11
37	5.85E+11	2.17E+22	1.47E+11	27.0646	0.247813	3.78E+11	4.80E+11	5.68E+11	6.71E+11	8.53E+11
38	6.60E+11	2.77E+22	1.66E+11	27.1852	0.248127	4.26E+11	5.42E+11	6.40E+11	7.57E+11	9.63E+11
39	5.55E+11	1.96E+22	1.40E+11	27.0113	0.248461	3.58E+11	4.55E+11	5.38E+11	6.36E+11	8.10E+11
40	2.89E+11	5.34E+21	7.31E+10	26.3596	0.248817	1.86E+11	2.37E+11	2.80E+11	3.32E+11	4.22E+11
41	2.67E+11	4.55E+21	6.75E+10	26.278	0.249197	1.72E+11	2.19E+11	2.58E+11	3.06E+11	3.89E+11
42	1.44E+11	1.34E+21	3.67E+10	25.6642	0.250035	9.27E+10	1.18E+11	1.40E+11	1.66E+11	2.11E+11
43	1.32E+11	1.13E+21	3.36E+10	25.5775	0.250035	8.50E+10	1.08E+11	1.28E+11	1.52E+11	1.94E+11
44	4.35E+10	1.22E+20	1.10E+10	24.4651	0.249602	2.80E+10	3.56E+10	4.22E+10	4.99E+10	6.36E+10
45	5.47E+10	1.93E+20	1.39E+10	24.6939	0.250035	3.51E+10	4.48E+10	5.30E+10	6.27E+10	8.00E+10

46	2.21E+11	3.09E+21	5.55E+10	26.0894	0.247813	1.42E+11	1.81E+11	2.14E+11	2.53E+11	3.22E+11
47	1.95E+11	2.42E+21	4.92E+10	25.9661	0.248127	1.26E+11	1.60E+11	1.89E+11	2.24E+11	2.85E+11
48	1.36E+11	1.18E+21	3.44E+10	25.607	0.248461	8.78E+10	1.12E+11	1.32E+11	1.56E+11	1.99E+11
49	9.68E+10	5.98E+20	2.45E+10	25.2645	0.248817	6.23E+10	7.93E+10	9.38E+10	1.11E+11	1.41E+11
50	2.19E+10	3.06E+19	5.53E+09	23.778	0.249004	1.41E+10	1.79E+10	2.12E+10	2.51E+10	3.20E+10
51	1.29E+11	1.05E+21	3.24E+10	25.5504	0.247813	8.31E+10	1.06E+11	1.25E+11	1.48E+11	1.88E+11
52	1.74E+11	1.93E+21	4.40E+10	25.8541	0.248127	1.12E+11	1.43E+11	1.69E+11	2.00E+11	2.54E+11
53	1.39E+11	1.22E+21	3.50E+10	25.6242	0.248461	8.93E+10	1.14E+11	1.34E+11	1.59E+11	2.02E+11
54	1.06E+11	7.14E+20	2.67E+10	25.3535	0.248817	6.81E+10	8.67E+10	1.03E+11	1.21E+11	1.54E+11
55	1.95E+11	2.43E+21	4.93E+10	25.9639	0.249197	1.25E+11	1.60E+11	1.89E+11	2.23E+11	2.84E+11
56	1.59E+11	1.62E+21	4.03E+10	25.7599	0.249602	1.02E+11	1.30E+11	1.54E+11	1.82E+11	2.32E+11
57	8.02E+10	4.15E+20	2.04E+10	25.0764	0.250035	5.15E+10	6.57E+10	7.77E+10	9.20E+10	1.17E+11
58	7.56E+10	3.65E+20	1.91E+10	25.0181	0.248636	4.87E+10	6.20E+10	7.33E+10	8.67E+10	1.10E+11
59	1.81E+10	2.07E+19	4.55E+09	23.5865	0.248127	1.16E+10	1.48E+10	1.75E+10	2.07E+10	2.63E+10
60	4.75E+11	1.44E+22	1.20E+11	26.8558	0.248461	3.06E+11	3.90E+11	4.61E+11	5.45E+11	6.93E+11
61	7.11E+10	3.21E+20	1.79E+10	24.9571	0.248127	4.59E+10	5.84E+10	6.90E+10	8.15E+10	1.04E+11
62	3.25E+11	6.72E+21	8.20E+10	26.4758	0.248461	2.09E+11	2.66E+11	3.15E+11	3.72E+11	4.74E+11
63	1.79E+11	2.03E+21	4.51E+10	25.8791	0.248127	1.15E+11	1.47E+11	1.73E+11	2.05E+11	2.61E+11
64	2.08E+10	2.74E+19	5.23E+09	23.7264	0.247967	1.34E+10	1.70E+10	2.01E+10	2.38E+10	3.03E+10
65	5.85E+10	2.17E+20	1.47E+10	24.762	0.247967	3.77E+10	4.80E+10	5.68E+10	6.71E+10	8.53E+10
66	2.02E+11	2.57E+21	5.07E+10	25.9989	0.247813	1.30E+11	1.65E+11	1.96E+11	2.31E+11	2.94E+11
67	4.97E+08	1.58E+16	1.26E+08	19.9938	0.249004	3.20E+08	4.08E+08	4.82E+08	5.70E+08	7.26E+08
68	1.03E+12	6.67E+22	2.58E+11	27.6262	0.247813	6.62E+11	8.42E+11	9.95E+11	1.18E+12	1.50E+12
69	9.69E+11	5.96E+22	2.44E+11	27.5686	0.248127	6.25E+11	7.95E+11	9.39E+11	1.11E+12	1.41E+12
70	7.45E+11	3.53E+22	1.88E+11	27.3052	0.248461	4.80E+11	6.11E+11	7.22E+11	8.54E+11	1.09E+12
71	4.45E+11	1.27E+22	1.12E+11	26.7907	0.248817	2.87E+11	3.65E+11	4.32E+11	5.10E+11	6.50E+11
72	3.71E+11	8.83E+21	9.40E+10	26.6093	0.249197	2.39E+11	3.04E+11	3.60E+11	4.26E+11	5.42E+11
73	1.11E+11	7.86E+20	2.80E+10	25.398	0.249602	7.11E+10	9.06E+10	1.07E+11	1.27E+11	1.62E+11
P.P.C.	1.92E+13	2.34E+25	4.84E+12			1.24E+13	1.57E+13	1.86E+13	2.20E+13	2.80E+13

Table 15: List of subplays in the Cody moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Cody 1.1-.73								(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.913	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	7	70	7	30	50	10,000	4114.7	665	0.913	3.43E+10
2	2.5	75	7	30	50	8,000	3294.7	633	0.913	1.10E+10
3	7.8	75	7	30	50	7,000	2884.7	617	0.913	3.10E+10
4	3.8	105	7	30	50	6,000	2474.7	601	0.913	1.86E+10
5	8.8	75	7	30	50	6,000	2474.7	601	0.913	3.08E+10
6	3.3	75	7	30	50	5,500	2269.7	593	0.913	1.07E+10
7	0.3	105	7	30	50	5,500	2269.7	593	0.913	1.36E+09
8	5.1	75	7	30	50	9,000	3704.7	649	0.913	2.47E+10
9	0.91	100	7	30	50	9,000	3704.7	649	0.913	5.88E+09
10	7.1	110	7	30	50	8,000	3294.7	633	0.913	4.60E+10
11	12.1	75	7	30	50	8,000	3294.7	633	0.913	5.35E+10
12	2.1	75	7	30	50	7,000	2884.7	617	0.913	8.33E+09
13	2.6	70	7	30	50	6,000	2474.7	601	0.913	8.48E+09
14	0.5	60	7	30	50	5,500	2269.7	593	0.913	1.30E+09
15	2.9	110	7	30	50	7,000	2884.7	617	0.913	1.69E+10
16	0.3	105	7	30	50	6,500	2679.7	609	0.913	1.57E+09
17	0.4	425	7	30	50	9,500	3909.7	657	0.913	1.15E+10
18	1.4	425	7	30	50	9,000	3704.7	649	0.913	3.84E+10
19	2	425	7	30	50	8,000	3294.7	633	0.913	5.01E+10
20	2.6	425	7	30	50	7,000	2884.7	617	0.913	5.85E+10
21	0.4	425	7	30	50	6,500	2679.7	609	0.913	8.47E+09
22	2.2	350	7	30	50	9,000	3704.7	649	0.913	4.98E+10
23	2.3	350	7	30	50	8,000	3294.7	633	0.913	4.74E+10
24	2.7	350	7	30	50	7,000	2884.7	617	0.913	5.00E+10
25	0.8	350	7	30	50	6,500	2679.7	609	0.913	1.39E+10
26	4.8	250	7	30	50	9,000	3704.7	649	0.913	7.75E+10
27	5.8	250	7	30	50	8,000	3294.7	633	0.913	8.54E+10
28	4.9	250	7	30	50	7,000	2884.7	617	0.913	6.48E+10
29	1.8	250	7	30	50	6,500	2679.7	609	0.913	2.24E+10
30	12	175	7	30	50	9,000	3704.7	649	0.913	1.36E+11
31	19.8	175	7	30	50	8,000	3294.7	633	0.913	2.04E+11
32	18.9	165	7	30	50	7,000	2884.7	617	0.913	1.65E+11
33	24.1	150	7	30	50	6,000	2474.7	601	0.913	1.68E+11
34	5.2	230	7	30	50	9,000	3704.7	649	0.913	7.73E+10
35	3.9	225	7	30	50	8,000	3294.7	633	0.913	5.17E+10
36	3.1	215	7	30	50	7,000	2884.7	617	0.913	3.53E+10
37	1	130	7	30	50	9,500	3909.7	657	0.913	8.76E+09
38	3.8	150	7	30	50	9,000	3704.7	649	0.913	3.68E+10
39	4.4	150	7	30	50	8,000	3294.7	633	0.913	3.89E+10
40	4.3	150	7	30	50	7,000	2884.7	617	0.913	3.41E+10
41	0.4	95	7	30	50	9,500	3909.7	657	0.913	2.56E+09
42	4.1	90	7	30	50	9,000	3704.7	649	0.913	2.38E+10
43	4.3	90	7	30	50	8,000	3294.7	633	0.913	2.28E+10
44	4.3	90	7	30	50	7,000	2884.7	617	0.913	2.05E+10
45	0.4	95	7	30	50	6,500	2679.7	609	0.913	1.89E+09

46	6.4	40	7	30	50	9,500	3909.7	657	0.913	1.72E+10
47	10.4	50	7	30	50	9,000	3704.7	649	0.913	3.36E+10
48	1.9	50	7	30	50	8,500	3499.7	641	0.913	5.87E+09
49	0.6	80	7	30	50	8,500	3499.7	641	0.913	2.97E+09
									Total =	1.97E+12

Table 16: List of subplays in the Cody transition play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GCODY3.XLS

Play Name :		Cody 1.1-.73								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	6.78	5.98	7.52	49.41	5013.2	50.63	983.1	2647.82	46.15	1.46E+21
2	5.70	5.00	6.36	6.30	5754.9	50.63	983.1	2647.82	32.67	1.51E+20
3	5.12	4.48	5.73	61.35	5754.9	50.63	983.1	2647.82	26.37	1.19E+21
4	4.51	3.93	5.06	14.56	11279.6	50.63	983.1	2647.82	20.46	4.29E+20
5	4.51	3.93	5.06	78.08	5754.9	50.63	983.1	2647.82	20.46	1.17E+21
6	4.19	3.65	4.71	10.98	5754.9	50.63	983.1	2647.82	17.68	1.43E+20
7	4.19	3.65	4.71	0.09	11279.6	50.63	983.1	2647.82	17.68	2.31E+18
8	6.25	5.50	6.95	26.23	5754.9	50.63	983.1	2647.82	39.29	7.57E+20
9	6.25	5.50	6.95	0.83	10231.0	50.63	983.1	2647.82	39.29	4.28E+19
10	5.70	5.00	6.36	50.83	12379.5	50.63	983.1	2647.82	32.67	2.62E+21
11	5.70	5.00	6.36	147.63	5754.9	50.63	983.1	2647.82	32.67	3.54E+21
12	5.12	4.48	5.73	4.45	5754.9	50.63	983.1	2647.82	26.37	8.61E+19
13	4.51	3.93	5.06	6.82	5013.2	50.63	983.1	2647.82	20.46	8.92E+19
14	4.19	3.65	4.71	0.25	3683.1	50.63	983.1	2647.82	17.68	2.10E+18
15	5.12	4.48	5.73	8.48	12379.5	50.63	983.1	2647.82	26.37	3.53E+20
16	4.82	4.21	5.40	0.09	11279.6	50.63	983.1	2647.82	23.36	3.05E+18
17	6.52	5.74	7.24	0.16	184796.8	50.63	983.1	2647.82	42.69	1.62E+20
18	6.25	5.50	6.95	1.98	184796.8	50.63	983.1	2647.82	39.29	1.83E+21
19	5.70	5.00	6.36	4.03	184796.8	50.63	983.1	2647.82	32.67	3.11E+21
20	5.12	4.48	5.73	6.82	184796.8	50.63	983.1	2647.82	26.37	4.24E+21
21	4.82	4.21	5.40	0.16	184796.8	50.63	983.1	2647.82	23.36	8.89E+19
22	6.25	5.50	6.95	4.88	125329.3	50.63	983.1	2647.82	39.29	3.07E+21
23	5.70	5.00	6.36	5.33	125329.3	50.63	983.1	2647.82	32.67	2.79E+21
24	5.12	4.48	5.73	7.35	125329.3	50.63	983.1	2647.82	26.37	3.10E+21
25	4.82	4.21	5.40	0.65	125329.3	50.63	983.1	2647.82	23.36	2.41E+20
26	6.25	5.50	6.95	23.23	63943.5	50.63	983.1	2647.82	39.29	7.45E+21
27	5.70	5.00	6.36	33.92	63943.5	50.63	983.1	2647.82	32.67	9.05E+21
28	5.12	4.48	5.73	24.21	63943.5	50.63	983.1	2647.82	26.37	5.21E+21
29	4.82	4.21	5.40	3.27	63943.5	50.63	983.1	2647.82	23.36	6.23E+20
30	6.25	5.50	6.95	145.20	31332.3	50.63	983.1	2647.82	39.29	2.28E+22
31	5.70	5.00	6.36	395.30	31332.3	50.63	983.1	2647.82	32.67	5.17E+22
32	5.12	4.48	5.73	360.18	27853.8	50.63	983.1	2647.82	26.37	3.38E+22
33	4.51	3.93	5.06	585.64	23019.7	50.63	983.1	2647.82	20.46	3.52E+22
34	6.25	5.50	6.95	27.26	54121.8	50.63	983.1	2647.82	39.29	7.40E+21
35	5.70	5.00	6.36	15.34	51794.3	50.63	983.1	2647.82	32.67	3.31E+21
36	5.12	4.48	5.73	9.69	47292.6	50.63	983.1	2647.82	26.37	1.54E+21
37	6.52	5.74	7.24	1.01	17290.3	50.63	983.1	2647.82	42.69	9.50E+19
38	6.25	5.50	6.95	14.56	23019.7	50.63	983.1	2647.82	39.29	1.68E+21
39	5.70	5.00	6.36	19.52	23019.7	50.63	983.1	2647.82	32.67	1.87E+21
40	5.12	4.48	5.73	18.64	23019.7	50.63	983.1	2647.82	26.37	1.44E+21
41	6.52	5.74	7.24	0.16	9233.4	50.63	983.1	2647.82	42.69	8.12E+18
42	6.25	5.50	6.95	16.95	8287.1	50.63	983.1	2647.82	39.29	7.04E+20
43	5.70	5.00	6.36	18.64	8287.1	50.63	983.1	2647.82	32.67	6.44E+20
44	5.12	4.48	5.73	18.64	8287.1	50.63	983.1	2647.82	26.37	5.20E+20
45	4.82	4.21	5.40	0.16	9233.4	50.63	983.1	2647.82	23.36	4.44E+18

46	6.52	5.74	7.24	41.30	1637.0	50.63	983.1	2647.82	42.69	3.68E+20
47	6.25	5.50	6.95	109.06	2557.7	50.63	983.1	2647.82	39.29	1.40E+21
48	5.98	5.25	6.66	3.64	2557.7	50.63	983.1	2647.82	35.94	4.27E+19
49	5.98	5.25	6.66	0.36	6547.8	50.63	983.1	2647.82	35.94	1.09E+19

Table 17: List of subplays in the Cody transition play with estimates of ranges in percent for the six play attributes.

\WINDRIVR\ASSESS\GCODY3.XLS

Play Name :		Cody 1.1-.73								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	3.43E+10	2.82E+20	1.68E+10	24.1517	0.463026	1.44E+10	2.26E+10	3.08E+10	4.21E+10	6.60E+10
2	1.10E+10	2.92E+19	5.41E+09	23.0179	0.463542	4.63E+09	7.26E+09	9.92E+09	1.36E+10	2.13E+10
3	3.10E+10	2.30E+20	1.52E+10	24.0483	0.463828	1.30E+10	2.03E+10	2.78E+10	3.80E+10	5.96E+10
4	1.86E+10	8.31E+19	9.12E+09	23.5385	0.464134	7.78E+09	1.22E+10	1.67E+10	2.28E+10	3.58E+10
5	3.08E+10	2.27E+20	1.51E+10	24.0418	0.464134	1.29E+10	2.02E+10	2.76E+10	3.78E+10	5.93E+10
6	1.07E+10	2.77E+19	5.26E+09	22.9878	0.464294	4.49E+09	7.04E+09	9.63E+09	1.32E+10	2.07E+10
7	1.36E+09	4.48E+17	6.69E+08	20.9264	0.464294	5.71E+08	8.96E+08	1.23E+09	1.68E+09	2.63E+09
8	2.47E+10	1.46E+20	1.21E+10	23.8233	0.463275	1.04E+10	1.62E+10	2.22E+10	3.03E+10	4.76E+10
9	5.88E+09	8.28E+18	2.88E+09	22.3874	0.463275	2.46E+09	3.86E+09	5.28E+09	7.22E+09	1.13E+10
10	4.60E+10	5.07E+20	2.25E+10	24.4447	0.463542	1.93E+10	3.02E+10	4.13E+10	5.65E+10	8.86E+10
11	5.35E+10	6.85E+20	2.62E+10	24.5948	0.463542	2.24E+10	3.51E+10	4.80E+10	6.56E+10	1.03E+11
12	8.33E+09	1.67E+19	4.08E+09	22.7361	0.463828	3.49E+09	5.48E+09	7.48E+09	1.02E+10	1.61E+10
13	8.48E+09	1.73E+19	4.16E+09	22.7535	0.464134	3.55E+09	5.57E+09	7.62E+09	1.04E+10	1.63E+10
14	1.30E+09	4.06E+17	6.37E+08	20.8776	0.464294	5.44E+08	8.53E+08	1.17E+09	1.60E+09	2.50E+09
15	1.69E+10	6.84E+19	8.27E+09	23.4419	0.463828	7.07E+09	1.11E+10	1.52E+10	2.07E+10	3.25E+10
16	1.57E+09	5.91E+17	7.69E+08	21.066	0.463978	6.57E+08	1.03E+09	1.41E+09	1.93E+09	3.02E+09
17	1.15E+10	3.14E+19	5.60E+09	23.054	0.463149	4.80E+09	7.53E+09	1.03E+10	1.41E+10	2.20E+10
18	3.84E+10	3.54E+20	1.88E+10	24.2651	0.463275	1.61E+10	2.53E+10	3.45E+10	4.72E+10	7.40E+10
19	5.01E+10	6.01E+20	2.45E+10	24.5294	0.463542	2.10E+10	3.29E+10	4.50E+10	6.15E+10	9.64E+10
20	5.85E+10	8.21E+20	2.86E+10	24.6843	0.463828	2.45E+10	3.84E+10	5.25E+10	7.18E+10	1.13E+11
21	8.47E+09	1.72E+19	4.15E+09	22.7518	0.463978	3.54E+09	5.56E+09	7.60E+09	1.04E+10	1.63E+10
22	4.98E+10	5.93E+20	2.43E+10	24.523	0.463275	2.09E+10	3.27E+10	4.47E+10	6.11E+10	9.58E+10
23	4.74E+10	5.39E+20	2.32E+10	24.475	0.463542	1.99E+10	3.12E+10	4.26E+10	5.82E+10	9.13E+10
24	5.00E+10	6.00E+20	2.45E+10	24.5279	0.463828	2.09E+10	3.29E+10	4.49E+10	6.14E+10	9.63E+10
25	1.39E+10	4.67E+19	6.83E+09	23.2508	0.463978	5.84E+09	9.16E+09	1.25E+10	1.71E+10	2.69E+10
26	7.75E+10	1.44E+21	3.79E+10	24.9667	0.463275	3.25E+10	5.10E+10	6.96E+10	9.52E+10	1.49E+11
27	8.54E+10	1.75E+21	4.18E+10	25.0635	0.463542	3.58E+10	5.61E+10	7.67E+10	1.05E+11	1.64E+11
28	6.48E+10	1.01E+21	3.18E+10	24.7874	0.463828	2.71E+10	4.26E+10	5.82E+10	7.96E+10	1.25E+11
29	2.24E+10	1.21E+20	1.10E+10	23.7252	0.463978	9.38E+09	1.47E+10	2.01E+10	2.75E+10	4.32E+10
30	1.36E+11	4.41E+21	6.64E+10	25.5263	0.463275	5.69E+10	8.92E+10	1.22E+11	1.67E+11	2.61E+11
31	2.04E+11	9.99E+21	9.99E+10	25.9346	0.463542	8.55E+10	1.34E+11	1.83E+11	2.51E+11	3.93E+11
32	1.65E+11	6.54E+21	8.09E+10	25.7218	0.463828	6.91E+10	1.08E+11	1.48E+11	2.03E+11	3.18E+11
33	1.68E+11	6.82E+21	8.26E+10	25.7424	0.464134	7.05E+10	1.11E+11	1.51E+11	2.07E+11	3.25E+11
34	7.73E+10	1.43E+21	3.78E+10	24.9633	0.463275	3.24E+10	5.08E+10	6.94E+10	9.49E+10	1.49E+11
35	5.17E+10	6.41E+20	2.53E+10	24.5612	0.463542	2.17E+10	3.40E+10	4.64E+10	6.35E+10	9.95E+10
36	3.53E+10	2.99E+20	1.73E+10	24.1788	0.463828	1.48E+10	2.32E+10	3.17E+10	4.33E+10	6.79E+10
37	8.76E+09	1.83E+19	4.28E+09	22.7858	0.463149	3.67E+09	5.76E+09	7.87E+09	1.07E+10	1.69E+10
38	3.68E+10	3.25E+20	1.80E+10	24.2222	0.463275	1.54E+10	2.42E+10	3.31E+10	4.52E+10	7.09E+10
39	3.89E+10	3.62E+20	1.90E+10	24.2764	0.463542	1.63E+10	2.56E+10	3.49E+10	4.77E+10	7.49E+10
40	3.41E+10	2.80E+20	1.67E+10	24.146	0.463828	1.43E+10	2.24E+10	3.07E+10	4.19E+10	6.57E+10
41	2.56E+09	1.57E+18	1.25E+09	21.5558	0.463149	1.07E+09	1.68E+09	2.30E+09	3.14E+09	4.93E+09
42	2.38E+10	1.36E+20	1.17E+10	23.7874	0.463275	9.99E+09	1.57E+10	2.14E+10	2.93E+10	4.59E+10
43	2.28E+10	1.25E+20	1.12E+10	23.7426	0.463542	9.55E+09	1.50E+10	2.05E+10	2.80E+10	4.39E+10
44	2.05E+10	1.01E+20	1.00E+10	23.6351	0.463828	8.58E+09	1.35E+10	1.84E+10	2.51E+10	3.94E+10
45	1.89E+09	8.60E+17	9.28E+08	21.2536	0.463978	7.92E+08	1.24E+09	1.70E+09	2.32E+09	3.65E+09

46	1.72E+10	7.11E+19	8.43E+09	23.4634	0.463149	7.23E+09	1.13E+10	1.55E+10	2.12E+10	3.32E+10
47	3.36E+10	2.70E+20	1.64E+10	24.1304	0.463275	1.41E+10	2.21E+10	3.02E+10	4.12E+10	6.47E+10
48	5.87E+09	8.26E+18	2.87E+09	22.3859	0.463406	2.46E+09	3.86E+09	5.27E+09	7.21E+09	1.13E+10
49	2.97E+09	2.11E+18	1.45E+09	21.7032	0.463406	1.24E+09	1.95E+09	2.66E+09	3.64E+09	5.71E+09
P.P.C.	1.97E+12	9.31E+23	9.65E+11			8.25E+11	1.29E+12	1.77E+12	2.42E+12	3.79E+12

Table 18: List of subplays in the Cody transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Fales > 300								(Panel 1)
						a =	0.41	0.016	0.00008	
						b =	14.7	505	0	
Subplay	Closure	Thickness	Porosity	Trap fill	HC Sat.	Depth	Pressure	Temp.	Gas Comp.	Gas in place
No.	(sq.mi.)	(feet)	(%)	(%)	(%)	(feet)	(PSI)	(Deg.Rank.)	(no units)	(CF)
1	18.5	150	6	100	50	19,000	7804.7	809	1.52	5.20E+11
2	10.9	150	6	100	50	18,000	7394.7	793	1.44	3.13E+11
3	12	150	6	100	50	17,000	6984.7	777	1.36	3.51E+11
									Total =	1.18E+12

Table 19: List of subplays in the Fales highly overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Fales > 300								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	6.35	6.73	6.01	345.10	23019.7	36.30	10037.0	2536.95	40.33	2.87E+23
2	6.48	6.85	6.14	119.80	23019.7	36.30	10037.0	2536.95	41.98	1.04E+23
3	6.61	6.98	6.28	145.20	23019.7	36.30	10037.0	2536.95	43.73	1.31E+23

Table 20: List of subplays in the Fales highly overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Fales > 300								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	5.20E+11	1.64E+22	1.28E+11	26.9477	0.242796	3.39E+11	4.29E+11	5.05E+11	5.95E+11	7.53E+11
2	3.13E+11	5.93E+21	7.70E+10	26.4388	0.242636	2.04E+11	2.58E+11	3.04E+11	3.57E+11	4.52E+11
3	3.51E+11	7.47E+21	8.64E+10	26.5555	0.242474	2.29E+11	2.90E+11	3.41E+11	4.02E+11	5.08E+11
P.P.C.	1.18E+12	8.50E+22	2.92E+11			7.71E+11	9.76E+11	1.15E+12	1.35E+12	1.71E+12

Table 21: List of subplays in the Fales highly overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Fales > Rm 1.1								(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	1.02	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	15.6	140	7	100	50	16,000	6574.7	761	1.02	6.37E+11
2	17.5	140	7	100	50	15,000	6164.7	745	1.02	6.85E+11
3	14.4	140	7	100	50	14,000	5754.7	729	1.02	5.37E+11
4	13.7	140	7	100	50	13,000	5344.7	713	1.02	4.86E+11
5	33.9	130	7	100	50	12,000	4934.7	697	1.02	1.05E+12
6	29.1	140	7	100	50	11,000	4524.7	681	1.02	9.14E+11
7	16.1	150	7	100	50	10,000	4114.7	665	1.02	5.05E+11
8	8.1	110	7	100	50	11,000	4524.7	681	1.02	2.00E+11
9	6.3	90	7	100	50	12,000	4934.7	697	1.02	1.36E+11
10	27.1	80	7	100	50	13,000	5344.7	713	1.02	5.49E+11
11	4.7	105	7	100	50	12,500	5139.7	705	1.02	1.22E+11
12	9.4	80	7	100	50	12,000	4934.7	697	1.02	1.80E+11
13	40.6	70	7	100	50	11,000	4524.7	681	1.02	6.38E+11
14	35.3	70	7	100	50	10,000	4114.7	665	1.02	5.16E+11
15	12.9	60	7	100	50	9,000	3704.7	649	1.02	1.49E+11
									Total =	7.31E+12

Table 22: List of subplays in the Fales moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Fales > Rm 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	8.47	7.59	9.27	245.38	20052.7	49.41	10037.0	2536.95	72.01	4.32E+23
2	8.11	7.25	8.90	308.80	20052.7	49.41	10037.0	2536.95	66.06	4.99E+23
3	7.74	6.90	8.51	209.08	20052.7	49.41	10037.0	2536.95	60.13	3.07E+23
4	7.35	6.54	8.09	189.25	20052.7	49.41	10037.0	2536.95	54.23	2.51E+23
5	6.94	6.16	7.66	1158.77	17290.3	49.41	10037.0	2536.95	48.39	1.18E+24
6	6.51	5.76	7.21	853.85	20052.7	49.41	10037.0	2536.95	42.62	8.89E+23
7	6.07	5.35	6.73	261.37	23019.7	49.41	10037.0	2536.95	36.97	2.71E+23
8	6.51	5.76	7.21	66.16	12379.5	49.41	10037.0	2536.95	42.62	4.25E+22
9	6.94	6.16	7.66	40.02	8287.1	49.41	10037.0	2536.95	48.39	1.96E+22
10	7.35	6.54	8.09	740.52	6547.8	49.41	10037.0	2536.95	54.23	3.20E+23
11	7.15	6.35	7.88	22.27	11279.6	49.41	10037.0	2536.95	51.30	1.57E+22
12	6.94	6.16	7.66	89.09	6547.8	49.41	10037.0	2536.95	48.39	3.44E+22
13	6.51	5.76	7.21	1662.07	5013.2	49.41	10037.0	2536.95	42.62	4.33E+23
14	6.07	5.35	6.73	1256.45	5013.2	49.41	10037.0	2536.95	36.97	2.84E+23
15	5.60	4.92	6.23	167.79	3683.1	49.41	10037.0	2536.95	31.48	2.37E+22

Table 23: List of subplays in the Fales moderately overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Fales > Rm 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	6.37E+11	2.57E+22	1.60E+11	27.1497	0.247802	4.11E+11	5.23E+11	6.18E+11	7.30E+11	9.29E+11
2	6.85E+11	2.98E+22	1.73E+11	27.2214	0.248115	4.41E+11	5.62E+11	6.64E+11	7.85E+11	9.99E+11
3	5.37E+11	1.84E+22	1.36E+11	26.9792	0.248449	3.46E+11	4.41E+11	5.21E+11	6.16E+11	7.84E+11
4	4.86E+11	1.51E+22	1.23E+11	26.8776	0.248803	3.13E+11	3.98E+11	4.71E+11	5.57E+11	7.09E+11
5	1.05E+12	7.11E+22	2.67E+11	27.6523	0.249182	6.78E+11	8.64E+11	1.02E+12	1.21E+12	1.54E+12
6	9.14E+11	5.37E+22	2.32E+11	27.5101	0.249585	5.88E+11	7.49E+11	8.86E+11	1.05E+12	1.34E+12
7	5.05E+11	1.64E+22	1.28E+11	26.9159	0.250016	3.24E+11	4.13E+11	4.89E+11	5.79E+11	7.38E+11
8	2.00E+11	2.57E+21	5.07E+10	25.9901	0.249585	1.29E+11	1.64E+11	1.94E+11	2.29E+11	2.92E+11
9	1.36E+11	1.18E+21	3.43E+10	25.6017	0.249182	8.72E+10	1.11E+11	1.31E+11	1.55E+11	1.98E+11
10	5.49E+11	1.92E+22	1.39E+11	27.0001	0.248803	3.53E+11	4.50E+11	5.32E+11	6.29E+11	8.01E+11
11	1.22E+11	9.44E+20	3.07E+10	25.4922	0.248989	7.82E+10	9.96E+10	1.18E+11	1.39E+11	1.77E+11
12	1.80E+11	2.07E+21	4.55E+10	25.8841	0.249182	1.16E+11	1.47E+11	1.74E+11	2.06E+11	2.63E+11
13	6.38E+11	2.61E+22	1.62E+11	27.15	0.249585	4.10E+11	5.22E+11	6.18E+11	7.31E+11	9.32E+11
14	5.16E+11	1.72E+22	1.31E+11	26.9388	0.250016	3.32E+11	4.23E+11	5.00E+11	5.92E+11	7.55E+11
15	1.49E+11	1.44E+21	3.80E+10	25.6972	0.250477	9.58E+10	1.22E+11	1.45E+11	1.71E+11	2.18E+11
P.P.C.	7.31E+12	3.42E+24	1.85E+12			4.70E+12	5.99E+12	7.08E+12	8.38E+12	1.07E+13

Table 24: List of subplays in the Fales moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Fales Rm .73-1.1								(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.9248	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	12	150	7	30	50	9,500	3909.7	657	0.9248	1.20E+11
2	10.7	160	7	30	50	8,000	3294.7	633	0.9248	9.96E+10
3	1.4	200	7	30	50	8,000	3294.7	633	0.9248	1.63E+10
4	7	150	7	30	50	8,000	3294.7	633	0.9248	6.11E+10
5	28.6	70	7	30	50	10,000	4114.7	665	0.9248	1.38E+11
6	22.7	70	7	30	50	9,000	3704.7	649	0.9248	1.01E+11
									Total =	5.36E+11

Table 25: List of subplays in the Fales transition play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Fales Rm .73-1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	6.43	5.67	7.15	145.20	23019.7	50.63	983.1	2647.82	41.61	1.78E+22
2	5.63	4.94	6.28	115.44	26191.3	50.63	983.1	2647.82	31.84	1.23E+22
3	5.63	4.94	6.28	1.98	40923.9	50.63	983.1	2647.82	31.84	3.29E+20
4	5.63	4.94	6.28	49.41	23019.7	50.63	983.1	2647.82	31.84	4.62E+21
5	6.69	5.90	7.42	824.76	5013.2	50.63	983.1	2647.82	44.98	2.37E+22
6	6.17	5.43	6.87	519.57	5013.2	50.63	983.1	2647.82	38.29	1.27E+22

Table 26: List of subplays in the Fales transition play with estimates of ranges in percent for the six play attributes.

Play Name :		Fales Rm .73-1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.20E+11	3.43E+21	5.85E+10	25.4009	0.463149	5.02E+10	7.87E+10	1.08E+11	1.47E+11	2.30E+11
2	9.96E+10	2.38E+21	4.87E+10	25.2167	0.463542	4.17E+10	6.54E+10	8.94E+10	1.22E+11	1.92E+11
3	1.63E+10	6.36E+19	7.97E+09	23.4061	0.463542	6.82E+09	1.07E+10	1.46E+10	2.00E+10	3.14E+10
4	6.11E+10	8.94E+20	2.99E+10	24.7278	0.463542	2.56E+10	4.01E+10	5.48E+10	7.50E+10	1.18E+11
5	1.38E+11	4.58E+21	6.77E+10	25.5464	0.463026	5.81E+10	9.10E+10	1.24E+11	1.70E+11	2.66E+11
6	1.01E+11	2.46E+21	4.96E+10	25.2346	0.463275	4.25E+10	6.66E+10	9.10E+10	1.24E+11	1.95E+11
P.P.C.	5.36E+11	6.89E+22	2.62E+11			2.25E+11	3.53E+11	4.82E+11	6.58E+11	1.03E+12

Table 27: List of subplays in the Fales transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Marine Kmv > 300								(Panel 1)
						a =	0.727	0.016	0.00008	
						b =	14.7	505	0	
Subplay	Closure	Thickness	Porosity	Trap fill	HC Sat.	Depth	Pressure	Temp.	Gas Comp.	Gas in place
No.	(sq.mi.)	(feet)	(%)	(%)	(%)	(feet)	(PSI)	(Deg.Rank.)	(no units)	(CF)
1	6.7	90	6	100	50	21,000	15281.7	841	1.68	1.93E+11
2	28.2	80	6	100	50	20,000	14554.7	825	1.6	7.34E+11
3	13.8	80	6	100	50	19,000	13827.7	809	1.52	3.67E+11
4	12.5	90	6	100	50	18,000	13100.7	793	1.44	3.81E+11
5	2.2	100	6	100	50	17,000	12373.7	777	1.36	7.61E+10
6	19.5	150	6	100	50	21,000	15281.7	841	1.68	9.34E+11
7	23.4	150	6	100	50	20,000	14554.7	825	1.6	1.14E+12
8	17.3	150	6	100	50	19,000	13827.7	809	1.52	8.62E+11
9	9.3	150	6	100	50	18,000	13100.7	793	1.44	4.73E+11
10	6	150	6	100	50	17,000	12373.7	777	1.36	3.11E+11
11	1.9	160	6	100	50	16,500	12010.2	769	1.32	1.06E+11
12	5.1	250	6	100	50	21,000	15281.7	841	1.68	4.07E+11
13	8.1	250	6	100	50	20,000	14554.7	825	1.6	6.59E+11
14	5.9	250	6	100	50	19,000	13827.7	809	1.52	4.90E+11
15	3.8	250	6	100	50	18,000	13100.7	793	1.44	3.22E+11
16	2.3	250	6	100	50	17,000	12373.7	777	1.36	1.99E+11
17	1.4	250	6	100	50	16,000	11646.7	761	1.28	1.24E+11
18	4.3	350	6	100	50	21,000	15281.7	841	1.68	4.81E+11
19	6.7	350	6	100	50	20,000	14554.7	825	1.6	7.63E+11
20	7.9	350	6	100	50	19,000	13827.7	809	1.52	9.18E+11
21	5.7	350	6	100	50	18,000	13100.7	793	1.44	6.76E+11
22	2.9	350	6	100	50	17,000	12373.7	777	1.36	3.51E+11
23	2	350	6	100	50	16,000	11646.7	761	1.28	2.47E+11
24	5.7	450	6	100	50	20,000	14554.7	825	1.6	8.35E+11
25	6.4	450	6	100	50	19,000	13827.7	809	1.52	9.56E+11
26	4.4	450	6	100	50	18,000	13100.7	793	1.44	6.71E+11
27	2.2	450	6	100	50	17,000	12373.7	777	1.36	3.42E+11
28	1	450	6	100	50	16,000	11646.7	761	1.28	1.59E+11
29	7.8	550	6	100	50	20,000	14554.7	825	1.6	1.40E+12
30	12	550	6	100	50	19,000	13827.7	809	1.52	2.19E+12
31	9.3	550	6	100	50	18,000	13100.7	793	1.44	1.73E+12
32	7.3	550	6	100	50	17,000	12373.7	777	1.36	1.39E+12
33	1.3	550	6	100	50	16,000	11646.7	761	1.28	2.52E+11
34	3.7	475	6	100	50	20,000	14554.7	825	1.6	5.72E+11
35	6.5	475	6	100	50	19,000	13827.7	809	1.52	1.03E+12
36	2.8	475	6	100	50	18,000	13100.7	793	1.44	4.51E+11
37	1.3	490	6	100	50	17,000	12373.7	777	1.36	2.20E+11
38	5.2	50	6	100	50	17,000	12373.7	777	1.36	8.99E+10
39	0.87	100	6	100	50	19,000	13827.7	809	1.52	2.89E+10
40	1.4	100	6	100	50	17,500	12737.2	785	1.4	4.79E+10
41	35.8	75	6	100	50	20,000	14554.7	825	1.6	8.74E+11
42	32.3	75	6	100	50	19,000	13827.7	809	1.52	8.04E+11
43	29.3	75	6	100	50	18,000	13100.7	793	1.44	7.44E+11
44	22.6	75	6	100	50	17,000	12373.7	777	1.36	5.86E+11
45	4.4	150	6	100	50	20,000	14554.7	825	1.6	2.15E+11

46	10.4	150	6	100	50	19,000	13827.7	809	1.52	5.18E+11
47	10.3	150	6	100	50	18,000	13100.7	793	1.44	5.23E+11
48	30.4	150	6	100	50	17,000	12373.7	777	1.36	1.58E+12
49	0.52	100	6	100	50	17,500	12737.2	785	1.4	1.78E+10
50	0.25	100	6	100	50	17,500	12737.2	785	1.4	8.55E+09
51	8.9	110	6	100	50	19,000	13827.7	809	1.52	3.25E+11
52	27	150	6	100	50	18,000	13100.7	793	1.44	1.37E+12
53	20.1	150	6	100	50	17,000	12373.7	777	1.36	1.04E+12
54	9.8	60	6	100	50	19,000	13827.7	809	1.52	1.95E+11
55	5.3	60	6	100	50	18,000	13100.7	793	1.44	1.08E+11
56	0.44	100	6	100	50	19,000	13827.7	809	1.52	1.46E+10
57	13.2	80	6	100	50	17,000	12373.7	777	1.36	3.65E+11
58	11.6	50	6	100	50	19,000	13827.7	809	1.52	1.93E+11
59	31.3	60	6	100	50	18,000	13100.7	793	1.44	6.36E+11
60	13.5	60	6	100	50	17,000	12373.7	777	1.36	2.80E+11
61	18.1	50	6	100	50	19,000	13827.7	809	1.52	3.00E+11
62	11.7	50	6	100	50	18,000	13100.7	793	1.44	1.98E+11
63	12.9	50	6	100	50	17,000	12373.7	777	1.36	2.23E+11
									Total =	3.47E+13

Table 28: List of subplays in the marginal marine interval of the Mesaverde Formation play highly overpressured. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GKMV1.XLS

Play Name :		Marine Kmv > 300								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	10.82	11.51	10.20	45.26	8287.1	36.30	10037.0	2536.95	117.14	3.93E+22
2	11.03	11.71	10.42	801.85	6547.8	36.30	10037.0	2536.95	121.73	5.72E+23
3	11.24	11.92	10.64	192.02	6547.8	36.30	10037.0	2536.95	126.60	1.43E+23
4	11.47	12.14	10.88	157.55	8287.1	36.30	10037.0	2536.95	131.76	1.54E+23
5	11.71	12.36	11.12	4.88	10231.0	36.30	10037.0	2536.95	137.25	6.14E+21
6	10.82	11.51	10.20	383.41	23019.7	36.30	10037.0	2536.95	117.14	9.26E+23
7	11.03	11.71	10.42	552.11	23019.7	36.30	10037.0	2536.95	121.73	1.39E+24
8	11.24	11.92	10.64	301.78	23019.7	36.30	10037.0	2536.95	126.60	7.87E+23
9	11.47	12.14	10.88	87.21	23019.7	36.30	10037.0	2536.95	131.76	2.37E+23
10	11.71	12.36	11.12	36.30	23019.7	36.30	10037.0	2536.95	137.25	1.03E+23
11	11.83	12.48	11.25	3.64	26191.3	36.30	10037.0	2536.95	140.13	1.20E+22
12	10.82	11.51	10.20	26.23	63943.5	36.30	10037.0	2536.95	117.14	1.76E+23
13	11.03	11.71	10.42	66.16	63943.5	36.30	10037.0	2536.95	121.73	4.61E+23
14	11.24	11.92	10.64	35.10	63943.5	36.30	10037.0	2536.95	126.60	2.54E+23
15	11.47	12.14	10.88	14.56	63943.5	36.30	10037.0	2536.95	131.76	1.10E+23
16	11.71	12.36	11.12	5.33	63943.5	36.30	10037.0	2536.95	137.25	4.19E+22
17	11.96	12.59	11.38	1.98	63943.5	36.30	10037.0	2536.95	143.10	1.62E+22
18	10.82	11.51	10.20	18.64	125329.3	36.30	10037.0	2536.95	117.14	2.45E+23
19	11.03	11.71	10.42	45.26	125329.3	36.30	10037.0	2536.95	121.73	6.18E+23
20	11.24	11.92	10.64	62.93	125329.3	36.30	10037.0	2536.95	126.60	8.94E+23
21	11.47	12.14	10.88	32.76	125329.3	36.30	10037.0	2536.95	131.76	4.84E+23
22	11.71	12.36	11.12	8.48	125329.3	36.30	10037.0	2536.95	137.25	1.31E+23
23	11.96	12.59	11.38	4.03	125329.3	36.30	10037.0	2536.95	143.10	6.48E+22
24	11.03	11.71	10.42	32.76	207177.1	36.30	10037.0	2536.95	121.73	7.40E+23
25	11.24	11.92	10.64	41.30	207177.1	36.30	10037.0	2536.95	126.60	9.70E+23
26	11.47	12.14	10.88	19.52	207177.1	36.30	10037.0	2536.95	131.76	4.77E+23
27	11.71	12.36	11.12	4.88	207177.1	36.30	10037.0	2536.95	137.25	1.24E+23
28	11.96	12.59	11.38	1.01	207177.1	36.30	10037.0	2536.95	143.10	2.68E+22
29	11.03	11.71	10.42	61.35	309486.7	36.30	10037.0	2536.95	121.73	2.07E+24
30	11.24	11.92	10.64	145.20	309486.7	36.30	10037.0	2536.95	126.60	5.09E+24
31	11.47	12.14	10.88	87.21	309486.7	36.30	10037.0	2536.95	131.76	3.18E+24
32	11.71	12.36	11.12	53.73	309486.7	36.30	10037.0	2536.95	137.25	2.04E+24
33	11.96	12.59	11.38	1.70	309486.7	36.30	10037.0	2536.95	143.10	6.76E+22
34	11.03	11.71	10.42	13.80	230836.2	36.30	10037.0	2536.95	121.73	3.47E+23
35	11.24	11.92	10.64	42.60	230836.2	36.30	10037.0	2536.95	126.60	1.11E+24
36	11.47	12.14	10.88	7.91	230836.2	36.30	10037.0	2536.95	131.76	2.15E+23
37	11.71	12.36	11.12	1.70	245645.5	36.30	10037.0	2536.95	137.25	5.14E+22
38	11.71	12.36	11.12	27.26	2557.7	36.30	10037.0	2536.95	137.25	8.57E+21
39	11.24	11.92	10.64	0.76	10231.0	36.30	10037.0	2536.95	126.60	8.85E+20
40	11.59	12.25	11.00	1.98	10231.0	36.30	10037.0	2536.95	134.47	2.43E+21
41	11.03	11.71	10.42	1292.30	5754.9	36.30	10037.0	2536.95	121.73	8.11E+23
42	11.24	11.92	10.64	1051.96	5754.9	36.30	10037.0	2536.95	126.60	6.86E+23
43	11.47	12.14	10.88	865.63	5754.9	36.30	10037.0	2536.95	131.76	5.88E+23
44	11.71	12.36	11.12	515.01	5754.9	36.30	10037.0	2536.95	137.25	3.64E+23
45	11.03	11.71	10.42	19.52	23019.7	36.30	10037.0	2536.95	121.73	4.90E+22

46	11.24	11.92	10.64	109.06	23019.7	36.30	10037.0	2536.95	126.60	2.85E+23
47	11.47	12.14	10.88	106.97	23019.7	36.30	10037.0	2536.95	131.76	2.90E+23
48	11.71	12.36	11.12	931.84	23019.7	36.30	10037.0	2536.95	137.25	2.64E+24
49	11.59	12.25	11.00	0.27	10231.0	36.30	10037.0	2536.95	134.47	3.36E+20
50	11.59	12.25	11.00	0.06	10231.0	36.30	10037.0	2536.95	134.47	7.76E+19
51	11.24	11.92	10.64	79.87	12379.5	36.30	10037.0	2536.95	126.60	1.12E+23
52	11.47	12.14	10.88	735.06	23019.7	36.30	10037.0	2536.95	131.76	2.00E+24
53	11.71	12.36	11.12	407.37	23019.7	36.30	10037.0	2536.95	137.25	1.15E+24
54	11.24	11.92	10.64	96.84	3683.1	36.30	10037.0	2536.95	126.60	4.04E+22
55	11.47	12.14	10.88	28.32	3683.1	36.30	10037.0	2536.95	131.76	1.23E+22
56	11.24	11.92	10.64	0.20	10231.0	36.30	10037.0	2536.95	126.60	2.26E+20
57	11.71	12.36	11.12	175.69	6547.8	36.30	10037.0	2536.95	137.25	1.41E+23
58	11.24	11.92	10.64	135.68	2557.7	36.30	10037.0	2536.95	126.60	3.93E+22
59	11.47	12.14	10.88	987.84	3683.1	36.30	10037.0	2536.95	131.76	4.29E+23
60	11.71	12.36	11.12	183.77	3683.1	36.30	10037.0	2536.95	137.25	8.32E+22
61	11.24	11.92	10.64	330.33	2557.7	36.30	10037.0	2536.95	126.60	9.58E+22
62	11.47	12.14	10.88	138.03	2557.7	36.30	10037.0	2536.95	131.76	4.16E+22
63	11.71	12.36	11.12	167.79	2557.7	36.30	10037.0	2536.95	137.25	5.27E+22

Table 29: List of subplays in the marginal marine interval of the Mesaverde Formation highly overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Marine Kmv > 300								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.93E+11	2.26E+21	4.75E+10	25.9542	0.243104	1.25E+11	1.59E+11	1.87E+11	2.20E+11	2.79E+11
2	7.34E+11	3.28E+22	1.81E+11	27.2929	0.242945	4.78E+11	6.05E+11	7.13E+11	8.40E+11	1.06E+12
3	3.67E+11	8.16E+21	9.03E+10	26.5979	0.242785	2.39E+11	3.02E+11	3.56E+11	4.19E+11	5.31E+11
4	3.81E+11	8.81E+21	9.38E+10	26.6368	0.242625	2.48E+11	3.14E+11	3.70E+11	4.36E+11	5.52E+11
5	7.61E+10	3.50E+20	1.87E+10	25.0254	0.242463	4.96E+10	6.27E+10	7.39E+10	8.70E+10	1.10E+11
6	9.34E+11	5.31E+22	2.30E+11	27.5333	0.243104	6.08E+11	7.70E+11	9.07E+11	1.07E+12	1.35E+12
7	1.14E+12	7.94E+22	2.82E+11	27.7349	0.242945	7.44E+11	9.42E+11	1.11E+12	1.31E+12	1.65E+12
8	8.62E+11	4.51E+22	2.12E+11	27.4526	0.242785	5.61E+11	7.10E+11	8.37E+11	9.85E+11	1.25E+12
9	4.73E+11	1.35E+22	1.16E+11	26.8519	0.242625	3.08E+11	3.90E+11	4.59E+11	5.40E+11	6.84E+11
10	3.11E+11	5.86E+21	7.66E+10	26.4342	0.242463	2.03E+11	2.57E+11	3.02E+11	3.56E+11	4.50E+11
11	1.06E+11	6.82E+20	2.61E+10	25.3592	0.242382	6.92E+10	8.76E+10	1.03E+11	1.21E+11	1.54E+11
12	4.07E+11	1.01E+22	1.00E+11	26.703	0.243104	2.65E+11	3.36E+11	3.95E+11	4.66E+11	5.90E+11
13	6.59E+11	2.64E+22	1.63E+11	27.1849	0.242945	4.29E+11	5.43E+11	6.40E+11	7.54E+11	9.55E+11
14	4.90E+11	1.46E+22	1.21E+11	26.8876	0.242785	3.19E+11	4.04E+11	4.76E+11	5.60E+11	7.09E+11
15	3.22E+11	6.28E+21	7.92E+10	26.4678	0.242625	2.10E+11	2.65E+11	3.12E+11	3.68E+11	4.66E+11
16	1.99E+11	2.39E+21	4.89E+10	25.9862	0.242463	1.30E+11	1.64E+11	1.93E+11	2.27E+11	2.88E+11
17	1.24E+11	9.23E+20	3.04E+10	25.5106	0.242301	8.05E+10	1.02E+11	1.20E+11	1.41E+11	1.79E+11
18	4.81E+11	1.41E+22	1.19E+11	26.8688	0.243104	3.13E+11	3.96E+11	4.67E+11	5.50E+11	6.96E+11
19	7.63E+11	3.54E+22	1.88E+11	27.3316	0.242945	4.97E+11	6.29E+11	7.41E+11	8.73E+11	1.11E+12
20	9.18E+11	5.12E+22	2.26E+11	27.516	0.242785	5.98E+11	7.57E+11	8.91E+11	1.05E+12	1.33E+12
21	6.76E+11	2.77E+22	1.66E+11	27.2097	0.242625	4.40E+11	5.57E+11	6.56E+11	7.73E+11	9.78E+11
22	3.51E+11	7.46E+21	8.64E+10	26.5544	0.242463	2.29E+11	2.89E+11	3.41E+11	4.01E+11	5.08E+11
23	2.47E+11	3.69E+21	6.08E+10	26.2038	0.242301	1.61E+11	2.04E+11	2.40E+11	2.83E+11	3.57E+11
24	8.35E+11	4.24E+22	2.06E+11	27.4213	0.242945	5.44E+11	6.88E+11	8.11E+11	9.55E+11	1.21E+12
25	9.56E+11	5.55E+22	2.36E+11	27.5568	0.242785	6.23E+11	7.88E+11	9.28E+11	1.09E+12	1.38E+12
26	6.71E+11	2.73E+22	1.65E+11	27.2021	0.242625	4.37E+11	5.53E+11	6.51E+11	7.67E+11	9.71E+11
27	3.42E+11	7.09E+21	8.42E+10	26.5295	0.242463	2.23E+11	2.82E+11	3.32E+11	3.91E+11	4.95E+11
28	1.59E+11	1.53E+21	3.91E+10	25.762	0.242301	1.04E+11	1.31E+11	1.54E+11	1.82E+11	2.30E+11
29	1.40E+12	1.19E+23	3.44E+11	27.9356	0.242945	9.09E+11	1.15E+12	1.36E+12	1.60E+12	2.02E+12
30	2.19E+12	2.92E+23	5.40E+11	28.386	0.242785	1.43E+12	1.81E+12	2.13E+12	2.51E+12	3.17E+12
31	1.73E+12	1.82E+23	4.27E+11	28.1512	0.242625	1.13E+12	1.43E+12	1.68E+12	1.98E+12	2.51E+12
32	1.39E+12	1.17E+23	3.42E+11	27.9296	0.242463	9.05E+11	1.14E+12	1.35E+12	1.59E+12	2.01E+12
33	2.52E+11	3.85E+21	6.21E+10	26.225	0.242301	1.65E+11	2.08E+11	2.45E+11	2.89E+11	3.65E+11
34	5.72E+11	1.99E+22	1.41E+11	27.0432	0.242945	3.73E+11	4.72E+11	5.56E+11	6.54E+11	8.28E+11
35	1.03E+12	6.38E+22	2.53E+11	27.6263	0.242785	6.68E+11	8.45E+11	9.95E+11	1.17E+12	1.48E+12
36	4.51E+11	1.23E+22	1.11E+11	26.8042	0.242625	2.93E+11	3.71E+11	4.37E+11	5.15E+11	6.52E+11
37	2.20E+11	2.94E+21	5.42E+10	26.0886	0.242463	1.44E+11	1.82E+11	2.14E+11	2.52E+11	3.19E+11
38	8.99E+10	4.89E+20	2.21E+10	25.1925	0.242463	5.86E+10	7.41E+10	8.73E+10	1.03E+11	1.30E+11
39	2.89E+10	5.07E+19	7.12E+09	24.0571	0.242785	1.88E+10	2.38E+10	2.80E+10	3.30E+10	4.18E+10
40	4.79E+10	1.39E+20	1.18E+10	24.5631	0.242544	3.12E+10	3.95E+10	4.65E+10	5.48E+10	6.93E+10
41	8.74E+11	4.65E+22	2.16E+11	27.467	0.242945	5.69E+11	7.21E+11	8.49E+11	1.00E+12	1.27E+12
42	8.04E+11	3.93E+22	1.98E+11	27.3838	0.242785	5.24E+11	6.63E+11	7.81E+11	9.20E+11	1.16E+12
43	7.44E+11	3.36E+22	1.83E+11	27.3064	0.242625	4.85E+11	6.14E+11	7.23E+11	8.51E+11	1.08E+12
44	5.86E+11	2.08E+22	1.44E+11	27.0672	0.242463	3.82E+11	4.83E+11	5.69E+11	6.70E+11	8.48E+11
45	2.15E+11	2.81E+21	5.30E+10	26.0638	0.242945	1.40E+11	1.77E+11	2.09E+11	2.46E+11	3.11E+11

46	5.18E+11	1.63E+22	1.28E+11	26.9437	0.242785	3.37E+11	4.27E+11	5.03E+11	5.92E+11	7.50E+11
47	5.23E+11	1.66E+22	1.29E+11	26.9541	0.242625	3.41E+11	4.32E+11	5.08E+11	5.98E+11	7.57E+11
48	1.58E+12	1.50E+23	3.88E+11	28.0569	0.242463	1.03E+12	1.30E+12	1.53E+12	1.80E+12	2.28E+12
49	1.78E+10	1.92E+19	4.38E+09	23.5727	0.242544	1.16E+10	1.47E+10	1.73E+10	2.03E+10	2.58E+10
50	8.55E+09	4.43E+18	2.11E+09	22.8404	0.242544	5.57E+09	7.05E+09	8.31E+09	9.78E+09	1.24E+10
51	3.25E+11	6.41E+21	8.01E+10	26.4778	0.242785	2.12E+11	2.68E+11	3.16E+11	3.72E+11	4.71E+11
52	1.37E+12	1.14E+23	3.38E+11	27.9178	0.242625	8.94E+11	1.13E+12	1.33E+12	1.57E+12	1.99E+12
53	1.04E+12	6.58E+22	2.57E+11	27.6431	0.242463	6.79E+11	8.60E+11	1.01E+12	1.19E+12	1.51E+12
54	1.95E+11	2.31E+21	4.81E+10	25.9679	0.242785	1.27E+11	1.61E+11	1.90E+11	2.23E+11	2.83E+11
55	1.08E+11	7.04E+20	2.65E+10	25.3733	0.242625	7.02E+10	8.88E+10	1.05E+11	1.23E+11	1.56E+11
56	1.46E+10	1.30E+19	3.60E+09	23.3754	0.242785	9.51E+09	1.20E+10	1.42E+10	1.67E+10	2.11E+10
57	3.65E+11	8.07E+21	8.98E+10	26.594	0.242463	2.38E+11	3.01E+11	3.55E+11	4.17E+11	5.28E+11
58	1.93E+11	2.25E+21	4.75E+10	25.9542	0.242785	1.25E+11	1.59E+11	1.87E+11	2.20E+11	2.79E+11
59	6.36E+11	2.45E+22	1.57E+11	27.1493	0.242625	4.14E+11	5.25E+11	6.18E+11	7.27E+11	9.21E+11
60	2.80E+11	4.75E+21	6.89E+10	26.3288	0.242463	1.82E+11	2.31E+11	2.72E+11	3.20E+11	4.05E+11
61	3.00E+11	5.48E+21	7.40E+10	26.3992	0.242785	1.96E+11	2.48E+11	2.92E+11	3.44E+11	4.35E+11
62	1.98E+11	2.38E+21	4.88E+10	25.9829	0.242625	1.29E+11	1.63E+11	1.92E+11	2.27E+11	2.87E+11
63	2.23E+11	3.01E+21	5.49E+10	26.101	0.242463	1.45E+11	1.84E+11	2.17E+11	2.55E+11	3.23E+11
P.P.C.	3.47E+13	7.30E+25	8.55E+12			2.26E+13	2.86E+13	3.37E+13	3.97E+13	5.02E+13

Table 30: List of subplays in the marginal marine interval of the Mesaverde Formation highly overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Marine Kmv > 1.1								(Panel 1)
						a =	0.52	0.016	0	
						b =	14.7	505	1.16	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	13.9	80	7	50	50	20,000	10414.7	825	1.16	2.08E+11
2	10	80	7	50	50	19,000	9894.7	809	1.16	1.45E+11
3	12	90	7	50	50	18,000	9374.7	793	1.16	1.90E+11
4	22.2	80	7	50	50	17,000	8854.7	777	1.16	3.01E+11
5	18	80	7	50	50	16,000	8334.7	761	1.16	2.34E+11
6	11	80	7	50	50	15,000	7814.7	745	1.16	1.37E+11
7	8.2	80	7	50	50	14,000	7294.7	729	1.16	9.75E+10
8	9.9	90	7	50	50	13,000	6774.7	713	1.16	1.26E+11
9	1.1	100	7	50	50	12,500	6514.7	705	1.16	1.51E+10
10	3.3	150	7	50	50	16,000	8334.7	761	1.16	8.05E+10
11	3.7	150	7	50	50	15,000	7814.7	745	1.16	8.64E+10
12	3.9	150	7	50	50	14,000	7294.7	729	1.16	8.69E+10
13	6	150	7	50	50	13,000	6774.7	713	1.16	1.27E+11
14	3.3	150	7	50	50	12,500	6514.7	705	1.16	6.79E+10
15	0.8	250	7	50	50	15,500	8074.7	753	1.16	3.18E+10
16	2	250	7	50	50	15,000	7814.7	745	1.16	7.79E+10
17	1.9	250	7	50	50	14,000	7294.7	729	1.16	7.06E+10
18	2.1	250	7	50	50	13,000	6774.7	713	1.16	7.41E+10
19	1.7	250	7	50	50	12,000	6254.7	697	1.16	5.66E+10
20	0.81	350	7	50	50	15,500	8074.7	753	1.16	4.51E+10
21	3	350	7	50	50	15,000	7814.7	745	1.16	1.64E+11
22	2.6	350	7	50	50	14,000	7294.7	729	1.16	1.35E+11
23	2.7	350	7	50	50	13,000	6774.7	713	1.16	1.33E+11
24	2.5	350	7	50	50	12,000	6254.7	697	1.16	1.17E+11
25	0.72	450	7	50	50	15,500	8074.7	753	1.16	5.16E+10
26	1.3	450	7	50	50	15,000	7814.7	745	1.16	9.11E+10
27	1.1	450	7	50	50	14,000	7294.7	729	1.16	7.35E+10
28	1	450	7	50	50	13,000	6774.7	713	1.16	6.35E+10
29	1.2	450	7	50	50	12,000	6254.7	697	1.16	7.19E+10
29a	0.25	460	7	50	50	11,500	5994.7	689	1.16	1.49E+10
30	4.5	530	7	50	50	16,000	8334.7	761	1.16	3.88E+11
31	5	530	7	50	50	15,000	7814.7	745	1.16	4.13E+11
32	4.9	530	7	50	50	14,000	7294.7	729	1.16	3.86E+11
33	4.5	530	7	50	50	13,000	6774.7	713	1.16	3.36E+11
34	5.2	530	7	50	50	12,000	6254.7	697	1.16	3.67E+11
35	2.4	530	7	50	50	11,500	5994.7	689	1.16	1.64E+11
36	0.88	475	7	50	50	16,000	8334.7	761	1.16	6.80E+10
37	0.85	475	7	50	50	15,000	7814.7	745	1.16	6.29E+10
38	0.99	475	7	50	50	14,000	7294.7	729	1.16	6.99E+10
39	1.8	475	7	50	50	13,000	6774.7	713	1.16	1.21E+11
40	2.9	475	7	50	50	12,000	6254.7	697	1.16	1.84E+11
41	2.5	475	7	50	50	11,000	5734.7	681	1.16	1.48E+11
42	0.71	475	7	50	50	10,500	5474.7	673	1.16	4.07E+10
43	18.1	50	7	50	50	16,000	8334.7	761	1.16	1.47E+11
44	19.5	50	7	50	50	15,000	7814.7	745	1.16	1.52E+11

45	16.1	50	7	50	50	14,000	7294.7	729	1.16	1.20E+11
46	15.7	50	7	50	50	13,000	6774.7	713	1.16	1.11E+11
47	15.7	50	7	50	50	12,000	6254.7	697	1.16	1.05E+11
48	13.6	50	7	50	50	11,000	5734.7	681	1.16	8.50E+10
49	12.6	50	7	50	50	10,000	5214.7	665	1.16	7.34E+10
50	6.7	65	7	50	50	9,000	4694.7	649	1.16	4.68E+10
51	0.7	80	7	50	50	8,500	4434.7	641	1.16	5.75E+09
52	24.5	150	7	50	50	16,000	8334.7	761	1.16	5.98E+11
53	21.8	150	7	50	50	15,000	7814.7	745	1.16	5.09E+11
54	14.4	150	7	50	50	14,000	7294.7	729	1.16	3.21E+11
55	11.5	150	7	50	50	13,000	6774.7	713	1.16	2.43E+11
56	13.4	150	7	50	50	12,000	6254.7	697	1.16	2.68E+11
57	11.6	150	7	50	50	11,000	5734.7	681	1.16	2.18E+11
58	10.6	150	7	50	50	10,000	5214.7	665	1.16	1.85E+11
59	7.6	130	7	50	50	9,000	4694.7	649	1.16	1.06E+11
60	0.7	110	7	50	50	8,500	4434.7	641	1.16	7.91E+09
61	2	205	7	50	50	15,000	7814.7	745	1.16	6.39E+10
62	4.9	210	7	50	50	14,000	7294.7	729	1.16	1.53E+11
63	6.4	220	7	50	50	13,000	6774.7	713	1.16	1.99E+11
64	7.2	220	7	50	50	12,000	6254.7	697	1.16	2.11E+11
65	6.6	220	7	50	50	11,000	5734.7	681	1.16	1.82E+11
66	3.5	220	7	50	50	10,000	5214.7	665	1.16	8.97E+10
67	9.4	150	7	50	50	14,000	7294.7	729	1.16	2.09E+11
68	5.9	150	7	50	50	13,000	6774.7	713	1.16	1.25E+11
69	4.7	150	7	50	50	12,000	6254.7	697	1.16	9.39E+10
70	4.2	150	7	50	50	11,000	5734.7	681	1.16	7.88E+10
71	3.4	150	7	50	50	10,000	5214.7	665	1.16	5.94E+10
72	0.8	150	7	50	50	9,500	4954.7	657	1.16	1.34E+10
73	15.3	60	7	50	50	16,000	8334.7	761	1.16	1.49E+11
74	13.9	60	7	50	50	15,000	7814.7	745	1.16	1.30E+11
75	11.9	60	7	50	50	14,000	7294.7	729	1.16	1.06E+11
76	8	60	7	50	50	13,000	6774.7	713	1.16	6.77E+10
77	5.5	60	7	50	50	12,000	6254.7	697	1.16	4.40E+10
78	3.5	60	7	50	50	11,000	5734.7	681	1.16	2.63E+10
79	3.4	60	7	50	50	10,000	5214.7	665	1.16	2.38E+10
80	0.5	60	7	50	50	9,500	4954.7	657	1.16	3.36E+09
81	15.2	60	7	50	50	16,000	8334.7	761	1.16	1.48E+11
82	18.6	60	7	50	50	15,000	7814.7	745	1.16	1.74E+11
83	18.3	60	7	50	50	14,000	7294.7	729	1.16	1.63E+11
84	15.6	60	7	50	50	13,000	6774.7	713	1.16	1.32E+11
85	8.8	70	7	50	50	11,000	5734.7	681	1.16	7.70E+10
86	66.1	70	7	50	50	12,000	6254.7	697	1.16	6.17E+11
87	16.2	85	7	50	50	13,000	6774.7	713	1.16	1.94E+11
88	62.3	80	7	50	50	11,000	5734.7	681	1.16	6.23E+11
89	33.4	80	7	50	50	10,000	5214.7	665	1.16	3.11E+11
90	16	105	7	50	50	11,000	5734.7	681	1.16	2.10E+11
91	20.1	80	7	50	50	11,000	5734.7	681	1.16	2.01E+11
92	3.3	110	7	50	50	11,000	5734.7	681	1.16	4.54E+10
93	2.2	100	7	50	50	16,500	8594.7	769	1.16	3.65E+10
93	2.2	100	7	50	50	16,500	8594.7	769	1.16	3.65E+10

94	10.7	120	7	50	50	16,000	8334.7	761	1.16	2.09E+11
95	14.9	130	7	50	50	15,000	7814.7	745	1.16	3.02E+11
96	7.2	140	7	50	50	14,000	7294.7	729	1.16	1.50E+11
97	2.1	210	7	50	50	14,000	7294.7	729	1.16	6.55E+10
98	1.6	175	7	50	50	14,000	7294.7	729	1.16	4.16E+10
99	3.6	450	7	50	50	14,000	7294.7	729	1.16	2.41E+11
100	5.5	550	7	50	50	14,000	7294.7	729	1.16	4.49E+11
101	6.4	475	7	50	50	14,000	7294.7	729	1.16	4.52E+11
102	14.7	50	7	50	50	14,000	7294.7	729	1.16	1.09E+11
103	3.8	50	7	50	50	15,000	7814.7	745	1.16	2.96E+10
104	4.2	50	7	50	50	16,000	8334.7	761	1.16	3.41E+10
105	19.8	150	7	50	50	16,000	8334.7	761	1.16	4.83E+11
106	14.3	150	7	50	50	15,000	7814.7	745	1.16	3.34E+11
107	0.71	100	7	50	50	15,500	8074.7	753	1.16	1.13E+10
108	7.4	90	7	50	50	16,000	8334.7	761	1.16	1.08E+11
									Total =	1.72E+13

Table 31: List of subplays in the marine interval of the Mesaverde Formation moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GKMV2.XLS

Play Name :		Marine Kmv > 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	10.88	9.82	11.82	194.82	6547.8	49.41	2509.2	2536.95	118.80	4.62E+22
2	10.54	9.50	11.48	100.83	6547.8	49.41	2509.2	2536.95	111.53	2.24E+22
3	10.19	9.16	11.11	145.20	8287.1	49.41	2509.2	2536.95	104.21	3.82E+22
4	9.82	8.82	10.73	496.94	6547.8	49.41	2509.2	2536.95	96.85	9.60E+22
5	9.44	8.45	10.33	326.69	6547.8	49.41	2509.2	2536.95	89.47	5.83E+22
6	9.04	8.08	9.92	122.01	6547.8	49.41	2509.2	2536.95	82.08	2.00E+22
7	8.63	7.69	9.48	67.80	6547.8	49.41	2509.2	2536.95	74.71	1.01E+22
8	8.19	7.28	9.02	98.82	8287.1	49.41	2509.2	2536.95	67.37	1.68E+22
9	7.97	7.07	8.78	1.22	10231.0	49.41	2509.2	2536.95	63.73	2.42E+20
10	9.44	8.45	10.33	10.98	23019.7	49.41	2509.2	2536.95	89.47	6.89E+21
11	9.04	8.08	9.92	13.80	23019.7	49.41	2509.2	2536.95	82.08	7.95E+21
12	8.63	7.69	9.48	15.34	23019.7	49.41	2509.2	2536.95	74.71	8.04E+21
13	8.19	7.28	9.02	36.30	23019.7	49.41	2509.2	2536.95	67.37	1.72E+22
14	7.97	7.07	8.78	10.98	23019.7	49.41	2509.2	2536.95	63.73	4.91E+21
15	9.24	8.27	10.13	0.65	63943.5	49.41	2509.2	2536.95	85.78	1.08E+21
16	9.04	8.08	9.92	4.03	63943.5	49.41	2509.2	2536.95	82.08	6.45E+21
17	8.63	7.69	9.48	3.64	63943.5	49.41	2509.2	2536.95	74.71	5.30E+21
18	8.19	7.28	9.02	4.45	63943.5	49.41	2509.2	2536.95	67.37	5.84E+21
19	7.74	6.86	8.54	2.91	63943.5	49.41	2509.2	2536.95	60.11	3.41E+21
20	9.24	8.27	10.13	0.66	125329.3	49.41	2509.2	2536.95	85.78	2.17E+21
21	9.04	8.08	9.92	9.07	125329.3	49.41	2509.2	2536.95	82.08	2.84E+22
22	8.63	7.69	9.48	6.82	125329.3	49.41	2509.2	2536.95	74.71	1.94E+22
23	8.19	7.28	9.02	7.35	125329.3	49.41	2509.2	2536.95	67.37	1.89E+22
24	7.74	6.86	8.54	6.30	125329.3	49.41	2509.2	2536.95	60.11	1.45E+22
25	9.24	8.27	10.13	0.52	207177.1	49.41	2509.2	2536.95	85.78	2.83E+21
26	9.04	8.08	9.92	1.70	207177.1	49.41	2509.2	2536.95	82.08	8.83E+21
27	8.63	7.69	9.48	1.22	207177.1	49.41	2509.2	2536.95	74.71	5.75E+21
28	8.19	7.28	9.02	1.01	207177.1	49.41	2509.2	2536.95	67.37	4.29E+21
29	7.74	6.86	8.54	1.45	207177.1	49.41	2509.2	2536.95	60.11	5.51E+21
29a	7.50	6.64	8.29	0.06	216487.2	49.41	2509.2	2536.95	56.51	2.35E+20
30	9.44	8.45	10.33	20.42	287387.8	49.41	2509.2	2536.95	89.47	1.60E+23
31	9.04	8.08	9.92	25.21	287387.8	49.41	2509.2	2536.95	82.08	1.81E+23
32	8.63	7.69	9.48	24.21	287387.8	49.41	2509.2	2536.95	74.71	1.58E+23
33	8.19	7.28	9.02	20.42	287387.8	49.41	2509.2	2536.95	67.37	1.20E+23
34	7.74	6.86	8.54	27.26	287387.8	49.41	2509.2	2536.95	60.11	1.43E+23
35	7.50	6.64	8.29	5.81	287387.8	49.41	2509.2	2536.95	56.51	2.87E+22
36	9.44	8.45	10.33	0.78	230836.2	49.41	2509.2	2536.95	89.47	4.91E+21
37	9.04	8.08	9.92	0.73	230836.2	49.41	2509.2	2536.95	82.08	4.21E+21
38	8.63	7.69	9.48	0.99	230836.2	49.41	2509.2	2536.95	74.71	5.19E+21
39	8.19	7.28	9.02	3.27	230836.2	49.41	2509.2	2536.95	67.37	1.55E+22
40	7.74	6.86	8.54	8.48	230836.2	49.41	2509.2	2536.95	60.11	3.58E+22
41	7.26	6.42	8.03	6.30	230836.2	49.41	2509.2	2536.95	52.94	2.35E+22
42	7.01	6.20	7.77	0.51	230836.2	49.41	2509.2	2536.95	49.41	1.77E+21
43	9.44	8.45	10.33	330.33	2557.7	49.41	2509.2	2536.95	89.47	2.30E+22
44	9.04	8.08	9.92	383.41	2557.7	49.41	2509.2	2536.95	82.08	2.45E+22

45	8.63	7.69	9.48	261.37	2557.7	49.41	2509.2	2536.95	74.71	1.52E+22
46	8.19	7.28	9.02	248.54	2557.7	49.41	2509.2	2536.95	67.37	1.30E+22
47	7.74	6.86	8.54	248.54	2557.7	49.41	2509.2	2536.95	60.11	1.16E+22
48	7.26	6.42	8.03	186.50	2557.7	49.41	2509.2	2536.95	52.94	7.69E+21
49	6.76	5.96	7.50	160.08	2557.7	49.41	2509.2	2536.95	45.92	5.73E+21
50	6.24	5.49	6.94	45.26	4322.6	49.41	2509.2	2536.95	39.08	2.33E+21
51	5.96	5.24	6.64	0.49	6547.8	49.41	2509.2	2536.95	35.75	3.52E+19
52	9.44	8.45	10.33	605.24	23019.7	49.41	2509.2	2536.95	89.47	3.80E+23
53	9.04	8.08	9.92	479.19	23019.7	49.41	2509.2	2536.95	82.08	2.76E+23
54	8.63	7.69	9.48	209.08	23019.7	49.41	2509.2	2536.95	74.71	1.10E+23
55	8.19	7.28	9.02	133.35	23019.7	49.41	2509.2	2536.95	67.37	6.30E+22
56	7.74	6.86	8.54	181.05	23019.7	49.41	2509.2	2536.95	60.11	7.63E+22
57	7.26	6.42	8.03	135.68	23019.7	49.41	2509.2	2536.95	52.94	5.04E+22
58	6.76	5.96	7.50	113.29	23019.7	49.41	2509.2	2536.95	45.92	3.65E+22
59	6.24	5.49	6.94	58.24	17290.3	49.41	2509.2	2536.95	39.08	1.20E+22
60	5.96	5.24	6.64	0.49	12379.5	49.41	2509.2	2536.95	35.75	6.66E+19
61	9.04	8.08	9.92	4.03	42995.6	49.41	2509.2	2536.95	82.08	4.34E+21
62	8.63	7.69	9.48	24.21	45118.6	49.41	2509.2	2536.95	74.71	2.49E+22
63	8.19	7.28	9.02	41.30	49517.9	49.41	2509.2	2536.95	67.37	4.20E+22
64	7.74	6.86	8.54	52.27	49517.9	49.41	2509.2	2536.95	60.11	4.74E+22
65	7.26	6.42	8.03	43.92	49517.9	49.41	2509.2	2536.95	52.94	3.51E+22
66	6.76	5.96	7.50	12.35	49517.9	49.41	2509.2	2536.95	45.92	8.56E+21
67	8.63	7.69	9.48	89.09	23019.7	49.41	2509.2	2536.95	74.71	4.67E+22
68	8.19	7.28	9.02	35.10	23019.7	49.41	2509.2	2536.95	67.37	1.66E+22
69	7.74	6.86	8.54	22.27	23019.7	49.41	2509.2	2536.95	60.11	9.39E+21
70	7.26	6.42	8.03	17.79	23019.7	49.41	2509.2	2536.95	52.94	6.60E+21
71	6.76	5.96	7.50	11.66	23019.7	49.41	2509.2	2536.95	45.92	3.75E+21
72	6.50	5.73	7.22	0.65	23019.7	49.41	2509.2	2536.95	42.47	1.92E+20
73	9.44	8.45	10.33	236.04	3683.1	49.41	2509.2	2536.95	89.47	2.37E+22
74	9.04	8.08	9.92	194.82	3683.1	49.41	2509.2	2536.95	82.08	1.79E+22
75	8.63	7.69	9.48	142.79	3683.1	49.41	2509.2	2536.95	74.71	1.20E+22
76	8.19	7.28	9.02	64.53	3683.1	49.41	2509.2	2536.95	67.37	4.88E+21
77	7.74	6.86	8.54	30.50	3683.1	49.41	2509.2	2536.95	60.11	2.06E+21
78	7.26	6.42	8.03	12.35	3683.1	49.41	2509.2	2536.95	52.94	7.34E+20
79	6.76	5.96	7.50	11.66	3683.1	49.41	2509.2	2536.95	45.92	6.01E+20
80	6.50	5.73	7.22	0.25	3683.1	49.41	2509.2	2536.95	42.47	1.20E+19
81	9.44	8.45	10.33	232.96	3683.1	49.41	2509.2	2536.95	89.47	2.34E+22
82	9.04	8.08	9.92	348.84	3683.1	49.41	2509.2	2536.95	82.08	3.21E+22
83	8.63	7.69	9.48	337.67	3683.1	49.41	2509.2	2536.95	74.71	2.83E+22
84	8.19	7.28	9.02	245.38	3683.1	49.41	2509.2	2536.95	67.37	1.86E+22
85	7.26	6.42	8.03	78.08	5013.2	49.41	2509.2	2536.95	52.94	6.31E+21
86	7.74	6.86	8.54	4405.54	5013.2	49.41	2509.2	2536.95	60.11	4.04E+23
87	8.19	7.28	9.02	264.62	7391.9	49.41	2509.2	2536.95	67.37	4.01E+22
88	7.26	6.42	8.03	3913.56	6547.8	49.41	2509.2	2536.95	52.94	4.13E+23
89	6.76	5.96	7.50	1124.84	6547.8	49.41	2509.2	2536.95	45.92	1.03E+23
90	7.26	6.42	8.03	258.13	11279.6	49.41	2509.2	2536.95	52.94	4.70E+22
91	7.26	6.42	8.03	407.37	6547.8	49.41	2509.2	2536.95	52.94	4.30E+22
92	7.26	6.42	8.03	10.98	12379.5	49.41	2509.2	2536.95	52.94	2.19E+21
93	9.63	8.64	10.54	4.88	10231.0	49.41	2509.2	2536.95	93.16	1.42E+21
93	9.63	8.64	10.54	4.88	10231.0	49.41	2509.2	2536.95	93.16	1.42E+21

94	9.44	8.45	10.33	115.44	14732.6	49.41	2509.2	2536.95	89.47	4.64E+22
95	9.04	8.08	9.92	223.86	17290.3	49.41	2509.2	2536.95	82.08	9.68E+22
96	8.63	7.69	9.48	52.27	20052.7	49.41	2509.2	2536.95	74.71	2.39E+22
97	8.63	7.69	9.48	4.45	45118.6	49.41	2509.2	2536.95	74.71	4.57E+21
98	8.63	7.69	9.48	2.58	31332.3	49.41	2509.2	2536.95	74.71	1.84E+21
99	8.63	7.69	9.48	13.07	207177.1	49.41	2509.2	2536.95	74.71	6.16E+22
100	8.63	7.69	9.48	30.50	309486.7	49.41	2509.2	2536.95	74.71	2.15E+23
101	8.63	7.69	9.48	41.30	230836.2	49.41	2509.2	2536.95	74.71	2.17E+23
102	8.63	7.69	9.48	217.89	2557.7	49.41	2509.2	2536.95	74.71	1.27E+22
103	9.04	8.08	9.92	14.56	2557.7	49.41	2509.2	2536.95	82.08	9.31E+20
104	9.44	8.45	10.33	17.79	2557.7	49.41	2509.2	2536.95	89.47	1.24E+21
105	9.44	8.45	10.33	395.30	23019.7	49.41	2509.2	2536.95	89.47	2.48E+23
106	9.04	8.08	9.92	206.19	23019.7	49.41	2509.2	2536.95	82.08	1.19E+23
107	9.24	8.27	10.13	0.51	10231.0	49.41	2509.2	2536.95	85.78	1.36E+20
108	9.44	8.45	10.33	55.22	8287.1	49.41	2509.2	2536.95	89.47	1.25E+22

Table 32: List of subplays in the marine interval of the Mesaverde Formation moderately overpressured play with estimates of ranges in percent for the six play attributes.

\WINDRIVR\ASSESS\GKMV2.XLS

Play Name :		Marine Kmv > 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	2.08E+11	2.73E+21	5.22E+10	26.0324	0.246727	1.35E+11	1.71E+11	2.02E+11	2.39E+11	3.03E+11
2	1.45E+11	1.33E+21	3.64E+10	25.6714	0.246975	9.39E+10	1.19E+11	1.41E+11	1.66E+11	2.12E+11
3	1.90E+11	2.27E+21	4.76E+10	25.9375	0.247238	1.22E+11	1.56E+11	1.84E+11	2.17E+11	2.76E+11
4	3.01E+11	5.71E+21	7.55E+10	26.3981	0.247517	1.94E+11	2.47E+11	2.91E+11	3.44E+11	4.38E+11
5	2.34E+11	3.47E+21	5.89E+10	26.1486	0.247813	1.51E+11	1.92E+11	2.27E+11	2.68E+11	3.41E+11
6	1.37E+11	1.19E+21	3.45E+10	25.6129	0.248127	8.84E+10	1.12E+11	1.33E+11	1.57E+11	2.00E+11
7	9.75E+10	6.05E+20	2.46E+10	25.2719	0.248461	6.28E+10	7.99E+10	9.45E+10	1.12E+11	1.42E+11
8	1.26E+11	1.01E+21	3.18E+10	25.5262	0.248817	8.09E+10	1.03E+11	1.22E+11	1.44E+11	1.84E+11
9	1.51E+10	1.46E+19	3.82E+09	23.4065	0.249004	9.71E+09	1.24E+10	1.46E+10	1.73E+10	2.20E+10
10	8.05E+10	4.10E+20	2.03E+10	25.0808	0.247813	5.19E+10	6.61E+10	7.81E+10	9.23E+10	1.17E+11
11	8.64E+10	4.74E+20	2.18E+10	25.1519	0.248127	5.57E+10	7.09E+10	8.38E+10	9.91E+10	1.26E+11
12	8.69E+10	4.81E+20	2.19E+10	25.1573	0.248461	5.60E+10	7.13E+10	8.43E+10	9.96E+10	1.27E+11
13	1.27E+11	1.03E+21	3.21E+10	25.5363	0.248817	8.18E+10	1.04E+11	1.23E+11	1.46E+11	1.85E+11
14	6.79E+10	2.95E+20	1.72E+10	24.9105	0.249004	4.37E+10	5.57E+10	6.58E+10	7.79E+10	9.92E+10
15	3.18E+10	6.43E+19	8.02E+09	24.1534	0.247967	2.05E+10	2.61E+10	3.09E+10	3.65E+10	4.64E+10
16	7.79E+10	3.85E+20	1.96E+10	25.0476	0.248127	5.02E+10	6.39E+10	7.55E+10	8.93E+10	1.14E+11
17	7.06E+10	3.17E+20	1.78E+10	24.949	0.248461	4.55E+10	5.79E+10	6.84E+10	8.09E+10	1.03E+11
18	7.41E+10	3.50E+20	1.87E+10	24.9973	0.248817	4.77E+10	6.07E+10	7.18E+10	8.49E+10	1.08E+11
19	5.66E+10	2.05E+20	1.43E+10	24.7287	0.249197	3.64E+10	4.64E+10	5.49E+10	6.49E+10	8.27E+10
20	4.51E+10	1.29E+20	1.14E+10	24.5023	0.247967	2.91E+10	3.70E+10	4.38E+10	5.17E+10	6.58E+10
21	1.64E+11	1.70E+21	4.12E+10	25.7895	0.248127	1.05E+11	1.34E+11	1.59E+11	1.87E+11	2.39E+11
22	1.35E+11	1.16E+21	3.41E+10	25.5992	0.248461	8.71E+10	1.11E+11	1.31E+11	1.55E+11	1.97E+11
23	1.33E+11	1.14E+21	3.37E+10	25.5851	0.248817	8.58E+10	1.09E+11	1.29E+11	1.53E+11	1.95E+11
24	1.17E+11	8.71E+20	2.95E+10	25.4508	0.249197	7.50E+10	9.55E+10	1.13E+11	1.34E+11	1.70E+11
25	5.16E+10	1.69E+20	1.30E+10	24.6358	0.247967	3.33E+10	4.23E+10	5.00E+10	5.91E+10	7.52E+10
26	9.11E+10	5.27E+20	2.30E+10	25.2046	0.248127	5.87E+10	7.47E+10	8.83E+10	1.04E+11	1.33E+11
27	7.35E+10	3.44E+20	1.86E+10	24.9903	0.248461	4.74E+10	6.03E+10	7.13E+10	8.43E+10	1.07E+11
28	6.35E+10	2.57E+20	1.60E+10	24.8431	0.248817	4.09E+10	5.20E+10	6.16E+10	7.28E+10	9.27E+10
29	7.19E+10	3.32E+20	1.82E+10	24.9682	0.249197	4.63E+10	5.90E+10	6.97E+10	8.25E+10	1.05E+11
29a	1.49E+10	1.42E+19	3.76E+09	23.3906	0.249396	9.55E+09	1.22E+10	1.44E+10	1.70E+10	2.17E+10
30	3.88E+11	9.53E+21	9.76E+10	26.6532	0.247813	2.50E+11	3.18E+11	3.76E+11	4.44E+11	5.65E+11
31	4.13E+11	1.08E+22	1.04E+11	26.7153	0.248127	2.66E+11	3.39E+11	4.00E+11	4.73E+11	6.02E+11
32	3.86E+11	9.48E+21	9.74E+10	26.6478	0.248461	2.49E+11	3.16E+11	3.74E+11	4.42E+11	5.63E+11
33	3.36E+11	7.23E+21	8.50E+10	26.5108	0.248817	2.17E+11	2.76E+11	3.26E+11	3.86E+11	4.91E+11
34	3.67E+11	8.64E+21	9.29E+10	26.5981	0.249197	2.36E+11	3.01E+11	3.56E+11	4.21E+11	5.36E+11
35	1.64E+11	1.73E+21	4.16E+10	25.794	0.249396	1.06E+11	1.35E+11	1.59E+11	1.88E+11	2.40E+11
36	6.80E+10	2.93E+20	1.71E+10	24.9117	0.247813	4.38E+10	5.58E+10	6.59E+10	7.79E+10	9.91E+10
37	6.29E+10	2.51E+20	1.58E+10	24.8337	0.248127	4.05E+10	5.16E+10	6.10E+10	7.21E+10	9.17E+10
38	6.99E+10	3.11E+20	1.76E+10	24.939	0.248461	4.50E+10	5.73E+10	6.77E+10	8.01E+10	1.02E+11
39	1.21E+11	9.29E+20	3.05E+10	25.485	0.248817	7.77E+10	9.89E+10	1.17E+11	1.38E+11	1.76E+11
40	1.84E+11	2.16E+21	4.65E+10	25.9046	0.249197	1.18E+11	1.50E+11	1.78E+11	2.10E+11	2.68E+11
41	1.48E+11	1.42E+21	3.76E+10	25.6925	0.249602	9.55E+10	1.22E+11	1.44E+11	1.70E+11	2.17E+11
42	4.07E+10	1.07E+20	1.03E+10	24.3991	0.249815	2.62E+10	3.34E+10	3.95E+10	4.67E+10	5.95E+10
43	1.47E+11	1.37E+21	3.70E+10	25.6841	0.247813	9.49E+10	1.21E+11	1.43E+11	1.69E+11	2.15E+11
44	1.52E+11	1.46E+21	3.83E+10	25.7154	0.248127	9.79E+10	1.25E+11	1.47E+11	1.74E+11	2.21E+11

45	1.20E+11	9.11E+20	3.02E+10	25.4766	0.248461	7.71E+10	9.81E+10	1.16E+11	1.37E+11	1.75E+11
46	1.11E+11	7.83E+20	2.80E+10	25.3996	0.248817	7.13E+10	9.08E+10	1.07E+11	1.27E+11	1.62E+11
47	1.05E+11	7.01E+20	2.65E+10	25.3423	0.249197	6.73E+10	8.57E+10	1.01E+11	1.20E+11	1.53E+11
48	8.50E+10	4.65E+20	2.16E+10	25.135	0.249602	5.47E+10	6.97E+10	8.24E+10	9.75E+10	1.24E+11
49	7.34E+10	3.47E+20	1.86E+10	24.9873	0.250035	4.71E+10	6.01E+10	7.11E+10	8.41E+10	1.07E+11
50	4.68E+10	1.42E+20	1.19E+10	24.5372	0.250499	3.00E+10	3.83E+10	4.53E+10	5.37E+10	6.84E+10
51	5.75E+09	2.15E+18	1.47E+09	22.4415	0.250742	3.69E+09	4.71E+09	5.57E+09	6.60E+09	8.42E+09
52	5.98E+11	2.26E+22	1.50E+11	27.0855	0.247813	3.86E+11	4.90E+11	5.80E+11	6.85E+11	8.71E+11
53	5.09E+11	1.65E+22	1.28E+11	26.9255	0.248127	3.28E+11	4.18E+11	4.94E+11	5.84E+11	7.43E+11
54	3.21E+11	6.56E+21	8.10E+10	26.4636	0.248461	2.07E+11	2.63E+11	3.11E+11	3.68E+11	4.68E+11
55	2.43E+11	3.78E+21	6.15E+10	26.1869	0.248817	1.57E+11	2.00E+11	2.36E+11	2.79E+11	3.55E+11
56	2.68E+11	4.60E+21	6.78E+10	26.2825	0.249197	1.72E+11	2.19E+11	2.60E+11	3.07E+11	3.91E+11
57	2.18E+11	3.04E+21	5.52E+10	26.0746	0.249602	1.40E+11	1.78E+11	2.11E+11	2.50E+11	3.18E+11
58	1.85E+11	2.21E+21	4.70E+10	25.913	0.250035	1.19E+11	1.52E+11	1.79E+11	2.12E+11	2.71E+11
59	1.06E+11	7.29E+20	2.70E+10	25.3564	0.250499	6.81E+10	8.69E+10	1.03E+11	1.22E+11	1.55E+11
60	7.91E+09	4.06E+18	2.01E+09	22.7599	0.250742	5.07E+09	6.47E+09	7.66E+09	9.08E+09	1.16E+10
61	6.39E+10	2.59E+20	1.61E+10	24.8491	0.248127	4.12E+10	5.24E+10	6.19E+10	7.32E+10	9.31E+10
62	1.53E+11	1.49E+21	3.86E+10	25.7221	0.248461	9.85E+10	1.25E+11	1.48E+11	1.75E+11	2.23E+11
63	1.99E+11	2.52E+21	5.02E+10	25.9838	0.248817	1.28E+11	1.63E+11	1.93E+11	2.28E+11	2.90E+11
64	2.11E+11	2.85E+21	5.34E+10	26.0443	0.249197	1.36E+11	1.73E+11	2.05E+11	2.42E+11	3.08E+11
65	1.82E+11	2.12E+21	4.60E+10	25.8936	0.249602	1.17E+11	1.49E+11	1.76E+11	2.08E+11	2.65E+11
66	8.97E+10	5.19E+20	2.28E+10	25.1879	0.250035	5.76E+10	7.34E+10	8.69E+10	1.03E+11	1.31E+11
67	2.09E+11	2.79E+21	5.29E+10	26.0371	0.248461	1.35E+11	1.72E+11	2.03E+11	2.40E+11	3.06E+11
68	1.25E+11	9.96E+20	3.16E+10	25.5195	0.248817	8.04E+10	1.02E+11	1.21E+11	1.43E+11	1.82E+11
69	9.39E+10	5.65E+20	2.38E+10	25.2348	0.249197	6.04E+10	7.70E+10	9.11E+10	1.08E+11	1.37E+11
70	7.88E+10	3.99E+20	2.00E+10	25.0587	0.249602	5.06E+10	6.45E+10	7.64E+10	9.03E+10	1.15E+11
71	5.94E+10	2.27E+20	1.51E+10	24.776	0.250035	3.81E+10	4.86E+10	5.76E+10	6.81E+10	8.68E+10
72	1.34E+10	1.17E+19	3.42E+09	23.2899	0.250263	8.63E+09	1.10E+10	1.30E+10	1.54E+10	1.97E+10
73	1.49E+11	1.41E+21	3.76E+10	25.6984	0.247813	9.63E+10	1.22E+11	1.45E+11	1.71E+11	2.18E+11
74	1.30E+11	1.07E+21	3.27E+10	25.5592	0.248127	8.37E+10	1.07E+11	1.26E+11	1.49E+11	1.89E+11
75	1.06E+11	7.17E+20	2.68E+10	25.3566	0.248461	6.83E+10	8.70E+10	1.03E+11	1.22E+11	1.55E+11
76	6.77E+10	2.93E+20	1.71E+10	24.9077	0.248817	4.36E+10	5.55E+10	6.57E+10	7.76E+10	9.89E+10
77	4.40E+10	1.24E+20	1.11E+10	24.4757	0.249197	2.83E+10	3.60E+10	4.26E+10	5.04E+10	6.42E+10
78	2.63E+10	4.43E+19	6.66E+09	23.96	0.249602	1.69E+10	2.15E+10	2.55E+10	3.01E+10	3.84E+10
79	2.38E+10	3.64E+19	6.03E+09	23.8597	0.250035	1.53E+10	1.95E+10	2.30E+10	2.72E+10	3.47E+10
80	3.36E+09	7.29E+17	8.54E+08	21.9036	0.250263	2.16E+09	2.75E+09	3.26E+09	3.85E+09	4.91E+09
81	1.48E+11	1.39E+21	3.73E+10	25.6918	0.247813	9.57E+10	1.22E+11	1.44E+11	1.70E+11	2.16E+11
82	1.74E+11	1.92E+21	4.38E+10	25.8505	0.248127	1.12E+11	1.43E+11	1.69E+11	1.99E+11	2.53E+11
83	1.63E+11	1.69E+21	4.12E+10	25.787	0.248461	1.05E+11	1.34E+11	1.58E+11	1.87E+11	2.38E+11
84	1.32E+11	1.11E+21	3.34E+10	25.5755	0.248817	8.50E+10	1.08E+11	1.28E+11	1.51E+11	1.93E+11
85	7.70E+10	3.81E+20	1.95E+10	25.0362	0.249602	4.95E+10	6.31E+10	7.47E+10	8.83E+10	1.13E+11
86	6.17E+11	2.44E+22	1.56E+11	27.1163	0.249197	3.97E+11	5.05E+11	5.98E+11	7.07E+11	9.00E+11
87	1.94E+11	2.41E+21	4.91E+10	25.9615	0.248817	1.25E+11	1.59E+11	1.88E+11	2.23E+11	2.84E+11
88	6.23E+11	2.50E+22	1.58E+11	27.1269	0.249602	4.01E+11	5.11E+11	6.04E+11	7.15E+11	9.11E+11
89	3.11E+11	6.24E+21	7.90E+10	26.4321	0.250035	2.00E+11	2.55E+11	3.02E+11	3.57E+11	4.55E+11
90	2.10E+11	2.84E+21	5.33E+10	26.0395	0.249602	1.35E+11	1.72E+11	2.04E+11	2.41E+11	3.07E+11
91	2.01E+11	2.60E+21	5.10E+10	25.9957	0.249602	1.29E+11	1.65E+11	1.95E+11	2.31E+11	2.94E+11
92	4.54E+10	1.32E+20	1.15E+10	24.5073	0.249602	2.92E+10	3.72E+10	4.40E+10	5.21E+10	6.63E+10
93	3.65E+10	8.43E+19	9.18E+09	24.2901	0.247662	2.36E+10	3.00E+10	3.54E+10	4.18E+10	5.32E+10
93	3.65E+10	8.43E+19	9.18E+09	24.2901	0.247662	2.36E+10	3.00E+10	3.54E+10	4.18E+10	5.32E+10

94	2.09E+11	2.76E+21	5.25E+10	26.0339	0.247813	1.35E+11	1.71E+11	2.02E+11	2.39E+11	3.04E+11
95	3.02E+11	5.78E+21	7.60E+10	26.4018	0.248127	1.94E+11	2.47E+11	2.93E+11	3.46E+11	4.40E+11
96	1.50E+11	1.43E+21	3.78E+10	25.7014	0.248461	9.65E+10	1.23E+11	1.45E+11	1.72E+11	2.19E+11
97	6.55E+10	2.73E+20	1.65E+10	24.8748	0.248461	4.22E+10	5.37E+10	6.35E+10	7.51E+10	9.56E+10
98	4.16E+10	1.10E+20	1.05E+10	24.4205	0.248461	2.68E+10	3.41E+10	4.03E+10	4.77E+10	6.07E+10
99	2.41E+11	3.69E+21	6.07E+10	26.1759	0.248461	1.55E+11	1.97E+11	2.33E+11	2.76E+11	3.51E+11
100	4.49E+11	1.29E+22	1.13E+11	26.8004	0.248461	2.90E+11	3.69E+11	4.36E+11	5.15E+11	6.56E+11
101	4.52E+11	1.30E+22	1.14E+11	26.8053	0.248461	2.91E+11	3.70E+11	4.38E+11	5.18E+11	6.59E+11
102	1.09E+11	7.59E+20	2.76E+10	25.3856	0.248461	7.04E+10	8.96E+10	1.06E+11	1.25E+11	1.59E+11
103	2.96E+10	5.56E+19	7.46E+09	24.08	0.248127	1.91E+10	2.43E+10	2.87E+10	3.39E+10	4.32E+10
104	3.41E+10	7.39E+19	8.59E+09	24.2233	0.247813	2.20E+10	2.80E+10	3.31E+10	3.91E+10	4.98E+10
105	4.83E+11	1.48E+22	1.22E+11	26.8725	0.247813	3.12E+11	3.96E+11	4.68E+11	5.54E+11	7.04E+11
106	3.34E+11	7.09E+21	8.42E+10	26.5038	0.248127	2.15E+11	2.74E+11	3.24E+11	3.83E+11	4.87E+11
107	1.13E+10	8.10E+18	2.85E+09	23.1177	0.247967	7.29E+09	9.28E+09	1.10E+10	1.30E+10	1.65E+10
108	1.08E+11	7.43E+20	2.73E+10	25.3775	0.247813	6.99E+10	8.89E+10	1.05E+11	1.24E+11	1.58E+11
P.P.C.	1.72E+13	1.89E+25	4.35E+12			1.11E+13	1.41E+13	1.67E+13	1.98E+13	2.52E+13

Table 33: List of subplays in the marine interval of the Mesaverde Formation moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

\WINDRIVR\ASSESS\GKMV3.XLS

Play Name :	Marine Kmv 1.1-.73									(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.8989	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	5	150	7	20	50	13,500	5549.7	721	0.8989	4.42E+10
2	16.1	150	7	20	50	13,000	5344.7	713	0.8989	1.39E+11
3	13.3	150	7	20	50	12,000	4934.7	697	0.8989	1.08E+11
4	20.5	150	7	20	50	11,000	4524.7	681	0.8989	1.57E+11
5	20.4	150	7	20	50	10,000	4114.7	665	0.8989	1.45E+11
6	4.6	140	7	20	50	9,000	3704.7	649	0.8989	2.82E+10
7	3.1	140	7	20	50	8,000	3294.7	633	0.8989	1.73E+10
8	1.1	140	7	20	50	7,000	2884.7	617	0.8989	5.52E+09
9	11.1	210	7	20	50	13,000	5344.7	713	0.8989	1.34E+11
10	14.3	210	7	20	50	12,000	4934.7	697	0.8989	1.63E+11
10a	2	200	7	20	50	11,500	4729.7	689	0.8989	2.10E+10
11	7.9	220	7	20	50	11,000	4524.7	681	0.8989	8.85E+10
12	5.7	220	7	20	50	10,000	4114.7	665	0.8989	5.95E+10
13	2.1	150	7	20	50	14,000	5754.7	729	0.8989	1.91E+10
14	5.9	150	7	20	50	13,000	5344.7	713	0.8989	5.08E+10
15	3	150	7	20	50	12,000	4934.7	697	0.8989	2.44E+10
16	2.5	150	7	20	50	11,000	4524.7	681	0.8989	1.91E+10
17	1.5	150	7	20	50	10,000	4114.7	665	0.8989	1.07E+10
18	1.9	150	7	20	50	9,000	3704.7	649	0.8989	1.25E+10
19	0.6	210	7	20	50	9,000	3704.7	649	0.8989	5.51E+09
20	0.3	140	7	20	50	8,500	3499.7	641	0.8989	1.76E+09
21	3.3	80	7	20	50	14,000	5754.7	729	0.8989	1.60E+10
22	11.4	70	7	20	50	13,000	5344.7	713	0.8989	4.58E+10
23	14.8	70	7	20	50	12,000	4934.7	697	0.8989	5.62E+10
24	13.3	70	7	20	50	11,000	4524.7	681	0.8989	4.74E+10
25	9.6	70	7	20	50	10,000	4114.7	665	0.8989	3.19E+10
26	6.7	70	7	20	50	9,000	3704.7	649	0.8989	2.05E+10
27	6.9	70	7	20	50	8,000	3294.7	633	0.8989	1.93E+10
28	5.2	80	7	20	50	7,000	2884.7	617	0.8989	1.49E+10
29	0.2	90	7	20	50	6,500	2679.7	609	0.8989	6.07E+08
30	3.7	150	7	20	50	12,000	4934.7	697	0.8989	3.01E+10
31	5.2	150	7	20	50	11,000	4524.7	681	0.8989	3.97E+10
32	4.8	150	7	20	50	10,000	4114.7	665	0.8989	3.41E+10
33	5.2	150	7	20	50	9,000	3704.7	649	0.8989	3.41E+10
34	5	150	7	20	50	8,000	3294.7	633	0.8989	2.99E+10
35	12.6	150	7	20	50	7,000	2884.7	617	0.8989	6.77E+10
36	10.7	140	7	20	50	6,000	2474.7	601	0.8989	4.73E+10
37	1	140	7	20	50	5,500	2269.7	593	0.8989	4.11E+09
38	1.3	250	7	20	50	12,000	4934.7	697	0.8989	1.76E+10
39	3.2	250	7	20	50	11,000	4524.7	681	0.8989	4.07E+10
40	4.5	250	7	20	50	10,000	4114.7	665	0.8989	5.34E+10
41	4.2	250	7	20	50	9,000	3704.7	649	0.8989	4.59E+10
42	3	250	7	20	50	8,000	3294.7	633	0.8989	2.99E+10
43	6	250	7	20	50	7,000	2884.7	617	0.8989	5.37E+10
44	2.8	350	7	20	50	11,000	4524.7	681	0.8989	4.99E+10
44a	0.25	320	7	20	50	11,500	4729.7	689	0.8989	4.21E+09
45	3.3	350	7	20	50	10,000	4114.7	665	0.8989	5.48E+10

46	4	350	7	20	50	9,000	3704.7	649	0.8989	6.12E+10
47	4.3	350	7	20	50	8,000	3294.7	633	0.8989	6.00E+10
48	17.9	340	7	20	50	7,000	2884.7	617	0.8989	2.18E+11
49	0.74	450	7	20	50	11,000	4524.7	681	0.8989	1.70E+10
50	0.85	450	7	20	50	10,000	4114.7	665	0.8989	1.81E+10
51	0.73	450	7	20	50	9,000	3704.7	649	0.8989	1.44E+10
52	0.75	450	7	20	50	8,000	3294.7	633	0.8989	1.35E+10
53	0.83	450	7	20	50	7,000	2884.7	617	0.8989	1.34E+10
54	0.5	525	7	20	50	11,500	4729.7	689	0.8989	1.38E+10
55	2.2	525	7	20	50	10,000	4114.7	665	0.8989	5.48E+10
56	2.3	525	7	20	50	9,000	3704.7	649	0.8989	5.28E+10
57	2.3	525	7	20	50	8,000	3294.7	633	0.8989	4.82E+10
58	2.2	525	7	20	50	7,000	2884.7	617	0.8989	4.14E+10
58a	0.2	220	7	20	50	6,500	2679.7	609	0.8989	1.48E+09
59	1.2	440	7	20	50	10,000	4114.7	665	0.8989	2.50E+10
60	2.6	440	7	20	50	9,000	3704.7	649	0.8989	5.00E+10
61	3	440	7	20	50	8,000	3294.7	633	0.8989	5.27E+10
62	4	440	7	20	50	7,000	2884.7	617	0.8989	6.31E+10
63	1.4	440	7	20	50	6,000	2474.7	601	0.8989	1.94E+10
64	1.9	50	7	20	50	9,500	3909.7	657	0.8989	4.33E+09
65	9.1	50	7	20	50	9,000	3704.7	649	0.8989	1.99E+10
66	14.3	50	7	20	50	8,000	3294.7	633	0.8989	2.85E+10
67	17.7	50	7	20	50	7,000	2884.7	617	0.8989	3.17E+10
68	10	50	7	20	50	6,000	2474.7	601	0.8989	1.58E+10
69	4.3	175	7	20	50	9,000	3704.7	649	0.8989	3.29E+10
70	12.2	150	7	20	50	8,000	3294.7	633	0.8989	7.30E+10
71	12.4	150	7	20	50	7,000	2884.7	617	0.8989	6.66E+10
72	11.2	150	7	20	50	6,000	2474.7	601	0.8989	5.30E+10
73	1.1	175	7	20	50	5,500	2269.7	593	0.8989	5.65E+09
74	1.1	225	7	20	50	9,500	3909.7	657	0.8989	1.13E+10
75	5.4	225	7	20	50	9,000	3704.7	649	0.8989	5.32E+10
76	4.3	225	7	20	50	8,000	3294.7	633	0.8989	3.86E+10
77	6.5	225	7	20	50	7,000	2884.7	617	0.8989	5.24E+10
78	7.8	225	7	20	50	6,000	2474.7	601	0.8989	5.54E+10
79	0.7	200	7	20	50	5,500	2269.7	593	0.8989	4.11E+09
80	3.4	150	7	20	50	9,000	3704.7	649	0.8989	2.23E+10
81	3.8	150	7	20	50	8,000	3294.7	633	0.8989	2.27E+10
82	3.7	150	7	20	50	7,000	2884.7	617	0.8989	1.99E+10
83	1	150	7	20	50	6,500	2679.7	609	0.8989	5.06E+09
84	3.1	75	7	20	50	8,000	3294.7	633	0.8989	9.27E+09
85	3.6	80	7	20	50	7,000	2884.7	617	0.8989	1.03E+10
86	2	80	7	20	50	6,000	2474.7	601	0.8989	5.05E+09
87	0.5	50	7	20	50	8,500	3499.7	641	0.8989	1.05E+09
88	26	70	7	20	50	10,000	4114.7	665	0.8989	8.63E+10
89	25.5	70	7	20	50	9,000	3704.7	649	0.8989	7.81E+10
90	4.5	110	7	20	50	9,000	3704.7	649	0.8989	2.17E+10
91	5	110	7	20	50	10,000	4114.7	665	0.8989	2.61E+10
									Total =	3.84E+12

Table 34: List of subplays in the marginal marine interval of the Mesaverde Formation transition overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Marine Kmv 1.1-.73								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	8.56	7.62	9.42	25.21	23019.7	50.63	437.0	2647.82	73.62	2.42E+21
2	8.34	7.42	9.18	261.37	23019.7	50.63	437.0	2647.82	69.83	2.38E+22
3	7.88	6.99	8.69	178.36	23019.7	50.63	437.0	2647.82	62.30	1.45E+22
4	7.39	6.54	8.18	423.74	23019.7	50.63	437.0	2647.82	54.88	3.04E+22
5	6.88	6.07	7.64	419.62	23019.7	50.63	437.0	2647.82	47.61	2.61E+22
6	6.35	5.59	7.06	21.34	20052.7	50.63	437.0	2647.82	40.53	9.84E+20
7	5.79	5.08	6.46	9.69	20052.7	50.63	437.0	2647.82	33.70	3.72E+20
8	5.20	4.55	5.82	1.22	20052.7	50.63	437.0	2647.82	27.20	3.78E+19
9	8.34	7.42	9.18	124.23	45118.6	50.63	437.0	2647.82	69.83	2.22E+22
10	7.88	6.99	8.69	206.19	45118.6	50.63	437.0	2647.82	62.30	3.29E+22
10a	7.64	6.77	8.44	4.03	40923.9	50.63	437.0	2647.82	58.58	5.49E+20
11	7.39	6.54	8.18	62.93	49517.9	50.63	437.0	2647.82	54.88	9.70E+21
12	6.88	6.07	7.64	32.76	49517.9	50.63	437.0	2647.82	47.61	4.38E+21
13	8.78	7.83	9.65	4.45	23019.7	50.63	437.0	2647.82	77.43	4.50E+20
14	8.34	7.42	9.18	35.10	23019.7	50.63	437.0	2647.82	69.83	3.20E+21
15	7.88	6.99	8.69	9.07	23019.7	50.63	437.0	2647.82	62.30	7.38E+20
16	7.39	6.54	8.18	6.30	23019.7	50.63	437.0	2647.82	54.88	4.52E+20
17	6.88	6.07	7.64	2.27	23019.7	50.63	437.0	2647.82	47.61	1.41E+20
18	6.35	5.59	7.06	3.64	23019.7	50.63	437.0	2647.82	40.53	1.93E+20
19	6.35	5.59	7.06	0.36	45118.6	50.63	437.0	2647.82	40.53	3.77E+19
20	6.07	5.34	6.77	0.09	20052.7	50.63	437.0	2647.82	37.08	3.83E+18
21	8.78	7.83	9.65	10.98	6547.8	50.63	437.0	2647.82	77.43	3.16E+20
22	8.34	7.42	9.18	131.04	5013.2	50.63	437.0	2647.82	69.83	2.60E+21
23	7.88	6.99	8.69	220.86	5013.2	50.63	437.0	2647.82	62.30	3.91E+21
24	7.39	6.54	8.18	178.36	5013.2	50.63	437.0	2647.82	54.88	2.78E+21
25	6.88	6.07	7.64	92.93	5013.2	50.63	437.0	2647.82	47.61	1.26E+21
26	6.35	5.59	7.06	45.26	5013.2	50.63	437.0	2647.82	40.53	5.22E+20
27	5.79	5.08	6.46	48.01	5013.2	50.63	437.0	2647.82	33.70	4.60E+20
28	5.20	4.55	5.82	27.26	6547.8	50.63	437.0	2647.82	27.20	2.76E+20
29	4.90	4.27	5.48	0.04	8287.1	50.63	437.0	2647.82	24.10	4.57E+17
30	7.88	6.99	8.69	13.80	23019.7	50.63	437.0	2647.82	62.30	1.12E+21
31	7.39	6.54	8.18	27.26	23019.7	50.63	437.0	2647.82	54.88	1.95E+21
32	6.88	6.07	7.64	23.23	23019.7	50.63	437.0	2647.82	47.61	1.44E+21
33	6.35	5.59	7.06	27.26	23019.7	50.63	437.0	2647.82	40.53	1.44E+21
34	5.79	5.08	6.46	25.21	23019.7	50.63	437.0	2647.82	33.70	1.11E+21
35	5.20	4.55	5.82	160.08	23019.7	50.63	437.0	2647.82	27.20	5.69E+21
36	4.58	3.99	5.14	115.44	20052.7	50.63	437.0	2647.82	21.10	2.77E+21
37	4.26	3.71	4.79	1.01	20052.7	50.63	437.0	2647.82	18.24	2.09E+19
38	7.88	6.99	8.69	1.70	63943.5	50.63	437.0	2647.82	62.30	3.85E+20
39	7.39	6.54	8.18	10.33	63943.5	50.63	437.0	2647.82	54.88	2.06E+21
40	6.88	6.07	7.64	20.42	63943.5	50.63	437.0	2647.82	47.61	3.53E+21
41	6.35	5.59	7.06	17.79	63943.5	50.63	437.0	2647.82	40.53	2.62E+21
42	5.79	5.08	6.46	9.07	63943.5	50.63	437.0	2647.82	33.70	1.11E+21
43	5.20	4.55	5.82	36.30	63943.5	50.63	437.0	2647.82	27.20	3.58E+21
44	7.39	6.54	8.18	7.91	125329.3	50.63	437.0	2647.82	54.88	3.09E+21
44a	7.64	6.77	8.44	0.06	104765.1	50.63	437.0	2647.82	58.58	2.19E+19
45	6.88	6.07	7.64	10.98	125329.3	50.63	437.0	2647.82	47.61	3.72E+21

46	6.35	5.59	7.06	16.13	125329.3	50.63	437.0	2647.82	40.53	4.65E+21
47	5.79	5.08	6.46	18.64	125329.3	50.63	437.0	2647.82	33.70	4.47E+21
48	5.20	4.55	5.82	323.07	118270.0	50.63	437.0	2647.82	27.20	5.90E+22
49	7.39	6.54	8.18	0.55	207177.1	50.63	437.0	2647.82	54.88	3.56E+20
50	6.88	6.07	7.64	0.73	207177.1	50.63	437.0	2647.82	47.61	4.08E+20
51	6.35	5.59	7.06	0.54	207177.1	50.63	437.0	2647.82	40.53	2.56E+20
52	5.79	5.08	6.46	0.57	207177.1	50.63	437.0	2647.82	33.70	2.25E+20
53	5.20	4.55	5.82	0.69	207177.1	50.63	437.0	2647.82	27.20	2.22E+20
54	7.64	6.77	8.44	0.25	281991.0	50.63	437.0	2647.82	58.58	2.36E+20
55	6.88	6.07	7.64	4.88	281991.0	50.63	437.0	2647.82	47.61	3.72E+21
56	6.35	5.59	7.06	5.33	281991.0	50.63	437.0	2647.82	40.53	3.46E+21
57	5.79	5.08	6.46	5.33	281991.0	50.63	437.0	2647.82	33.70	2.88E+21
58	5.20	4.55	5.82	4.88	281991.0	50.63	437.0	2647.82	27.20	2.12E+21
58a	4.90	4.27	5.48	0.04	49517.9	50.63	437.0	2647.82	24.10	2.73E+18
59	6.88	6.07	7.64	1.45	198071.5	50.63	437.0	2647.82	47.61	7.77E+20
60	6.35	5.59	7.06	6.82	198071.5	50.63	437.0	2647.82	40.53	3.10E+21
61	5.79	5.08	6.46	9.07	198071.5	50.63	437.0	2647.82	33.70	3.44E+21
62	5.20	4.55	5.82	16.13	198071.5	50.63	437.0	2647.82	27.20	4.93E+21
63	4.58	3.99	5.14	1.98	198071.5	50.63	437.0	2647.82	21.10	4.69E+20
64	6.62	5.83	7.35	3.64	2557.7	50.63	437.0	2647.82	44.04	2.33E+19
65	6.35	5.59	7.06	83.50	2557.7	50.63	437.0	2647.82	40.53	4.91E+20
66	5.79	5.08	6.46	206.19	2557.7	50.63	437.0	2647.82	33.70	1.01E+21
67	5.20	4.55	5.82	315.89	2557.7	50.63	437.0	2647.82	27.20	1.25E+21
68	4.58	3.99	5.14	100.83	2557.7	50.63	437.0	2647.82	21.10	3.09E+20
69	6.35	5.59	7.06	18.64	31332.3	50.63	437.0	2647.82	40.53	1.34E+21
70	5.79	5.08	6.46	150.08	23019.7	50.63	437.0	2647.82	33.70	6.61E+21
71	5.20	4.55	5.82	155.04	23019.7	50.63	437.0	2647.82	27.20	5.51E+21
72	4.58	3.99	5.14	126.48	23019.7	50.63	437.0	2647.82	21.10	3.49E+21
73	4.26	3.71	4.79	1.22	31332.3	50.63	437.0	2647.82	18.24	3.96E+19
74	6.62	5.83	7.35	1.22	51794.3	50.63	437.0	2647.82	44.04	1.58E+20
75	6.35	5.59	7.06	29.40	51794.3	50.63	437.0	2647.82	40.53	3.50E+21
76	5.79	5.08	6.46	18.64	51794.3	50.63	437.0	2647.82	33.70	1.85E+21
77	5.20	4.55	5.82	42.60	51794.3	50.63	437.0	2647.82	27.20	3.41E+21
78	4.58	3.99	5.14	61.35	51794.3	50.63	437.0	2647.82	21.10	3.80E+21
79	4.26	3.71	4.79	0.49	40923.9	50.63	437.0	2647.82	18.24	2.09E+19
80	6.35	5.59	7.06	11.66	23019.7	50.63	437.0	2647.82	40.53	6.17E+20
81	5.79	5.08	6.46	14.56	23019.7	50.63	437.0	2647.82	33.70	6.41E+20
82	5.20	4.55	5.82	13.80	23019.7	50.63	437.0	2647.82	27.20	4.90E+20
83	4.90	4.27	5.48	1.01	23019.7	50.63	437.0	2647.82	24.10	3.17E+19
84	5.79	5.08	6.46	9.69	5754.9	50.63	437.0	2647.82	33.70	1.07E+20
85	5.20	4.55	5.82	13.07	6547.8	50.63	437.0	2647.82	27.20	1.32E+20
86	4.58	3.99	5.14	4.03	6547.8	50.63	437.0	2647.82	21.10	3.16E+19
87	6.07	5.34	6.77	0.25	2557.7	50.63	437.0	2647.82	37.08	1.36E+18
88	6.88	6.07	7.64	681.62	5013.2	50.63	437.0	2647.82	47.61	9.23E+21
89	6.35	5.59	7.06	655.66	5013.2	50.63	437.0	2647.82	40.53	7.56E+21
90	6.35	5.59	7.06	20.42	12379.5	50.63	437.0	2647.82	40.53	5.81E+20
91	6.88	6.07	7.64	25.21	12379.5	50.63	437.0	2647.82	47.61	8.43E+20

Table 35: List of subplays in the marginal marine interval of the Mesaverde Formation transition play with estimates of ranges in percent for the six play attributes.

Play Name :		Marine Kmv 1.1-.73								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	4.42E+10	4.66E+20	2.16E+10	24.4062	0.462276	1.86E+10	2.91E+10	3.98E+10	5.43E+10	8.51E+10
2	1.39E+11	4.59E+21	6.77E+10	25.549	0.462373	5.83E+10	9.13E+10	1.25E+11	1.70E+11	2.67E+11
3	1.08E+11	2.80E+21	5.29E+10	25.3007	0.462576	4.54E+10	7.12E+10	9.73E+10	1.33E+11	2.08E+11
4	1.57E+11	5.86E+21	7.65E+10	25.6698	0.462794	6.57E+10	1.03E+11	1.41E+11	1.92E+11	3.01E+11
5	1.45E+11	5.04E+21	7.10E+10	25.5936	0.463026	6.09E+10	9.54E+10	1.30E+11	1.78E+11	2.79E+11
6	2.82E+10	1.90E+20	1.38E+10	23.9544	0.463275	1.18E+10	1.85E+10	2.53E+10	3.46E+10	5.42E+10
7	1.73E+10	7.18E+19	8.48E+09	23.4673	0.463542	7.25E+09	1.14E+10	1.55E+10	2.13E+10	3.33E+10
8	5.52E+09	7.31E+18	2.70E+09	22.3238	0.463828	2.31E+09	3.63E+09	4.96E+09	6.77E+09	1.06E+10
9	1.34E+11	4.27E+21	6.54E+10	25.5136	0.462373	5.62E+10	8.81E+10	1.20E+11	1.64E+11	2.57E+11
10	1.63E+11	6.34E+21	7.96E+10	25.7097	0.462576	6.84E+10	1.07E+11	1.46E+11	2.00E+11	3.13E+11
10a	2.10E+10	1.06E+20	1.03E+10	23.6629	0.462683	8.83E+09	1.38E+10	1.89E+10	2.58E+10	4.05E+10
11	8.85E+10	1.87E+21	4.33E+10	25.0992	0.462794	3.71E+10	5.82E+10	7.95E+10	1.09E+11	1.70E+11
12	5.95E+10	8.46E+20	2.91E+10	24.7015	0.463026	2.49E+10	3.91E+10	5.34E+10	7.30E+10	1.14E+11
13	1.91E+10	8.65E+19	9.30E+09	23.5639	0.462182	8.01E+09	1.25E+10	1.71E+10	2.34E+10	3.66E+10
14	5.08E+10	6.16E+20	2.48E+10	24.5451	0.462373	2.14E+10	3.35E+10	4.57E+10	6.24E+10	9.78E+10
15	2.44E+10	1.42E+20	1.19E+10	23.8116	0.462576	1.03E+10	1.61E+10	2.19E+10	3.00E+10	4.70E+10
16	1.91E+10	8.71E+19	9.33E+09	23.5657	0.462794	8.01E+09	1.26E+10	1.72E+10	2.34E+10	3.67E+10
17	1.07E+10	2.72E+19	5.22E+09	22.9835	0.463026	4.48E+09	7.02E+09	9.59E+09	1.31E+10	2.05E+10
18	1.25E+10	3.72E+19	6.10E+09	23.1392	0.463275	5.23E+09	8.20E+09	1.12E+10	1.53E+10	2.40E+10
19	5.51E+09	7.27E+18	2.70E+09	22.323	0.463275	2.31E+09	3.62E+09	4.95E+09	6.77E+09	1.06E+10
20	1.76E+09	7.40E+17	8.60E+08	21.1798	0.463406	7.37E+08	1.16E+09	1.58E+09	2.16E+09	3.38E+09
21	1.60E+10	6.08E+19	7.79E+09	23.3873	0.462182	6.71E+09	1.05E+10	1.44E+10	1.96E+10	3.07E+10
22	4.58E+10	5.01E+20	2.24E+10	24.4417	0.462373	1.93E+10	3.02E+10	4.12E+10	5.63E+10	8.81E+10
23	5.62E+10	7.54E+20	2.75E+10	24.6455	0.462576	2.36E+10	3.70E+10	5.05E+10	6.90E+10	1.08E+11
24	4.74E+10	5.37E+20	2.32E+10	24.475	0.462794	1.99E+10	3.12E+10	4.26E+10	5.82E+10	9.12E+10
25	3.19E+10	2.43E+20	1.56E+10	24.0777	0.463026	1.34E+10	2.10E+10	2.86E+10	3.91E+10	6.13E+10
26	2.05E+10	1.01E+20	1.00E+10	23.6373	0.463275	8.60E+09	1.35E+10	1.84E+10	2.52E+10	3.95E+10
27	1.93E+10	8.90E+19	9.43E+09	23.5743	0.463542	8.07E+09	1.27E+10	1.73E+10	2.37E+10	3.71E+10
28	1.49E+10	5.33E+19	7.30E+09	23.3175	0.463828	6.24E+09	9.79E+09	1.34E+10	1.83E+10	2.87E+10
29	6.07E+08	8.85E+16	2.98E+08	20.1164	0.463978	2.54E+08	3.99E+08	5.45E+08	7.45E+08	1.17E+09
30	3.01E+10	2.16E+20	1.47E+10	24.0213	0.462576	1.26E+10	1.98E+10	2.71E+10	3.70E+10	5.79E+10
31	3.97E+10	3.77E+20	1.94E+10	24.298	0.462794	1.67E+10	2.61E+10	3.57E+10	4.87E+10	7.64E+10
32	3.41E+10	2.79E+20	1.67E+10	24.1467	0.463026	1.43E+10	2.25E+10	3.07E+10	4.19E+10	6.57E+10
33	3.41E+10	2.79E+20	1.67E+10	24.146	0.463275	1.43E+10	2.24E+10	3.07E+10	4.19E+10	6.57E+10
34	2.99E+10	2.15E+20	1.46E+10	24.0143	0.463542	1.25E+10	1.97E+10	2.69E+10	3.67E+10	5.76E+10
35	6.77E+10	1.10E+21	3.32E+10	24.8311	0.463828	2.84E+10	4.45E+10	6.08E+10	8.31E+10	1.30E+11
36	4.73E+10	5.37E+20	2.32E+10	24.4715	0.464134	1.98E+10	3.10E+10	4.24E+10	5.80E+10	9.11E+10
37	4.11E+09	4.06E+18	2.01E+09	22.0281	0.464294	1.72E+09	2.70E+09	3.69E+09	5.04E+09	7.91E+09
38	1.76E+10	7.42E+19	8.61E+09	23.4862	0.462576	7.40E+09	1.16E+10	1.58E+10	2.16E+10	3.39E+10
39	4.07E+10	3.96E+20	1.99E+10	24.3233	0.462794	1.71E+10	2.68E+10	3.66E+10	5.00E+10	7.84E+10
40	5.34E+10	6.81E+20	2.61E+10	24.5929	0.463026	2.24E+10	3.51E+10	4.79E+10	6.55E+10	1.03E+11
41	4.59E+10	5.05E+20	2.25E+10	24.4432	0.463275	1.93E+10	3.02E+10	4.13E+10	5.64E+10	8.84E+10
42	2.99E+10	2.15E+20	1.46E+10	24.0143	0.463542	1.25E+10	1.97E+10	2.69E+10	3.67E+10	5.76E+10
43	5.37E+10	6.93E+20	2.63E+10	24.6	0.463828	2.25E+10	3.53E+10	4.83E+10	6.60E+10	1.04E+11
44	4.99E+10	5.95E+20	2.44E+10	24.5263	0.462794	2.09E+10	3.28E+10	4.48E+10	6.12E+10	9.60E+10
44a	4.21E+09	4.23E+18	2.06E+09	22.0534	0.462683	1.77E+09	2.77E+09	3.78E+09	5.17E+09	8.10E+09
45	5.48E+10	7.17E+20	2.68E+10	24.6193	0.463026	2.30E+10	3.60E+10	4.92E+10	6.72E+10	1.05E+11

46	6.12E+10	8.98E+20	3.00E+10	24.7309	0.463275	2.57E+10	4.03E+10	5.50E+10	7.52E+10	1.18E+11
47	6.00E+10	8.64E+20	2.94E+10	24.7108	0.463542	2.52E+10	3.95E+10	5.39E+10	7.37E+10	1.16E+11
48	2.18E+11	1.14E+22	1.07E+11	26.0006	0.463828	9.13E+10	1.43E+11	1.96E+11	2.68E+11	4.20E+11
49	1.70E+10	6.87E+19	8.29E+09	23.4469	0.462794	7.12E+09	1.12E+10	1.52E+10	2.08E+10	3.26E+10
50	1.81E+10	7.87E+19	8.87E+09	23.5141	0.463026	7.61E+09	1.19E+10	1.63E+10	2.23E+10	3.49E+10
51	1.44E+10	4.94E+19	7.03E+09	23.2812	0.463275	6.02E+09	9.45E+09	1.29E+10	1.76E+10	2.77E+10
52	1.35E+10	4.34E+19	6.59E+09	23.2158	0.463542	5.64E+09	8.85E+09	1.21E+10	1.65E+10	2.59E+10
53	1.34E+10	4.30E+19	6.56E+09	23.2097	0.463828	5.60E+09	8.79E+09	1.20E+10	1.64E+10	2.58E+10
54	1.38E+10	4.55E+19	6.75E+09	23.2417	0.462683	5.80E+09	9.08E+09	1.24E+10	1.69E+10	2.66E+10
55	5.48E+10	7.17E+20	2.68E+10	24.6193	0.463026	2.30E+10	3.60E+10	4.92E+10	6.72E+10	1.05E+11
56	5.28E+10	6.68E+20	2.58E+10	24.583	0.463275	2.21E+10	3.47E+10	4.75E+10	6.48E+10	1.02E+11
57	4.82E+10	5.56E+20	2.36E+10	24.4905	0.463542	2.02E+10	3.17E+10	4.33E+10	5.91E+10	9.27E+10
58	4.14E+10	4.11E+20	2.03E+10	24.3387	0.463828	1.73E+10	2.72E+10	3.72E+10	5.08E+10	7.97E+10
58a	1.48E+09	5.29E+17	7.27E+08	21.0103	0.463978	6.21E+08	9.75E+08	1.33E+09	1.82E+09	2.86E+09
59	2.50E+10	1.50E+20	1.22E+10	23.8365	0.463026	1.05E+10	1.65E+10	2.25E+10	3.07E+10	4.82E+10
60	5.00E+10	6.00E+20	2.45E+10	24.529	0.463275	2.10E+10	3.29E+10	4.50E+10	6.14E+10	9.63E+10
61	5.27E+10	6.65E+20	2.58E+10	24.5796	0.463542	2.21E+10	3.46E+10	4.73E+10	6.46E+10	1.01E+11
62	6.31E+10	9.55E+20	3.09E+10	24.7599	0.463828	2.64E+10	4.14E+10	5.66E+10	7.74E+10	1.21E+11
63	1.94E+10	9.08E+19	9.53E+09	23.5829	0.464134	8.13E+09	1.28E+10	1.75E+10	2.39E+10	3.75E+10
64	4.33E+09	4.49E+18	2.12E+09	22.0822	0.463149	1.82E+09	2.85E+09	3.89E+09	5.32E+09	8.34E+09
65	1.99E+10	9.49E+19	9.74E+09	23.607	0.463275	8.34E+09	1.31E+10	1.79E+10	2.44E+10	3.83E+10
66	2.85E+10	1.95E+20	1.40E+10	23.9665	0.463542	1.19E+10	1.87E+10	2.56E+10	3.50E+10	5.49E+10
67	3.17E+10	2.41E+20	1.55E+10	24.0724	0.463828	1.33E+10	2.08E+10	2.85E+10	3.89E+10	6.11E+10
68	1.58E+10	5.99E+19	7.74E+09	23.3742	0.464134	6.60E+09	1.04E+10	1.42E+10	1.94E+10	3.04E+10
69	3.29E+10	2.59E+20	1.61E+10	24.1101	0.463275	1.38E+10	2.16E+10	2.96E+10	4.04E+10	6.34E+10
70	7.30E+10	1.28E+21	3.57E+10	24.9063	0.463542	3.06E+10	4.80E+10	6.56E+10	8.96E+10	1.41E+11
71	6.66E+10	1.07E+21	3.27E+10	24.8151	0.463828	2.79E+10	4.38E+10	5.99E+10	8.18E+10	1.28E+11
72	5.30E+10	6.76E+20	2.60E+10	24.5862	0.464134	2.22E+10	3.48E+10	4.76E+10	6.51E+10	1.02E+11
73	5.65E+09	7.67E+18	2.77E+09	22.3466	0.464294	2.36E+09	3.71E+09	5.07E+09	6.93E+09	1.09E+10
74	1.13E+10	3.05E+19	5.52E+09	23.0398	0.463149	4.73E+09	7.42E+09	1.01E+10	1.39E+10	2.17E+10
75	5.32E+10	6.76E+20	2.60E+10	24.5892	0.463275	2.23E+10	3.49E+10	4.77E+10	6.52E+10	1.02E+11
76	3.86E+10	3.57E+20	1.89E+10	24.2689	0.463542	1.62E+10	2.54E+10	3.47E+10	4.74E+10	7.43E+10
77	5.24E+10	6.59E+20	2.57E+10	24.5747	0.463828	2.19E+10	3.44E+10	4.71E+10	6.43E+10	1.01E+11
78	5.54E+10	7.37E+20	2.72E+10	24.6299	0.464134	2.32E+10	3.64E+10	4.97E+10	6.80E+10	1.07E+11
79	4.11E+09	4.06E+18	2.01E+09	22.0281	0.464294	1.72E+09	2.70E+09	3.69E+09	5.04E+09	7.91E+09
80	2.23E+10	1.19E+20	1.09E+10	23.7211	0.463275	9.35E+09	1.47E+10	2.00E+10	2.74E+10	4.29E+10
81	2.27E+10	1.24E+20	1.11E+10	23.7399	0.463542	9.53E+09	1.49E+10	2.04E+10	2.79E+10	4.38E+10
82	1.99E+10	9.49E+19	9.74E+09	23.6058	0.463828	8.33E+09	1.31E+10	1.79E+10	2.44E+10	3.83E+10
83	5.06E+09	6.15E+18	2.48E+09	22.2367	0.463978	2.12E+09	3.32E+09	4.54E+09	6.21E+09	9.74E+09
84	9.27E+09	2.06E+19	4.54E+09	22.8431	0.463542	3.89E+09	6.09E+09	8.33E+09	1.14E+10	1.79E+10
85	1.03E+10	2.56E+19	5.06E+09	22.9498	0.463828	4.32E+09	6.78E+09	9.27E+09	1.27E+10	1.99E+10
86	5.05E+09	6.13E+18	2.48E+09	22.2348	0.464134	2.11E+09	3.32E+09	4.53E+09	6.20E+09	9.73E+09
87	1.05E+09	2.62E+17	5.12E+08	20.661	0.463406	4.38E+08	6.88E+08	9.40E+08	1.28E+09	2.01E+09
88	8.63E+10	1.78E+21	4.22E+10	25.074	0.463026	3.62E+10	5.67E+10	7.75E+10	1.06E+11	1.66E+11
89	7.81E+10	1.46E+21	3.82E+10	24.9739	0.463275	3.27E+10	5.13E+10	7.01E+10	9.59E+10	1.50E+11
90	2.17E+10	1.12E+20	1.06E+10	23.6912	0.463275	9.08E+09	1.42E+10	1.95E+10	2.66E+10	4.17E+10
91	2.61E+10	1.63E+20	1.28E+10	23.8773	0.463026	1.09E+10	1.71E+10	2.34E+10	3.20E+10	5.02E+10
P.P.C.	3.84E+12	3.52E+24	1.88E+12			1.61E+12	2.52E+12	3.45E+12	4.71E+12	7.38E+12

Table 36: List of subplays in the marginal marine interval of the Mesaverde Formation transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Nonmarine Kmv > 300								(Panel 1)
						a =	0.727	0.016	0.00008	
						b =	14.7	505	0	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	2.5	410	6	100	50	19,500	14191.2	817	1.56	3.37E+11
2	10.2	415	6	100	50	19,000	13827.7	809	1.52	1.41E+12
3	42.7	370	6	100	50	20,000	14554.7	825	1.6	5.14E+12
4	69.7	350	6	100	50	19,000	13827.7	809	1.52	8.10E+12
5	73.9	340	6	100	50	18,000	13100.7	793	1.44	8.51E+12
6	35.7	320	6	100	50	17,000	12373.7	777	1.36	3.95E+12
7	5.7	280	6	100	50	19,500	14191.2	817	1.56	5.25E+11
7a	0.35	200	6	100	50	15,500	11283.2	753	1.24	2.50E+10
8	20.2	280	6	100	50	19,000	13827.7	809	1.52	1.88E+12
9	21.1	250	6	100	50	18,000	13100.7	793	1.44	1.79E+12
10	17.9	250	6	100	50	17,000	12373.7	777	1.36	1.55E+12
11	0.83	250	6	100	50	18,500	13464.2	801	1.48	6.96E+10
12	11.2	230	6	100	50	18,000	13100.7	793	1.44	8.73E+11
13	27.7	250	6	100	50	17,000	12373.7	777	1.36	2.39E+12
14	1	260	6	100	50	17,500	12737.2	785	1.4	8.90E+10
15	16.7	320	6	100	50	19,000	13827.7	809	1.52	1.77E+12
16	0.83	200	6	100	50	16,500	12010.2	769	1.32	5.80E+10
17	5.2	320	6	100	50	18,000	13100.7	793	1.44	5.64E+11
18	3.6	310	6	100	50	17,000	12373.7	777	1.36	3.86E+11
19	3.1	320	6	100	50	18,000	13100.7	793	1.44	3.36E+11
20	3.8	280	6	100	50	18,000	13100.7	793	1.44	3.60E+11
21	7.9	250	6	100	50	17,000	12373.7	777	1.36	6.83E+11
21a	9.3	180	6	100	50	17,000	12373.7	777	1.36	5.79E+11
22	4.9	230	6	100	50	18,000	13100.7	793	1.44	3.82E+11
23	24.3	180	6	100	50	18,000	13100.7	793	1.44	1.48E+12
23a	0.3	200	6	100	50	18,500	13464.2	801	1.48	2.01E+10
24	31	180	6	100	50	17,000	12373.7	777	1.36	1.93E+12
25	26	230	6	100	50	19,000	13827.7	809	1.52	1.99E+12
26	10.4	230	6	100	50	18,000	13100.7	793	1.44	8.10E+11
27	5.4	220	6	100	50	17,000	12373.7	777	1.36	4.11E+11
28	5.2	300	6	100	50	17,000	12373.7	777	1.36	5.39E+11
									Total =	4.89E+13

Table 37: List of subplays in the nonmarine interval of the Mesavede Formation play highly overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. Subplays which are split between two different plays are marked with an asterix. Half of the sandstone volume in these subplays has been assigned to each of the two plays. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Nonmarine Kmv > 300								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	11.13	11.81	10.53	6.30	171982.5	36.30	10037.0	2536.95	124.13	1.20E+23
2	11.24	11.92	10.64	104.91	176202.8	36.30	10037.0	2536.95	126.60	2.10E+24
3	11.03	11.71	10.42	1838.45	140061.9	36.30	10037.0	2536.95	121.73	2.81E+25
4	11.24	11.92	10.64	4898.48	125329.3	36.30	10037.0	2536.95	126.60	6.96E+25
5	11.47	12.14	10.88	5506.62	118270.0	36.30	10037.0	2536.95	131.76	7.68E+25
6	11.71	12.36	11.12	1285.09	104765.1	36.30	10037.0	2536.95	137.25	1.65E+25
7	11.13	11.81	10.53	32.76	80210.8	36.30	10037.0	2536.95	124.13	2.92E+23
7a	12.08	12.72	11.51	0.12	40923.9	36.30	10037.0	2536.95	146.16	6.61E+20
8	11.24	11.92	10.64	411.43	80210.8	36.30	10037.0	2536.95	126.60	3.74E+24
9	11.47	12.14	10.88	448.91	63943.5	36.30	10037.0	2536.95	131.76	3.39E+24
10	11.71	12.36	11.12	323.07	63943.5	36.30	10037.0	2536.95	137.25	2.54E+24
11	11.36	12.03	10.76	0.69	63943.5	36.30	10037.0	2536.95	129.14	5.14E+21
12	11.47	12.14	10.88	126.48	54121.8	36.30	10037.0	2536.95	131.76	8.08E+23
13	11.71	12.36	11.12	773.67	63943.5	36.30	10037.0	2536.95	137.25	6.08E+24
14	11.59	12.25	11.00	1.01	69161.3	36.30	10037.0	2536.95	134.47	8.40E+21
15	11.24	11.92	10.64	281.21	104765.1	36.30	10037.0	2536.95	126.60	3.34E+24
16	11.83	12.48	11.25	0.69	40923.9	36.30	10037.0	2536.95	140.13	3.57E+21
17	11.47	12.14	10.88	27.26	104765.1	36.30	10037.0	2536.95	131.76	3.37E+23
18	11.71	12.36	11.12	13.07	98319.6	36.30	10037.0	2536.95	137.25	1.58E+23
19	11.47	12.14	10.88	9.69	104765.1	36.30	10037.0	2536.95	131.76	1.20E+23
20	11.47	12.14	10.88	14.56	80210.8	36.30	10037.0	2536.95	131.76	1.38E+23
21	11.71	12.36	11.12	62.93	63943.5	36.30	10037.0	2536.95	137.25	4.94E+23
21a	11.71	12.36	11.12	87.21	33148.3	36.30	10037.0	2536.95	137.25	3.55E+23
22	11.47	12.14	10.88	24.21	54121.8	36.30	10037.0	2536.95	131.76	1.55E+23
23	11.47	12.14	10.88	595.40	33148.3	36.30	10037.0	2536.95	131.76	2.33E+24
23a	11.36	12.03	10.76	0.09	40923.9	36.30	10037.0	2536.95	129.14	4.29E+20
24	11.71	12.36	11.12	968.99	33148.3	36.30	10037.0	2536.95	137.25	3.95E+24
25	11.24	11.92	10.64	681.62	54121.8	36.30	10037.0	2536.95	126.60	4.18E+24
26	11.47	12.14	10.88	109.06	54121.8	36.30	10037.0	2536.95	131.76	6.96E+23
27	11.71	12.36	11.12	29.40	49517.9	36.30	10037.0	2536.95	137.25	1.79E+23
28	11.71	12.36	11.12	27.26	92078.7	36.30	10037.0	2536.95	137.25	3.09E+23

Table 38: List of subplays in the nonmarine interval of the Mesaverde Formation highly overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Nonmarine Kmv > 300								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	3.37E+11	6.90E+21	8.31E+10	26.5138	0.242866	2.19E+11	2.78E+11	3.27E+11	3.85E+11	4.88E+11
2	1.41E+12	1.20E+23	3.46E+11	27.9419	0.242785	9.15E+11	1.16E+12	1.36E+12	1.61E+12	2.03E+12
3	5.14E+12	1.61E+24	1.27E+12	29.2392	0.242945	3.35E+12	4.24E+12	4.99E+12	5.88E+12	7.45E+12
4	8.10E+12	3.98E+24	2.00E+12	29.6934	0.242785	5.27E+12	6.68E+12	7.86E+12	9.26E+12	1.17E+13
5	8.51E+12	4.39E+24	2.10E+12	29.743	0.242625	5.54E+12	7.02E+12	8.26E+12	9.73E+12	1.23E+13
6	3.95E+12	9.45E+23	9.72E+11	28.9753	0.242463	2.57E+12	3.26E+12	3.84E+12	4.52E+12	5.71E+12
7	5.25E+11	1.67E+22	1.29E+11	26.9566	0.242866	3.42E+11	4.33E+11	5.09E+11	6.00E+11	7.60E+11
7a	2.50E+10	3.77E+19	6.14E+09	23.9118	0.24222	1.63E+10	2.06E+10	2.43E+10	2.86E+10	3.61E+10
8	1.88E+12	2.14E+23	4.63E+11	28.2317	0.242785	1.22E+12	1.55E+12	1.82E+12	2.15E+12	2.72E+12
9	1.79E+12	1.94E+23	4.40E+11	28.182	0.242625	1.16E+12	1.47E+12	1.74E+12	2.04E+12	2.59E+12
10	1.55E+12	1.45E+23	3.81E+11	28.038	0.242463	1.01E+12	1.28E+12	1.50E+12	1.77E+12	2.24E+12
11	6.96E+10	2.94E+20	1.71E+10	24.9363	0.242705	4.53E+10	5.74E+10	6.76E+10	7.96E+10	1.01E+11
12	8.73E+11	4.62E+22	2.15E+11	27.4653	0.242625	5.68E+11	7.19E+11	8.47E+11	9.98E+11	1.26E+12
13	2.39E+12	3.47E+23	5.89E+11	28.4747	0.242463	1.56E+12	1.97E+12	2.32E+12	2.74E+12	3.46E+12
14	8.90E+10	4.80E+20	2.19E+10	25.1822	0.242544	5.80E+10	7.34E+10	8.64E+10	1.02E+11	1.29E+11
15	1.77E+12	1.91E+23	4.37E+11	28.175	0.242785	1.16E+12	1.46E+12	1.72E+12	2.03E+12	2.57E+12
16	5.80E+10	2.03E+20	1.43E+10	24.7542	0.242382	3.78E+10	4.78E+10	5.63E+10	6.63E+10	8.39E+10
17	5.64E+11	1.93E+22	1.39E+11	27.0283	0.242625	3.67E+11	4.65E+11	5.47E+11	6.45E+11	8.16E+11
18	3.86E+11	9.01E+21	9.49E+10	26.6493	0.242463	2.51E+11	3.18E+11	3.75E+11	4.41E+11	5.58E+11
19	3.36E+11	6.85E+21	8.27E+10	26.511	0.242625	2.19E+11	2.77E+11	3.26E+11	3.84E+11	4.86E+11
20	3.60E+11	7.88E+21	8.87E+10	26.5811	0.242625	2.35E+11	2.97E+11	3.50E+11	4.12E+11	5.22E+11
21	6.83E+11	2.82E+22	1.68E+11	27.2201	0.242463	4.45E+11	5.63E+11	6.63E+11	7.81E+11	9.88E+11
21a	5.79E+11	2.03E+22	1.42E+11	27.0548	0.242463	3.77E+11	4.77E+11	5.62E+11	6.62E+11	8.37E+11
22	3.82E+11	8.84E+21	9.40E+10	26.6386	0.242625	2.49E+11	3.15E+11	3.71E+11	4.37E+11	5.53E+11
23	1.48E+12	1.33E+23	3.65E+11	27.9947	0.242625	9.65E+11	1.22E+12	1.44E+12	1.69E+12	2.14E+12
23a	2.01E+10	2.46E+19	4.96E+09	23.6956	0.242705	1.31E+10	1.66E+10	1.95E+10	2.30E+10	2.91E+10
24	1.93E+12	2.25E+23	4.75E+11	28.2587	0.242463	1.26E+12	1.59E+12	1.87E+12	2.21E+12	2.79E+12
25	1.99E+12	2.39E+23	4.89E+11	28.2874	0.242785	1.29E+12	1.64E+12	1.93E+12	2.27E+12	2.87E+12
26	8.10E+11	3.98E+22	2.00E+11	27.3912	0.242625	5.28E+11	6.68E+11	7.87E+11	9.27E+11	1.17E+12
27	4.11E+11	1.02E+22	1.01E+11	26.7118	0.242463	2.68E+11	3.39E+11	3.99E+11	4.70E+11	5.94E+11
28	5.39E+11	1.76E+22	1.33E+11	26.9842	0.242463	3.51E+11	4.45E+11	5.24E+11	6.17E+11	7.80E+11
P.P.C.	4.89E+13	1.45E+26	1.21E+13			3.19E+13	4.03E+13	4.75E+13	5.60E+13	7.08E+13

Table 39: List of subplays in the nonmarine interval of the Mesaverde Formation highly overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

\WINDRIVR\ASSESS\GKMV5.XLS

Play Name :	Nonmarine Kmv > 1.1									(Panel 1)
* Half thickness wedge shape area						a =	0.52	0.016	0	
						b =	14.7	505	1.24	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	18.3	320	7	100	50	14,000	7294.7	729	1.24	1.63E+12
2	19.1	285	7	100	50	14,000	7294.7	729	1.24	1.51E+12
3	4.6	285	7	100	50	15,000	7814.7	745	1.24	3.82E+11
4	4.8	285	7	100	50	16,000	8334.7	761	1.24	4.16E+11
5	14.1	230	7	100	50	16,000	8334.7	761	1.24	9.87E+11
6	5.3	195	7	100	50	16,000	8334.7	761	1.24	3.14E+11
7	6.5	240	7	100	50	16,000	8334.7	761	1.24	4.75E+11
8	9.7	180	7	100	50	16,000	8334.7	761	1.24	5.31E+11
9	18.9	180	7	100	50	15,000	7814.7	745	1.24	9.91E+11
10	6.7	510	7	100	50	18,500	9634.7	801	1.24	1.14E+12
11	4.8	520	7	100	50	18,000	9374.7	793	1.24	8.20E+11
12	4.1	510	7	100	50	17,000	8854.7	777	1.24	6.62E+11
13	1.2	510	7	100	50	16,000	8334.7	761	1.24	1.86E+11
14	0.3	510	7	100	50	15,500	8074.7	753	1.24	4.56E+10
15	4.2	390	7	100	50	19,500	10154.7	817	1.24	5.66E+11
16	4.7	415	7	100	50	19,500	10154.7	817	1.24	6.73E+11
17	35.2	450	7	100	50	19,000	9894.7	809	1.24	5.38E+12
18	12.5	480	7	100	50	18,000	9374.7	793	1.24	1.97E+12
19	3.2	480	7	100	50	17,000	8854.7	777	1.24	4.86E+11
20	3.1	480	7	100	50	16,000	8334.7	761	1.24	4.53E+11
21	1	480	7	100	50	15,500	8074.7	753	1.24	1.43E+11
22	2.6	510	7	100	50	17,500	9114.7	785	1.24	4.28E+11
23	4.7	515	7	100	50	17,000	8854.7	777	1.24	7.66E+11
24	4.7	520	7	100	50	16,000	8334.7	761	1.24	7.44E+11
25	4.6	550	7	100	50	15,000	7814.7	745	1.24	7.37E+11
26	0.9	520	7	100	50	14,500	7554.7	737	1.24	1.33E+11
27	3.9	450	7	100	50	17,000	8854.7	777	1.24	5.56E+11
28	4.1	450	7	100	50	16,000	8334.7	761	1.24	5.61E+11
29	4.4	450	7	100	50	15,000	7814.7	745	1.24	5.77E+11
30	2.4	450	7	100	50	14,000	7294.7	729	1.24	3.00E+11
31	1.8	390	7	100	50	17,500	9114.7	785	1.24	2.26E+11
32	9	350	7	100	50	17,000	8854.7	777	1.24	9.97E+11
33	9.5	350	7	100	50	16,000	8334.7	761	1.24	1.01E+12
34	10.3	350	7	100	50	15,000	7814.7	745	1.24	1.05E+12
35	2.5	350	7	100	50	14,500	7554.7	737	1.24	2.49E+11
36	3.2	295	7	100	50	16,500	8594.7	769	1.24	2.93E+11
37	23.2	290	7	100	50	16,000	8334.7	761	1.24	2.05E+12
38	46.8	270	7	100	50	15,000	7814.7	745	1.24	3.68E+12
39	47.3	270	7	100	50	14,000	7294.7	729	1.24	3.55E+12
40	42.8	250	7	100	50	13,000	6774.7	713	1.24	2.82E+12
41	37.1	230	7	100	50	12,000	6254.7	697	1.24	2.13E+12
42	2.5	190	7	100	50	11,000	5734.7	681	1.24	1.11E+11
43	12.9	305	7	100	50	16,000	8334.7	761	1.24	1.20E+12
44	2	300	7	100	50	15,500	8074.7	753	1.24	1.79E+11
45	30.3	225	7	100	50	11,000	5734.7	681	1.24	1.59E+12
46	2.4	190	7	100	50	10,000	5214.7	665	1.24	9.93E+10
47	1	200	7	100	50	9,500	4954.7	657	1.24	4.19E+10
48	1	200	7	100	50	9,500	4954.7	657	1.24	4.19E+10

49	7.6	175	7	100	50	9,000	4694.7	649	1.24	2.67E+11
50	1.6	175	7	100	50	8,500	4434.7	641	1.24	5.38E+10
51	15.2	250	7	100	50	16,000	8334.7	761	1.24	1.16E+12
52	20.8	220	7	100	50	10,000	5214.7	665	1.24	9.97E+11
53	6.7	210	7	100	50	9,000	4694.7	649	1.24	2.83E+11
54	2.3	185	7	100	50	9,500	4954.7	657	1.24	8.91E+10
55	40.7	170	7	100	50	17,000	8854.7	777	1.24	2.19E+12
56	43.5	170	7	100	50	16,000	8334.7	761	1.24	2.25E+12
57	46.2	170	7	100	50	15,000	7814.7	745	1.24	2.29E+12
58	30.9	170	7	100	50	14,000	7294.7	729	1.24	1.46E+12
59	25	170	7	100	50	13,000	6774.7	713	1.24	1.12E+12
60	4.6	225	7	100	50	16,000	8334.7	761	1.24	3.15E+11
61	3.5	225	7	100	50	15,000	7814.7	745	1.24	2.29E+11
62	3.9	225	7	100	50	14,000	7294.7	729	1.24	2.44E+11
63	3.4	225	7	100	50	13,000	6774.7	713	1.24	2.02E+11
64	4.6	225	7	100	50	12,000	6254.7	697	1.24	2.58E+11
65	13	225	7	100	50	11,000	5734.7	681	1.24	6.84E+11
66	8.7	225	7	100	50	11,500	5994.7	689	1.24	4.73E+11
67	58.4	170	7	100	50	11,000	5734.7	681	1.24	2.32E+12
68	34.4	170	7	100	50	12,000	6254.7	697	1.24	1.46E+12
69	6.6	170	7	100	50	13,000	6774.7	713	1.24	2.96E+11
70	79.3	150	7	100	50	10,000	5214.7	665	1.24	2.59E+12
71	26.4	150	7	100	50	11,000	5734.7	681	1.24	9.26E+11
72	0.34	150	7	100	50	9,500	4954.7	657	1.24	1.07E+10
73	1.2	225	7	100	50	10,500	5474.7	673	1.24	6.10E+10
74	2	205	7	100	50	15,500	8074.7	753	1.24	1.22E+11
*75	0.4	250	7	100	50	15,000	7814.7	745	1.24	2.91E+10
*76	0.6	250	7	100	50	14,000	7294.7	729	1.24	4.17E+10
*77	0.29	250	7	100	50	13,000	6774.7	713	1.24	1.91E+10
*78	1.9	240	7	100	50	15,000	7814.7	745	1.24	1.33E+11
*79	2.9	240	7	100	50	14,000	7294.7	729	1.24	1.93E+11
*80	1.7	240	7	100	50	13,000	6774.7	713	1.24	1.08E+11
*81	1	265	7	100	50	15,000	7814.7	745	1.24	7.72E+10
*82	4.9	280	7	100	50	14,000	7294.7	729	1.24	3.81E+11
*83	4.6	285	7	100	50	13,000	6774.7	713	1.24	3.46E+11
*84	1.1	240	7	100	50	13,500	7034.7	721	1.24	7.16E+10
*85	4	225	7	100	50	13,000	6774.7	713	1.24	2.38E+11
*86	2.4	175	7	100	50	13,500	7034.7	721	1.24	1.14E+11
*87	4.7	175	7	100	50	14,000	7294.7	729	1.24	2.29E+11
*88	2.4	145	7	100	50	14,000	7294.7	729	1.24	9.67E+10
*89	11.3	140	7	100	50	13,000	6774.7	713	1.24	4.18E+11
*90	14.9	130	7	100	50	12,000	6254.7	697	1.24	4.83E+11
*91	6.3	175	7	100	50	12,000	6254.7	697	1.24	2.75E+11
*92	0.49	200	7	100	50	11,500	5994.7	689	1.24	2.37E+10
*93	0.73	175	7	100	50	11,500	5994.7	689	1.24	3.09E+10
*94	5.1	120	7	100	50	11,500	5994.7	689	1.24	1.48E+11
*95	2.5	90	7	100	50	11,500	5994.7	689	1.24	5.44E+10
*96	1.5	90	7	100	50	11,500	5994.7	689	1.24	3.26E+10
									Total =	7.18E+13

Table 40: List of subplays in the nonmarine interval of the Mesaverde Formation moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\ASSESS\GKMV5.XLS

Play Name :		Nonmarine Kmv > 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	8.07	7.19	8.87	337.67	104765.1	49.41	10037.0	2536.95	65.38	2.82E+24
2	8.07	7.19	8.87	367.84	83101.0	49.41	10037.0	2536.95	65.38	2.44E+24
3	8.46	7.56	9.28	21.34	83101.0	49.41	10037.0	2536.95	71.83	1.55E+23
4	8.83	7.91	9.67	23.23	83101.0	49.41	10037.0	2536.95	78.30	1.84E+23
5	8.83	7.91	9.67	200.46	54121.8	49.41	10037.0	2536.95	78.30	1.04E+24
6	8.83	7.91	9.67	28.32	38903.2	49.41	10037.0	2536.95	78.30	1.05E+23
7	8.83	7.91	9.67	42.60	58930.4	49.41	10037.0	2536.95	78.30	2.40E+23
8	8.83	7.91	9.67	94.87	33148.3	49.41	10037.0	2536.95	78.30	3.00E+23
9	8.46	7.56	9.28	360.18	33148.3	49.41	10037.0	2536.95	71.83	1.05E+24
10	9.70	8.73	10.57	45.26	266107.4	49.41	10037.0	2536.95	94.41	1.39E+24
11	9.53	8.57	10.40	23.23	276645.3	49.41	10037.0	2536.95	91.20	7.14E+23
12	9.19	8.25	10.04	16.95	266107.4	49.41	10037.0	2536.95	84.76	4.66E+23
13	8.83	7.91	9.67	1.45	266107.4	49.41	10037.0	2536.95	78.30	3.69E+22
14	8.65	7.74	9.47	0.09	266107.4	49.41	10037.0	2536.95	75.07	2.21E+21
15	10.02	9.04	10.90	17.79	155613.0	49.41	10037.0	2536.95	100.79	3.40E+23
16	10.02	9.04	10.90	22.27	176202.8	49.41	10037.0	2536.95	100.79	4.82E+23
17	9.86	8.89	10.74	1249.34	207177.1	49.41	10037.0	2536.95	97.60	3.08E+25
18	9.53	8.57	10.40	157.55	235721.5	49.41	10037.0	2536.95	91.20	4.13E+24
19	9.19	8.25	10.04	10.33	235721.5	49.41	10037.0	2536.95	84.76	2.51E+23
20	8.83	7.91	9.67	9.69	235721.5	49.41	10037.0	2536.95	78.30	2.18E+23
21	8.65	7.74	9.47	1.01	235721.5	49.41	10037.0	2536.95	75.07	2.17E+22
22	9.36	8.41	10.22	6.82	266107.4	49.41	10037.0	2536.95	87.98	1.94E+23
23	9.19	8.25	10.04	22.27	271350.8	49.41	10037.0	2536.95	84.76	6.24E+23
24	8.83	7.91	9.67	22.27	276645.3	49.41	10037.0	2536.95	78.30	5.88E+23
25	8.46	7.56	9.28	21.34	309486.7	49.41	10037.0	2536.95	71.83	5.78E+23
26	8.27	7.38	9.08	0.82	276645.3	49.41	10037.0	2536.95	68.60	1.89E+22
27	9.19	8.25	10.04	15.34	207177.1	49.41	10037.0	2536.95	84.76	3.28E+23
28	8.83	7.91	9.67	16.95	207177.1	49.41	10037.0	2536.95	78.30	3.35E+23
29	8.46	7.56	9.28	19.52	207177.1	49.41	10037.0	2536.95	71.83	3.54E+23
30	8.07	7.19	8.87	5.81	207177.1	49.41	10037.0	2536.95	65.38	9.59E+22
31	9.36	8.41	10.22	3.27	155613.0	49.41	10037.0	2536.95	87.98	5.45E+22
32	9.19	8.25	10.04	81.67	125329.3	49.41	10037.0	2536.95	84.76	1.06E+24
33	8.83	7.91	9.67	91.00	125329.3	49.41	10037.0	2536.95	78.30	1.09E+24
34	8.46	7.56	9.28	106.97	125329.3	49.41	10037.0	2536.95	71.83	1.17E+24
35	8.27	7.38	9.08	6.30	125329.3	49.41	10037.0	2536.95	68.60	6.60E+22
36	9.01	8.08	9.86	10.33	89035.0	49.41	10037.0	2536.95	81.53	9.13E+22
37	8.83	7.91	9.67	542.72	86042.4	49.41	10037.0	2536.95	78.30	4.46E+24
38	8.46	7.56	9.28	2208.45	74583.7	49.41	10037.0	2536.95	71.83	1.44E+25
39	8.07	7.19	8.87	2255.89	74583.7	49.41	10037.0	2536.95	65.38	1.34E+25
40	7.66	6.81	8.44	1847.07	63943.5	49.41	10037.0	2536.95	58.96	8.49E+24
41	7.24	6.42	7.99	1387.85	54121.8	49.41	10037.0	2536.95	52.60	4.81E+24
42	6.79	6.01	7.52	6.30	36933.8	49.41	10037.0	2536.95	46.33	1.31E+22
43	8.83	7.91	9.67	167.79	95173.6	49.41	10037.0	2536.95	78.30	1.52E+24
44	8.65	7.74	9.47	4.03	92078.7	49.41	10037.0	2536.95	75.07	3.40E+22
45	6.79	6.01	7.52	925.72	51794.3	49.41	10037.0	2536.95	46.33	2.71E+24
46	6.32	5.58	7.02	5.81	36933.8	49.41	10037.0	2536.95	40.18	1.05E+22
47	6.08	5.36	6.76	1.01	40923.9	49.41	10037.0	2536.95	37.17	1.87E+21
48	6.08	5.36	6.76	1.01	40923.9	49.41	10037.0	2536.95	37.17	1.87E+21

49	5.83	5.13	6.49	58.24	31332.3	49.41	10037.0	2536.95	34.20	7.61E+22
50	5.58	4.90	6.22	2.58	31332.3	49.41	10037.0	2536.95	31.29	3.08E+21
51	8.83	7.91	9.67	232.96	63943.5	49.41	10037.0	2536.95	78.30	1.42E+24
52	6.32	5.58	7.02	436.24	49517.9	49.41	10037.0	2536.95	40.18	1.06E+24
53	5.83	5.13	6.49	45.26	45118.6	49.41	10037.0	2536.95	34.20	8.51E+22
54	6.08	5.36	6.76	5.33	35015.5	49.41	10037.0	2536.95	37.17	8.46E+21
55	9.19	8.25	10.04	1670.26	29567.5	49.41	10037.0	2536.95	84.76	5.10E+24
56	8.83	7.91	9.67	1907.98	29567.5	49.41	10037.0	2536.95	78.30	5.38E+24
57	8.46	7.56	9.28	2152.19	29567.5	49.41	10037.0	2536.95	71.83	5.57E+24
58	8.07	7.19	8.87	962.75	29567.5	49.41	10037.0	2536.95	65.38	2.27E+24
59	7.66	6.81	8.44	630.20	29567.5	49.41	10037.0	2536.95	58.96	1.34E+24
60	8.83	7.91	9.67	21.34	51794.3	49.41	10037.0	2536.95	78.30	1.05E+23
61	8.46	7.56	9.28	12.35	51794.3	49.41	10037.0	2536.95	71.83	5.60E+22
62	8.07	7.19	8.87	15.34	51794.3	49.41	10037.0	2536.95	65.38	6.33E+22
63	7.66	6.81	8.44	11.66	51794.3	49.41	10037.0	2536.95	58.96	4.34E+22
64	7.24	6.42	7.99	21.34	51794.3	49.41	10037.0	2536.95	52.60	7.08E+22
65	6.79	6.01	7.52	170.41	51794.3	49.41	10037.0	2536.95	46.33	4.98E+23
66	7.02	6.22	7.76	76.32	51794.3	49.41	10037.0	2536.95	49.45	2.38E+23
67	6.79	6.01	7.52	3438.92	29567.5	49.41	10037.0	2536.95	46.33	5.74E+24
68	7.24	6.42	7.99	1193.20	29567.5	49.41	10037.0	2536.95	52.60	2.26E+24
69	7.66	6.81	8.44	43.92	29567.5	49.41	10037.0	2536.95	58.96	9.33E+22
70	6.32	5.58	7.02	6340.78	23019.7	49.41	10037.0	2536.95	40.18	7.15E+24
71	6.79	6.01	7.52	702.76	23019.7	49.41	10037.0	2536.95	46.33	9.13E+23
72	6.08	5.36	6.76	0.12	23019.7	49.41	10037.0	2536.95	37.17	1.22E+20
73	6.56	5.80	7.27	1.45	51794.3	49.41	10037.0	2536.95	43.24	3.96E+21
74	8.65	7.74	9.47	4.03	42995.6	49.41	10037.0	2536.95	75.07	1.59E+22
*75	8.46	7.56	9.28	0.16	63943.5	49.41	10037.0	2536.95	71.83	9.03E+20
*76	8.07	7.19	8.87	0.36	63943.5	49.41	10037.0	2536.95	65.38	1.85E+21
*77	7.66	6.81	8.44	0.08	63943.5	49.41	10037.0	2536.95	58.96	3.90E+20
*78	8.46	7.56	9.28	3.64	58930.4	49.41	10037.0	2536.95	71.83	1.88E+22
*79	8.07	7.19	8.87	8.48	58930.4	49.41	10037.0	2536.95	65.38	3.98E+22
*80	7.66	6.81	8.44	2.91	58930.4	49.41	10037.0	2536.95	58.96	1.23E+22
*81	8.46	7.56	9.28	1.01	71847.0	49.41	10037.0	2536.95	71.83	6.34E+21
*82	8.07	7.19	8.87	24.21	80210.8	49.41	10037.0	2536.95	65.38	1.55E+23
*83	7.66	6.81	8.44	21.34	83101.0	49.41	10037.0	2536.95	58.96	1.27E+23
*84	7.87	7.01	8.66	1.22	58930.4	49.41	10037.0	2536.95	62.16	5.45E+21
*85	7.66	6.81	8.44	16.13	51794.3	49.41	10037.0	2536.95	58.96	6.00E+22
*86	7.87	7.01	8.66	5.81	31332.3	49.41	10037.0	2536.95	62.16	1.38E+22
*87	8.07	7.19	8.87	22.27	31332.3	49.41	10037.0	2536.95	65.38	5.56E+22
*88	8.07	7.19	8.87	5.81	21510.6	49.41	10037.0	2536.95	65.38	9.95E+21
*89	7.66	6.81	8.44	128.75	20052.7	49.41	10037.0	2536.95	58.96	1.86E+23
*90	7.24	6.42	7.99	223.86	17290.3	49.41	10037.0	2536.95	52.60	2.48E+23
*91	7.24	6.42	7.99	40.02	31332.3	49.41	10037.0	2536.95	52.60	8.04E+22
*92	7.02	6.22	7.76	0.24	40923.9	49.41	10037.0	2536.95	49.45	5.97E+20
*93	7.02	6.22	7.76	0.54	31332.3	49.41	10037.0	2536.95	49.45	1.01E+21
*94	7.02	6.22	7.76	26.23	14732.6	49.41	10037.0	2536.95	49.45	2.33E+22
*95	7.02	6.22	7.76	6.30	8287.1	49.41	10037.0	2536.95	49.45	3.15E+21
*96	7.02	6.22	7.76	2.27	8287.1	49.41	10037.0	2536.95	49.45	1.13E+21

Table 41: List of subplays in the nonmarine interval of the Mesaverde Formation moderately overpressured play with estimates of ranges in percent for the six play attributes.

\WINDRIVR\ASSESS\GKMV5.XLS

Play Name :		Nonmarine Kmv > 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.63E+12	1.69E+23	4.11E+11	28.0874	0.248461	1.05E+12	1.33E+12	1.58E+12	1.87E+12	2.38E+12
2	1.51E+12	1.46E+23	3.82E+11	28.0144	0.248461	9.75E+11	1.24E+12	1.47E+12	1.73E+12	2.21E+12
3	3.82E+11	9.27E+21	9.63E+10	26.638	0.248127	2.46E+11	3.13E+11	3.70E+11	4.38E+11	5.57E+11
4	4.16E+11	1.10E+22	1.05E+11	26.7238	0.247813	2.68E+11	3.42E+11	4.04E+11	4.77E+11	6.07E+11
5	9.87E+11	6.17E+22	2.48E+11	27.5869	0.247813	6.37E+11	8.10E+11	9.57E+11	1.13E+12	1.44E+12
6	3.14E+11	6.26E+21	7.91E+10	26.4434	0.247813	2.03E+11	2.58E+11	3.05E+11	3.60E+11	4.58E+11
7	4.75E+11	1.43E+22	1.19E+11	26.8551	0.247813	3.06E+11	3.89E+11	4.60E+11	5.44E+11	6.92E+11
8	5.31E+11	1.79E+22	1.34E+11	26.9677	0.247813	3.43E+11	4.36E+11	5.15E+11	6.09E+11	7.74E+11
9	9.91E+11	6.24E+22	2.50E+11	27.5915	0.248127	6.39E+11	8.13E+11	9.61E+11	1.14E+12	1.45E+12
10	1.14E+12	8.21E+22	2.86E+11	27.7331	0.247105	7.38E+11	9.38E+11	1.11E+12	1.31E+12	1.66E+12
11	8.20E+11	4.24E+22	2.06E+11	27.4016	0.247238	5.29E+11	6.73E+11	7.95E+11	9.39E+11	1.19E+12
12	6.62E+11	2.77E+22	1.66E+11	27.1878	0.247517	4.27E+11	5.43E+11	6.42E+11	7.59E+11	9.65E+11
13	1.86E+11	2.20E+21	4.69E+10	25.9194	0.247813	1.20E+11	1.53E+11	1.81E+11	2.13E+11	2.71E+11
14	4.56E+10	1.32E+20	1.15E+10	24.5119	0.247967	2.94E+10	3.74E+10	4.42E+10	5.22E+10	6.65E+10
15	5.66E+11	2.01E+22	1.42E+11	27.0306	0.24685	3.66E+11	4.65E+11	5.49E+11	6.48E+11	8.23E+11
16	6.73E+11	2.85E+22	1.69E+11	27.2052	0.24685	4.35E+11	5.53E+11	6.53E+11	7.72E+11	9.80E+11
17	5.38E+12	1.82E+24	1.35E+12	29.2836	0.246975	3.48E+12	4.42E+12	5.22E+12	6.17E+12	7.84E+12
18	1.97E+12	2.45E+23	4.95E+11	28.2787	0.247238	1.27E+12	1.62E+12	1.91E+12	2.26E+12	2.87E+12
19	4.86E+11	1.49E+22	1.22E+11	26.8794	0.247517	3.14E+11	3.99E+11	4.72E+11	5.57E+11	7.09E+11
20	4.53E+11	1.30E+22	1.14E+11	26.8078	0.247813	2.92E+11	3.72E+11	4.39E+11	5.19E+11	6.60E+11
21	1.43E+11	1.30E+21	3.60E+10	25.6553	0.247967	9.22E+10	1.17E+11	1.39E+11	1.64E+11	2.08E+11
22	4.28E+11	1.15E+22	1.07E+11	26.7511	0.247375	2.76E+11	3.51E+11	4.15E+11	4.90E+11	6.23E+11
23	7.66E+11	3.71E+22	1.93E+11	27.3342	0.247517	4.95E+11	6.29E+11	7.43E+11	8.78E+11	1.12E+12
24	7.44E+11	3.50E+22	1.87E+11	27.304	0.247813	4.80E+11	6.10E+11	7.21E+11	8.52E+11	1.08E+12
25	7.37E+11	3.45E+22	1.86E+11	27.2954	0.248127	4.75E+11	6.05E+11	7.15E+11	8.45E+11	1.08E+12
26	1.33E+11	1.13E+21	3.36E+10	25.5848	0.248291	8.59E+10	1.09E+11	1.29E+11	1.53E+11	1.94E+11
27	5.56E+11	1.95E+22	1.40E+11	27.0127	0.247517	3.59E+11	4.56E+11	5.39E+11	6.37E+11	8.10E+11
28	5.61E+11	2.00E+22	1.41E+11	27.0229	0.247813	3.62E+11	4.61E+11	5.44E+11	6.43E+11	8.18E+11
29	5.77E+11	2.11E+22	1.45E+11	27.0503	0.248127	3.72E+11	4.73E+11	5.59E+11	6.61E+11	8.41E+11
30	3.00E+11	5.74E+21	7.58E+10	26.3969	0.248461	1.93E+11	2.46E+11	2.91E+11	3.44E+11	4.38E+11
31	2.26E+11	3.24E+21	5.69E+10	26.1151	0.247375	1.46E+11	1.86E+11	2.20E+11	2.59E+11	3.30E+11
32	9.97E+11	6.28E+22	2.51E+11	27.5976	0.247517	6.44E+11	8.19E+11	9.67E+11	1.14E+12	1.45E+12
33	1.01E+12	6.48E+22	2.55E+11	27.6119	0.247813	6.53E+11	8.30E+11	9.81E+11	1.16E+12	1.47E+12
34	1.05E+12	7.01E+22	2.65E+11	27.6495	0.248127	6.77E+11	8.62E+11	1.02E+12	1.20E+12	1.53E+12
35	2.49E+11	3.95E+21	6.28E+10	26.2105	0.248291	1.61E+11	2.04E+11	2.42E+11	2.86E+11	3.63E+11
36	2.93E+11	5.43E+21	7.37E+10	26.3731	0.247662	1.89E+11	2.41E+11	2.84E+11	3.36E+11	4.27E+11
37	2.05E+12	2.65E+23	5.15E+11	28.3167	0.247813	1.32E+12	1.68E+12	1.99E+12	2.35E+12	2.98E+12
38	3.68E+12	8.61E+23	9.28E+11	28.9037	0.248127	2.37E+12	3.02E+12	3.57E+12	4.22E+12	5.37E+12
39	3.55E+12	8.03E+23	8.96E+11	28.8671	0.248461	2.29E+12	2.91E+12	3.44E+12	4.07E+12	5.18E+12
40	2.82E+12	5.09E+23	7.14E+11	28.6383	0.248817	1.82E+12	2.32E+12	2.74E+12	3.24E+12	4.12E+12
41	2.13E+12	2.90E+23	5.38E+11	28.3548	0.249197	1.37E+12	1.74E+12	2.06E+12	2.44E+12	3.11E+12
42	1.11E+11	7.94E+20	2.82E+10	25.4027	0.249602	7.14E+10	9.10E+10	1.08E+11	1.27E+11	1.62E+11
43	1.20E+12	9.08E+22	3.01E+11	27.7802	0.247813	7.72E+11	9.82E+11	1.16E+12	1.37E+12	1.75E+12
44	1.79E+11	2.03E+21	4.50E+10	25.8784	0.247967	1.15E+11	1.47E+11	1.73E+11	2.05E+11	2.61E+11
45	1.59E+12	1.64E+23	4.04E+11	28.0666	0.249602	1.03E+12	1.31E+12	1.55E+12	1.83E+12	2.33E+12
46	9.93E+10	6.37E+20	2.52E+10	25.2905	0.250035	6.38E+10	8.13E+10	9.63E+10	1.14E+11	1.45E+11
47	4.19E+10	1.13E+20	1.07E+10	24.4272	0.250263	2.69E+10	3.43E+10	4.06E+10	4.81E+10	6.13E+10
48	4.19E+10	1.13E+20	1.07E+10	24.4272	0.250263	2.69E+10	3.43E+10	4.06E+10	4.81E+10	6.13E+10

49	2.67E+11	4.63E+21	6.80E+10	26.2801	0.250499	1.72E+11	2.19E+11	2.59E+11	3.07E+11	3.91E+11
50	5.38E+10	1.88E+20	1.37E+10	24.6774	0.250742	3.45E+10	4.40E+10	5.21E+10	6.17E+10	7.88E+10
51	1.16E+12	8.47E+22	2.91E+11	27.7454	0.247813	7.46E+11	9.49E+11	1.12E+12	1.33E+12	1.69E+12
52	9.97E+11	6.41E+22	2.53E+11	27.5966	0.250035	6.40E+11	8.16E+11	9.66E+11	1.14E+12	1.46E+12
53	2.83E+11	5.18E+21	7.20E+10	26.3364	0.250499	1.81E+11	2.31E+11	2.74E+11	3.24E+11	4.14E+11
54	8.91E+10	5.14E+20	2.27E+10	25.1822	0.250263	5.72E+10	7.30E+10	8.64E+10	1.02E+11	1.30E+11
55	2.19E+12	3.03E+23	5.51E+11	28.3845	0.247517	1.41E+12	1.80E+12	2.12E+12	2.51E+12	3.19E+12
56	2.25E+12	3.21E+23	5.66E+11	28.4112	0.247813	1.45E+12	1.85E+12	2.18E+12	2.58E+12	3.28E+12
57	2.29E+12	3.33E+23	5.77E+11	28.4282	0.248127	1.48E+12	1.88E+12	2.22E+12	2.62E+12	3.34E+12
58	1.46E+12	1.36E+23	3.68E+11	27.9787	0.248461	9.41E+11	1.20E+12	1.42E+12	1.67E+12	2.13E+12
59	1.12E+12	8.04E+22	2.83E+11	27.715	0.248817	7.22E+11	9.20E+11	1.09E+12	1.29E+12	1.64E+12
60	3.15E+11	6.28E+21	7.92E+10	26.4448	0.247813	2.03E+11	2.58E+11	3.05E+11	3.61E+11	4.59E+11
61	2.29E+11	3.34E+21	5.78E+10	26.1283	0.248127	1.48E+11	1.88E+11	2.23E+11	2.63E+11	3.35E+11
62	2.44E+11	3.79E+21	6.16E+10	26.1893	0.248461	1.57E+11	2.00E+11	2.37E+11	2.80E+11	3.56E+11
63	2.02E+11	2.60E+21	5.10E+10	26.0002	0.248817	1.30E+11	1.66E+11	1.96E+11	2.32E+11	2.95E+11
64	2.58E+11	4.27E+21	6.53E+10	26.2452	0.249197	1.66E+11	2.11E+11	2.50E+11	2.96E+11	3.77E+11
65	6.84E+11	3.01E+22	1.73E+11	27.2204	0.249602	4.40E+11	5.61E+11	6.63E+11	7.85E+11	1.00E+12
66	4.73E+11	1.44E+22	1.20E+11	26.8515	0.249396	3.04E+11	3.88E+11	4.59E+11	5.43E+11	6.91E+11
67	2.32E+12	3.47E+23	5.89E+11	28.4425	0.249602	1.49E+12	1.90E+12	2.25E+12	2.66E+12	3.39E+12
68	1.46E+12	1.36E+23	3.69E+11	27.9769	0.249197	9.38E+11	1.19E+12	1.41E+12	1.67E+12	2.13E+12
69	2.96E+11	5.60E+21	7.48E+10	26.3832	0.248817	1.91E+11	2.43E+11	2.87E+11	3.40E+11	4.32E+11
70	2.59E+12	4.33E+23	6.58E+11	28.5519	0.250035	1.66E+12	2.12E+12	2.51E+12	2.97E+12	3.79E+12
71	9.26E+11	5.52E+22	2.35E+11	27.5234	0.249602	5.96E+11	7.59E+11	8.98E+11	1.06E+12	1.35E+12
72	1.07E+10	7.38E+18	2.72E+09	23.0607	0.250263	6.86E+09	8.75E+09	1.04E+10	1.23E+10	1.56E+10
73	6.10E+10	2.40E+20	1.55E+10	24.8032	0.249815	3.92E+10	5.00E+10	5.91E+10	7.00E+10	8.92E+10
74	1.22E+11	9.46E+20	3.08E+10	25.4977	0.247967	7.88E+10	1.00E+11	1.18E+11	1.40E+11	1.78E+11
*75	2.91E+10	5.39E+19	7.34E+09	24.0646	0.248127	1.88E+10	2.39E+10	2.83E+10	3.34E+10	4.25E+10
*76	4.17E+10	1.11E+20	1.05E+10	24.4228	0.248461	2.69E+10	3.42E+10	4.04E+10	4.78E+10	6.08E+10
*77	1.91E+10	2.34E+19	4.84E+09	23.6439	0.248817	1.23E+10	1.57E+10	1.86E+10	2.19E+10	2.79E+10
*78	1.33E+11	1.12E+21	3.35E+10	25.5819	0.248127	8.57E+10	1.09E+11	1.29E+11	1.52E+11	1.94E+11
*79	1.93E+11	2.38E+21	4.88E+10	25.9575	0.248461	1.25E+11	1.59E+11	1.88E+11	2.22E+11	2.82E+11
*80	1.08E+11	7.41E+20	2.72E+10	25.3716	0.248817	6.93E+10	8.83E+10	1.04E+11	1.23E+11	1.57E+11
*81	7.72E+10	3.79E+20	1.95E+10	25.0391	0.248127	4.98E+10	6.33E+10	7.49E+10	8.85E+10	1.13E+11
*82	3.81E+11	9.26E+21	9.62E+10	26.6362	0.248461	2.46E+11	3.13E+11	3.70E+11	4.37E+11	5.56E+11
*83	3.46E+11	7.65E+21	8.75E+10	26.5389	0.248817	2.23E+11	2.84E+11	3.35E+11	3.97E+11	5.05E+11
*84	7.16E+10	3.27E+20	1.81E+10	24.9628	0.248636	4.61E+10	5.87E+10	6.94E+10	8.20E+10	1.04E+11
*85	2.38E+11	3.60E+21	6.00E+10	26.1627	0.248817	1.53E+11	1.95E+11	2.30E+11	2.72E+11	3.47E+11
*86	1.14E+11	8.26E+20	2.87E+10	25.4271	0.248636	7.33E+10	9.33E+10	1.10E+11	1.31E+11	1.66E+11
*87	2.29E+11	3.33E+21	5.77E+10	26.1245	0.248461	1.47E+11	1.88E+11	2.22E+11	2.62E+11	3.34E+11
*88	9.67E+10	5.96E+20	2.44E+10	25.2644	0.248461	6.23E+10	7.93E+10	9.38E+10	1.11E+11	1.41E+11
*89	4.18E+11	1.11E+22	1.06E+11	26.7268	0.248817	2.69E+11	3.42E+11	4.05E+11	4.79E+11	6.10E+11
*90	4.83E+11	1.49E+22	1.22E+11	26.872	0.249197	3.11E+11	3.96E+11	4.68E+11	5.54E+11	7.05E+11
*91	2.75E+11	4.84E+21	6.96E+10	26.3084	0.249197	1.77E+11	2.25E+11	2.66E+11	3.15E+11	4.01E+11
*92	2.37E+10	3.60E+19	6.00E+09	23.8571	0.249396	1.52E+10	1.94E+10	2.30E+10	2.72E+10	3.46E+10
*93	3.09E+10	6.12E+19	7.82E+09	24.1222	0.249396	1.99E+10	2.53E+10	2.99E+10	3.54E+10	4.51E+10
*94	1.48E+11	1.40E+21	3.75E+10	25.6888	0.249396	9.51E+10	1.21E+11	1.43E+11	1.70E+11	2.16E+11
*95	5.44E+10	1.90E+20	1.38E+10	24.6882	0.249396	3.50E+10	4.46E+10	5.27E+10	6.24E+10	7.95E+10
*96	3.26E+10	6.83E+19	8.27E+09	24.1774	0.249396	2.10E+10	2.67E+10	3.16E+10	3.74E+10	4.77E+10
P.P.C.	7.18E+13	3.28E+26	1.81E+13			4.63E+13	5.89E+13	6.96E+13	8.23E+13	1.05E+14

Table 42: List of subplays in the nonmarine interval of the Mesaverde Formation moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :	Nonmarine Kmv 1.1-.73									(Panel 1)
* Wedge shaped area half-thick						*a* =	0.41	0.016	0	
						b =	14.7	505	0.9328	
Subplay	Closure	Thickness	Porosity	Trap fill	HC Sat.	Depth	Pressure	Temp.	Gas Comp.	Gas in place
No.	(sq.mi.)	(feet)	(%)	(%)	(%)	(feet)	(PSI)	(Deg.Rank.)	(no units)	(CF)
1	0.28	520	7	50	50	12,500	5139.7	705	0.9328	1.96E+10
2	0.84	520	7	50	50	12,000	4934.7	697	0.9328	5.71E+10
3	0.87	520	7	50	50	11,000	4524.7	681	0.9328	5.55E+10
4	1.8	520	7	50	50	10,000	4114.7	665	0.9328	1.07E+11
5	1.1	520	7	50	50	9,000	3704.7	649	0.9328	6.03E+10
6	0.35	520	7	50	50	8,500	3499.7	641	0.9328	1.83E+10
7	1.2	480	7	50	50	12,500	5139.7	705	0.9328	7.75E+10
8	3.1	480	7	50	50	12,000	4934.7	697	0.9328	1.95E+11
9	2.3	490	7	50	50	11,000	4524.7	681	0.9328	1.38E+11
10	0.86	490	7	50	50	10,500	4319.7	673	0.9328	4.99E+10
11	2.8	550	7	50	50	12,500	5139.7	705	0.9328	2.07E+11
12	9.4	550	7	50	50	12,000	4934.7	697	0.9328	6.76E+11
13	4.2	550	7	50	50	11,000	4524.7	681	0.9328	2.83E+11
14	0.47	510	7	50	50	10,000	4114.7	665	0.9328	2.74E+10
15	3.1	620	7	50	50	12,000	4934.7	697	0.9328	2.51E+11
16	2.9	620	7	50	50	11,000	4524.7	681	0.9328	2.21E+11
17	0.4	560	7	50	50	11,500	4729.7	689	0.9328	2.84E+10
18	19.1	440	7	50	50	12,000	4934.7	697	0.9328	1.10E+12
18a	0.49	480	7	50	50	12,500	5139.7	705	0.9328	3.17E+10
19	5.6	350	7	50	50	13,000	5344.7	713	0.9328	2.71E+11
19a	0.46	410	7	50	50	12,500	5139.7	705	0.9328	2.54E+10
20	12.2	350	7	50	50	12,000	4934.7	697	0.9328	5.58E+11
21	0.98	400	7	50	50	11,500	4729.7	689	0.9328	4.97E+10
22	22.6	430	7	50	50	11,000	4524.7	681	0.9328	1.19E+12
23	15.6	430	7	50	50	10,000	4114.7	665	0.9328	7.66E+11
23a	22.2	470	7	50	50	10,000	4114.7	665	0.9328	1.19E+12
24	9.3	430	7	50	50	9,000	3704.7	649	0.9328	4.21E+11
25	1.4	350	7	50	50	11,000	4524.7	681	0.9328	6.01E+10
26	1.8	350	7	50	50	10,000	4114.7	665	0.9328	7.20E+10
27	1.7	350	7	50	50	9,000	3704.7	649	0.9328	6.27E+10
28	1.9	350	7	50	50	8,000	3294.7	633	0.9328	6.39E+10
28a	1.2	410	7	50	50	8,500	3499.7	641	0.9328	4.96E+10
29	5.4	250	7	50	50	11,000	4524.7	681	0.9328	1.66E+11
30	6.9	250	7	50	50	10,000	4114.7	665	0.9328	1.97E+11
31	4.1	250	7	50	50	9,000	3704.7	649	0.9328	1.08E+11
32	1.4	250	7	50	50	8,000	3294.7	633	0.9328	3.36E+10
33	3.9	180	7	50	50	10,000	4114.7	665	0.9328	8.02E+10
34	6.3	180	7	50	50	9,000	3704.7	649	0.9328	1.20E+11
35	3.7	190	7	50	50	8,000	3294.7	633	0.9328	6.76E+10
35a	0.25	200	7	50	50	7,500	3089.7	625	0.9328	4.56E+09
36	2.3	220	7	50	50	8,000	3294.7	633	0.9328	4.86E+10
37	4	220	7	50	50	7,000	2884.7	617	0.9328	7.60E+10
*38	0.4	275	7	50	50	5,500	2269.7	593	0.9328	7.77E+09
*39	1.3	270	7	50	50	6,000	2474.7	601	0.9328	2.67E+10
*40	3.8	270	7	50	50	7,000	2884.7	617	0.9328	8.86E+10

*41	4.7	275	7	50	50	8,000	3294.7	633	0.9328	1.24E+11
*42	5.6	275	7	50	50	9,000	3704.7	649	0.9328	1.62E+11
*43	4.4	280	7	50	50	10,000	4114.7	665	0.9328	1.41E+11
*44	0.46	310	7	50	50	10,500	4319.7	673	0.9328	1.69E+10
*44a	0.2	290	7	50	50	10,500	4319.7	673	0.9328	6.87E+09
*45	1.4	310	7	50	50	10,000	4114.7	665	0.9328	4.96E+10
*46	3.6	310	7	50	50	9,000	3704.7	649	0.9328	1.18E+11
*47	1.1	300	7	50	50	8,500	3499.7	641	0.9328	3.33E+10
*48	0.8	275	7	50	50	11,000	4524.7	681	0.9328	2.70E+10
*49	3.3	275	7	50	50	10,000	4114.7	665	0.9328	1.04E+11
*50	5	275	7	50	50	9,000	3704.7	649	0.9328	1.45E+11
*51	12.4	225	7	50	50	11,000	4524.7	681	0.9328	3.42E+11
*52	13.8	225	7	50	50	9,000	3704.7	649	0.9328	3.27E+11
*53	16	225	7	50	50	8,000	3294.7	633	0.9328	3.46E+11
*54	13.9	225	7	50	50	7,000	2884.7	617	0.9328	2.70E+11
*55	16.7	220	7	50	50	6,000	2474.7	601	0.9328	2.79E+11
*56	9.8	210	7	50	50	5,000	2064.7	585	0.9328	1.34E+11
*57	0.78	190	7	50	50	7,500	3089.7	625	0.9328	1.35E+10
*58	6.7	175	7	50	50	7,000	2884.7	617	0.9328	1.01E+11
*59	24.2	175	7	50	50	6,000	2474.7	601	0.9328	3.22E+11
*60	2.1	180	7	50	50	5,500	2269.7	593	0.9328	2.67E+10
*61	2.9	130	7	50	50	6,500	2679.7	609	0.9328	3.06E+10
*62	3.2	130	7	50	50	6,000	2474.7	601	0.9328	3.16E+10
*75	0.4	250	7	50	50	15,000	6164.7	745	0.9328	1.53E+10
*76	0.6	250	7	50	50	14,000	5754.7	729	0.9328	2.19E+10
*77	0.29	250	7	50	50	13,000	5344.7	713	0.9328	1.00E+10
*78	1.9	240	7	50	50	15,000	6164.7	745	0.9328	6.97E+10
*79	2.9	240	7	50	50	14,000	5754.7	729	0.9328	1.01E+11
*80	1.7	240	7	50	50	13,000	5344.7	713	0.9328	5.65E+10
*81	1	265	7	50	50	15,000	6164.7	745	0.9328	4.05E+10
*82	4.9	280	7	50	50	14,000	5754.7	729	0.9328	2.00E+11
*83	4.6	285	7	50	50	13,000	5344.7	713	0.9328	1.81E+11
*84	1.1	240	7	50	50	13,500	5549.7	721	0.9328	3.75E+10
*85	4	225	7	50	50	13,000	5344.7	713	0.9328	1.25E+11
*86	2.4	175	7	50	50	13,500	5549.7	721	0.9328	5.97E+10
*87	4.7	175	7	50	50	14,000	5754.7	729	0.9328	1.20E+11
*88	2.4	145	7	50	50	14,000	5754.7	729	0.9328	5.07E+10
*89	11.3	140	7	50	50	13,000	5344.7	713	0.9328	2.19E+11
*90	14.9	130	7	50	50	12,000	4934.7	697	0.9328	2.53E+11
*91	6.3	175	7	50	50	12,000	4934.7	697	0.9328	1.44E+11
*92	0.49	200	7	50	50	11,500	4729.7	689	0.9328	1.24E+10
*93	0.73	175	7	50	50	11,500	4729.7	689	0.9328	1.62E+10
*94	5.1	120	7	50	50	11,500	4729.7	689	0.9328	7.76E+10
*95	2.5	90	7	50	50	11,500	4729.7	689	0.9328	2.85E+10
*96	1.5	90	7	50	50	11,500	4729.7	689	0.9328	1.71E+10
97	1.7	210	7	50	50	8,000	3294.7	633	0.9328	3.43E+10
98	4.9	230	7	50	50	7,000	2884.7	617	0.9328	9.73E+10
99	5.3	250	7	50	50	6,000	2474.7	601	0.9328	1.01E+11
100	0.9	180	7	50	50	10,000	4114.7	665	0.9328	1.85E+10
101	8.2	180	7	50	50	9,000	3704.7	649	0.9328	1.56E+11

102	20.1	170	7	50	50	8,000	3294.7	633	0.9328	3.28E+11
103	17	160	7	50	50	7,000	2884.7	617	0.9328	2.35E+11
104	3.2	150	7	50	50	6,000	2474.7	601	0.9328	3.65E+10
105	1.2	100	7	50	50	6,500	2679.7	609	0.9328	9.75E+09
106	2.6	90	7	50	50	6,000	2474.7	601	0.9328	1.78E+10
107	9.1	150	7	50	50	6,000	2474.7	601	0.9328	1.04E+11
108	1.6	180	7	50	50	5,500	2269.7	593	0.9328	2.04E+10
109	0.71	210	7	50	50	9,500	3909.7	657	0.9328	1.64E+10
109a	0.49	200	7	50	50	9,500	3909.7	657	0.9328	1.08E+10
110	7	210	7	50	50	9,000	3704.7	649	0.9328	1.55E+11
111	7.9	210	7	50	50	8,000	3294.7	633	0.9328	1.59E+11
112	6.5	210	7	50	50	7,000	2884.7	617	0.9328	1.18E+11
113	7.3	210	7	50	50	6,000	2474.7	601	0.9328	1.17E+11
114	0.2	205	7	50	50	5,500	2269.7	593	0.9328	2.90E+09
115	9.9	180	7	50	50	8,000	3294.7	633	0.9328	1.71E+11
116	3.1	190	7	50	50	7,000	2884.7	617	0.9328	5.08E+10
117	0.21	195	7	50	50	6,500	2679.7	609	0.9328	3.33E+09
118	1.2	150	7	50	50	9,500	3909.7	657	0.9328	1.98E+10
119	16.1	150	7	50	50	9,500	3909.7	657	0.9328	2.65E+11
120	46.1	150	7	50	50	9,000	3704.7	649	0.9328	7.29E+11
									Total =	1.74E+13

Table 43: List of subplays in the nonmarine interval of the Mesaverde Formation transition play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Nonmarine Kmv 1.1-.73								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	7.82	6.94	8.62	0.08	276645.3	50.63	2731.0	2647.82	61.34	4.76E+20
2	7.59	6.73	8.38	0.71	276645.3	50.63	2731.0	2647.82	57.86	4.04E+21
3	7.12	6.30	7.88	0.76	276645.3	50.63	2731.0	2647.82	50.97	3.82E+21
4	6.63	5.85	7.36	3.27	276645.3	50.63	2731.0	2647.82	44.21	1.42E+22
5	6.12	5.38	6.81	1.22	276645.3	50.63	2731.0	2647.82	37.64	4.50E+21
6	5.85	5.14	6.52	0.12	276645.3	50.63	2731.0	2647.82	34.43	4.17E+20
7	7.82	6.94	8.62	1.45	235721.5	50.63	2731.0	2647.82	61.34	7.45E+21
8	7.59	6.73	8.38	9.69	235721.5	50.63	2731.0	2647.82	57.86	4.69E+22
9	7.12	6.30	7.88	5.33	245645.5	50.63	2731.0	2647.82	50.97	2.37E+22
10	6.88	6.08	7.62	0.75	245645.5	50.63	2731.0	2647.82	47.57	3.09E+21
11	7.82	6.94	8.62	7.91	309486.7	50.63	2731.0	2647.82	61.34	5.32E+22
12	7.59	6.73	8.38	89.09	309486.7	50.63	2731.0	2647.82	57.86	5.66E+23
13	7.12	6.30	7.88	17.79	309486.7	50.63	2731.0	2647.82	50.97	9.95E+22
14	6.63	5.85	7.36	0.22	266107.4	50.63	2731.0	2647.82	44.21	9.29E+20
15	7.59	6.73	8.38	9.69	393278.3	50.63	2731.0	2647.82	57.86	7.82E+22
16	7.12	6.30	7.88	8.48	393278.3	50.63	2731.0	2647.82	50.97	6.03E+22
17	7.36	6.52	8.13	0.16	320843.1	50.63	2731.0	2647.82	54.40	9.99E+20
18	7.59	6.73	8.38	367.84	198071.5	50.63	2731.0	2647.82	57.86	1.49E+24
18a	7.82	6.94	8.62	0.24	235721.5	50.63	2731.0	2647.82	61.34	1.24E+21
19	8.04	7.15	8.85	31.62	125329.3	50.63	2731.0	2647.82	64.85	9.11E+22
19a	7.82	6.94	8.62	0.21	171982.5	50.63	2731.0	2647.82	61.34	7.98E+20
20	7.59	6.73	8.38	150.08	125329.3	50.63	2731.0	2647.82	57.86	3.86E+23
21	7.36	6.52	8.13	0.97	163695.5	50.63	2731.0	2647.82	54.40	3.06E+21
22	7.12	6.30	7.88	515.01	189170.6	50.63	2731.0	2647.82	50.97	1.76E+24
23	6.63	5.85	7.36	245.38	189170.6	50.63	2731.0	2647.82	44.21	7.28E+23
23a	6.63	5.85	7.36	496.94	226002.0	50.63	2731.0	2647.82	44.21	1.76E+24
24	6.12	5.38	6.81	87.21	189170.6	50.63	2731.0	2647.82	37.64	2.20E+23
25	7.12	6.30	7.88	1.98	125329.3	50.63	2731.0	2647.82	50.97	4.48E+21
26	6.63	5.85	7.36	3.27	125329.3	50.63	2731.0	2647.82	44.21	6.42E+21
27	6.12	5.38	6.81	2.91	125329.3	50.63	2731.0	2647.82	37.64	4.87E+21
28	5.58	4.90	6.22	3.64	125329.3	50.63	2731.0	2647.82	31.30	5.06E+21
28a	5.85	5.14	6.52	1.45	171982.5	50.63	2731.0	2647.82	34.43	3.05E+21
29	7.12	6.30	7.88	29.40	63943.5	50.63	2731.0	2647.82	50.97	3.40E+22
30	6.63	5.85	7.36	48.01	63943.5	50.63	2731.0	2647.82	44.21	4.81E+22
31	6.12	5.38	6.81	16.95	63943.5	50.63	2731.0	2647.82	37.64	1.45E+22
32	5.58	4.90	6.22	1.98	63943.5	50.63	2731.0	2647.82	31.30	1.40E+21
33	6.63	5.85	7.36	15.34	33148.3	50.63	2731.0	2647.82	44.21	7.97E+21
34	6.12	5.38	6.81	40.02	33148.3	50.63	2731.0	2647.82	37.64	1.77E+22
35	5.58	4.90	6.22	13.80	36933.8	50.63	2731.0	2647.82	31.30	5.66E+21
35a	5.30	4.64	5.92	0.06	40923.9	50.63	2731.0	2647.82	28.24	2.58E+19
36	5.58	4.90	6.22	5.33	49517.9	50.63	2731.0	2647.82	31.30	2.93E+21
37	5.01	4.38	5.61	16.13	49517.9	50.63	2731.0	2647.82	25.26	7.16E+21
*38	4.10	3.57	4.61	0.16	77371.7	50.63	2731.0	2647.82	16.94	7.50E+19
*39	4.41	3.85	4.95	1.70	74583.7	50.63	2731.0	2647.82	19.60	8.83E+20
*40	5.01	4.38	5.61	14.56	74583.7	50.63	2731.0	2647.82	25.26	9.73E+21

*41	5.58	4.90	6.22	22.27	77371.7	50.63	2731.0	2647.82	31.30	1.91E+22
*42	6.12	5.38	6.81	31.62	77371.7	50.63	2731.0	2647.82	37.64	3.27E+22
*43	6.63	5.85	7.36	19.52	80210.8	50.63	2731.0	2647.82	44.21	2.45E+22
*44	6.88	6.08	7.62	0.21	98319.6	50.63	2731.0	2647.82	47.57	3.54E+20
*44a	6.88	6.08	7.62	0.04	86042.4	50.63	2731.0	2647.82	47.57	5.85E+19
*45	6.63	5.85	7.36	1.98	98319.6	50.63	2731.0	2647.82	44.21	3.05E+21
*46	6.12	5.38	6.81	13.07	98319.6	50.63	2731.0	2647.82	37.64	1.71E+22
*47	5.85	5.14	6.52	1.22	92078.7	50.63	2731.0	2647.82	34.43	1.37E+21
*48	7.12	6.30	7.88	0.65	77371.7	50.63	2731.0	2647.82	50.97	9.02E+20
*49	6.63	5.85	7.36	10.98	77371.7	50.63	2731.0	2647.82	44.21	1.33E+22
*50	6.12	5.38	6.81	25.21	77371.7	50.63	2731.0	2647.82	37.64	2.60E+22
*51	7.12	6.30	7.88	155.04	51794.3	50.63	2731.0	2647.82	50.97	1.45E+23
*52	6.12	5.38	6.81	192.02	51794.3	50.63	2731.0	2647.82	37.64	1.33E+23
*53	5.58	4.90	6.22	258.13	51794.3	50.63	2731.0	2647.82	31.30	1.48E+23
*54	5.01	4.38	5.61	194.82	51794.3	50.63	2731.0	2647.82	25.26	9.04E+22
*55	4.41	3.85	4.95	281.21	49517.9	50.63	2731.0	2647.82	19.60	9.68E+22
*56	3.78	3.29	4.26	96.84	45118.6	50.63	2731.0	2647.82	14.40	2.23E+22
*57	5.30	4.64	5.92	0.61	36933.8	50.63	2731.0	2647.82	28.24	2.27E+20
*58	5.01	4.38	5.61	45.26	31332.3	50.63	2731.0	2647.82	25.26	1.27E+22
*59	4.41	3.85	4.95	590.51	31332.3	50.63	2731.0	2647.82	19.60	1.29E+23
*60	4.10	3.57	4.61	4.45	33148.3	50.63	2731.0	2647.82	16.94	8.85E+20
*61	4.72	4.12	5.29	8.48	17290.3	50.63	2731.0	2647.82	22.38	1.16E+21
*62	4.41	3.85	4.95	10.33	17290.3	50.63	2731.0	2647.82	19.60	1.24E+21
*75	8.87	7.93	9.73	0.16	63943.5	50.63	2731.0	2647.82	78.99	2.89E+20
*76	8.46	7.54	9.30	0.36	63943.5	50.63	2731.0	2647.82	71.90	5.92E+20
*77	8.04	7.15	8.85	0.08	63943.5	50.63	2731.0	2647.82	64.85	1.25E+20
*78	8.87	7.93	9.73	3.64	58930.4	50.63	2731.0	2647.82	78.99	6.01E+21
*79	8.46	7.54	9.30	8.48	58930.4	50.63	2731.0	2647.82	71.90	1.27E+22
*80	8.04	7.15	8.85	2.91	58930.4	50.63	2731.0	2647.82	64.85	3.95E+21
*81	8.87	7.93	9.73	1.01	71847.0	50.63	2731.0	2647.82	78.99	2.03E+21
*82	8.46	7.54	9.30	24.21	80210.8	50.63	2731.0	2647.82	71.90	4.95E+22
*83	8.04	7.15	8.85	21.34	83101.0	50.63	2731.0	2647.82	64.85	4.08E+22
*84	8.25	7.35	9.08	1.22	58930.4	50.63	2731.0	2647.82	68.37	1.74E+21
*85	8.04	7.15	8.85	16.13	51794.3	50.63	2731.0	2647.82	64.85	1.92E+22
*86	8.25	7.35	9.08	5.81	31332.3	50.63	2731.0	2647.82	68.37	4.41E+21
*87	8.46	7.54	9.30	22.27	31332.3	50.63	2731.0	2647.82	71.90	1.78E+22
*88	8.46	7.54	9.30	5.81	21510.6	50.63	2731.0	2647.82	71.90	3.19E+21
*89	8.04	7.15	8.85	128.75	20052.7	50.63	2731.0	2647.82	64.85	5.94E+22
*90	7.59	6.73	8.38	223.86	17290.3	50.63	2731.0	2647.82	57.86	7.94E+22
*91	7.59	6.73	8.38	40.02	31332.3	50.63	2731.0	2647.82	57.86	2.57E+22
*92	7.36	6.52	8.13	0.24	40923.9	50.63	2731.0	2647.82	54.40	1.91E+20
*93	7.36	6.52	8.13	0.54	31332.3	50.63	2731.0	2647.82	54.40	3.25E+20
*94	7.36	6.52	8.13	26.23	14732.6	50.63	2731.0	2647.82	54.40	7.45E+21
*95	7.36	6.52	8.13	6.30	8287.1	50.63	2731.0	2647.82	54.40	1.01E+21
*96	7.36	6.52	8.13	2.27	8287.1	50.63	2731.0	2647.82	54.40	3.63E+20
97	5.58	4.90	6.22	2.91	45118.6	50.63	2731.0	2647.82	31.30	1.46E+21
98	5.01	4.38	5.61	24.21	54121.8	50.63	2731.0	2647.82	25.26	1.17E+22
99	4.41	3.85	4.95	28.32	63943.5	50.63	2731.0	2647.82	19.60	1.26E+22
100	6.63	5.85	7.36	0.82	33148.3	50.63	2731.0	2647.82	44.21	4.24E+20
101	6.12	5.38	6.81	67.80	33148.3	50.63	2731.0	2647.82	37.64	3.00E+22

102	5.58	4.90	6.22	407.37	29567.5	50.63	2731.0	2647.82	31.30	1.34E+23
103	5.01	4.38	5.61	291.40	26191.3	50.63	2731.0	2647.82	25.26	6.84E+22
104	4.41	3.85	4.95	10.33	23019.7	50.63	2731.0	2647.82	19.60	1.65E+21
105	4.72	4.12	5.29	1.45	10231.0	50.63	2731.0	2647.82	22.38	1.18E+20
106	4.41	3.85	4.95	6.82	8287.1	50.63	2731.0	2647.82	19.60	3.93E+20
107	4.41	3.85	4.95	83.50	23019.7	50.63	2731.0	2647.82	19.60	1.34E+22
108	4.10	3.57	4.61	2.58	33148.3	50.63	2731.0	2647.82	16.94	5.14E+20
109	6.38	5.62	7.09	0.51	45118.6	50.63	2731.0	2647.82	40.90	3.33E+20
109a	6.38	5.62	7.09	0.24	40923.9	50.63	2731.0	2647.82	40.90	1.44E+20
110	6.12	5.38	6.81	49.41	45118.6	50.63	2731.0	2647.82	37.64	2.98E+22
111	5.58	4.90	6.22	62.93	45118.6	50.63	2731.0	2647.82	31.30	3.15E+22
112	5.01	4.38	5.61	42.60	45118.6	50.63	2731.0	2647.82	25.26	1.72E+22
113	4.41	3.85	4.95	53.73	45118.6	50.63	2731.0	2647.82	19.60	1.68E+22
114	4.10	3.57	4.61	0.04	42995.6	50.63	2731.0	2647.82	16.94	1.04E+19
115	5.58	4.90	6.22	98.82	33148.3	50.63	2731.0	2647.82	31.30	3.64E+22
116	5.01	4.38	5.61	9.69	36933.8	50.63	2731.0	2647.82	25.26	3.21E+21
117	4.72	4.12	5.29	0.04	38903.2	50.63	2731.0	2647.82	22.38	1.37E+19
118	6.38	5.62	7.09	1.45	23019.7	50.63	2731.0	2647.82	40.90	4.85E+20
119	6.38	5.62	7.09	261.37	23019.7	50.63	2731.0	2647.82	40.90	8.73E+22
120	6.12	5.38	6.81	2142.88	23019.7	50.63	2731.0	2647.82	37.64	6.58E+23

Table 44: List of subplays in the nonmarine interval of the Mesaverde Formation transition play with estimates of ranges in percent for the six play attributes.

Play Name :		Nonmarine Kmv 1.1-.73								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.96E+10	9.16E+19	9.57E+09	23.5918	0.462473	8.23E+09	1.29E+10	1.76E+10	2.41E+10	3.77E+10
2	5.71E+10	7.78E+20	2.79E+10	24.6611	0.462576	2.40E+10	3.76E+10	5.13E+10	7.01E+10	1.10E+11
3	5.55E+10	7.36E+20	2.71E+10	24.6326	0.462794	2.33E+10	3.65E+10	4.99E+10	6.81E+10	1.07E+11
4	1.07E+11	2.73E+21	5.23E+10	25.2883	0.463026	4.49E+10	7.03E+10	9.61E+10	1.31E+11	2.06E+11
5	6.03E+10	8.70E+20	2.95E+10	24.7151	0.463275	2.53E+10	3.96E+10	5.42E+10	7.40E+10	1.16E+11
6	1.83E+10	8.06E+19	8.98E+09	23.5254	0.463406	7.69E+09	1.21E+10	1.65E+10	2.25E+10	3.53E+10
7	7.75E+10	1.43E+21	3.79E+10	24.9671	0.462473	3.26E+10	5.10E+10	6.97E+10	9.52E+10	1.49E+11
8	1.95E+11	9.03E+21	9.50E+10	25.8868	0.462576	8.17E+10	1.28E+11	1.75E+11	2.39E+11	3.74E+11
9	1.38E+11	4.57E+21	6.76E+10	25.5453	0.462794	5.80E+10	9.09E+10	1.24E+11	1.70E+11	2.66E+11
10	4.99E+10	5.96E+20	2.44E+10	24.527	0.462908	2.10E+10	3.28E+10	4.49E+10	6.13E+10	9.61E+10
11	2.07E+11	1.02E+22	1.01E+11	25.9505	0.462473	8.70E+10	1.36E+11	1.86E+11	2.54E+11	3.99E+11
12	6.76E+11	1.09E+23	3.30E+11	27.1322	0.462576	2.84E+11	4.45E+11	6.07E+11	8.29E+11	1.30E+12
13	2.83E+11	1.92E+22	1.38E+11	26.263	0.462794	1.19E+11	1.86E+11	2.55E+11	3.48E+11	5.45E+11
14	2.74E+10	1.79E+20	1.34E+10	23.9261	0.463026	1.15E+10	1.80E+10	2.46E+10	3.36E+10	5.27E+10
15	2.51E+11	1.51E+22	1.23E+11	26.1427	0.462576	1.05E+11	1.65E+11	2.26E+11	3.08E+11	4.83E+11
16	2.21E+11	1.16E+22	1.08E+11	26.0124	0.462794	9.26E+10	1.45E+11	1.98E+11	2.71E+11	4.24E+11
17	2.84E+10	1.92E+20	1.39E+10	23.9623	0.462683	1.19E+10	1.87E+10	2.55E+10	3.48E+10	5.46E+10
18	1.10E+12	2.88E+23	5.37E+11	27.6181	0.462576	4.61E+11	7.23E+11	9.87E+11	1.35E+12	2.11E+12
18a	3.17E+10	2.39E+20	1.55E+10	24.0714	0.462473	1.33E+10	2.08E+10	2.84E+10	3.89E+10	6.09E+10
19	2.71E+11	1.75E+22	1.32E+11	26.2195	0.462373	1.14E+11	1.79E+11	2.44E+11	3.33E+11	5.22E+11
19a	2.54E+10	1.54E+20	1.24E+10	23.8506	0.462473	1.07E+10	1.67E+10	2.28E+10	3.12E+10	4.88E+10
20	5.58E+11	7.43E+22	2.73E+11	26.941	0.462576	2.34E+11	3.67E+11	5.02E+11	6.85E+11	1.07E+12
21	4.97E+10	5.89E+20	2.43E+10	24.5219	0.462683	2.09E+10	3.27E+10	4.46E+10	6.10E+10	9.56E+10
22	1.19E+12	3.39E+23	5.83E+11	27.6997	0.462794	5.00E+11	7.84E+11	1.07E+12	1.46E+12	2.29E+12
23	7.66E+11	1.40E+23	3.75E+11	27.2577	0.463026	3.21E+11	5.04E+11	6.88E+11	9.41E+11	1.47E+12
23a	1.19E+12	3.40E+23	5.83E+11	27.6995	0.463026	5.00E+11	7.84E+11	1.07E+12	1.46E+12	2.29E+12
24	4.21E+11	4.25E+22	2.06E+11	26.6598	0.463275	1.77E+11	2.77E+11	3.79E+11	5.17E+11	8.11E+11
25	6.01E+10	8.63E+20	2.94E+10	24.7124	0.462794	2.52E+10	3.95E+10	5.40E+10	7.38E+10	1.16E+11
26	7.20E+10	1.24E+21	3.52E+10	24.8924	0.463026	3.02E+10	4.73E+10	6.47E+10	8.83E+10	1.38E+11
27	6.27E+10	9.42E+20	3.07E+10	24.7545	0.463275	2.63E+10	4.12E+10	5.63E+10	7.70E+10	1.21E+11
28	6.39E+10	9.79E+20	3.13E+10	24.7733	0.463542	2.68E+10	4.20E+10	5.74E+10	7.84E+10	1.23E+11
28a	4.96E+10	5.89E+20	2.43E+10	24.5199	0.463406	2.08E+10	3.26E+10	4.45E+10	6.09E+10	9.55E+10
29	1.66E+11	6.55E+21	8.09E+10	25.7259	0.462794	6.95E+10	1.09E+11	1.49E+11	2.03E+11	3.19E+11
30	1.97E+11	9.29E+21	9.64E+10	25.8997	0.463026	8.27E+10	1.30E+11	1.77E+11	2.42E+11	3.79E+11
31	1.08E+11	2.79E+21	5.29E+10	25.2984	0.463275	4.53E+10	7.10E+10	9.70E+10	1.33E+11	2.08E+11
32	3.36E+10	2.71E+20	1.65E+10	24.1314	0.463542	1.41E+10	2.21E+10	3.02E+10	4.13E+10	6.48E+10
33	8.02E+10	1.54E+21	3.92E+10	25.0006	0.463026	3.36E+10	5.27E+10	7.20E+10	9.84E+10	1.54E+11
34	1.20E+11	3.42E+21	5.85E+10	25.3995	0.463275	5.01E+10	7.86E+10	1.07E+11	1.47E+11	2.30E+11
35	6.76E+10	1.09E+21	3.31E+10	24.8289	0.463542	2.83E+10	4.44E+10	6.07E+10	8.29E+10	1.30E+11
35a	4.56E+09	5.00E+18	2.24E+09	22.1339	0.463683	1.91E+09	3.00E+09	4.10E+09	5.60E+09	8.79E+09
36	4.86E+10	5.67E+20	2.38E+10	24.5	0.463542	2.04E+10	3.20E+10	4.37E+10	5.97E+10	9.36E+10
37	7.60E+10	1.39E+21	3.72E+10	24.946	0.463828	3.18E+10	4.99E+10	6.82E+10	9.33E+10	1.46E+11
*38	7.77E+09	1.45E+19	3.81E+09	22.6662	0.464294	3.25E+09	5.10E+09	6.98E+09	9.54E+09	1.50E+10
*39	2.67E+10	1.71E+20	1.31E+10	23.8997	0.464134	1.12E+10	1.75E+10	2.40E+10	3.28E+10	5.14E+10
*40	8.86E+10	1.88E+21	4.34E+10	25.0995	0.463828	3.71E+10	5.82E+10	7.95E+10	1.09E+11	1.71E+11

*41	1.24E+11	3.70E+21	6.08E+10	25.4378	0.463542	5.20E+10	8.16E+10	1.12E+11	1.52E+11	2.39E+11
*42	1.62E+11	6.31E+21	7.94E+10	25.7055	0.463275	6.80E+10	1.07E+11	1.46E+11	1.99E+11	3.12E+11
*43	1.41E+11	4.74E+21	6.88E+10	25.5631	0.463026	5.90E+10	9.25E+10	1.26E+11	1.73E+11	2.71E+11
*44	1.69E+10	6.83E+19	8.26E+09	23.4434	0.462908	7.09E+09	1.11E+10	1.52E+10	2.07E+10	3.25E+10
*44a	6.87E+09	1.13E+19	3.36E+09	22.5438	0.462908	2.88E+09	4.52E+09	6.18E+09	8.44E+09	1.32E+10
*45	4.96E+10	5.88E+20	2.42E+10	24.5197	0.463026	2.08E+10	3.26E+10	4.45E+10	6.09E+10	9.54E+10
*46	1.18E+11	3.31E+21	5.76E+10	25.3835	0.463275	4.93E+10	7.73E+10	1.06E+11	1.44E+11	2.26E+11
*47	3.33E+10	2.65E+20	1.63E+10	24.1205	0.463406	1.39E+10	2.19E+10	2.99E+10	4.08E+10	6.40E+10
*48	2.70E+10	1.74E+20	1.32E+10	23.9116	0.462794	1.13E+10	1.78E+10	2.42E+10	3.31E+10	5.19E+10
*49	1.04E+11	2.57E+21	5.07E+10	25.2574	0.463026	4.35E+10	6.82E+10	9.31E+10	1.27E+11	1.99E+11
*50	1.45E+11	5.03E+21	7.09E+10	25.5922	0.463275	6.08E+10	9.53E+10	1.30E+11	1.78E+11	2.79E+11
*51	3.42E+11	2.80E+22	1.67E+11	26.4518	0.462794	1.44E+11	2.25E+11	3.08E+11	4.20E+11	6.58E+11
*52	3.27E+11	2.56E+22	1.60E+11	26.4067	0.463275	1.37E+11	2.15E+11	2.94E+11	4.02E+11	6.30E+11
*53	3.46E+11	2.87E+22	1.69E+11	26.4622	0.463542	1.45E+11	2.27E+11	3.11E+11	4.25E+11	6.66E+11
*54	2.70E+11	1.75E+22	1.32E+11	26.2141	0.463828	1.13E+11	1.77E+11	2.42E+11	3.31E+11	5.20E+11
*55	2.79E+11	1.88E+22	1.37E+11	26.2479	0.464134	1.17E+11	1.83E+11	2.51E+11	3.43E+11	5.38E+11
*56	1.34E+11	4.33E+21	6.58E+10	25.5141	0.46446	5.61E+10	8.80E+10	1.20E+11	1.65E+11	2.58E+11
*57	1.35E+10	4.39E+19	6.63E+09	23.2205	0.463683	5.67E+09	8.89E+09	1.21E+10	1.66E+10	2.60E+10
*58	1.01E+11	2.46E+21	4.96E+10	25.233	0.463828	4.24E+10	6.65E+10	9.09E+10	1.24E+11	1.95E+11
*59	3.22E+11	2.49E+22	1.58E+11	26.39	0.464134	1.35E+11	2.11E+11	2.89E+11	3.95E+11	6.20E+11
*60	2.67E+10	1.72E+20	1.31E+10	23.9007	0.464294	1.12E+10	1.75E+10	2.40E+10	3.28E+10	5.15E+10
*61	3.06E+10	2.25E+20	1.50E+10	24.0376	0.463978	1.28E+10	2.01E+10	2.75E+10	3.76E+10	5.90E+10
*62	3.16E+10	2.40E+20	1.55E+10	24.0696	0.464134	1.32E+10	2.08E+10	2.84E+10	3.88E+10	6.09E+10
*75	1.53E+10	5.55E+19	7.45E+09	23.343	0.462003	6.42E+09	1.01E+10	1.37E+10	1.87E+10	2.94E+10
*76	2.19E+10	1.14E+20	1.07E+10	23.7013	0.462182	9.19E+09	1.44E+10	1.96E+10	2.68E+10	4.20E+10
*77	1.00E+10	2.40E+19	4.90E+09	22.9224	0.462373	4.21E+09	6.60E+09	9.02E+09	1.23E+10	1.93E+10
*78	6.97E+10	1.15E+21	3.40E+10	24.8603	0.462003	2.93E+10	4.59E+10	6.26E+10	8.55E+10	1.34E+11
*79	1.01E+11	2.45E+21	4.95E+10	25.236	0.462182	4.26E+10	6.68E+10	9.12E+10	1.24E+11	1.95E+11
*80	5.65E+10	7.60E+20	2.76E+10	24.6501	0.462373	2.37E+10	3.72E+10	5.07E+10	6.93E+10	1.09E+11
*81	4.05E+10	3.90E+20	1.97E+10	24.3176	0.462003	1.70E+10	2.67E+10	3.64E+10	4.97E+10	7.78E+10
*82	2.00E+11	9.52E+21	9.76E+10	25.9147	0.462182	8.40E+10	1.32E+11	1.80E+11	2.45E+11	3.84E+11
*83	1.81E+11	7.85E+21	8.86E+10	25.8174	0.462373	7.62E+10	1.19E+11	1.63E+11	2.23E+11	3.49E+11
*84	3.75E+10	3.35E+20	1.83E+10	24.2413	0.462276	1.58E+10	2.47E+10	3.37E+10	4.60E+10	7.21E+10
*85	1.25E+11	3.70E+21	6.08E+10	25.4412	0.462373	5.23E+10	8.20E+10	1.12E+11	1.53E+11	2.40E+11
*86	5.97E+10	8.49E+20	2.91E+10	24.7056	0.462276	2.51E+10	3.93E+10	5.36E+10	7.33E+10	1.15E+11
*87	1.20E+11	3.42E+21	5.85E+10	25.403	0.462182	5.04E+10	7.89E+10	1.08E+11	1.47E+11	2.30E+11
*88	5.07E+10	6.13E+20	2.48E+10	24.5428	0.462182	2.13E+10	3.34E+10	4.56E+10	6.22E+10	9.75E+10
*89	2.19E+11	1.14E+22	1.07E+11	26.0053	0.462373	9.20E+10	1.44E+11	1.97E+11	2.69E+11	4.21E+11
*90	2.53E+11	1.53E+22	1.24E+11	26.1505	0.462576	1.06E+11	1.67E+11	2.28E+11	3.11E+11	4.87E+11
*91	1.44E+11	4.96E+21	7.04E+10	25.587	0.462576	6.05E+10	9.48E+10	1.30E+11	1.77E+11	2.77E+11
*92	1.24E+10	3.68E+19	6.07E+09	23.1356	0.462683	5.21E+09	8.17E+09	1.12E+10	1.52E+10	2.39E+10
*93	1.62E+10	6.26E+19	7.91E+09	23.4008	0.462683	6.80E+09	1.07E+10	1.45E+10	1.99E+10	3.11E+10
*94	7.76E+10	1.44E+21	3.79E+10	24.9674	0.462683	3.26E+10	5.10E+10	6.97E+10	9.52E+10	1.49E+11
*95	2.85E+10	1.94E+20	1.39E+10	23.9668	0.462683	1.20E+10	1.88E+10	2.56E+10	3.50E+10	5.49E+10
*96	1.71E+10	6.99E+19	8.36E+09	23.456	0.462683	7.18E+09	1.13E+10	1.54E+10	2.10E+10	3.29E+10
97	3.43E+10	2.82E+20	1.68E+10	24.1512	0.463542	1.44E+10	2.25E+10	3.08E+10	4.21E+10	6.61E+10
98	9.73E+10	2.27E+21	4.77E+10	25.1934	0.463828	4.07E+10	6.39E+10	8.74E+10	1.19E+11	1.87E+11
99	1.01E+11	2.44E+21	4.94E+10	25.2281	0.464134	4.22E+10	6.62E+10	9.05E+10	1.24E+11	1.94E+11
100	1.85E+10	8.19E+19	9.05E+09	23.5343	0.463026	7.76E+09	1.22E+10	1.66E+10	2.27E+10	3.56E+10
101	1.56E+11	5.79E+21	7.61E+10	25.663	0.463275	6.52E+10	1.02E+11	1.40E+11	1.91E+11	2.99E+11

102	3.28E+11	2.58E+22	1.61E+11	26.41	0.463542	1.38E+11	2.16E+11	2.95E+11	4.03E+11	6.32E+11
103	2.35E+11	1.32E+22	1.15E+11	26.0745	0.463828	9.83E+10	1.54E+11	2.11E+11	2.88E+11	4.52E+11
104	3.65E+10	3.20E+20	1.79E+10	24.2127	0.464134	1.53E+10	2.40E+10	3.28E+10	4.48E+10	7.03E+10
105	9.75E+09	2.28E+19	4.78E+09	22.8928	0.463978	4.08E+09	6.40E+09	8.75E+09	1.20E+10	1.88E+10
106	1.78E+10	7.61E+19	8.72E+09	23.4942	0.464134	7.44E+09	1.17E+10	1.60E+10	2.18E+10	3.43E+10
107	1.04E+11	2.59E+21	5.09E+10	25.2578	0.464134	4.34E+10	6.82E+10	9.32E+10	1.27E+11	2.00E+11
108	2.04E+10	9.97E+19	9.98E+09	23.6287	0.464294	8.51E+09	1.34E+10	1.83E+10	2.50E+10	3.92E+10
109	1.64E+10	6.42E+19	8.01E+09	23.4122	0.463149	6.87E+09	1.08E+10	1.47E+10	2.01E+10	3.15E+10
109a	1.08E+10	2.77E+19	5.27E+09	22.9926	0.463149	4.52E+09	7.08E+09	9.67E+09	1.32E+10	2.07E+10
110	1.55E+11	5.75E+21	7.58E+10	25.659	0.463275	6.50E+10	1.02E+11	1.39E+11	1.90E+11	2.98E+11
111	1.59E+11	6.09E+21	7.81E+10	25.6875	0.463542	6.68E+10	1.05E+11	1.43E+11	1.96E+11	3.07E+11
112	1.18E+11	3.33E+21	5.77E+10	25.385	0.463828	4.93E+10	7.74E+10	1.06E+11	1.45E+11	2.27E+11
113	1.17E+11	3.27E+21	5.71E+10	25.3739	0.464134	4.88E+10	7.65E+10	1.05E+11	1.43E+11	2.25E+11
114	2.90E+09	2.02E+18	1.42E+09	21.6793	0.464294	1.21E+09	1.90E+09	2.60E+09	3.56E+09	5.58E+09
115	1.71E+11	7.03E+21	8.38E+10	25.759	0.463542	7.18E+10	1.13E+11	1.54E+11	2.10E+11	3.30E+11
116	5.08E+10	6.21E+20	2.49E+10	24.5445	0.463828	2.13E+10	3.34E+10	4.57E+10	6.24E+10	9.79E+10
117	3.33E+09	2.66E+18	1.63E+09	21.8177	0.463978	1.39E+09	2.19E+09	2.99E+09	4.08E+09	6.41E+09
118	1.98E+10	9.36E+19	9.67E+09	23.6006	0.463149	8.29E+09	1.30E+10	1.78E+10	2.43E+10	3.81E+10
119	2.65E+11	1.68E+22	1.30E+11	26.1971	0.463149	1.11E+11	1.74E+11	2.38E+11	3.26E+11	5.11E+11
120	7.29E+11	1.27E+23	3.57E+11	27.2074	0.463275	3.06E+11	4.79E+11	6.55E+11	8.95E+11	1.40E+12
P.P.C.	1.74E+13	7.24E+25	8.51E+12			7.30E+12	1.14E+13	1.56E+13	2.14E+13	3.35E+13

Table 45: List of subplays in the nonmarine interval of the Mesaverde Formation transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :	Meeteetse > 300									(Panel 1)
						a =	0.727	0.016	0.00008	
						b =	14.7	505	0	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	15.2	220	6	100	50	17,000	12373.7	777	1.36	1.16E+12
2	30.3	180	6	100	50	17,000	12373.7	777	1.36	1.89E+12
3	7.3	180	6	100	50	18,000	13100.7	793	1.44	4.45E+11
4	1.4	200	6	100	50	19,000	13827.7	809	1.52	9.30E+10
5	0.76	200	6	100	50	17,500	12737.2	785	1.4	5.20E+10
6	5.4	210	6	100	50	18,000	13100.7	793	1.44	3.84E+11
7	6.9	210	6	100	50	19,000	13827.7	809	1.52	4.81E+11
8	2.1	180	6	100	50	17,000	12373.7	777	1.36	1.31E+11
9	8.7	180	6	100	50	18,000	13100.7	793	1.44	5.30E+11
9a	0.1	200	6	100	50	18,500	13464.2	801	1.48	6.71E+09
10	0.86	200	6	100	50	17,500	12737.2	785	1.4	5.89E+10
11	0.36	200	6	100	50	18,500	13464.2	801	1.48	2.41E+10
12	62.6	375	6	100	50	19,000	13827.7	809	1.52	7.79E+12
13	66.8	350	6	100	50	18,000	13100.7	793	1.44	7.92E+12
14	13.5	320	6	100	50	17,000	12373.7	777	1.36	1.49E+12
15	1	310	6	100	50	16,500	12010.2	769	1.32	1.08E+11
16	20.7	275	6	100	50	17,000	12373.7	777	1.36	1.97E+12
17	11.3	260	6	100	50	16,000	11646.7	761	1.28	1.04E+12
18	16.9	350	6	100	50	17,000	12373.7	777	1.36	2.05E+12
19	20.3	350	6	100	50	16,000	11646.7	761	1.28	2.51E+12
20	7.6	450	6	100	50	19,000	13827.7	809	1.52	1.14E+12
21	23.2	450	6	100	50	18,000	13100.7	793	1.44	3.54E+12
22	12.5	420	6	100	50	17,000	12373.7	777	1.36	1.82E+12
23	0.15	400	6	100	50	16,500	12010.2	769	1.32	2.10E+10
24	4	520	6	100	50	19,000	13827.7	809	1.52	6.91E+11
25	5.6	450	6	100	50	19,000	13827.7	809	1.52	8.37E+11
26	8.2	350	6	100	50	19,000	13827.7	809	1.52	9.53E+11
27	4	275	6	100	50	19,000	13827.7	809	1.52	3.65E+11
28	0.5	290	6	100	50	18,500	13464.2	801	1.48	4.86E+10
29	11.3	350	6	100	50	18,000	13100.7	793	1.44	1.34E+12
30	17	350	6	100	50	17,000	12373.7	777	1.36	2.06E+12
31	16.6	240	6	100	50	17,000	12373.7	777	1.36	1.38E+12
32	0.97	250	6	100	50	16,500	12010.2	769	1.32	8.47E+10
33	27.4	250	6	100	50	18,000	13100.7	793	1.44	2.32E+12
34	15.8	220	6	100	50	19,000	13827.7	809	1.52	1.15E+12
35	3.2	180	6	100	50	15,000	10919.7	745	1.2	2.08E+11
36	4.2	190	6	100	50	18,000	13100.7	793	1.44	2.70E+11
37	16.3	190	6	100	50	17,000	12373.7	777	1.36	1.07E+12
38	25.9	190	6	100	50	16,000	11646.7	761	1.28	1.74E+12
39	0.86	190	6	100	50	15,500	11283.2	753	1.24	5.83E+10
40	0.73	200	6	100	50	18,500	13464.2	801	1.48	4.90E+10
									Total =	5.13E+13

Table 46: List of subplays in the Meeteetse Formation highly overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Meeteetse > 300								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	11.71	12.36	11.12	232.96	49517.9	36.30	10037.0	2536.95	137.25	1.42E+24
2	11.71	12.36	11.12	925.72	33148.3	36.30	10037.0	2536.95	137.25	3.77E+24
3	11.47	12.14	10.88	53.73	33148.3	36.30	10037.0	2536.95	131.76	2.10E+23
4	11.24	11.92	10.64	1.98	40923.9	36.30	10037.0	2536.95	126.60	9.17E+21
5	11.59	12.25	11.00	0.58	40923.9	36.30	10037.0	2536.95	134.47	2.87E+21
6	11.47	12.14	10.88	29.40	45118.6	36.30	10037.0	2536.95	131.76	1.56E+23
7	11.24	11.92	10.64	48.01	45118.6	36.30	10037.0	2536.95	126.60	2.46E+23
8	11.71	12.36	11.12	4.45	33148.3	36.30	10037.0	2536.95	137.25	1.81E+22
9	11.47	12.14	10.88	76.32	33148.3	36.30	10037.0	2536.95	131.76	2.98E+23
9a	11.36	12.03	10.76	0.01	40923.9	36.30	10037.0	2536.95	129.14	4.77E+19
10	11.59	12.25	11.00	0.75	40923.9	36.30	10037.0	2536.95	134.47	3.67E+21
11	11.36	12.03	10.76	0.13	40923.9	36.30	10037.0	2536.95	129.14	6.18E+20
12	11.24	11.92	10.64	3951.34	143873.0	36.30	10037.0	2536.95	126.60	6.44E+25
13	11.47	12.14	10.88	4499.34	125329.3	36.30	10037.0	2536.95	131.76	6.65E+25
14	11.71	12.36	11.12	183.77	104765.1	36.30	10037.0	2536.95	137.25	2.37E+24
15	11.83	12.48	11.25	1.01	98319.6	36.30	10037.0	2536.95	140.13	1.24E+22
16	11.71	12.36	11.12	432.05	77371.7	36.30	10037.0	2536.95	137.25	4.11E+24
17	11.96	12.59	11.38	128.75	69161.3	36.30	10037.0	2536.95	143.10	1.14E+24
18	11.71	12.36	11.12	287.98	125329.3	36.30	10037.0	2536.95	137.25	4.44E+24
19	11.96	12.59	11.38	415.52	125329.3	36.30	10037.0	2536.95	143.10	6.67E+24
20	11.24	11.92	10.64	58.24	207177.1	36.30	10037.0	2536.95	126.60	1.37E+24
21	11.47	12.14	10.88	542.72	207177.1	36.30	10037.0	2536.95	131.76	1.33E+25
22	11.71	12.36	11.12	157.55	180474.2	36.30	10037.0	2536.95	137.25	3.49E+24
23	11.83	12.48	11.25	0.02	163695.5	36.30	10037.0	2536.95	140.13	4.66E+20
24	11.24	11.92	10.64	16.13	276645.3	36.30	10037.0	2536.95	126.60	5.06E+23
25	11.24	11.92	10.64	31.62	207177.1	36.30	10037.0	2536.95	126.60	7.43E+23
26	11.24	11.92	10.64	67.80	125329.3	36.30	10037.0	2536.95	126.60	9.63E+23
27	11.24	11.92	10.64	16.13	77371.7	36.30	10037.0	2536.95	126.60	1.41E+23
28	11.36	12.03	10.76	0.25	86042.4	36.30	10037.0	2536.95	129.14	2.51E+21
29	11.47	12.14	10.88	128.75	125329.3	36.30	10037.0	2536.95	131.76	1.90E+24
30	11.71	12.36	11.12	291.40	125329.3	36.30	10037.0	2536.95	137.25	4.49E+24
31	11.71	12.36	11.12	277.85	58930.4	36.30	10037.0	2536.95	137.25	2.01E+24
32	11.83	12.48	11.25	0.95	63943.5	36.30	10037.0	2536.95	140.13	7.61E+21
33	11.47	12.14	10.88	757.00	63943.5	36.30	10037.0	2536.95	131.76	5.71E+24
34	11.24	11.92	10.64	251.72	49517.9	36.30	10037.0	2536.95	126.60	1.41E+24
35	12.21	12.84	11.65	10.33	33148.3	36.30	10037.0	2536.95	149.32	4.58E+22
36	11.47	12.14	10.88	17.79	36933.8	36.30	10037.0	2536.95	131.76	7.75E+22
37	11.71	12.36	11.12	267.90	36933.8	36.30	10037.0	2536.95	137.25	1.22E+24
38	11.96	12.59	11.38	676.39	36933.8	36.30	10037.0	2536.95	143.10	3.20E+24
39	12.08	12.72	11.51	0.75	36933.8	36.30	10037.0	2536.95	146.16	3.60E+21
40	11.36	12.03	10.76	0.54	40923.9	36.30	10037.0	2536.95	129.14	2.54E+21

Table 47: List of subplays in the Meeteetse Formation highly overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Meeteetse > 300								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.16E+12	8.09E+22	2.84E+11	27.7467	0.242463	7.53E+11	9.53E+11	1.12E+12	1.32E+12	1.67E+12
2	1.89E+12	2.15E+23	4.64E+11	28.2359	0.242463	1.23E+12	1.55E+12	1.83E+12	2.16E+12	2.73E+12
3	4.45E+11	1.20E+22	1.10E+11	26.7921	0.242625	2.90E+11	3.67E+11	4.32E+11	5.09E+11	6.44E+11
4	9.30E+10	5.25E+20	2.29E+10	25.226	0.242785	6.05E+10	7.66E+10	9.03E+10	1.06E+11	1.35E+11
5	5.20E+10	1.64E+20	1.28E+10	24.6454	0.242544	3.39E+10	4.29E+10	5.05E+10	5.95E+10	7.53E+10
6	3.84E+11	8.95E+21	9.46E+10	26.6448	0.242625	2.50E+11	3.17E+11	3.73E+11	4.39E+11	5.56E+11
7	4.81E+11	1.41E+22	1.19E+11	26.8699	0.242785	3.13E+11	3.97E+11	4.67E+11	5.50E+11	6.96E+11
8	1.31E+11	1.03E+21	3.22E+10	25.5667	0.242463	8.52E+10	1.08E+11	1.27E+11	1.49E+11	1.89E+11
9	5.30E+11	1.71E+22	1.31E+11	26.9676	0.242625	3.46E+11	4.37E+11	5.15E+11	6.07E+11	7.68E+11
9a	6.71E+09	2.73E+18	1.65E+09	22.5969	0.242705	4.37E+09	5.53E+09	6.51E+09	7.67E+09	9.71E+09
10	5.89E+10	2.10E+20	1.45E+10	24.769	0.242544	3.83E+10	4.85E+10	5.72E+10	6.73E+10	8.52E+10
11	2.41E+10	3.54E+19	5.95E+09	23.8779	0.242705	1.57E+10	1.99E+10	2.34E+10	2.76E+10	3.49E+10
12	7.79E+12	3.69E+24	1.92E+12	29.6549	0.242785	5.08E+12	6.43E+12	7.57E+12	8.91E+12	1.13E+13
13	7.92E+12	3.80E+24	1.95E+12	29.6709	0.242625	5.16E+12	6.53E+12	7.69E+12	9.06E+12	1.15E+13
14	1.49E+12	1.35E+23	3.68E+11	28.0028	0.242463	9.73E+11	1.23E+12	1.45E+12	1.71E+12	2.16E+12
15	1.08E+11	7.10E+20	2.66E+10	25.3788	0.242382	7.06E+10	8.93E+10	1.05E+11	1.24E+11	1.57E+11
16	1.97E+12	2.35E+23	4.84E+11	28.2787	0.242463	1.28E+12	1.62E+12	1.91E+12	2.25E+12	2.85E+12
17	1.04E+12	6.50E+22	2.55E+11	27.6382	0.242301	6.76E+11	8.55E+11	1.01E+12	1.19E+12	1.50E+12
18	2.05E+12	2.53E+23	5.03E+11	28.317	0.242463	1.33E+12	1.69E+12	1.99E+12	2.34E+12	2.96E+12
19	2.51E+12	3.80E+23	6.17E+11	28.5213	0.242301	1.64E+12	2.07E+12	2.44E+12	2.87E+12	3.63E+12
20	1.14E+12	7.83E+22	2.80E+11	27.7286	0.242785	7.39E+11	9.36E+11	1.10E+12	1.30E+12	1.64E+12
21	3.54E+12	7.58E+23	8.71E+11	28.8647	0.242625	2.30E+12	2.92E+12	3.43E+12	4.04E+12	5.12E+12
22	1.82E+12	1.99E+23	4.47E+11	28.1978	0.242463	1.18E+12	1.50E+12	1.76E+12	2.08E+12	2.63E+12
23	2.10E+10	2.66E+19	5.16E+09	23.7365	0.242382	1.37E+10	1.73E+10	2.04E+10	2.40E+10	3.03E+10
24	6.91E+11	2.90E+22	1.70E+11	27.2313	0.242785	4.50E+11	5.69E+11	6.71E+11	7.90E+11	1.00E+12
25	8.37E+11	4.25E+22	2.06E+11	27.4232	0.242785	5.45E+11	6.90E+11	8.12E+11	9.57E+11	1.21E+12
26	9.53E+11	5.51E+22	2.35E+11	27.5533	0.242785	6.21E+11	7.86E+11	9.25E+11	1.09E+12	1.38E+12
27	3.65E+11	8.10E+21	9.00E+10	26.5943	0.242785	2.38E+11	3.01E+11	3.55E+11	4.18E+11	5.29E+11
28	4.86E+10	1.43E+20	1.20E+10	24.5779	0.242705	3.17E+10	4.01E+10	4.72E+10	5.56E+10	7.04E+10
29	1.34E+12	1.09E+23	3.30E+11	27.894	0.242625	8.73E+11	1.10E+12	1.30E+12	1.53E+12	1.94E+12
30	2.06E+12	2.56E+23	5.06E+11	28.3229	0.242463	1.34E+12	1.70E+12	2.00E+12	2.35E+12	2.98E+12
31	1.38E+12	1.15E+23	3.39E+11	27.9218	0.242463	8.98E+11	1.14E+12	1.34E+12	1.57E+12	1.99E+12
32	8.47E+10	4.34E+20	2.08E+10	25.1332	0.242382	5.52E+10	6.99E+10	8.23E+10	9.69E+10	1.23E+11
33	2.32E+12	3.26E+23	5.71E+11	28.4433	0.242625	1.51E+12	1.91E+12	2.25E+12	2.65E+12	3.36E+12
34	1.15E+12	8.09E+22	2.84E+11	27.7449	0.242785	7.52E+11	9.51E+11	1.12E+12	1.32E+12	1.67E+12
35	2.08E+11	2.61E+21	5.10E+10	26.0302	0.242139	1.35E+11	1.71E+11	2.02E+11	2.37E+11	3.00E+11
36	2.70E+11	4.43E+21	6.66E+10	26.2934	0.242625	1.76E+11	2.23E+11	2.62E+11	3.09E+11	3.91E+11
37	1.07E+12	6.94E+22	2.63E+11	27.67	0.242463	6.98E+11	8.83E+11	1.04E+12	1.22E+12	1.55E+12
38	1.74E+12	1.82E+23	4.27E+11	28.154	0.242301	1.13E+12	1.43E+12	1.69E+12	1.99E+12	2.51E+12
39	5.83E+10	2.05E+20	1.43E+10	24.7595	0.24222	3.80E+10	4.81E+10	5.66E+10	6.67E+10	8.43E+10
40	4.90E+10	1.45E+20	1.21E+10	24.5848	0.242705	3.19E+10	4.04E+10	4.75E+10	5.60E+10	7.09E+10
P.P.C.	5.13E+13	1.59E+26	1.26E+13			3.34E+13	4.23E+13	4.98E+13	5.86E+13	7.42E+13

Table 48: List of subplays in the Meeteetse Formation highly overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Meeteetse > 1.1								(Panel 1)
						a =	0.52	0.016	0	
						b =	14.7	505	1.24	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	10.8	366	7	100	50	18,500	9634.7	801	1.24	1.32E+12
2	43.2	370	7	100	50	18,000	9374.7	793	1.24	5.25E+12
3	20.9	370	7	100	50	17,000	8854.7	777	1.24	2.45E+12
4	1.1	370	7	100	50	14,500	7554.7	737	1.24	1.16E+11
5	1.6	400	7	100	50	14,500	7554.7	737	1.24	1.82E+11
6	6.8	410	7	100	50	14,000	7294.7	729	1.24	7.75E+11
7	3.7	415	7	100	50	13,500	7034.7	721	1.24	4.16E+11
8	24.8	350	7	100	50	16,000	8334.7	761	1.24	2.64E+12
9	24.4	350	7	100	50	15,000	7814.7	745	1.24	2.49E+12
10	15.7	350	7	100	50	14,000	7294.7	729	1.24	1.53E+12
11	2.4	350	7	100	50	13,500	7034.7	721	1.24	2.28E+11
12	4.2	250	7	100	50	15,500	8074.7	753	1.24	3.13E+11
13	21.5	250	7	100	50	15,000	7814.7	745	1.24	1.57E+12
14	9.2	250	7	100	50	14,000	7294.7	729	1.24	6.39E+11
15	6.3	250	7	100	50	13,000	6774.7	713	1.24	4.16E+11
16	0.8	230	7	100	50	12,500	6514.7	705	1.24	4.72E+10
17	1.7	200	7	100	50	14,500	7554.7	737	1.24	9.68E+10
18	7.1	190	7	100	50	14,000	7294.7	729	1.24	3.75E+11
19	11.1	185	7	100	50	13,000	6774.7	713	1.24	5.42E+11
20	12	180	7	100	50	12,000	6254.7	697	1.24	5.38E+11
21	7.5	170	7	100	50	11,000	5734.7	681	1.24	2.98E+11
22	0.6	190	7	100	50	10,500	5474.7	673	1.24	2.58E+10
23	6.4	250	7	100	50	14,000	7294.7	729	1.24	4.45E+11
24	6.5	250	7	100	50	13,000	6774.7	713	1.24	4.29E+11
25	24.6	250	7	100	50	12,000	6254.7	697	1.24	1.53E+12
26	25.4	250	7	100	50	11,000	5734.7	681	1.24	1.49E+12
27	18.5	230	7	100	50	10,000	5214.7	665	1.24	9.27E+11
28	7.9	350	7	100	50	15,500	8074.7	753	1.24	8.24E+11
29	19.4	340	7	100	50	15,000	7814.7	745	1.24	1.92E+12
30	9.4	320	7	100	50	14,000	7294.7	729	1.24	8.36E+11
31	4	310	7	100	50	13,000	6774.7	713	1.24	3.27E+11
32	0.2	300	7	100	50	12,500	6514.7	705	1.24	1.54E+10
33	4.5	250	7	100	50	16,000	8334.7	761	1.24	3.42E+11
34	6.6	250	7	100	50	15,000	7814.7	745	1.24	4.81E+11
35	15.1	250	7	100	50	14,000	7294.7	729	1.24	1.05E+12
36	17.1	250	7	100	50	13,000	6774.7	713	1.24	1.13E+12
37	7.4	220	7	100	50	9,000	4694.7	649	1.24	3.27E+11
38	6.4	190	7	100	50	15,500	8074.7	753	1.24	3.62E+11
39	42.2	185	7	100	50	15,000	7814.7	745	1.24	2.27E+12
40	49.2	180	7	100	50	14,000	7294.7	729	1.24	2.46E+12
41	39.9	175	7	100	50	13,000	6774.7	713	1.24	1.84E+12
42	29.4	175	7	100	50	12,000	6254.7	697	1.24	1.28E+12
43	26.4	175	7	100	50	10,000	5214.7	665	1.24	1.01E+12
44	3.6	260	7	100	50	10,500	5474.7	673	1.24	2.12E+11
45	68.1	170	7	100	50	11,000	5734.7	681	1.24	2.71E+12

46	3.8	180	7	100	50	12,500	6514.7	705	1.24	1.76E+11
47	0.81	200	7	100	50	10,500	5474.7	673	1.24	3.66E+10
48	4.3	200	7	100	50	10,500	5474.7	673	1.24	1.94E+11
49	34	220	7	100	50	10,000	5214.7	665	1.24	1.63E+12
50	15.6	380	7	100	50	13,000	6774.7	713	1.24	1.56E+12
51	10.6	450	7	100	50	13,000	6774.7	713	1.24	1.26E+12
52	4.9	520	7	100	50	13,000	6774.7	713	1.24	6.73E+11
53	1.3	480	7	100	50	14,000	7294.7	729	1.24	1.73E+11
54	1.2	440	7	100	50	14,500	7554.7	737	1.24	1.50E+11
55	3.1	390	7	100	50	15,000	7814.7	745	1.24	3.52E+11
56	0.1	350	7	100	50	15,500	8074.7	753	1.24	1.04E+10
56a	0.45	300	7	100	50	15,500	8074.7	753	1.24	4.02E+10
57	0.45	300	7	100	50	15,500	8074.7	753	1.24	4.02E+10
58	3.6	300	7	100	50	16,000	8334.7	761	1.24	3.29E+11
58a	0.25	200	7	100	50	16,500	8594.7	769	1.24	1.55E+10
59	0.81	470	7	100	50	13,500	7034.7	721	1.24	1.03E+11
60	0.94	520	7	100	50	14,000	7294.7	729	1.24	1.36E+11
61	0.32	520	7	100	50	14,500	7554.7	737	1.24	4.74E+10
62	0.64	440	7	100	50	15,000	7814.7	745	1.24	8.21E+10
63	0.71	330	7	100	50	16,000	.8334.7	761	1.24	7.13E+10
64	4.5	220	7	100	50	16,500	8594.7	769	1.24	3.07E+11
65	37	170	7	100	50	16,000	8334.7	761	1.24	1.91E+12
66	35.3	170	7	100	50	15,000	7814.7	745	1.24	1.75E+12
67	7.3	175	7	100	50	15,500	8074.7	753	1.24	3.81E+11
68	39.2	180	7	100	50	12,000	6254.7	697	1.24	1.76E+12
									Total =	5.97E+13

Table 49: List of subplays in the Meeteetse Formation moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Meeteetse > 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	9.70	8.73	10.57	117.61	137049.9	49.41	10037.0	2536.95	94.41	1.85E+24
2	9.53	8.57	10.40	1881.76	140061.9	49.41	10037.0	2536.95	91.20	2.93E+25
3	9.19	8.25	10.04	440.44	140061.9	49.41	10037.0	2536.95	84.76	6.37E+24
4	8.27	7.38	9.08	1.22	140061.9	49.41	10037.0	2536.95	68.60	1.43E+22
5	8.27	7.38	9.08	2.58	163695.5	49.41	10037.0	2536.95	68.60	3.53E+22
6	8.07	7.19	8.87	46.62	171982.5	49.41	10037.0	2536.95	65.38	6.39E+23
7	7.87	7.01	8.66	13.80	176202.8	49.41	10037.0	2536.95	62.16	1.84E+23
8	8.83	7.91	9.67	620.15	125329.3	49.41	10037.0	2536.95	78.30	7.42E+24
9	8.46	7.56	9.28	600.31	125329.3	49.41	10037.0	2536.95	71.83	6.59E+24
10	8.07	7.19	8.87	248.54	125329.3	49.41	10037.0	2536.95	65.38	2.48E+24
11	7.87	7.01	8.66	5.81	125329.3	49.41	10037.0	2536.95	62.16	5.51E+22
12	8.65	7.74	9.47	17.79	63943.5	49.41	10037.0	2536.95	75.07	1.04E+23
13	8.46	7.56	9.28	466.09	63943.5	49.41	10037.0	2536.95	71.83	2.61E+24
14	8.07	7.19	8.87	85.34	63943.5	49.41	10037.0	2536.95	65.38	4.35E+23
15	7.66	6.81	8.44	40.02	63943.5	49.41	10037.0	2536.95	58.96	1.84E+23
16	7.45	6.62	8.22	0.65	54121.8	49.41	10037.0	2536.95	55.77	2.37E+21
17	8.27	7.38	9.08	2.91	40923.9	49.41	10037.0	2536.95	68.60	9.97E+21
18	8.07	7.19	8.87	50.83	36933.8	49.41	10037.0	2536.95	65.38	1.50E+23
19	7.66	6.81	8.44	124.23	35015.5	49.41	10037.0	2536.95	58.96	3.13E+23
20	7.24	6.42	7.99	145.20	33148.3	49.41	10037.0	2536.95	52.60	3.09E+23
21	6.79	6.01	7.52	56.72	29567.5	49.41	10037.0	2536.95	46.33	9.47E+22
22	6.56	5.80	7.27	0.36	36933.8	49.41	10037.0	2536.95	43.24	7.06E+20
23	8.07	7.19	8.87	41.30	63943.5	49.41	10037.0	2536.95	65.38	2.10E+23
24	7.66	6.81	8.44	42.60	63943.5	49.41	10037.0	2536.95	58.96	1.96E+23
25	7.24	6.42	7.99	610.19	63943.5	49.41	10037.0	2536.95	52.60	2.50E+24
26	6.79	6.01	7.52	650.52	63943.5	49.41	10037.0	2536.95	46.33	2.35E+24
27	6.32	5.58	7.02	345.10	54121.8	49.41	10037.0	2536.95	40.18	9.15E+23
28	8.65	7.74	9.47	62.93	125329.3	49.41	10037.0	2536.95	75.07	7.21E+23
29	8.46	7.56	9.28	379.49	118270.0	49.41	10037.0	2536.95	71.83	3.93E+24
30	8.07	7.19	8.87	89.09	104765.1	49.41	10037.0	2536.95	65.38	7.44E+23
31	7.66	6.81	8.44	16.13	98319.6	49.41	10037.0	2536.95	58.96	1.14E+23
32	7.45	6.62	8.22	0.04	92078.7	49.41	10037.0	2536.95	55.77	2.52E+20
33	8.83	7.91	9.67	20.42	63943.5	49.41	10037.0	2536.95	78.30	1.25E+23
34	8.46	7.56	9.28	43.92	63943.5	49.41	10037.0	2536.95	71.83	2.46E+23
35	8.07	7.19	8.87	229.91	63943.5	49.41	10037.0	2536.95	65.38	1.17E+24
36	7.66	6.81	8.44	294.84	63943.5	49.41	10037.0	2536.95	58.96	1.35E+24
37	5.83	5.13	6.49	55.22	49517.9	49.41	10037.0	2536.95	34.20	1.14E+23
38	8.65	7.74	9.47	41.30	36933.8	49.41	10037.0	2536.95	75.07	1.40E+23
39	8.46	7.56	9.28	1795.65	35015.5	49.41	10037.0	2536.95	71.83	5.50E+24
40	8.07	7.19	8.87	2440.77	33148.3	49.41	10037.0	2536.95	65.38	6.45E+24
41	7.66	6.81	8.44	1605.25	31332.3	49.41	10037.0	2536.95	58.96	3.61E+24
42	7.24	6.42	7.99	871.55	31332.3	49.41	10037.0	2536.95	52.60	1.75E+24
43	6.32	5.58	7.02	702.76	31332.3	49.41	10037.0	2536.95	40.18	1.08E+24
44	6.56	5.80	7.27	13.07	69161.3	49.41	10037.0	2536.95	43.24	4.76E+22
45	6.79	6.01	7.52	4676.17	29567.5	49.41	10037.0	2536.95	46.33	7.81E+24

46	7.45	6.62	8.22	14.56	33148.3	49.41	10037.0	2536.95	55.77	3.28E+22
47	6.56	5.80	7.27	0.66	40923.9	49.41	10037.0	2536.95	43.24	1.43E+21
48	6.56	5.80	7.27	18.64	40923.9	49.41	10037.0	2536.95	43.24	4.02E+22
49	6.32	5.58	7.02	1165.61	49517.9	49.41	10037.0	2536.95	40.18	2.83E+24
50	7.66	6.81	8.44	245.38	147735.2	49.41	10037.0	2536.95	58.96	2.60E+24
51	7.66	6.81	8.44	113.29	207177.1	49.41	10037.0	2536.95	58.96	1.69E+24
52	7.66	6.81	8.44	24.21	276645.3	49.41	10037.0	2536.95	58.96	4.81E+23
53	8.07	7.19	8.87	1.70	235721.5	49.41	10037.0	2536.95	65.38	3.20E+22
54	8.27	7.38	9.08	1.45	198071.5	49.41	10037.0	2536.95	68.60	2.40E+22
55	8.46	7.56	9.28	9.69	155613.0	49.41	10037.0	2536.95	71.83	1.32E+23
56	8.65	7.74	9.47	0.01	125329.3	49.41	10037.0	2536.95	75.07	1.16E+20
56a	8.65	7.74	9.47	0.20	92078.7	49.41	10037.0	2536.95	75.07	1.72E+21
57	8.65	7.74	9.47	0.20	92078.7	49.41	10037.0	2536.95	75.07	1.72E+21
58	8.83	7.91	9.67	13.07	92078.7	49.41	10037.0	2536.95	78.30	1.15E+23
58a	9.01	8.08	9.86	0.06	40923.9	49.41	10037.0	2536.95	81.53	2.56E+20
59	7.87	7.01	8.66	0.66	226002.0	49.41	10037.0	2536.95	62.16	1.13E+22
60	8.07	7.19	8.87	0.89	276645.3	49.41	10037.0	2536.95	65.38	1.96E+22
61	8.27	7.38	9.08	0.10	276645.3	49.41	10037.0	2536.95	68.60	2.39E+21
62	8.46	7.56	9.28	0.41	198071.5	49.41	10037.0	2536.95	71.83	7.16E+21
63	8.83	7.91	9.67	0.51	111415.2	49.41	10037.0	2536.95	78.30	5.40E+21
64	9.01	8.08	9.86	20.42	49517.9	49.41	10037.0	2536.95	81.53	1.00E+23
65	8.83	7.91	9.67	1380.38	29567.5	49.41	10037.0	2536.95	78.30	3.89E+24
66	8.46	7.56	9.28	1256.45	29567.5	49.41	10037.0	2536.95	71.83	3.25E+24
67	8.65	7.74	9.47	53.73	31332.3	49.41	10037.0	2536.95	75.07	1.54E+23
68	7.24	6.42	7.99	1549.42	33148.3	49.41	10037.0	2536.95	52.60	3.29E+24

Table 50: List of subplays in the Meeteetse Formation moderately overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Meeteetse > 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	1.32E+12	1.10E+23	3.31E+11	27.8787	0.247105	8.53E+11	1.08E+12	1.28E+12	1.51E+12	1.92E+12
2	5.25E+12	1.74E+24	1.32E+12	29.2585	0.247238	3.39E+12	4.31E+12	5.09E+12	6.01E+12	7.65E+12
3	2.45E+12	3.79E+23	6.15E+11	28.4957	0.247517	1.58E+12	2.01E+12	2.37E+12	2.81E+12	3.57E+12
4	1.16E+11	8.54E+20	2.92E+10	25.4451	0.248291	7.47E+10	9.51E+10	1.12E+11	1.33E+11	1.69E+11
5	1.82E+11	2.11E+21	4.60E+10	25.8978	0.248291	1.17E+11	1.49E+11	1.77E+11	2.09E+11	2.66E+11
6	7.75E+11	3.82E+22	1.96E+11	27.3453	0.248461	4.99E+11	6.36E+11	7.51E+11	8.88E+11	1.13E+12
7	4.16E+11	1.10E+22	1.05E+11	26.7235	0.248636	2.68E+11	3.41E+11	4.04E+11	4.77E+11	6.07E+11
8	2.64E+12	4.42E+23	6.65E+11	28.5714	0.247813	1.70E+12	2.17E+12	2.56E+12	3.03E+12	3.85E+12
9	2.49E+12	3.93E+23	6.27E+11	28.5119	0.248127	1.60E+12	2.04E+12	2.41E+12	2.85E+12	3.63E+12
10	1.53E+12	1.49E+23	3.85E+11	28.0238	0.248461	9.84E+11	1.25E+12	1.48E+12	1.75E+12	2.23E+12
11	2.28E+11	3.31E+21	5.75E+10	26.1203	0.248636	1.47E+11	1.87E+11	2.21E+11	2.61E+11	3.32E+11
12	3.13E+11	6.20E+21	7.88E+10	26.438	0.247967	2.02E+11	2.57E+11	3.03E+11	3.58E+11	4.56E+11
13	1.57E+12	1.56E+23	3.95E+11	28.0489	0.248127	1.01E+12	1.28E+12	1.52E+12	1.80E+12	2.28E+12
14	6.39E+11	2.60E+22	1.61E+11	27.1528	0.248461	4.12E+11	5.24E+11	6.20E+11	7.33E+11	9.33E+11
15	4.16E+11	1.10E+22	1.05E+11	26.7223	0.248817	2.68E+11	3.41E+11	4.03E+11	4.77E+11	6.07E+11
16	4.72E+10	1.43E+20	1.19E+10	24.5474	0.249004	3.04E+10	3.87E+10	4.58E+10	5.42E+10	6.90E+10
17	9.68E+10	5.96E+20	2.44E+10	25.2653	0.248291	6.24E+10	7.94E+10	9.39E+10	1.11E+11	1.41E+11
18	3.75E+11	8.95E+21	9.46E+10	26.6193	0.248461	2.42E+11	3.08E+11	3.64E+11	4.30E+11	5.47E+11
19	5.42E+11	1.88E+22	1.37E+11	26.9876	0.248817	3.49E+11	4.44E+11	5.26E+11	6.21E+11	7.91E+11
20	5.38E+11	1.86E+22	1.36E+11	26.9809	0.249197	3.46E+11	4.41E+11	5.22E+11	6.17E+11	7.86E+11
21	2.98E+11	5.72E+21	7.56E+10	26.3901	0.249602	1.92E+11	2.44E+11	2.89E+11	3.42E+11	4.36E+11
22	2.58E+10	4.27E+19	6.54E+09	23.941	0.249815	1.66E+10	2.11E+10	2.50E+10	2.95E+10	3.77E+10
23	4.45E+11	1.26E+22	1.12E+11	26.7899	0.248461	2.87E+11	3.65E+11	4.31E+11	5.10E+11	6.49E+11
24	4.29E+11	1.17E+22	1.08E+11	26.7536	0.248817	2.76E+11	3.52E+11	4.16E+11	4.92E+11	6.26E+11
25	1.53E+12	1.51E+23	3.88E+11	28.0273	0.249197	9.86E+11	1.26E+12	1.49E+12	1.76E+12	2.24E+12
26	1.49E+12	1.42E+23	3.77E+11	27.9956	0.249602	9.55E+11	1.22E+12	1.44E+12	1.70E+12	2.17E+12
27	9.27E+11	5.54E+22	2.35E+11	27.5239	0.250035	5.95E+11	7.59E+11	8.98E+11	1.06E+12	1.36E+12
28	8.24E+11	4.30E+22	2.07E+11	27.4063	0.247967	5.31E+11	6.76E+11	7.99E+11	9.44E+11	1.20E+12
29	1.92E+12	2.35E+23	4.84E+11	28.2536	0.248127	1.24E+12	1.58E+12	1.86E+12	2.20E+12	2.80E+12
30	8.36E+11	4.45E+22	2.11E+11	27.4212	0.248461	5.39E+11	6.86E+11	8.11E+11	9.59E+11	1.22E+12
31	3.27E+11	6.84E+21	8.27E+10	26.4832	0.248817	2.11E+11	2.68E+11	3.17E+11	3.75E+11	4.78E+11
32	1.54E+10	1.52E+19	3.90E+09	23.4268	0.249004	9.91E+09	1.26E+10	1.49E+10	1.77E+10	2.25E+10
33	3.42E+11	7.42E+21	8.61E+10	26.5282	0.247813	2.21E+11	2.81E+11	3.32E+11	3.92E+11	4.99E+11
34	4.81E+11	1.47E+22	1.21E+11	26.8679	0.248127	3.10E+11	3.94E+11	4.66E+11	5.51E+11	7.01E+11
35	1.05E+12	7.01E+22	2.65E+11	27.6483	0.248461	6.76E+11	8.61E+11	1.02E+12	1.20E+12	1.53E+12
36	1.13E+12	8.13E+22	2.85E+11	27.7209	0.248817	7.27E+11	9.25E+11	1.09E+12	1.29E+12	1.65E+12
37	3.27E+11	6.93E+21	8.33E+10	26.4823	0.250499	2.10E+11	2.68E+11	3.17E+11	3.75E+11	4.79E+11
38	3.62E+11	8.32E+21	9.12E+10	26.5848	0.247967	2.34E+11	2.97E+11	3.51E+11	4.15E+11	5.28E+11
39	2.27E+12	3.29E+23	5.73E+11	28.4222	0.248127	1.47E+12	1.87E+12	2.21E+12	2.61E+12	3.32E+12
40	2.46E+12	3.86E+23	6.21E+11	28.501	0.248461	1.59E+12	2.02E+12	2.39E+12	2.82E+12	3.59E+12
41	1.84E+12	2.17E+23	4.66E+11	28.2115	0.248817	1.19E+12	1.51E+12	1.79E+12	2.11E+12	2.69E+12
42	1.28E+12	1.05E+23	3.25E+11	27.8488	0.249197	8.25E+11	1.05E+12	1.24E+12	1.47E+12	1.87E+12
43	1.01E+12	6.53E+22	2.56E+11	27.6062	0.250035	6.47E+11	8.24E+11	9.75E+11	1.15E+12	1.47E+12
44	2.12E+11	2.88E+21	5.37E+10	26.0464	0.249815	1.36E+11	1.73E+11	2.05E+11	2.43E+11	3.09E+11
45	2.71E+12	4.71E+23	6.87E+11	28.5962	0.249602	1.74E+12	2.22E+12	2.63E+12	3.11E+12	3.96E+12

46	1.76E+11	1.97E+21	4.44E+10	25.8604	0.249004	1.13E+11	1.44E+11	1.70E+11	2.01E+11	2.56E+11
47	3.66E+10	8.63E+19	9.29E+09	24.2924	0.249815	2.35E+10	3.00E+10	3.55E+10	4.20E+10	5.35E+10
48	1.94E+11	2.43E+21	4.93E+10	25.9617	0.249815	1.25E+11	1.59E+11	1.88E+11	2.23E+11	2.84E+11
49	1.63E+12	1.71E+23	4.14E+11	28.088	0.250035	1.05E+12	1.33E+12	1.58E+12	1.87E+12	2.38E+12
50	1.56E+12	1.56E+23	3.95E+11	28.0478	0.248817	1.01E+12	1.28E+12	1.52E+12	1.79E+12	2.28E+12
51	1.26E+12	1.01E+23	3.18E+11	27.8304	0.248817	8.11E+11	1.03E+12	1.22E+12	1.44E+12	1.84E+12
52	6.73E+11	2.89E+22	1.70E+11	27.2034	0.248817	4.33E+11	5.51E+11	6.52E+11	7.71E+11	9.82E+11
53	1.73E+11	1.92E+21	4.38E+10	25.8483	0.248461	1.12E+11	1.42E+11	1.68E+11	1.99E+11	2.53E+11
54	1.50E+11	1.44E+21	3.79E+10	25.7054	0.248291	9.69E+10	1.23E+11	1.46E+11	1.72E+11	2.19E+11
55	3.52E+11	7.88E+21	8.88E+10	26.557	0.248127	2.27E+11	2.89E+11	3.42E+11	4.04E+11	5.14E+11
56	1.04E+10	6.89E+18	2.63E+09	23.0368	0.247967	6.72E+09	8.55E+09	1.01E+10	1.19E+10	1.52E+10
56a	4.02E+10	1.03E+20	1.01E+10	24.3868	0.247967	2.59E+10	3.30E+10	3.90E+10	4.61E+10	5.86E+10
57	4.02E+10	1.03E+20	1.01E+10	24.3868	0.247967	2.59E+10	3.30E+10	3.90E+10	4.61E+10	5.86E+10
58	3.29E+11	6.84E+21	8.27E+10	26.4874	0.247813	2.12E+11	2.70E+11	3.19E+11	3.77E+11	4.79E+11
58a	1.55E+10	1.52E+19	3.90E+09	23.435	0.247662	1.00E+10	1.27E+10	1.51E+10	1.78E+10	2.26E+10
59	1.03E+11	6.79E+20	2.61E+10	25.3289	0.248636	6.65E+10	8.46E+10	1.00E+11	1.18E+11	1.51E+11
60	1.36E+11	1.18E+21	3.43E+10	25.6041	0.248461	8.75E+10	1.11E+11	1.32E+11	1.56E+11	1.98E+11
61	4.74E+10	1.43E+20	1.19E+10	24.5507	0.248291	3.05E+10	3.89E+10	4.59E+10	5.43E+10	6.91E+10
62	8.21E+10	4.28E+20	2.07E+10	25.0999	0.248127	5.29E+10	6.73E+10	7.96E+10	9.41E+10	1.20E+11
63	7.13E+10	3.22E+20	1.79E+10	24.9593	0.247813	4.60E+10	5.85E+10	6.91E+10	8.17E+10	1.04E+11
64	3.07E+11	5.98E+21	7.73E+10	26.4207	0.247662	1.98E+11	2.52E+11	2.98E+11	3.52E+11	4.48E+11
65	1.91E+12	2.32E+23	4.82E+11	28.2494	0.247813	1.23E+12	1.57E+12	1.86E+12	2.19E+12	2.79E+12
66	1.75E+12	1.94E+23	4.41E+11	28.1591	0.248127	1.13E+12	1.43E+12	1.70E+12	2.00E+12	2.55E+12
67	3.81E+11	9.18E+21	9.58E+10	26.6342	0.247967	2.45E+11	3.12E+11	3.69E+11	4.36E+11	5.55E+11
68	1.76E+12	1.98E+23	4.45E+11	28.1647	0.249197	1.13E+12	1.44E+12	1.71E+12	2.02E+12	2.57E+12
P.P.C.	5.97E+13	2.27E+26	1.51E+13			3.84E+13	4.89E+13	5.79E+13	6.84E+13	8.71E+13

Table 51: List of subplays in the Meeteetse Formation moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Meeteetse .73-1.1								(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.97	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	0.96	290	7	50	50	11,000	4524.7	681	0.97	3.28E+10
2	1.4	280	7	50	50	10,000	4114.7	665	0.97	4.31E+10
3	1.9	280	7	50	50	9,000	3704.7	649	0.97	5.39E+10
4	1.1	270	7	50	50	8,000	3294.7	633	0.97	2.74E+10
5	0.17	260	7	50	50	7,500	3089.7	625	0.97	3.88E+09
6	3.2	350	7	50	50	14,000	5754.7	729	0.97	1.57E+11
7	4.4	350	7	50	50	13,000	5344.7	713	0.97	2.05E+11
8	4.5	350	7	50	50	12,000	4934.7	697	0.97	1.98E+11
9	4.4	350	7	50	50	11,000	4524.7	681	0.97	1.82E+11
10	3.1	350	7	50	50	10,000	4114.7	665	0.97	1.19E+11
11	0.46	310	7	50	50	9,500	3909.7	657	0.97	1.51E+10
12	1	400	7	50	50	13,500	5549.7	721	0.97	5.47E+10
13	8.6	420	7	50	50	13,000	5344.7	713	0.97	4.81E+11
14	15.5	430	7	50	50	12,000	4934.7	697	0.97	8.38E+11
15	27.5	460	7	50	50	11,000	4524.7	681	0.97	1.49E+12
16	3.9	440	7	50	50	10,000	4114.7	665	0.97	1.89E+11
17	2.7	520	7	50	50	10,500	4319.7	673	0.97	1.60E+11
18	0.1	510	7	50	50	10,500	4319.7	673	0.97	5.81E+09
19	2.2	500	7	50	50	10,500	4319.7	673	0.97	1.25E+11
20	0.26	500	7	50	50	10,500	4319.7	673	0.97	1.48E+10
21	0.1	500	7	50	50	10,500	4319.7	673	0.97	5.70E+09
22	3.2	440	7	50	50	10,500	4319.7	673	0.97	1.60E+11
23	6	350	7	50	50	13,000	5344.7	713	0.97	2.80E+11
24	9	350	7	50	50	12,000	4934.7	697	0.97	3.96E+11
25	14.5	350	7	50	50	11,000	4524.7	681	0.97	5.99E+11
26	11.7	350	7	50	50	10,000	4114.7	665	0.97	4.50E+11
27	5.7	350	7	50	50	9,000	3704.7	649	0.97	2.02E+11
28	0.78	320	7	50	50	8,500	3499.7	641	0.97	2.42E+10
29	0.4	300	7	50	50	12,500	5139.7	705	0.97	1.55E+10
30	6.9	250	7	50	50	12,000	4934.7	697	0.97	2.17E+11
31	13.3	250	7	50	50	11,000	4524.7	681	0.97	3.92E+11
32	10.8	250	7	50	50	10,000	4114.7	665	0.97	2.97E+11
33	8.3	250	7	50	50	9,000	3704.7	649	0.97	2.10E+11
34	4.8	250	7	50	50	8,000	3294.7	633	0.97	1.11E+11
35	2.4	180	7	50	50	11,500	4729.7	689	0.97	5.27E+10
36	7.4	175	7	50	50	11,000	4524.7	681	0.97	1.53E+11
37	15.7	165	7	50	50	10,000	4114.7	665	0.97	2.85E+11
38	17.3	155	7	50	50	9,000	3704.7	649	0.97	2.72E+11
39	40.1	140	7	50	50	8,000	3294.7	633	0.97	5.19E+11
40	45.3	135	7	50	50	7,000	2884.7	617	0.97	5.08E+11
41	0.89	100	7	50	50	6,500	2679.7	609	0.97	6.95E+09
42	0.87	100	7	50	50	6,500	2679.7	609	0.97	6.80E+09
43	1.3	210	7	50	50	9,500	3909.7	657	0.97	2.88E+10
44	8.3	225	7	50	50	9,000	3704.7	649	0.97	1.89E+11
45	11.5	210	7	50	50	8,000	3294.7	633	0.97	2.23E+11

46	27	130	7	50	50	6,000	2474.7	601	0.97	2.57E+11
47	1.2	200	7	50	50	8,500	3499.7	641	0.97	2.33E+10
48	24.8	170	7	50	50	9,000	3704.7	649	0.97	4.27E+11
49	1	115	7	50	50	5,500	2269.7	593	0.97	7.82E+09
50	1.6	120	7	50	50	5,500	2269.7	593	0.97	1.30E+10
51	0.73	100	7	50	50	5,500	2269.7	593	0.97	4.96E+09
52	1.5	150	7	50	50	9,500	3909.7	657	0.97	2.38E+10
53	7	170	7	50	50	9,500	3909.7	657	0.97	1.26E+11
54	3	220	7	50	50	9,500	3909.7	657	0.97	6.97E+10
55	3.1	220	7	50	50	9,500	3909.7	657	0.97	7.21E+10
56	9.7	230	7	50	50	9,000	3704.7	649	0.97	2.26E+11
57	17.2	220	7	50	50	9,000	3704.7	649	0.97	3.84E+11
58	6.9	220	7	50	50	10,000	4114.7	665	0.97	1.67E+11
59	3.2	220	7	50	50	9,500	3909.7	657	0.97	7.44E+10
60	6.5	180	7	50	50	9,500	3909.7	657	0.97	1.24E+11
61	17.1	190	7	50	50	10,500	4319.7	673	0.97	3.70E+11
62	4.8	195	7	50	50	9,500	3909.7	657	0.97	9.89E+10
									Total =	1.25E+13

Table 52: List of subplays in the Meeteetse Formation transition play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Meeteetse .73-1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	6.85	6.06	7.58	0.93	86042.4	50.63	2731.0	2647.82	47.13	1.34E+21
2	6.38	5.63	7.08	1.98	80210.8	50.63	2731.0	2647.82	40.88	2.30E+21
3	5.88	5.18	6.55	3.64	80210.8	50.63	2731.0	2647.82	34.80	3.60E+21
4	5.37	4.71	5.99	1.22	74583.7	50.63	2731.0	2647.82	28.94	9.34E+20
5	5.10	4.46	5.69	0.03	69161.3	50.63	2731.0	2647.82	26.11	1.87E+19
6	8.14	7.25	8.94	10.33	125329.3	50.63	2731.0	2647.82	66.49	3.05E+22
7	7.73	6.87	8.51	19.52	125329.3	50.63	2731.0	2647.82	59.97	5.20E+22
8	7.30	6.47	8.06	20.42	125329.3	50.63	2731.0	2647.82	53.51	4.86E+22
9	6.85	6.06	7.58	19.52	125329.3	50.63	2731.0	2647.82	47.13	4.09E+22
10	6.38	5.63	7.08	9.69	125329.3	50.63	2731.0	2647.82	40.88	1.76E+22
11	6.13	5.41	6.82	0.21	98319.6	50.63	2731.0	2647.82	37.82	2.81E+20
12	7.94	7.07	8.73	1.01	163695.5	50.63	2731.0	2647.82	63.22	3.70E+21
13	7.73	6.87	8.51	74.57	180474.2	50.63	2731.0	2647.82	59.97	2.86E+23
14	7.30	6.47	8.06	242.25	189170.6	50.63	2731.0	2647.82	53.51	8.70E+23
15	6.85	6.06	7.58	762.54	216487.2	50.63	2731.0	2647.82	47.13	2.76E+24
16	6.38	5.63	7.08	15.34	198071.5	50.63	2731.0	2647.82	40.88	4.40E+22
17	6.62	5.85	7.33	7.35	276645.3	50.63	2731.0	2647.82	43.99	3.17E+22
18	6.62	5.85	7.33	0.01	266107.4	50.63	2731.0	2647.82	43.99	4.19E+19
19	6.62	5.85	7.33	4.88	255774.2	50.63	2731.0	2647.82	43.99	1.95E+22
20	6.62	5.85	7.33	0.07	255774.2	50.63	2731.0	2647.82	43.99	2.72E+20
21	6.62	5.85	7.33	0.01	255774.2	50.63	2731.0	2647.82	43.99	4.02E+19
22	6.62	5.85	7.33	10.33	198071.5	50.63	2731.0	2647.82	43.99	3.19E+22
23	7.73	6.87	8.51	36.30	125329.3	50.63	2731.0	2647.82	59.97	9.67E+22
24	7.30	6.47	8.06	81.67	125329.3	50.63	2731.0	2647.82	53.51	1.94E+23
25	6.85	6.06	7.58	212.00	125329.3	50.63	2731.0	2647.82	47.13	4.44E+23
26	6.38	5.63	7.08	138.03	125329.3	50.63	2731.0	2647.82	40.88	2.51E+23
27	5.88	5.18	6.55	32.76	125329.3	50.63	2731.0	2647.82	34.80	5.07E+22
28	5.63	4.95	6.27	0.61	104765.1	50.63	2731.0	2647.82	31.84	7.26E+20
29	7.52	6.68	8.29	0.16	92078.7	50.63	2731.0	2647.82	56.73	2.99E+20
30	7.30	6.47	8.06	48.01	63943.5	50.63	2731.0	2647.82	53.51	5.82E+22
31	6.85	6.06	7.58	178.36	63943.5	50.63	2731.0	2647.82	47.13	1.91E+23
32	6.38	5.63	7.08	117.61	63943.5	50.63	2731.0	2647.82	40.88	1.09E+23
33	5.88	5.18	6.55	69.46	63943.5	50.63	2731.0	2647.82	34.80	5.48E+22
34	5.37	4.71	5.99	23.23	63943.5	50.63	2731.0	2647.82	28.94	1.52E+22
35	7.08	6.27	7.82	5.81	33148.3	50.63	2731.0	2647.82	50.30	3.43E+21
36	6.85	6.06	7.58	55.22	31332.3	50.63	2731.0	2647.82	47.13	2.89E+22
37	6.38	5.63	7.08	248.54	27853.8	50.63	2731.0	2647.82	40.88	1.00E+23
38	5.88	5.18	6.55	301.78	24579.9	50.63	2731.0	2647.82	34.80	9.16E+22
39	5.37	4.71	5.99	1621.38	20052.7	50.63	2731.0	2647.82	28.94	3.34E+23
40	4.82	4.22	5.39	2069.15	18645.9	50.63	2731.0	2647.82	23.36	3.20E+23
41	4.54	3.96	5.08	0.80	10231.0	50.63	2731.0	2647.82	20.69	6.00E+19
42	4.54	3.96	5.08	0.76	10231.0	50.63	2731.0	2647.82	20.69	5.73E+19
43	6.13	5.41	6.82	1.70	45118.6	50.63	2731.0	2647.82	37.82	1.03E+21
44	5.88	5.18	6.55	69.46	51794.3	50.63	2731.0	2647.82	34.80	4.44E+22
45	5.37	4.71	5.99	133.35	45118.6	50.63	2731.0	2647.82	28.94	6.18E+22

46	4.24	3.70	4.76	735.06	17290.3	50.63	2731.0	2647.82	18.12	8.17E+22
47	5.63	4.95	6.27	1.45	40923.9	50.63	2731.0	2647.82	31.84	6.71E+20
48	5.88	5.18	6.55	620.15	29567.5	50.63	2731.0	2647.82	34.80	2.26E+23
49	3.95	3.43	4.44	1.01	13530.5	50.63	2731.0	2647.82	15.66	7.58E+19
50	3.95	3.43	4.44	2.58	14732.6	50.63	2731.0	2647.82	15.66	2.11E+20
51	3.95	3.43	4.44	0.54	10231.0	50.63	2731.0	2647.82	15.66	3.05E+19
52	6.13	5.41	6.82	2.27	23019.7	50.63	2731.0	2647.82	37.82	7.00E+20
53	6.13	5.41	6.82	49.41	29567.5	50.63	2731.0	2647.82	37.82	1.96E+22
54	6.13	5.41	6.82	9.07	49517.9	50.63	2731.0	2647.82	37.82	6.03E+21
55	6.13	5.41	6.82	9.69	49517.9	50.63	2731.0	2647.82	37.82	6.44E+21
56	5.88	5.18	6.55	94.87	54121.8	50.63	2731.0	2647.82	34.80	6.34E+22
57	5.88	5.18	6.55	298.30	49517.9	50.63	2731.0	2647.82	34.80	1.82E+23
58	6.38	5.63	7.08	48.01	49517.9	50.63	2731.0	2647.82	40.88	3.45E+22
59	6.13	5.41	6.82	10.33	49517.9	50.63	2731.0	2647.82	37.82	6.86E+21
60	6.13	5.41	6.82	42.60	33148.3	50.63	2731.0	2647.82	37.82	1.89E+22
61	6.62	5.85	7.33	294.84	36933.8	50.63	2731.0	2647.82	43.99	1.70E+23
62	6.13	5.41	6.82	23.23	38903.2	50.63	2731.0	2647.82	37.82	1.21E+22

Table 53: List of subplays in the Meeteetse Formation transition play with estimates of ranges in percent for the six play attributes.

Play Name :		Meeteetse .73-1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	3.28E+10	2.58E+20	1.61E+10	24.108	0.462794	1.38E+10	2.16E+10	2.95E+10	4.03E+10	6.32E+10
2	4.31E+10	4.44E+20	2.11E+10	24.3788	0.463026	1.81E+10	2.83E+10	3.87E+10	5.29E+10	8.29E+10
3	5.39E+10	6.96E+20	2.64E+10	24.6035	0.463275	2.26E+10	3.54E+10	4.84E+10	6.62E+10	1.04E+11
4	2.74E+10	1.81E+20	1.34E+10	23.9281	0.463542	1.15E+10	1.80E+10	2.47E+10	3.37E+10	5.28E+10
5	3.88E+09	3.61E+18	1.90E+09	21.9715	0.463683	1.63E+09	2.55E+09	3.48E+09	4.76E+09	7.47E+09
6	1.57E+11	5.87E+21	7.66E+10	25.6726	0.462182	6.60E+10	1.03E+11	1.41E+11	1.93E+11	3.02E+11
7	2.05E+11	1.00E+22	1.00E+11	25.9393	0.462373	8.61E+10	1.35E+11	1.84E+11	2.52E+11	3.94E+11
8	1.98E+11	9.35E+21	9.67E+10	25.9045	0.462576	8.31E+10	1.30E+11	1.78E+11	2.43E+11	3.81E+11
9	1.82E+11	7.88E+21	8.88E+10	25.8184	0.462794	7.62E+10	1.19E+11	1.63E+11	2.23E+11	3.49E+11
10	1.19E+11	3.40E+21	5.83E+10	25.3969	0.463026	5.00E+10	7.84E+10	1.07E+11	1.46E+11	2.29E+11
11	1.51E+10	5.43E+19	7.37E+09	23.3286	0.463149	6.32E+09	9.91E+09	1.35E+10	1.85E+10	2.90E+10
12	5.47E+10	7.12E+20	2.67E+10	24.6177	0.462276	2.30E+10	3.60E+10	4.91E+10	6.71E+10	1.05E+11
13	4.81E+11	5.51E+22	2.35E+11	26.7917	0.462373	2.02E+11	3.16E+11	4.32E+11	5.90E+11	9.24E+11
14	8.38E+11	1.67E+23	4.09E+11	27.3471	0.462576	3.52E+11	5.51E+11	7.53E+11	1.03E+12	1.61E+12
15	1.49E+12	5.32E+23	7.29E+11	27.9243	0.462794	6.26E+11	9.82E+11	1.34E+12	1.83E+12	2.87E+12
16	1.89E+11	8.50E+21	9.22E+10	25.8553	0.463026	7.91E+10	1.24E+11	1.69E+11	2.31E+11	3.63E+11
17	1.60E+11	6.12E+21	7.82E+10	25.6914	0.462908	6.71E+10	1.05E+11	1.44E+11	1.96E+11	3.08E+11
18	5.81E+09	8.07E+18	2.84E+09	22.3761	0.462908	2.44E+09	3.82E+09	5.22E+09	7.13E+09	1.12E+10
19	1.25E+11	3.76E+21	6.13E+10	25.4474	0.462908	5.26E+10	8.24E+10	1.13E+11	1.54E+11	2.41E+11
20	1.48E+10	5.25E+19	7.24E+09	23.3118	0.462908	6.22E+09	9.74E+09	1.33E+10	1.82E+10	2.85E+10
21	5.70E+09	7.76E+18	2.79E+09	22.3563	0.462908	2.39E+09	3.75E+09	5.12E+09	6.99E+09	1.10E+10
22	1.60E+11	6.15E+21	7.84E+10	25.6942	0.462908	6.73E+10	1.06E+11	1.44E+11	1.97E+11	3.09E+11
23	2.80E+11	1.86E+22	1.36E+11	26.2494	0.462373	1.17E+11	1.84E+11	2.51E+11	3.43E+11	5.37E+11
24	3.96E+11	3.74E+22	1.93E+11	26.5977	0.462576	1.66E+11	2.61E+11	3.56E+11	4.86E+11	7.62E+11
25	5.99E+11	8.56E+22	2.93E+11	27.011	0.462794	2.51E+11	3.94E+11	5.38E+11	7.35E+11	1.15E+12
26	4.50E+11	4.84E+22	2.20E+11	26.7251	0.463026	1.89E+11	2.96E+11	4.04E+11	5.52E+11	8.66E+11
27	2.02E+11	9.79E+21	9.89E+10	25.9252	0.463275	8.48E+10	1.33E+11	1.82E+11	2.48E+11	3.89E+11
28	2.42E+10	1.40E+20	1.18E+10	23.8021	0.463406	1.01E+10	1.59E+10	2.17E+10	2.97E+10	4.66E+10
29	1.55E+10	5.75E+19	7.59E+09	23.3593	0.462473	6.52E+09	1.02E+10	1.40E+10	1.91E+10	2.99E+10
30	2.17E+11	1.12E+22	1.06E+11	25.9955	0.462576	9.10E+10	1.43E+11	1.95E+11	2.66E+11	4.17E+11
31	3.92E+11	3.68E+22	1.92E+11	26.5881	0.462794	1.65E+11	2.58E+11	3.52E+11	4.81E+11	7.55E+11
32	2.97E+11	2.10E+22	1.45E+11	26.3086	0.463026	1.24E+11	1.95E+11	2.66E+11	3.64E+11	5.71E+11
33	2.10E+11	1.06E+22	1.03E+11	25.9646	0.463275	8.82E+10	1.38E+11	1.89E+11	2.58E+11	4.05E+11
34	1.11E+11	2.95E+21	5.43E+10	25.3245	0.463542	4.65E+10	7.29E+10	9.96E+10	1.36E+11	2.14E+11
35	5.27E+10	6.62E+20	2.57E+10	24.58	0.462683	2.21E+10	3.46E+10	4.73E+10	6.46E+10	1.01E+11
36	1.53E+11	5.57E+21	7.47E+10	25.6452	0.462794	6.41E+10	1.00E+11	1.37E+11	1.88E+11	2.94E+11
37	2.85E+11	1.94E+22	1.39E+11	26.2672	0.463026	1.19E+11	1.87E+11	2.56E+11	3.49E+11	5.48E+11
38	2.72E+11	1.77E+22	1.33E+11	26.221	0.463275	1.14E+11	1.79E+11	2.44E+11	3.34E+11	5.23E+11
39	5.19E+11	6.45E+22	2.54E+11	26.8674	0.463542	2.17E+11	3.41E+11	4.66E+11	6.37E+11	9.99E+11
40	5.08E+11	6.19E+22	2.49E+11	26.8456	0.463828	2.13E+11	3.34E+11	4.56E+11	6.23E+11	9.78E+11
41	6.95E+09	1.16E+19	3.41E+09	22.5549	0.463978	2.91E+09	4.57E+09	6.24E+09	8.54E+09	1.34E+10
42	6.80E+09	1.11E+19	3.33E+09	22.5321	0.463978	2.85E+09	4.46E+09	6.10E+09	8.34E+09	1.31E+10
43	2.88E+10	1.99E+20	1.41E+10	23.978	0.463149	1.21E+10	1.90E+10	2.59E+10	3.54E+10	5.55E+10
44	1.89E+11	8.58E+21	9.26E+10	25.8592	0.463275	7.93E+10	1.24E+11	1.70E+11	2.32E+11	3.64E+11
45	2.23E+11	1.19E+22	1.09E+11	26.0239	0.463542	9.35E+10	1.47E+11	2.00E+11	2.74E+11	4.30E+11

46	2.57E+11	1.58E+22	1.26E+11	26.1632	0.464134	1.07E+11	1.69E+11	2.30E+11	3.15E+11	4.94E+11
47	2.33E+10	1.30E+20	1.14E+10	23.7629	0.463406	9.75E+09	1.53E+10	2.09E+10	2.86E+10	4.48E+10
48	4.27E+11	4.37E+22	2.09E+11	26.6735	0.463275	1.79E+11	2.81E+11	3.84E+11	5.25E+11	8.22E+11
49	7.82E+09	1.47E+19	3.83E+09	22.6716	0.464294	3.27E+09	5.13E+09	7.02E+09	9.60E+09	1.51E+10
50	1.30E+10	4.10E+19	6.40E+09	23.1842	0.464294	5.46E+09	8.57E+09	1.17E+10	1.60E+10	2.51E+10
51	4.96E+09	5.92E+18	2.43E+09	22.2171	0.464294	2.08E+09	3.26E+09	4.45E+09	6.09E+09	9.56E+09
52	2.38E+10	1.35E+20	1.16E+10	23.7846	0.463149	9.97E+09	1.56E+10	2.14E+10	2.92E+10	4.58E+10
53	1.26E+11	3.78E+21	6.15E+10	25.4502	0.463149	5.27E+10	8.27E+10	1.13E+11	1.54E+11	2.42E+11
54	6.97E+10	1.16E+21	3.41E+10	24.8608	0.463149	2.92E+10	4.58E+10	6.26E+10	8.56E+10	1.34E+11
55	7.21E+10	1.24E+21	3.52E+10	24.8935	0.463149	3.02E+10	4.74E+10	6.47E+10	8.85E+10	1.39E+11
56	2.26E+11	1.22E+22	1.11E+11	26.0371	0.463275	9.48E+10	1.49E+11	2.03E+11	2.78E+11	4.35E+11
57	3.84E+11	3.52E+22	1.88E+11	26.5654	0.463275	1.61E+11	2.52E+11	3.45E+11	4.71E+11	7.38E+11
58	1.67E+11	6.65E+21	8.16E+10	25.7327	0.463026	6.99E+10	1.10E+11	1.50E+11	2.05E+11	3.21E+11
59	7.44E+10	1.32E+21	3.64E+10	24.9253	0.463149	3.12E+10	4.89E+10	6.68E+10	9.13E+10	1.43E+11
60	1.24E+11	3.66E+21	6.05E+10	25.4333	0.463149	5.18E+10	8.13E+10	1.11E+11	1.52E+11	2.38E+11
61	3.70E+11	3.28E+22	1.81E+11	26.5304	0.462908	1.55E+11	2.44E+11	3.33E+11	4.54E+11	7.12E+11
62	9.89E+10	2.34E+21	4.84E+10	25.2101	0.463149	4.15E+10	6.50E+10	8.88E+10	1.21E+11	1.90E+11
P.P.C.	1.25E+13	3.72E+25	6.10E+12			5.23E+12	8.20E+12	1.12E+13	1.53E+13	2.40E+13

Table 54: List of subplays in the Meeteetse Formation transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

\WINDRIVR\ASSESS\GLANCE1.XLS

Play Name :	Lance > 1.1									(Panel 1)
						a =	0.52	0.016	0	
						b =	14.7	505	1.15	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	32.3	1,200	7	100	50	10,000	5214.7	665	1.15	9.10E+12
1a	0.75	1,000	7	100	50	10,500	5474.7	673	1.15	1.83E+11
2	4.6	1,300	7	100	50	11,000	5734.7	681	1.15	1.51E+12
2a	2	1,000	7	100	50	11,000	5734.7	681	1.15	5.04E+11
3	0.35	1,500	7	100	50	11,500	5994.7	689	1.15	1.37E+11
4	3.8	1,700	7	100	50	12,000	6254.7	697	1.15	1.74E+12
5	2.4	1,300	7	100	50	12,000	6254.7	697	1.15	8.39E+11
5a	1.75	1,000	7	100	50	12,000	6254.7	697	1.15	4.70E+11
6	6.3	2,100	7	100	50	13,000	6774.7	713	1.15	3.77E+12
7	8.5	1,800	7	100	50	14,000	7294.7	729	1.15	4.59E+12
8	4.1	1,700	7	100	50	14,000	7294.7	729	1.15	2.09E+12
9	10.8	1,400	7	100	50	14,000	7294.7	729	1.15	4.53E+12
10	3.6	1,400	7	100	50	15,000	7814.7	745	1.15	1.58E+12
11	10.4	1,300	7	100	50	14,000	7294.7	729	1.15	4.05E+12
12	4	1,300	7	100	50	13,000	6774.7	713	1.15	1.48E+12
13	28.9	1,350	7	100	50	12,000	6254.7	697	1.15	1.05E+13
14	18.1	1,400	7	100	50	11,000	5734.7	681	1.15	6.39E+12
15	3.9	1,600	7	100	50	11,500	5994.7	689	1.15	1.63E+12
16	13.9	1,700	7	100	50	12,000	6254.7	697	1.15	6.35E+12
17	5.2	1,200	7	100	50	14,000	7294.7	729	1.15	1.87E+12
18	51.8	1,200	7	100	50	15,000	7814.7	745	1.15	1.95E+13
19	48.9	1,200	7	100	50	16,000	8334.7	761	1.15	1.93E+13
20	3.8	1,000	7	100	50	14,000	7294.7	729	1.15	1.14E+12
21	50.78	900	7	100	50	16,000	8334.7	761	1.15	1.50E+13
22	75.1	800	7	100	50	15,000	7814.7	745	1.15	1.89E+13
23	43.3	800	7	100	50	14,000	7294.7	729	1.15	1.04E+13
24	20.5	750	7	100	50	13,000	6774.7	713	1.15	4.38E+12
25	1.1	750	7	100	50	12,500	6514.7	705	1.15	2.28E+11
26	6.8	950	7	100	50	14,000	7294.7	729	1.15	1.94E+12
27	1.1	1,300	7	100	50	12,500	6514.7	705	1.15	3.96E+11
28	8.2	1,250	7	100	50	14,000	7294.7	729	1.15	3.07E+12
29	12.8	1,250	7	100	50	14,500	7554.7	737	1.15	4.91E+12
29a	3.2	1,500	7	100	50	14,500	7554.7	737	1.15	1.47E+12
30	16.6	1,250	7	100	50	14,000	7294.7	729	1.15	6.22E+12
31	22.5	1,700	7	100	50	14,000	7294.7	729	1.15	1.15E+13
31a	14	1,750	7	100	50	13,000	6774.7	713	1.15	6.97E+12
32	5.3	1,400	7	100	50	13,500	7034.7	721	1.15	2.17E+12
33	0.71	1,500	7	100	50	13,500	7034.7	721	1.15	3.11E+11
34	9.4	1,100	7	100	50	11,000	5734.7	681	1.15	2.61E+12
34a	27	1,400	7	100	50	12,000	6254.7	697	1.15	1.02E+13
35	0.17	1,000	7	100	50	10,500	5474.7	673	1.15	4.14E+10
36	0.71	950	7	100	50	10,500	5474.7	673	1.15	1.64E+11
37	3.9	950	7	100	50	11,000	5734.7	681	1.15	9.35E+11
38	1.1	1,000	7	100	50	11,500	5994.7	689	1.15	2.87E+11
39	0.78	950	7	100	50	11,500	5994.7	689	1.15	1.93E+11

40	3.5	950	7	100	50	12,000	6254.7	697	1.15	8.94E+11
41	104.2	1,250	7	100	50	13,000	6774.7	713	1.15	3.71E+13
42	25.4	1,200	7	100	50	14,000	7294.7	729	1.15	9.14E+12
43	15.2	1,200	7	100	50	15,000	7814.7	745	1.15	5.73E+12
44	4.8	1,200	7	100	50	12,000	6254.7	697	1.15	1.55E+12
*45	0.62	600	7	100	50	15,000	7814.7	745	1.15	1.17E+11
*46	1.2	600	7	100	50	14,000	7294.7	729	1.15	2.16E+11
*47	1.2	600	7	100	50	13,000	6774.7	713	1.15	2.05E+11
*48	1.2	600	7	100	50	12,000	6254.7	697	1.15	1.94E+11
*49	8.8	600	7	100	50	14,500	7554.7	737	1.15	1.62E+12
*50	23.2	600	7	100	50	14,000	7294.7	729	1.15	4.17E+12
*51	14.8	600	7	100	50	13,000	6774.7	713	1.15	2.53E+12
*52	13.8	400	7	100	50	13,000	6774.7	713	1.15	1.57E+12
*53	6.5	425	7	100	50	13,000	6774.7	713	1.15	7.86E+11
*54	33.6	400	7	100	50	12,000	6254.7	697	1.15	3.61E+12
*55	32.5	400	7	100	50	11,000	5734.7	681	1.15	3.28E+12
*56	3.6	500	7	100	50	12,500	6514.7	705	1.15	4.98E+11
*57	2.7	500	7	100	50	12,500	6514.7	705	1.15	3.74E+11
*58	0.64	250	7	100	50	8,500	4434.7	641	1.15	3.32E+10
*59	1.4	250	7	100	50	8,500	4434.7	641	1.15	7.25E+10
*60	3.3	200	7	100	50	8,500	4434.7	641	1.15	1.37E+11
*61	59.5	400	7	100	50	10,000	5214.7	665	1.15	5.59E+12
*62	53.2	325	7	100	50	9,000	4694.7	649	1.15	3.75E+12
*63	2.3	500	7	100	50	10,500	5474.7	673	1.15	2.80E+11
*64	4.3	500	7	100	50	10,500	5474.7	673	1.15	5.24E+11
*65	7.4	300	7	100	50	8,500	4434.7	641	1.15	4.60E+11
*66	9	450	7	100	50	11,000	5734.7	681	1.15	1.02E+12
*67	1.4	600	7	100	50	12,500	6514.7	705	1.15	2.33E+11
*68	26.1	600	7	100	50	12,000	6254.7	697	1.15	4.21E+12
*69	40.6	550	7	100	50	11,000	5734.7	681	1.15	5.63E+12
*70	18.3	550	7	100	50	10,500	5474.7	673	1.15	2.45E+12
*71	7.1	450	7	100	50	9,000	4694.7	649	1.15	6.92E+11
*72	5.3	450	7	100	50	8,000	4174.7	633	1.15	4.71E+11
*73	13.1	550	7	100	50	10,000	5214.7	665	1.15	1.69E+12
*74	14.3	550	7	100	50	9,000	4694.7	649	1.15	1.70E+12
*75	2.2	500	7	100	50	8,000	4174.7	633	1.15	2.17E+11
*76	2.5	500	7	100	50	8,500	4434.7	641	1.15	2.59E+11
*77	15.6	475	7	100	50	8,000	4174.7	633	1.15	1.46E+12
*78	32.1	400	7	100	50	9,000	4694.7	649	1.15	2.78E+12
*79	11.2	400	7	100	50	10,000	5214.7	665	1.15	1.05E+12
*80	1.1	600	7	100	50	11,000	5734.7	681	1.15	1.66E+11
*81	0.84	600	7	100	50	10,000	5214.7	665	1.15	1.18E+11
*82	0.24	600	7	100	50	9,500	4954.7	657	1.15	3.25E+10
**83	1.3	275	7	100	50	9,000	4694.7	649	1.15	7.75E+10
**84	1	275	7	100	50	8,000	4174.7	633	1.15	5.43E+10
**85	1.7	275	7	100	50	7,000	3654.7	617	1.15	8.29E+10
**86	1.1	275	7	100	50	8,000	4174.7	633	1.15	5.98E+10
**87	3.9	275	7	100	50	9,000	4694.7	649	1.15	2.32E+11
*88	2.9	550	7	100	50	8,000	4174.7	633	1.15	3.15E+11
*89	3.6	525	7	100	50	7,000	3654.7	617	1.15	3.35E+11

*90	0.28	525	7	100	50	7,500	3914.7	625	1.15	2.76E+10
*91	1.6	500	7	100	50	8,000	4174.7	633	1.15	1.58E+11
*92	0.25	500	7	100	50	8,500	4434.7	641	1.15	2.59E+10
**93	1.3	250	7	100	50	9,000	4694.7	649	1.15	7.04E+10
**94	1.3	250	7	100	50	8,500	4434.7	641	1.15	6.74E+10
**95	9.7	225	7	100	50	9,000	4694.7	649	1.15	4.73E+11
									Total =	3.16E+14

Table 55: List of subplays in the Lance Formation moderately overpressured play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. Subplays which are split between two different plays are marked with an asterix. Half of the sandstone volume in these subplays has been assigned to each of the two plays. The Lance Formation in some of the subplays along the south flank of the Casper Arch is partly cut off by the Casper Arch thrust creating roughly wedge-shaped subplay volumes. These subplays contain approximately one-half the sandstone volume indicated from the sandstone isopach map. these subplays are also marked with an asterix in the table. point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Lance > 1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	30	20	40		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	6.82	6.02	7.57	1051.96	1473259.1	49.41	10037.0	2536.95	46.72	8.82E+25
1a	7.07	6.25	7.84	0.57	1023096.6	49.41	10037.0	2536.95	50.27	3.55E+22
2	7.32	6.48	8.10	21.34	1729033.3	49.41	10037.0	2536.95	53.86	2.42E+24
2a	7.32	6.48	8.10	4.03	1023096.6	49.41	10037.0	2536.95	53.86	2.71E+23
3	7.57	6.70	8.36	0.12	2301967.4	49.41	10037.0	2536.95	57.49	1.99E+22
4	7.80	6.92	8.62	14.56	2956749.2	49.41	10037.0	2536.95	61.16	3.21E+24
5	7.80	6.92	8.62	5.81	1729033.3	49.41	10037.0	2536.95	61.16	7.48E+23
5a	7.80	6.92	8.62	3.09	1023096.6	49.41	10037.0	2536.95	61.16	2.35E+23
6	8.26	7.35	9.10	40.02	4511856.0	49.41	10037.0	2536.95	68.55	1.51E+25
7	8.70	7.76	9.56	72.85	3314833.0	49.41	10037.0	2536.95	76.01	2.24E+25
8	8.70	7.76	9.56	16.95	2956749.2	49.41	10037.0	2536.95	76.01	4.64E+24
9	8.70	7.76	9.56	117.61	2005269.4	49.41	10037.0	2536.95	76.01	2.18E+25
10	9.12	8.15	10.00	13.07	2005269.4	49.41	10037.0	2536.95	83.52	2.67E+24
11	8.70	7.76	9.56	109.06	1729033.3	49.41	10037.0	2536.95	76.01	1.75E+25
12	8.26	7.35	9.10	16.13	1729033.3	49.41	10037.0	2536.95	68.55	2.33E+24
13	7.80	6.92	8.62	842.15	1864593.6	49.41	10037.0	2536.95	61.16	1.17E+26
14	7.32	6.48	8.10	330.33	2005269.4	49.41	10037.0	2536.95	53.86	4.35E+25
15	7.57	6.70	8.36	15.34	2619127.3	49.41	10037.0	2536.95	57.49	2.81E+24
16	7.80	6.92	8.62	194.82	2956749.2	49.41	10037.0	2536.95	61.16	4.29E+25
17	8.70	7.76	9.56	27.26	1473259.1	49.41	10037.0	2536.95	76.01	3.72E+24
18	9.12	8.15	10.00	2705.55	1473259.1	49.41	10037.0	2536.95	83.52	4.06E+26
19	9.52	8.53	10.42	2411.09	1473259.1	49.41	10037.0	2536.95	91.03	3.94E+26
20	8.70	7.76	9.56	14.56	1023096.6	49.41	10037.0	2536.95	76.01	1.38E+24
21	9.52	8.53	10.42	2600.05	828708.3	49.41	10037.0	2536.95	91.03	2.39E+26
22	9.12	8.15	10.00	5686.91	654781.8	49.41	10037.0	2536.95	83.52	3.79E+26
23	8.70	7.76	9.56	1890.48	654781.8	49.41	10037.0	2536.95	76.01	1.15E+26
24	8.26	7.35	9.10	423.74	575491.8	49.41	10037.0	2536.95	68.55	2.04E+25
25	8.04	7.14	8.86	1.22	575491.8	49.41	10037.0	2536.95	64.84	5.55E+22
26	8.70	7.76	9.56	46.62	923344.7	49.41	10037.0	2536.95	76.01	3.99E+24
27	8.04	7.14	8.86	1.22	1729033.3	49.41	10037.0	2536.95	64.84	1.67E+23
28	8.70	7.76	9.56	67.80	1598588.5	49.41	10037.0	2536.95	76.01	1.00E+25
29	8.91	7.95	9.79	165.20	1598588.5	49.41	10037.0	2536.95	79.76	2.57E+25
29a	8.91	7.95	9.79	10.33	2301967.4	49.41	10037.0	2536.95	79.76	2.31E+24
30	8.70	7.76	9.56	277.85	1598588.5	49.41	10037.0	2536.95	76.01	4.11E+25
31	8.70	7.76	9.56	510.46	2956749.2	49.41	10037.0	2536.95	76.01	1.40E+26
31a	8.26	7.35	9.10	197.63	3133233.4	49.41	10037.0	2536.95	68.55	5.17E+25
32	8.48	7.55	9.33	28.32	2005269.4	49.41	10037.0	2536.95	72.28	5.00E+24
33	8.48	7.55	9.33	0.51	2301967.4	49.41	10037.0	2536.95	72.28	1.03E+23
34	7.32	6.48	8.10	89.09	1237946.9	49.41	10037.0	2536.95	53.86	7.24E+24
34a	7.80	6.92	8.62	735.06	2005269.4	49.41	10037.0	2536.95	61.16	1.10E+26
35	7.07	6.25	7.84	0.03	1023096.6	49.41	10037.0	2536.95	50.27	1.83E+21
36	7.07	6.25	7.84	0.51	923344.7	49.41	10037.0	2536.95	50.27	2.88E+22
37	7.32	6.48	8.10	15.34	923344.7	49.41	10037.0	2536.95	53.86	9.30E+23
38	7.57	6.70	8.36	1.22	1023096.6	49.41	10037.0	2536.95	57.49	8.75E+22
39	7.57	6.70	8.36	0.61	923344.7	49.41	10037.0	2536.95	57.49	3.97E+22

40	7.80	6.92	8.62	12.35	923344.7	49.41	10037.0	2536.95	61.16	8.50E+23
41	8.26	7.35	9.10	10947.92	1598588.5	49.41	10037.0	2536.95	68.55	1.46E+27
42	8.70	7.76	9.56	650.52	1473259.1	49.41	10037.0	2536.95	76.01	8.88E+25
43	9.12	8.15	10.00	232.96	1473259.1	49.41	10037.0	2536.95	83.52	3.49E+25
44	7.80	6.92	8.62	23.23	1473259.1	49.41	10037.0	2536.95	61.16	2.55E+24
*45	9.12	8.15	10.00	0.39	368314.8	49.41	10037.0	2536.95	83.52	1.45E+22
*46	8.70	7.76	9.56	1.45	368314.8	49.41	10037.0	2536.95	76.01	4.95E+22
*47	8.26	7.35	9.10	1.45	368314.8	49.41	10037.0	2536.95	68.55	4.47E+22
*48	7.80	6.92	8.62	1.45	368314.8	49.41	10037.0	2536.95	61.16	3.99E+22
*49	8.91	7.95	9.79	78.08	368314.8	49.41	10037.0	2536.95	79.76	2.80E+24
*50	8.70	7.76	9.56	542.72	368314.8	49.41	10037.0	2536.95	76.01	1.85E+25
*51	8.26	7.35	9.10	220.86	368314.8	49.41	10037.0	2536.95	68.55	6.80E+24
*52	8.26	7.35	9.10	192.02	163695.5	49.41	10037.0	2536.95	68.55	2.63E+24
*53	8.26	7.35	9.10	42.60	184796.8	49.41	10037.0	2536.95	68.55	6.58E+23
*54	7.80	6.92	8.62	1138.35	163695.5	49.41	10037.0	2536.95	61.16	1.39E+25
*55	7.32	6.48	8.10	1065.03	163695.5	49.41	10037.0	2536.95	53.86	1.14E+25
*56	8.04	7.14	8.86	13.07	255774.2	49.41	10037.0	2536.95	64.84	2.64E+23
*57	8.04	7.14	8.86	7.35	255774.2	49.41	10037.0	2536.95	64.84	1.49E+23
*58	6.02	5.28	6.70	0.41	63943.5	49.41	10037.0	2536.95	36.38	1.17E+21
*59	6.02	5.28	6.70	1.98	63943.5	49.41	10037.0	2536.95	36.38	5.60E+21
*60	6.02	5.28	6.70	10.98	40923.9	49.41	10037.0	2536.95	36.38	1.99E+22
*61	6.82	6.02	7.57	3569.69	163695.5	49.41	10037.0	2536.95	46.72	3.33E+25
*62	6.29	5.53	7.00	2853.77	108064.6	49.41	10037.0	2536.95	39.76	1.49E+25
*63	7.07	6.25	7.84	5.33	255774.2	49.41	10037.0	2536.95	50.27	8.36E+22
*64	7.07	6.25	7.84	18.64	255774.2	49.41	10037.0	2536.95	50.27	2.92E+23
*65	6.02	5.28	6.70	55.22	92078.7	49.41	10037.0	2536.95	36.38	2.25E+23
*66	7.32	6.48	8.10	81.67	207177.1	49.41	10037.0	2536.95	53.86	1.11E+24
*67	8.04	7.14	8.86	1.98	368314.8	49.41	10037.0	2536.95	64.84	5.75E+22
*68	7.80	6.92	8.62	686.87	368314.8	49.41	10037.0	2536.95	61.16	1.89E+25
*69	7.32	6.48	8.10	1662.07	309486.7	49.41	10037.0	2536.95	53.86	3.38E+25
*70	7.07	6.25	7.84	337.67	309486.7	49.41	10037.0	2536.95	50.27	6.40E+24
*71	6.29	5.53	7.00	50.83	207177.1	49.41	10037.0	2536.95	39.76	5.10E+23
*72	5.73	5.03	6.40	28.32	207177.1	49.41	10037.0	2536.95	33.06	2.36E+23
*73	6.82	6.02	7.57	173.04	309486.7	49.41	10037.0	2536.95	46.72	3.05E+24
*74	6.29	5.53	7.00	206.19	309486.7	49.41	10037.0	2536.95	39.76	3.09E+24
*75	5.73	5.03	6.40	4.88	255774.2	49.41	10037.0	2536.95	33.06	5.03E+22
*76	6.02	5.28	6.70	6.30	255774.2	49.41	10037.0	2536.95	36.38	7.15E+22
*77	5.73	5.03	6.40	245.38	230836.2	49.41	10037.0	2536.95	33.06	2.28E+24
*78	6.29	5.53	7.00	1038.98	163695.5	49.41	10037.0	2536.95	39.76	8.24E+24
*79	6.82	6.02	7.57	126.48	163695.5	49.41	10037.0	2536.95	46.72	1.18E+24
*80	7.32	6.48	8.10	1.22	368314.8	49.41	10037.0	2536.95	53.86	2.95E+22
*81	6.82	6.02	7.57	0.71	368314.8	49.41	10037.0	2536.95	46.72	1.49E+22
*82	6.56	5.78	7.29	0.06	368314.8	49.41	10037.0	2536.95	43.21	1.13E+21
**83	6.29	5.53	7.00	1.70	77371.7	49.41	10037.0	2536.95	39.76	6.39E+21
**84	5.73	5.03	6.40	1.01	77371.7	49.41	10037.0	2536.95	33.06	3.14E+21
**85	5.15	4.50	5.76	2.91	77371.7	49.41	10037.0	2536.95	26.68	7.33E+21
**86	5.73	5.03	6.40	1.22	77371.7	49.41	10037.0	2536.95	33.06	3.80E+21
**87	6.29	5.53	7.00	15.34	77371.7	49.41	10037.0	2536.95	39.76	5.75E+22
*88	5.73	5.03	6.40	8.48	309486.7	49.41	10037.0	2536.95	33.06	1.06E+23
*89	5.15	4.50	5.76	13.07	281991.0	49.41	10037.0	2536.95	26.68	1.20E+23

*90	5.45	4.77	6.09	0.08	281991.0	49.41	10037.0	2536.95	29.82	8.10E+20
*91	5.73	5.03	6.40	2.58	255774.2	49.41	10037.0	2536.95	33.06	2.66E+22
*92	6.02	5.28	6.70	0.06	255774.2	49.41	10037.0	2536.95	36.38	7.15E+20
**93	6.29	5.53	7.00	1.70	63943.5	49.41	10037.0	2536.95	39.76	5.28E+21
**94	6.02	5.28	6.70	1.70	63943.5	49.41	10037.0	2536.95	36.38	4.83E+21
**95	6.29	5.53	7.00	94.87	51794.3	49.41	10037.0	2536.95	39.76	2.38E+23

Table 56: List of subplays in the Lance Formation moderately overpressured play with estimates of ranges in percent for the six play attributes.

Play Name :		Lance > 1.1								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	9.10E+12	5.35E+24	2.31E+12	29.8085	0.250035	5.85E+12	7.46E+12	8.82E+12	1.04E+13	1.33E+13
1a	1.83E+11	2.15E+21	4.64E+10	25.9002	0.249815	1.17E+11	1.50E+11	1.77E+11	2.10E+11	2.67E+11
2	1.51E+12	1.46E+23	3.82E+11	28.0109	0.249602	9.70E+11	1.24E+12	1.46E+12	1.73E+12	2.20E+12
2a	5.04E+11	1.64E+22	1.28E+11	26.9156	0.249602	3.24E+11	4.13E+11	4.89E+11	5.79E+11	7.37E+11
3	1.37E+11	1.20E+21	3.47E+10	25.6109	0.249396	8.80E+10	1.12E+11	1.33E+11	1.57E+11	2.00E+11
4	1.74E+12	1.93E+23	4.40E+11	28.1518	0.249197	1.12E+12	1.42E+12	1.68E+12	1.99E+12	2.54E+12
5	8.39E+11	4.51E+22	2.12E+11	27.424	0.249197	5.40E+11	6.87E+11	8.13E+11	9.62E+11	1.22E+12
5a	4.70E+11	1.42E+22	1.19E+11	26.8458	0.249197	3.03E+11	3.86E+11	4.56E+11	5.39E+11	6.87E+11
6	3.77E+12	9.06E+23	9.52E+11	28.9259	0.248817	2.42E+12	3.09E+12	3.65E+12	4.32E+12	5.50E+12
7	4.59E+12	1.34E+24	1.16E+12	29.1231	0.248461	2.95E+12	3.76E+12	4.45E+12	5.26E+12	6.69E+12
8	2.09E+12	2.78E+23	5.27E+11	28.3369	0.248461	1.35E+12	1.71E+12	2.03E+12	2.39E+12	3.05E+12
9	4.53E+12	1.31E+24	1.14E+12	29.1113	0.248461	2.92E+12	3.72E+12	4.39E+12	5.20E+12	6.61E+12
10	1.58E+12	1.59E+23	3.99E+11	28.0599	0.248127	1.02E+12	1.30E+12	1.54E+12	1.82E+12	2.31E+12
11	4.05E+12	1.05E+24	1.02E+12	28.9995	0.248461	2.61E+12	3.32E+12	3.93E+12	4.65E+12	5.91E+12
12	1.48E+12	1.40E+23	3.74E+11	27.9921	0.248817	9.53E+11	1.21E+12	1.43E+12	1.70E+12	2.16E+12
13	1.05E+13	7.05E+24	2.65E+12	29.9501	0.249197	6.75E+12	8.59E+12	1.02E+13	1.20E+13	1.53E+13
14	6.39E+12	2.63E+24	1.62E+12	29.4549	0.249602	4.11E+12	5.24E+12	6.20E+12	7.33E+12	9.34E+12
15	1.63E+12	1.70E+23	4.12E+11	28.0862	0.249396	1.05E+12	1.33E+12	1.58E+12	1.86E+12	2.38E+12
16	6.35E+12	2.58E+24	1.61E+12	29.4487	0.249197	4.09E+12	5.21E+12	6.16E+12	7.28E+12	9.28E+12
17	1.87E+12	2.23E+23	4.72E+11	28.2263	0.248461	1.21E+12	1.53E+12	1.81E+12	2.14E+12	2.73E+12
18	1.95E+13	2.42E+25	4.92E+12	30.5722	0.248127	1.26E+13	1.60E+13	1.89E+13	2.24E+13	2.85E+13
19	1.93E+13	2.35E+25	4.84E+12	30.5579	0.247813	1.24E+13	1.58E+13	1.87E+13	2.21E+13	2.81E+13
20	1.14E+12	8.26E+22	2.87E+11	27.7303	0.248461	7.34E+11	9.34E+11	1.10E+12	1.31E+12	1.66E+12
21	1.50E+13	1.42E+25	3.77E+12	30.3079	0.247813	9.67E+12	1.23E+13	1.45E+13	1.72E+13	2.19E+13
22	1.89E+13	2.26E+25	4.76E+12	30.5382	0.248127	1.22E+13	1.55E+13	1.83E+13	2.16E+13	2.75E+13
23	1.04E+13	6.86E+24	2.62E+12	29.9403	0.248461	6.69E+12	8.51E+12	1.01E+13	1.19E+13	1.51E+13
24	4.38E+12	1.22E+24	1.11E+12	29.0762	0.248817	2.82E+12	3.59E+12	4.24E+12	5.02E+12	6.39E+12
25	2.28E+11	3.34E+21	5.78E+10	26.1232	0.249004	1.47E+11	1.87E+11	2.21E+11	2.62E+11	3.33E+11
26	1.94E+12	2.39E+23	4.89E+11	28.2609	0.248461	1.25E+12	1.59E+12	1.88E+12	2.22E+12	2.83E+12
27	3.96E+11	1.00E+22	1.00E+11	26.6732	0.249004	2.55E+11	3.24E+11	3.84E+11	4.54E+11	5.78E+11
28	3.07E+12	6.01E+23	7.75E+11	28.7226	0.248461	1.98E+12	2.52E+12	2.98E+12	3.52E+12	4.48E+12
29	4.91E+12	1.53E+24	1.24E+12	29.192	0.248291	3.17E+12	4.03E+12	4.76E+12	5.63E+12	7.17E+12
29a	1.47E+12	1.38E+23	3.72E+11	27.988	0.248291	9.50E+11	1.21E+12	1.43E+12	1.69E+12	2.15E+12
30	6.22E+12	2.46E+24	1.57E+12	29.4278	0.248461	4.01E+12	5.10E+12	6.03E+12	7.13E+12	9.08E+12
31	1.15E+13	8.37E+24	2.89E+12	30.0394	0.248461	7.39E+12	9.40E+12	1.11E+13	1.31E+13	1.67E+13
31a	6.97E+12	3.11E+24	1.76E+12	29.5421	0.248817	4.49E+12	5.72E+12	6.76E+12	7.99E+12	1.02E+13
32	2.17E+12	3.00E+23	5.48E+11	28.3742	0.248636	1.40E+12	1.78E+12	2.10E+12	2.49E+12	3.16E+12
33	3.11E+11	6.18E+21	7.86E+10	26.433	0.248636	2.00E+11	2.55E+11	3.02E+11	3.57E+11	4.54E+11
34	2.61E+12	4.37E+23	6.61E+11	28.5585	0.249602	1.68E+12	2.14E+12	2.53E+12	2.99E+12	3.81E+12
34a	1.02E+13	6.61E+24	2.57E+12	29.9185	0.249197	6.54E+12	8.33E+12	9.85E+12	1.17E+13	1.48E+13
35	4.14E+10	1.10E+20	1.05E+10	24.4159	0.249815	2.66E+10	3.39E+10	4.02E+10	4.75E+10	6.06E+10
36	1.64E+11	1.74E+21	4.17E+10	25.7941	0.249815	1.06E+11	1.35E+11	1.59E+11	1.89E+11	2.40E+11
37	9.35E+11	5.61E+22	2.37E+11	27.5322	0.249602	6.01E+11	7.66E+11	9.06E+11	1.07E+12	1.37E+12
38	2.87E+11	5.27E+21	7.26E+10	26.3505	0.249396	1.84E+11	2.35E+11	2.78E+11	3.29E+11	4.19E+11
39	1.93E+11	2.39E+21	4.89E+10	25.9555	0.249396	1.24E+11	1.58E+11	1.87E+11	2.21E+11	2.82E+11

40	8.94E+11	5.12E+22	2.26E+11	27.4876	0.249197	5.75E+11	7.32E+11	8.66E+11	1.02E+12	1.31E+12
41	3.71E+13	8.78E+25	9.37E+12	31.2129	0.248817	2.39E+13	3.04E+13	3.59E+13	4.25E+13	5.41E+13
42	9.14E+12	5.31E+24	2.31E+12	29.8124	0.248461	5.89E+12	7.49E+12	8.86E+12	1.05E+13	1.33E+13
43	5.73E+12	2.09E+24	1.44E+12	29.3461	0.248127	3.69E+12	4.70E+12	5.56E+12	6.57E+12	8.36E+12
44	1.55E+12	1.54E+23	3.92E+11	28.0371	0.249197	9.96E+11	1.27E+12	1.50E+12	1.78E+12	2.26E+12
*45	1.17E+11	8.68E+20	2.95E+10	25.4537	0.248127	7.54E+10	9.59E+10	1.13E+11	1.34E+11	1.70E+11
*46	2.16E+11	2.97E+21	5.45E+10	26.0668	0.248461	1.39E+11	1.77E+11	2.09E+11	2.47E+11	3.15E+11
*47	2.05E+11	2.68E+21	5.18E+10	26.0149	0.248817	1.32E+11	1.68E+11	1.99E+11	2.35E+11	2.99E+11
*48	1.94E+11	2.40E+21	4.90E+10	25.9577	0.249197	1.25E+11	1.59E+11	1.88E+11	2.22E+11	2.83E+11
*49	1.62E+12	1.67E+23	4.09E+11	28.0834	0.248291	1.04E+12	1.33E+12	1.57E+12	1.86E+12	2.36E+12
*50	4.17E+12	1.11E+24	1.05E+12	29.0286	0.248461	2.69E+12	3.42E+12	4.05E+12	4.78E+12	6.09E+12
*51	2.53E+12	4.08E+23	6.39E+11	28.5272	0.248817	1.63E+12	2.07E+12	2.45E+12	2.90E+12	3.69E+12
*52	1.57E+12	1.58E+23	3.97E+11	28.0518	0.248817	1.01E+12	1.29E+12	1.52E+12	1.80E+12	2.29E+12
*53	7.86E+11	3.95E+22	1.99E+11	27.3596	0.248817	5.06E+11	6.45E+11	7.62E+11	9.01E+11	1.15E+12
*54	3.61E+12	8.36E+23	9.14E+11	28.8844	0.249197	2.32E+12	2.96E+12	3.50E+12	4.14E+12	5.28E+12
*55	3.28E+12	6.91E+23	8.31E+11	28.7874	0.249602	2.11E+12	2.69E+12	3.18E+12	3.76E+12	4.79E+12
*56	4.98E+11	1.59E+22	1.26E+11	26.9033	0.249004	3.21E+11	4.08E+11	4.83E+11	5.71E+11	7.28E+11
*57	3.74E+11	8.93E+21	9.45E+10	26.6156	0.249004	2.41E+11	3.06E+11	3.62E+11	4.28E+11	5.46E+11
*58	3.32E+10	7.13E+19	8.45E+09	24.1931	0.250742	2.13E+10	2.71E+10	3.21E+10	3.80E+10	4.85E+10
*59	7.25E+10	3.41E+20	1.85E+10	24.9758	0.250742	4.65E+10	5.94E+10	7.03E+10	8.32E+10	1.06E+11
*60	1.37E+11	1.21E+21	3.48E+10	25.6102	0.250742	8.77E+10	1.12E+11	1.33E+11	1.57E+11	2.00E+11
*61	5.59E+12	2.02E+24	1.42E+12	29.3208	0.250035	3.59E+12	4.58E+12	5.42E+12	6.41E+12	8.18E+12
*62	3.75E+12	9.09E+23	9.53E+11	28.9204	0.250499	2.40E+12	3.07E+12	3.63E+12	4.30E+12	5.48E+12
*63	2.80E+11	5.06E+21	7.11E+10	26.3276	0.249815	1.80E+11	2.30E+11	2.72E+11	3.21E+11	4.10E+11
*64	5.24E+11	1.77E+22	1.33E+11	26.9533	0.249815	3.37E+11	4.29E+11	5.08E+11	6.01E+11	7.66E+11
*65	4.60E+11	1.37E+22	1.17E+11	26.8232	0.250742	2.95E+11	3.76E+11	4.46E+11	5.28E+11	6.73E+11
*66	1.02E+12	6.71E+22	2.59E+11	27.6212	0.249602	6.57E+11	8.37E+11	9.90E+11	1.17E+12	1.49E+12
*67	2.33E+11	3.46E+21	5.88E+10	26.1412	0.249004	1.50E+11	1.91E+11	2.25E+11	2.67E+11	3.40E+11
*68	4.21E+12	1.14E+24	1.07E+12	29.0373	0.249197	2.71E+12	3.45E+12	4.08E+12	4.83E+12	6.15E+12
*69	5.63E+12	2.04E+24	1.43E+12	29.3284	0.249602	3.62E+12	4.61E+12	5.46E+12	6.46E+12	8.23E+12
*70	2.45E+12	3.87E+23	6.22E+11	28.4969	0.249815	1.58E+12	2.01E+12	2.38E+12	2.81E+12	3.59E+12
*71	6.92E+11	3.10E+22	1.76E+11	27.2319	0.250499	4.44E+11	5.67E+11	6.71E+11	7.94E+11	1.01E+12
*72	4.71E+11	1.44E+22	1.20E+11	26.8469	0.250995	3.02E+11	3.85E+11	4.57E+11	5.41E+11	6.90E+11
*73	1.69E+12	1.85E+23	4.30E+11	28.1259	0.250035	1.09E+12	1.39E+12	1.64E+12	1.94E+12	2.47E+12
*74	1.70E+12	1.88E+23	4.34E+11	28.1327	0.250499	1.09E+12	1.39E+12	1.65E+12	1.96E+12	2.49E+12
*75	2.17E+11	3.07E+21	5.54E+10	26.0731	0.250995	1.39E+11	1.78E+11	2.11E+11	2.49E+11	3.18E+11
*76	2.59E+11	4.35E+21	6.60E+10	26.2488	0.250742	1.66E+11	2.12E+11	2.51E+11	2.97E+11	3.79E+11
*77	1.46E+12	1.39E+23	3.73E+11	27.9806	0.250995	9.39E+11	1.20E+12	1.42E+12	1.68E+12	2.14E+12
*78	2.78E+12	5.01E+23	7.08E+11	28.6229	0.250499	1.79E+12	2.28E+12	2.70E+12	3.19E+12	4.07E+12
*79	1.05E+12	7.14E+22	2.67E+11	27.6507	0.250035	6.76E+11	8.62E+11	1.02E+12	1.21E+12	1.54E+12
*80	1.66E+11	1.78E+21	4.22E+10	25.807	0.249602	1.07E+11	1.36E+11	1.61E+11	1.91E+11	2.43E+11
*81	1.18E+11	9.04E+20	3.01E+10	25.4659	0.250035	7.60E+10	9.69E+10	1.15E+11	1.36E+11	1.73E+11
*82	3.25E+10	6.84E+19	8.27E+09	24.1741	0.250263	2.09E+10	2.66E+10	3.15E+10	3.73E+10	4.76E+10
**83	7.75E+10	3.89E+20	1.97E+10	25.0417	0.250499	4.97E+10	6.34E+10	7.51E+10	8.89E+10	1.13E+11
**84	5.43E+10	1.92E+20	1.39E+10	24.6868	0.250995	3.48E+10	4.44E+10	5.26E+10	6.23E+10	7.95E+10
**85	8.29E+10	4.49E+20	2.12E+10	25.1098	0.251526	5.31E+10	6.78E+10	8.04E+10	9.52E+10	1.22E+11
**86	5.98E+10	2.32E+20	1.52E+10	24.7821	0.250995	3.83E+10	4.89E+10	5.79E+10	6.86E+10	8.75E+10
**87	2.32E+11	3.50E+21	5.91E+10	26.1403	0.250499	1.49E+11	1.90E+11	2.25E+11	2.67E+11	3.40E+11
*88	3.15E+11	6.46E+21	8.03E+10	26.4446	0.250995	2.02E+11	2.58E+11	3.05E+11	3.62E+11	4.61E+11
*89	3.35E+11	7.34E+21	8.57E+10	26.5068	0.251526	2.15E+11	2.74E+11	3.25E+11	3.85E+11	4.91E+11

*90	2.76E+10	4.96E+19	7.04E+09	24.0088	0.251256	1.77E+10	2.26E+10	2.67E+10	3.17E+10	4.04E+10
*91	1.58E+11	1.62E+21	4.03E+10	25.7546	0.250995	1.01E+11	1.29E+11	1.53E+11	1.81E+11	2.31E+11
*92	2.59E+10	4.35E+19	6.60E+09	23.9462	0.250742	1.66E+10	2.12E+10	2.51E+10	2.97E+10	3.79E+10
**93	7.04E+10	3.21E+20	1.79E+10	24.9464	0.250499	4.52E+10	5.76E+10	6.82E+10	8.08E+10	1.03E+11
**94	6.74E+10	2.94E+20	1.72E+10	24.9017	0.250742	4.32E+10	5.51E+10	6.53E+10	7.73E+10	9.86E+10
**95	4.73E+11	1.45E+22	1.20E+11	26.8508	0.250499	3.04E+11	3.87E+11	4.58E+11	5.43E+11	6.92E+11
P.P.C.	3.16E+14	6.37E+27	7.98E+13			2.03E+14	2.59E+14	3.06E+14	3.62E+14	4.61E+14

Table 57: List of subplays in the Lance Formation moderately overpressured play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :	Lance .73-1.1									(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.93	
Subplay No.	Closure (sq.mi.)	Thickness (feet)	Porosity (%)	Trap fill (%)	HC Sat. (%)	Depth (feet)	Pressure (PSI)	Temp. (Deg.Rank.)	Gas Comp. (no units)	Gas in place (CF)
1	2.1	1,100	7	50	50	12,500	5139.7	705	0.93	3.12E+11
2	7	1,050	7	50	50	12,000	4934.7	697	0.93	9.64E+11
3	2.9	1,050	7	50	50	11,000	4524.7	681	0.93	3.75E+11
4	1.1	1,000	7	50	50	10,000	4114.7	665	0.93	1.26E+11
5	1.5	1,000	7	50	50	11,000	4524.7	681	0.93	1.85E+11
6	1.7	1,000	7	50	50	10,000	4114.7	665	0.93	1.95E+11
7	1.2	1,000	7	50	50	9,000	3704.7	649	0.93	1.27E+11
8	12.2	650	7	50	50	12,000	4934.7	697	0.93	1.04E+12
9	1.1	500	7	50	50	11,500	4729.7	689	0.93	6.99E+10
10	0.39	500	7	50	50	11,500	4729.7	689	0.93	2.48E+10
11	12.2	700	7	50	50	11,000	4524.7	681	0.93	1.05E+12
12	11.6	600	7	50	50	10,000	4114.7	665	0.93	7.98E+11
13	11.4	550	7	50	50	9,000	3704.7	649	0.93	6.63E+11
14	1.5	500	7	50	50	8,500	3499.7	641	0.93	7.58E+10
15	1	500	7	50	50	8,500	3499.7	641	0.93	5.06E+10
16	0.42	500	7	50	50	8,500	3499.7	641	0.93	2.12E+10
17	1.1	500	7	50	50	8,500	3499.7	641	0.93	5.56E+10
18	17.6	400	7	50	50	8,000	3294.7	633	0.93	6.79E+11
19	29.8	300	7	50	50	7,000	2884.7	617	0.93	7.74E+11
19a	0.91	500	7	50	50	7,500	3089.7	625	0.93	4.17E+10
20	0.72	250	7	50	50	6,500	2679.7	609	0.93	1.47E+10
21	12.8	600	7	50	50	8,000	3294.7	633	0.93	7.40E+11
22	3.3	550	7	50	50	7,000	2884.7	617	0.93	1.57E+11
23	1	500	7	50	50	6,500	2679.7	609	0.93	4.07E+10
24	7	400	7	50	50	6,000	2474.7	601	0.93	2.14E+11
*25	2	375	7	50	50	11,500	4729.7	689	0.93	9.53E+10
*26	9.9	375	7	50	50	11,000	4524.7	681	0.93	4.57E+11
*27	2.5	450	7	50	50	10,000	4114.7	665	0.93	1.29E+11
*28	2.1	450	7	50	50	9,000	3704.7	649	0.93	9.99E+10
*29	1	475	7	50	50	8,000	3294.7	633	0.93	4.58E+10
*30	0.82	300	7	50	50	10,500	4319.7	673	0.93	2.92E+10
*31	0.21	250	7	50	50	10,500	4319.7	673	0.93	6.24E+09
*32	3.8	225	7	50	50	11,000	4524.7	681	0.93	1.05E+11
*33	0.22	250	7	50	50	10,500	4319.7	673	0.93	6.54E+09
*34	6.8	300	7	50	50	10,500	4319.7	673	0.93	2.42E+11
*35	20.7	325	7	50	50	10,500	4319.7	673	0.93	8.00E+11
*36	22.2	300	7	50	50	9,000	3704.7	649	0.93	7.04E+11
*37	13.1	275	7	50	50	8,000	3294.7	633	0.93	3.47E+11
*38	0.53	250	7	50	50	7,500	3089.7	625	0.93	1.21E+10
*39	1.1	250	7	50	50	7,500	3089.7	625	0.93	2.52E+10
*40	6.7	200	7	50	50	7,000	2884.7	617	0.93	1.16E+11
*41	27	200	7	50	50	6,000	2474.7	601	0.93	4.12E+11
*42	16.6	200	7	50	50	5,000	2064.7	585	0.93	2.17E+11
*43	1.4	250	7	50	50	5,500	2269.7	593	0.93	2.48E+10
*44	5.5	375	7	50	50	8,000	3294.7	633	0.93	1.99E+11

*45	21.1	375	7	50	50	7,000	2884.7	617	0.93	6.85E+11
*46	11.2	350	7	50	50	6,000	2474.7	601	0.93	2.99E+11
*47	10.2	350	7	50	50	8,500	3499.7	641	0.93	3.61E+11
*48	46.4	300	7	50	50	8,000	3294.7	633	0.93	1.34E+12
*49	8.8	600	7	50	50	14,500	5959.7	737	0.93	7.91E+11
*50	23.3	600	7	50	50	14,000	5754.7	729	0.93	2.04E+12
*51	14.8	600	7	50	50	13,000	5344.7	713	0.93	1.23E+12
*52	13.8	400	7	50	50	13,000	5344.7	713	0.93	7.66E+11
*53	6.5	425	7	50	50	13,000	5344.7	713	0.93	3.84E+11
*54	33.6	400	7	50	50	12,000	4934.7	697	0.93	1.76E+12
*55	32.5	400	7	50	50	11,000	4524.7	681	0.93	1.60E+12
*56	3.6	500	7	50	50	12,500	5139.7	705	0.93	2.43E+11
*57	2.7	500	7	50	50	12,500	5139.7	705	0.93	1.82E+11
*58	0.64	250	7	50	50	8,500	3499.7	641	0.93	1.62E+10
*59	1.4	250	7	50	50	8,500	3499.7	641	0.93	3.54E+10
*60	3.3	200	7	50	50	8,500	3499.7	641	0.93	6.67E+10
*61	59.5	400	7	50	50	10,000	4114.7	665	0.93	2.73E+12
*62	53.2	325	7	50	50	9,000	3704.7	649	0.93	1.83E+12
*63	2.3	500	7	50	50	10,500	4319.7	673	0.93	1.37E+11
*64	4.3	500	7	50	50	10,500	4319.7	673	0.93	2.56E+11
*65	7.4	300	7	50	50	8,500	3499.7	641	0.93	2.24E+11
*66	9	450	7	50	50	11,000	4524.7	681	0.93	4.98E+11
*67	1.4	600	7	50	50	12,500	5139.7	705	0.93	1.13E+11
*68	26.1	600	7	50	50	12,000	4934.7	697	0.93	2.05E+12
*69	40.6	550	7	50	50	11,000	4524.7	681	0.93	2.75E+12
*70	18.3	550	7	50	50	10,500	4319.7	673	0.93	1.20E+12
71	7.1	900	7	50	50	9,000	3704.7	649	0.93	6.76E+11
72	5.3	900	7	50	50	8,000	3294.7	633	0.93	4.60E+11
73	13.1	1,100	7	50	50	10,000	4114.7	665	0.93	1.65E+12
74	14.3	1,100	7	50	50	9,000	3704.7	649	0.93	1.66E+12
75	2.2	1,000	7	50	50	8,000	3294.7	633	0.93	2.12E+11
76	2.5	1,000	7	50	50	8,500	3499.7	641	0.93	2.53E+11
77	15.6	950	7	50	50	8,000	3294.7	633	0.93	1.43E+12
78	32.1	800	7	50	50	9,000	3704.7	649	0.93	2.71E+12
79	11.2	800	7	50	50	10,000	4114.7	665	0.93	1.03E+12
**80	1.1	300	7	50	50	11,000	4524.7	681	0.93	4.06E+10
**81	0.84	300	7	50	50	10,000	4114.7	665	0.93	2.89E+10
*82	0.24	600	7	50	50	9,500	3909.7	657	0.93	1.59E+10
*83	1.3	550	7	50	50	9,000	3704.7	649	0.93	7.56E+10
*84	1	550	7	50	50	8,000	3294.7	633	0.93	5.30E+10
*85	1.7	550	7	50	50	7,000	2884.7	617	0.93	8.10E+10
*86	1.1	550	7	50	50	8,000	3294.7	633	0.93	5.83E+10
*87	3.9	550	7	50	50	9,000	3704.7	649	0.93	2.27E+11
88	2.9	1,100	7	50	50	8,000	3294.7	633	0.93	3.07E+11
89	3.6	1,050	7	50	50	7,000	2884.7	617	0.93	3.27E+11
90	0.28	1,050	7	50	50	7,500	3089.7	625	0.93	2.69E+10
91	1.6	1,000	7	50	50	8,000	3294.7	633	0.93	1.54E+11
92	0.25	1,000	7	50	50	8,500	3499.7	641	0.93	2.53E+10
*93	1.3	500	7	50	50	9,000	3704.7	649	0.93	6.87E+10
*94	1.3	500	7	50	50	8,500	3499.7	641	0.93	6.57E+10

*95	9.7	450	7	50	50	9,000	3704.7	649	0.93	4.61E+11
*96	10.7	225	7	50	50	7,500	3089.7	625	0.93	2.20E+11
**97	1.2	200	7	50	50	8,500	3499.7	641	0.93	2.43E+10
**98	7.1	175	7	50	50	8,000	3294.7	633	0.93	1.20E+11
**99	0.35	125	7	50	50	7,500	3089.7	625	0.93	4.01E+09
									Total =	4.89E+13

Table 58: List of subplays in the Lance Formation transition play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. Subplays which are split between two different plays are marked with an asterix. Half of the sandstone volume in these subplays has been assigned to each of the two plays. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Lance .73-1.1								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	7.84	6.96	8.64	4.45	1237946.9	50.63	2731.0	2647.82	61.71	1.20E+23
2	7.61	6.75	8.40	49.41	1127964.0	50.63	2731.0	2647.82	58.21	1.15E+24
3	7.14	6.32	7.91	8.48	1127964.0	50.63	2731.0	2647.82	51.27	1.74E+23
4	6.65	5.87	7.38	1.22	1023096.6	50.63	2731.0	2647.82	44.48	1.97E+22
5	7.14	6.32	7.91	2.27	1023096.6	50.63	2731.0	2647.82	51.27	4.22E+22
6	6.65	5.87	7.38	2.91	1023096.6	50.63	2731.0	2647.82	44.48	4.70E+22
7	6.14	5.40	6.83	1.45	1023096.6	50.63	2731.0	2647.82	37.86	1.99E+22
8	7.61	6.75	8.40	150.08	432258.3	50.63	2731.0	2647.82	58.21	1.34E+24
9	7.38	6.54	8.16	1.22	255774.2	50.63	2731.0	2647.82	54.73	6.06E+21
10	7.38	6.54	8.16	0.15	255774.2	50.63	2731.0	2647.82	54.73	7.61E+20
11	7.14	6.32	7.91	150.08	501317.3	50.63	2731.0	2647.82	51.27	1.37E+24
12	6.65	5.87	7.38	135.68	368314.8	50.63	2731.0	2647.82	44.48	7.88E+23
13	6.14	5.40	6.83	131.04	309486.7	50.63	2731.0	2647.82	37.86	5.45E+23
14	5.87	5.16	6.54	2.27	255774.2	50.63	2731.0	2647.82	34.64	7.13E+21
15	5.87	5.16	6.54	1.01	255774.2	50.63	2731.0	2647.82	34.64	3.17E+21
16	5.87	5.16	6.54	0.18	255774.2	50.63	2731.0	2647.82	34.64	5.59E+20
17	5.87	5.16	6.54	1.22	255774.2	50.63	2731.0	2647.82	34.64	3.83E+21
18	5.60	4.91	6.24	312.34	163695.5	50.63	2731.0	2647.82	31.49	5.71E+23
19	5.03	4.40	5.62	895.42	92078.7	50.63	2731.0	2647.82	25.41	7.43E+23
19a	5.32	4.66	5.94	0.83	255774.2	50.63	2731.0	2647.82	28.41	2.15E+21
20	4.73	4.13	5.30	0.52	63943.5	50.63	2731.0	2647.82	22.51	2.67E+20
21	5.60	4.91	6.24	165.20	368314.8	50.63	2731.0	2647.82	31.49	6.79E+23
22	5.03	4.40	5.62	10.98	309486.7	50.63	2731.0	2647.82	25.41	3.06E+22
23	4.73	4.13	5.30	1.01	255774.2	50.63	2731.0	2647.82	22.51	2.06E+21
24	4.43	3.86	4.97	49.41	163695.5	50.63	2731.0	2647.82	19.72	5.66E+22
*25	7.38	6.54	8.16	4.03	143873.0	50.63	2731.0	2647.82	54.73	1.13E+22
*26	7.14	6.32	7.91	98.82	143873.0	50.63	2731.0	2647.82	51.27	2.59E+23
*27	6.65	5.87	7.38	6.30	207177.1	50.63	2731.0	2647.82	44.48	2.06E+22
*28	6.14	5.40	6.83	4.45	207177.1	50.63	2731.0	2647.82	37.86	1.24E+22
*29	5.60	4.91	6.24	1.01	230836.2	50.63	2731.0	2647.82	31.49	2.60E+21
*30	6.90	6.10	7.65	0.68	92078.7	50.63	2731.0	2647.82	47.85	1.06E+21
*31	6.90	6.10	7.65	0.04	63943.5	50.63	2731.0	2647.82	47.85	4.83E+19
*32	7.14	6.32	7.91	14.56	51794.3	50.63	2731.0	2647.82	51.27	1.37E+22
*33	6.90	6.10	7.65	0.05	63943.5	50.63	2731.0	2647.82	47.85	5.30E+19
*34	6.90	6.10	7.65	46.62	92078.7	50.63	2731.0	2647.82	47.85	7.29E+22
*35	6.90	6.10	7.65	432.05	108064.6	50.63	2731.0	2647.82	47.85	7.92E+23
*36	6.14	5.40	6.83	496.94	92078.7	50.63	2731.0	2647.82	37.86	6.14E+23
*37	5.60	4.91	6.24	173.04	77371.7	50.63	2731.0	2647.82	31.49	1.49E+23
*38	5.32	4.66	5.94	0.28	63943.5	50.63	2731.0	2647.82	28.41	1.82E+20
*39	5.32	4.66	5.94	1.22	63943.5	50.63	2731.0	2647.82	28.41	7.86E+20
*40	5.03	4.40	5.62	45.26	40923.9	50.63	2731.0	2647.82	25.41	1.67E+22
*41	4.43	3.86	4.97	735.06	40923.9	50.63	2731.0	2647.82	19.72	2.10E+23
*42	3.80	3.30	4.27	277.85	40923.9	50.63	2731.0	2647.82	14.49	5.84E+22
*43	4.12	3.58	4.63	1.98	63943.5	50.63	2731.0	2647.82	17.04	7.64E+20
*44	5.60	4.91	6.24	30.50	143873.0	50.63	2731.0	2647.82	31.49	4.90E+22

*45	5.03	4.40	5.62	448.91	143873.0	50.63	2731.0	2647.82	25.41	5.82E+23
*46	4.43	3.86	4.97	126.48	125329.3	50.63	2731.0	2647.82	19.72	1.11E+23
*47	5.87	5.16	6.54	104.91	125329.3	50.63	2731.0	2647.82	34.64	1.62E+23
*48	5.60	4.91	6.24	2170.86	92078.7	50.63	2731.0	2647.82	31.49	2.23E+24
*49	8.70	7.76	9.55	78.08	368314.8	50.63	2731.0	2647.82	75.90	7.74E+23
*50	8.49	7.57	9.33	547.40	368314.8	50.63	2731.0	2647.82	72.33	5.17E+24
*51	8.06	7.17	8.88	220.86	368314.8	50.63	2731.0	2647.82	65.24	1.88E+24
*52	8.06	7.17	8.88	192.02	163695.5	50.63	2731.0	2647.82	65.24	7.27E+23
*53	8.06	7.17	8.88	42.60	184796.8	50.63	2731.0	2647.82	65.24	1.82E+23
*54	7.61	6.75	8.40	1138.35	163695.5	50.63	2731.0	2647.82	58.21	3.85E+24
*55	7.14	6.32	7.91	1065.03	163695.5	50.63	2731.0	2647.82	51.27	3.17E+24
*56	7.84	6.96	8.64	13.07	255774.2	50.63	2731.0	2647.82	61.71	7.31E+22
*57	7.84	6.96	8.64	7.35	255774.2	50.63	2731.0	2647.82	61.71	4.11E+22
*58	5.87	5.16	6.54	0.41	63943.5	50.63	2731.0	2647.82	34.64	3.24E+20
*59	5.87	5.16	6.54	1.98	63943.5	50.63	2731.0	2647.82	34.64	1.55E+21
*60	5.87	5.16	6.54	10.98	40923.9	50.63	2731.0	2647.82	34.64	5.52E+21
*61	6.65	5.87	7.38	3569.69	163695.5	50.63	2731.0	2647.82	44.48	9.22E+24
*62	6.14	5.40	6.83	2853.77	108064.6	50.63	2731.0	2647.82	37.86	4.14E+24
*63	6.90	6.10	7.65	5.33	255774.2	50.63	2731.0	2647.82	47.85	2.32E+22
*64	6.90	6.10	7.65	18.64	255774.2	50.63	2731.0	2647.82	47.85	8.09E+22
*65	5.87	5.16	6.54	55.22	92078.7	50.63	2731.0	2647.82	34.64	6.25E+22
*66	7.14	6.32	7.91	81.67	207177.1	50.63	2731.0	2647.82	51.27	3.08E+23
*67	7.84	6.96	8.64	1.98	368314.8	50.63	2731.0	2647.82	61.71	1.59E+22
*68	7.61	6.75	8.40	686.87	368314.8	50.63	2731.0	2647.82	58.21	5.22E+24
*69	7.14	6.32	7.91	1662.07	309486.7	50.63	2731.0	2647.82	51.27	9.35E+24
*70	6.90	6.10	7.65	337.67	309486.7	50.63	2731.0	2647.82	47.85	1.77E+24
71	6.14	5.40	6.83	50.83	828708.3	50.63	2731.0	2647.82	37.86	5.66E+23
72	5.60	4.91	6.24	28.32	828708.3	50.63	2731.0	2647.82	31.49	2.62E+23
73	6.65	5.87	7.38	173.04	1237946.9	50.63	2731.0	2647.82	44.48	3.38E+24
74	6.14	5.40	6.83	206.19	1237946.9	50.63	2731.0	2647.82	37.86	3.43E+24
75	5.60	4.91	6.24	4.88	1023096.6	50.63	2731.0	2647.82	31.49	5.58E+22
76	5.87	5.16	6.54	6.30	1023096.6	50.63	2731.0	2647.82	34.64	7.92E+22
77	5.60	4.91	6.24	245.38	923344.7	50.63	2731.0	2647.82	31.49	2.53E+24
78	6.14	5.40	6.83	1038.98	654781.8	50.63	2731.0	2647.82	37.86	9.13E+24
79	6.65	5.87	7.38	126.48	654781.8	50.63	2731.0	2647.82	44.48	1.31E+24
**80	7.14	6.32	7.91	1.22	92078.7	50.63	2731.0	2647.82	51.27	2.04E+21
**81	6.65	5.87	7.38	0.71	92078.7	50.63	2731.0	2647.82	44.48	1.03E+21
*82	6.40	5.64	7.11	0.06	368314.8	50.63	2731.0	2647.82	41.14	3.12E+20
*83	6.14	5.40	6.83	1.70	309486.7	50.63	2731.0	2647.82	37.86	7.08E+21
*84	5.60	4.91	6.24	1.01	309486.7	50.63	2731.0	2647.82	31.49	3.48E+21
*85	5.03	4.40	5.62	2.91	309486.7	50.63	2731.0	2647.82	25.41	8.13E+21
*86	5.60	4.91	6.24	1.22	309486.7	50.63	2731.0	2647.82	31.49	4.22E+21
*87	6.14	5.40	6.83	15.34	309486.7	50.63	2731.0	2647.82	37.86	6.37E+22
88	5.60	4.91	6.24	8.48	1237946.9	50.63	2731.0	2647.82	31.49	1.17E+23
89	5.03	4.40	5.62	13.07	1127964.0	50.63	2731.0	2647.82	25.41	1.33E+23
90	5.32	4.66	5.94	0.08	1127964.0	50.63	2731.0	2647.82	28.41	8.98E+20
91	5.60	4.91	6.24	2.58	1023096.6	50.63	2731.0	2647.82	31.49	2.95E+22
92	5.87	5.16	6.54	0.06	1023096.6	50.63	2731.0	2647.82	34.64	7.92E+20
*93	6.14	5.40	6.83	1.70	255774.2	50.63	2731.0	2647.82	37.86	5.85E+21
*94	5.87	5.16	6.54	1.70	255774.2	50.63	2731.0	2647.82	34.64	5.35E+21

*95	6.14	5.40	6.83	94.87	207177.1	50.63	2731.0	2647.82	37.86	2.64E+23
*96	5.32	4.66	5.94	115.44	51794.3	50.63	2731.0	2647.82	28.41	6.02E+22
**97	5.87	5.16	6.54	1.45	40923.9	50.63	2731.0	2647.82	34.64	7.30E+20
**98	5.60	4.91	6.24	50.83	31332.3	50.63	2731.0	2647.82	31.49	1.78E+22
**99	5.32	4.66	5.94	0.12	15985.9	50.63	2731.0	2647.82	28.41	1.99E+19

Table 59: List of subplays in the Lance Formation transition play with estimates of ranges in percent for the six play attributes.

Play Name :	Lance .73-1.1									(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	3.12E+11	2.32E+22	1.52E+11	26.359	0.462473	1.31E+11	2.05E+11	2.80E+11	3.83E+11	6.00E+11
2	9.64E+11	2.22E+23	4.71E+11	27.4871	0.462576	4.05E+11	6.34E+11	8.66E+11	1.18E+12	1.85E+12
3	3.75E+11	3.35E+22	1.83E+11	26.5423	0.462794	1.57E+11	2.46E+11	3.37E+11	4.60E+11	7.21E+11
4	1.26E+11	3.80E+21	6.16E+10	25.4528	0.463026	5.29E+10	8.29E+10	1.13E+11	1.55E+11	2.43E+11
5	1.85E+11	8.14E+21	9.02E+10	25.8342	0.462794	7.75E+10	1.21E+11	1.66E+11	2.27E+11	3.55E+11
6	1.95E+11	9.07E+21	9.53E+10	25.8881	0.463026	8.17E+10	1.28E+11	1.75E+11	2.39E+11	3.75E+11
7	1.27E+11	3.85E+21	6.21E+10	25.459	0.463275	5.32E+10	8.34E+10	1.14E+11	1.56E+11	2.44E+11
8	1.04E+12	2.58E+23	5.08E+11	27.563	0.462576	4.37E+11	6.84E+11	9.34E+11	1.28E+12	2.00E+12
9	6.99E+10	1.17E+21	3.42E+10	24.8636	0.462683	2.93E+10	4.60E+10	6.28E+10	8.58E+10	1.34E+11
10	2.48E+10	1.47E+20	1.21E+10	23.8267	0.462683	1.04E+10	1.63E+10	2.23E+10	3.04E+10	4.77E+10
11	1.05E+12	2.64E+23	5.14E+11	27.5735	0.462794	4.41E+11	6.91E+11	9.44E+11	1.29E+12	2.02E+12
12	7.98E+11	1.52E+23	3.90E+11	27.2976	0.463026	3.35E+11	5.24E+11	7.16E+11	9.79E+11	1.53E+12
13	6.63E+11	1.05E+23	3.24E+11	27.1125	0.463275	2.78E+11	4.36E+11	5.95E+11	8.14E+11	1.28E+12
14	7.58E+10	1.38E+21	3.71E+10	24.9445	0.463406	3.18E+10	4.98E+10	6.81E+10	9.31E+10	1.46E+11
15	5.06E+10	6.12E+20	2.47E+10	24.539	0.463406	2.12E+10	3.32E+10	4.54E+10	6.21E+10	9.73E+10
16	2.12E+10	1.08E+20	1.04E+10	23.6715	0.463406	8.90E+09	1.40E+10	1.91E+10	2.61E+10	4.09E+10
17	5.56E+10	7.41E+20	2.72E+10	24.6343	0.463406	2.33E+10	3.66E+10	5.00E+10	6.83E+10	1.07E+11
18	6.79E+11	1.10E+23	3.32E+11	27.1359	0.463542	2.84E+11	4.46E+11	6.09E+11	8.33E+11	1.31E+12
19	7.74E+11	1.44E+23	3.79E+11	27.2674	0.463828	3.24E+11	5.09E+11	6.95E+11	9.50E+11	1.49E+12
19a	4.17E+10	4.16E+20	2.04E+10	24.3452	0.463683	1.74E+10	2.74E+10	3.74E+10	5.11E+10	8.02E+10
20	1.47E+10	5.17E+19	7.19E+09	23.3013	0.463978	6.14E+09	9.63E+09	1.32E+10	1.80E+10	2.83E+10
21	7.40E+11	1.31E+23	3.62E+11	27.2229	0.463542	3.10E+11	4.86E+11	6.65E+11	9.09E+11	1.43E+12
22	1.57E+11	5.93E+21	7.70E+10	25.6729	0.463828	6.58E+10	1.03E+11	1.41E+11	1.93E+11	3.03E+11
23	4.07E+10	3.99E+20	2.00E+10	24.323	0.463978	1.71E+10	2.68E+10	3.66E+10	5.00E+10	7.85E+10
24	2.14E+11	1.10E+22	1.05E+11	25.9793	0.464134	8.93E+10	1.40E+11	1.92E+11	2.62E+11	4.11E+11
*25	9.53E+10	2.17E+21	4.66E+10	25.1738	0.462683	4.00E+10	6.27E+10	8.57E+10	1.17E+11	1.83E+11
*26	4.57E+11	4.98E+22	2.23E+11	26.7405	0.462794	1.92E+11	3.00E+11	4.10E+11	5.61E+11	8.79E+11
*27	1.29E+11	3.97E+21	6.30E+10	25.4752	0.463026	5.41E+10	8.48E+10	1.16E+11	1.58E+11	2.48E+11
*28	9.99E+10	2.39E+21	4.89E+10	25.2201	0.463275	4.19E+10	6.57E+10	8.97E+10	1.23E+11	1.92E+11
*29	4.58E+10	5.03E+20	2.24E+10	24.4398	0.463542	1.92E+10	3.01E+10	4.11E+10	5.62E+10	8.82E+10
*30	2.92E+10	2.04E+20	1.43E+10	23.9917	0.462908	1.23E+10	1.92E+10	2.63E+10	3.59E+10	5.63E+10
*31	6.24E+09	9.31E+18	3.05E+09	22.4472	0.462908	2.62E+09	4.10E+09	5.61E+09	7.66E+09	1.20E+10
*32	1.05E+11	2.64E+21	5.14E+10	25.2721	0.462794	4.41E+10	6.92E+10	9.45E+10	1.29E+11	2.02E+11
*33	6.54E+09	1.02E+19	3.20E+09	22.4937	0.462908	2.74E+09	4.30E+09	5.87E+09	8.02E+09	1.26E+10
*34	2.42E+11	1.41E+22	1.19E+11	26.1071	0.462908	1.02E+11	1.59E+11	2.18E+11	2.98E+11	4.67E+11
*35	8.00E+11	1.53E+23	3.91E+11	27.3004	0.462908	3.35E+11	5.26E+11	7.18E+11	9.82E+11	1.54E+12
*36	7.04E+11	1.19E+23	3.44E+11	27.1728	0.463275	2.95E+11	4.63E+11	6.32E+11	8.64E+11	1.36E+12
*37	3.47E+11	2.89E+22	1.70E+11	26.4659	0.463542	1.45E+11	2.28E+11	3.12E+11	4.26E+11	6.69E+11
*38	1.21E+10	3.53E+19	5.94E+09	23.1115	0.463683	5.08E+09	7.97E+09	1.09E+10	1.49E+10	2.34E+10
*39	2.52E+10	1.52E+20	1.23E+10	23.8417	0.463683	1.05E+10	1.65E+10	2.26E+10	3.09E+10	4.85E+10
*40	1.16E+11	3.23E+21	5.68E+10	25.3695	0.463828	4.86E+10	7.62E+10	1.04E+11	1.42E+11	2.23E+11
*41	4.12E+11	4.08E+22	2.02E+11	26.6361	0.464134	1.72E+11	2.70E+11	3.70E+11	5.06E+11	7.93E+11
*42	2.17E+11	1.13E+22	1.06E+11	25.9953	0.46446	9.07E+10	1.42E+11	1.95E+11	2.66E+11	4.18E+11
*43	2.48E+10	1.48E+20	1.22E+10	23.8267	0.464294	1.04E+10	1.63E+10	2.23E+10	3.05E+10	4.78E+10
*44	1.99E+11	9.47E+21	9.73E+10	25.9082	0.463542	8.33E+10	1.31E+11	1.79E+11	2.44E+11	3.83E+11

*45	6.85E+11	1.13E+23	3.36E+11	27.1453	0.463828	2.87E+11	4.50E+11	6.15E+11	8.41E+11	1.32E+12
*46	2.99E+11	2.15E+22	1.47E+11	26.3158	0.464134	1.25E+11	1.96E+11	2.68E+11	3.67E+11	5.76E+11
*47	3.61E+11	3.12E+22	1.77E+11	26.5047	0.463406	1.51E+11	2.37E+11	3.24E+11	4.43E+11	6.95E+11
*48	1.34E+12	4.32E+23	6.57E+11	27.8176	0.463542	5.62E+11	8.82E+11	1.21E+12	1.65E+12	2.58E+12
*49	7.91E+11	1.49E+23	3.86E+11	27.2895	0.462091	3.32E+11	5.20E+11	7.11E+11	9.70E+11	1.52E+12
*50	2.04E+12	9.95E+23	9.97E+11	28.239	0.462182	8.59E+11	1.35E+12	1.84E+12	2.51E+12	3.93E+12
*51	1.23E+12	3.62E+23	6.02E+11	27.7334	0.462373	5.18E+11	8.11E+11	1.11E+12	1.51E+12	2.37E+12
*52	7.66E+11	1.40E+23	3.74E+11	27.258	0.462373	3.22E+11	5.04E+11	6.89E+11	9.40E+11	1.47E+12
*53	3.84E+11	3.51E+22	1.87E+11	26.5657	0.462373	1.61E+11	2.52E+11	3.45E+11	4.71E+11	7.37E+11
*54	1.76E+12	7.41E+23	8.61E+11	28.0906	0.462576	7.40E+11	1.16E+12	1.58E+12	2.16E+12	3.39E+12
*55	1.60E+12	6.11E+23	7.82E+11	27.9937	0.462794	6.71E+11	1.05E+12	1.44E+12	1.96E+12	3.08E+12
*56	2.43E+11	1.41E+22	1.19E+11	26.1095	0.462473	1.02E+11	1.60E+11	2.18E+11	2.98E+11	4.67E+11
*57	1.82E+11	7.92E+21	8.90E+10	25.8218	0.462473	7.65E+10	1.20E+11	1.64E+11	2.24E+11	3.50E+11
*58	1.62E+10	6.27E+19	7.92E+09	23.3996	0.463406	6.78E+09	1.06E+10	1.45E+10	1.99E+10	3.11E+10
*59	3.54E+10	3.00E+20	1.73E+10	24.1823	0.463406	1.48E+10	2.33E+10	3.18E+10	4.34E+10	6.81E+10
*60	6.67E+10	1.07E+21	3.27E+10	24.8166	0.463406	2.80E+10	4.39E+10	5.99E+10	8.19E+10	1.28E+11
*61	2.73E+12	1.78E+24	1.33E+12	28.5271	0.463026	1.14E+12	1.79E+12	2.45E+12	3.35E+12	5.25E+12
*62	1.83E+12	8.00E+23	8.94E+11	28.1268	0.463275	7.66E+11	1.20E+12	1.64E+12	2.24E+12	3.52E+12
*63	1.37E+11	4.47E+21	6.68E+10	25.5339	0.462908	5.73E+10	8.99E+10	1.23E+11	1.68E+11	2.63E+11
*64	2.56E+11	1.56E+22	1.25E+11	26.1596	0.462908	1.07E+11	1.68E+11	2.30E+11	3.14E+11	4.92E+11
*65	2.24E+11	1.21E+22	1.10E+11	26.0296	0.463406	9.41E+10	1.48E+11	2.02E+11	2.76E+11	4.32E+11
*66	4.98E+11	5.93E+22	2.44E+11	26.8275	0.462794	2.09E+11	3.28E+11	4.48E+11	6.12E+11	9.59E+11
*67	1.13E+11	3.07E+21	5.54E+10	25.3474	0.462473	4.76E+10	7.46E+10	1.02E+11	1.39E+11	2.18E+11
*68	2.05E+12	1.01E+24	1.00E+12	28.2435	0.462576	8.62E+11	1.35E+12	1.84E+12	2.52E+12	3.95E+12
*69	2.75E+12	1.80E+24	1.34E+12	28.5347	0.462794	1.15E+12	1.81E+12	2.47E+12	3.37E+12	5.29E+12
*70	1.20E+12	3.42E+23	5.85E+11	27.7032	0.462908	5.02E+11	7.87E+11	1.07E+12	1.47E+12	2.30E+12
71	6.76E+11	1.09E+23	3.31E+11	27.1315	0.463275	2.83E+11	4.44E+11	6.07E+11	8.29E+11	1.30E+12
72	4.60E+11	5.07E+22	2.25E+11	26.7466	0.463542	1.93E+11	3.02E+11	4.13E+11	5.64E+11	8.85E+11
73	1.65E+12	6.52E+23	8.07E+11	28.0254	0.463026	6.93E+11	1.09E+12	1.48E+12	2.03E+12	3.18E+12
74	1.66E+12	6.62E+23	8.14E+11	28.0323	0.463275	6.97E+11	1.09E+12	1.49E+12	2.04E+12	3.20E+12
75	2.12E+11	1.08E+22	1.04E+11	25.9727	0.463542	8.88E+10	1.39E+11	1.90E+11	2.60E+11	4.08E+11
76	2.53E+11	1.53E+22	1.24E+11	26.1484	0.463406	1.06E+11	1.66E+11	2.27E+11	3.10E+11	4.87E+11
77	1.43E+12	4.89E+23	6.99E+11	27.8802	0.463542	5.99E+11	9.39E+11	1.28E+12	1.75E+12	2.75E+12
78	2.71E+12	1.76E+24	1.33E+12	28.5224	0.463275	1.14E+12	1.78E+12	2.44E+12	3.33E+12	5.23E+12
79	1.03E+12	2.52E+23	5.02E+11	27.5502	0.463026	4.31E+11	6.75E+11	9.22E+11	1.26E+12	1.98E+12
**80	4.06E+10	3.94E+20	1.98E+10	24.3201	0.462794	1.70E+10	2.67E+10	3.65E+10	4.98E+10	7.81E+10
**81	2.89E+10	1.99E+20	1.41E+10	23.9791	0.463026	1.21E+10	1.90E+10	2.59E+10	3.54E+10	5.56E+10
*82	1.59E+10	6.03E+19	7.76E+09	23.3804	0.463149	6.65E+09	1.04E+10	1.43E+10	1.95E+10	3.05E+10
*83	7.56E+10	1.37E+21	3.70E+10	24.9412	0.463275	3.17E+10	4.97E+10	6.79E+10	9.28E+10	1.45E+11
*84	5.30E+10	6.74E+20	2.60E+10	24.5864	0.463542	2.22E+10	3.48E+10	4.76E+10	6.51E+10	1.02E+11
*85	8.10E+10	1.57E+21	3.97E+10	25.0096	0.463828	3.39E+10	5.32E+10	7.27E+10	9.94E+10	1.56E+11
*86	5.83E+10	8.15E+20	2.86E+10	24.6817	0.463542	2.44E+10	3.83E+10	5.24E+10	7.16E+10	1.12E+11
*87	2.27E+11	1.23E+22	1.11E+11	26.0399	0.463275	9.51E+10	1.49E+11	2.04E+11	2.78E+11	4.36E+11
88	3.07E+11	2.27E+22	1.51E+11	26.3443	0.463542	1.29E+11	2.02E+11	2.76E+11	3.77E+11	5.92E+11
89	3.27E+11	2.57E+22	1.60E+11	26.4066	0.463828	1.37E+11	2.15E+11	2.94E+11	4.02E+11	6.30E+11
90	2.69E+10	1.74E+20	1.32E+10	23.9085	0.463683	1.13E+10	1.77E+10	2.42E+10	3.30E+10	5.18E+10
91	1.54E+11	5.70E+21	7.55E+10	25.6543	0.463542	6.46E+10	1.01E+11	1.39E+11	1.89E+11	2.97E+11
92	2.53E+10	1.53E+20	1.24E+10	23.8458	0.463406	1.06E+10	1.66E+10	2.27E+10	3.10E+10	4.87E+10
*93	6.87E+10	1.13E+21	3.36E+10	24.8459	0.463275	2.88E+10	4.52E+10	6.17E+10	8.43E+10	1.32E+11
*94	6.57E+10	1.03E+21	3.22E+10	24.8014	0.463406	2.75E+10	4.32E+10	5.90E+10	8.07E+10	1.27E+11

*95	4.61E+11	5.10E+22	2.26E+11	26.7503	0.463275	1.93E+11	3.03E+11	4.14E+11	5.66E+11	8.88E+11
*96	2.20E+11	1.17E+22	1.08E+11	26.0113	0.463683	9.23E+10	1.45E+11	1.98E+11	2.71E+11	4.24E+11
**97	2.43E+10	1.41E+20	1.19E+10	23.805	0.463406	1.02E+10	1.59E+10	2.18E+10	2.98E+10	4.67E+10
**98	1.20E+11	3.44E+21	5.86E+10	25.4014	0.463542	5.02E+10	7.87E+10	1.08E+11	1.47E+11	2.31E+11
**99	4.01E+09	3.85E+18	1.96E+09	22.0034	0.463683	1.68E+09	2.63E+09	3.60E+09	4.92E+09	7.71E+09
P.P.C.	4.89E+13	5.72E+26	2.39E+13			2.05E+13	3.22E+13	4.40E+13	6.01E+13	9.41E+13

Table 60: List of subplays in the Lance Formation transition play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Play Name :		Tful, Waltman present								(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.909	
Subplay	Closure	Thickness	Porosity	Trap fill	HC Sat.	Depth	Pressure	Temp.	Gas Comp.	Gas in place
No.	(sq.mi.)	(feet)	(%)	(%)	(%)	(feet)	(PSI)	(Deg.Rank.)	(no units)	(CF)
1	3.1	450	7	70	50	11,500	4729.7	689	0.909	2.54E+11
2	5.1	450	7	70	50	12,000	4934.7	697	0.909	4.31E+11
3	7.8	470	7	70	50	13,000	5344.7	713	0.909	7.29E+11
4	4.3	650	7	70	50	13,500	5549.7	721	0.909	5.71E+11
5	2.3	780	7	70	50	13,500	5549.7	721	0.909	3.66E+11
6	13.8	875	7	70	50	13,000	5344.7	713	0.909	2.40E+12
7	2.2	1,050	7	70	50	12,500	5139.7	705	0.909	4.47E+11
8	1	900	7	70	50	12,500	5139.7	705	0.909	1.74E+11
9	13.6	875	7	70	50	12,000	4934.7	697	0.909	2.23E+12
10	5.1	1,175	7	70	50	11,000	4524.7	681	0.909	1.06E+12
11	3	1,300	7	70	50	11,000	4524.7	681	0.909	6.87E+11
12	2.9	1,300	7	70	50	10,000	4114.7	665	0.909	6.19E+11
12a	2.2	1,125	7	70	50	10,000	4114.7	665	0.909	4.06E+11
13	4.2	1,125	7	70	50	9,000	3704.7	649	0.909	7.15E+11
14	2	1,050	7	70	50	8,500	3499.7	641	0.909	3.04E+11
15	3.2	875	7	70	50	12,000	4934.7	697	0.909	5.26E+11
16	4.1	875	7	70	50	11,000	4524.7	681	0.909	6.32E+11
17	2.9	875	7	70	50	10,000	4114.7	665	0.909	4.16E+11
18	3.3	875	7	70	50	9,000	3704.7	649	0.909	4.37E+11
19	6.8	875	7	70	50	8,000	3294.7	633	0.909	8.22E+11
20	3.4	800	7	70	50	7,500	3089.7	625	0.909	3.57E+11
21	2.2	625	7	70	50	10,500	4319.7	673	0.909	2.34E+11
22	8.7	625	7	70	50	11,000	4524.7	681	0.909	9.58E+11
23	38.7	650	7	70	50	13,000	5344.7	713	0.909	5.00E+12
24	32.1	650	7	70	50	12,000	4934.7	697	0.909	3.92E+12
25	28.6	650	7	70	50	11,000	4524.7	681	0.909	3.28E+12
26	8.7	525	7	70	50	9,000	3704.7	649	0.909	6.92E+11
27	36.8	600	7	70	50	10,000	4114.7	665	0.909	3.62E+12
28	42.3	600	7	70	50	9,000	3704.7	649	0.909	3.84E+12
29	3.6	625	7	70	50	8,000	3294.7	633	0.909	3.11E+11
30	8.5	675	7	70	50	7,000	2884.7	617	0.909	7.12E+11
31	7.4	625	7	70	50	6,000	2474.7	601	0.909	5.05E+11
32	4.6	550	7	50	50	5,500	2269.7	593	0.909	1.83E+11
33	2	475	7	70	50	8,500	3499.7	641	0.909	1.38E+11
34	12.6	375	7	70	50	7,000	2884.7	617	0.909	5.86E+11
35	4.8	375	7	70	50	6,000	2474.7	601	0.909	1.97E+11
36	4.9	375	7	70	50	5,000	2064.7	585	0.909	1.72E+11
37	0.85	325	7	70	50	7,500	3089.7	625	0.909	3.62E+10
38	3.6	375	7	70	50	11,000	4524.7	681	0.909	2.38E+11
39	1.1	375	7	70	50	10,000	4114.7	665	0.909	6.77E+10
40	0.9	250	7	70	50	10,000	4114.7	665	0.909	3.69E+10
41	0.96	375	7	70	50	10,000	4114.7	665	0.909	5.91E+10

42	4.2	600	7	70	50	7,000	2884.7	617	0.909	3.13E+11
43	4.5	375	7	70	50	7,000	2884.7	617	0.909	2.09E+11
44	1.1	225	7	70	50	7,500	3089.7	625	0.909	3.25E+10
45	10	175	7	70	50	8,000	3294.7	633	0.909	2.42E+11
46	5.2	375	7	70	50	9,000	3704.7	649	0.909	2.95E+11
47	22.5	200	7	70	50	7,000	2884.7	617	0.909	5.58E+11
48	39	175	7	70	50	6,000	2474.7	601	0.909	7.45E+11
49	43.4	150	7	50	50	5,000	2064.7	585	0.909	4.35E+11
50	34.5	125	7	40	50	4,000	1654.7	569	0.909	1.90E+11
51	32.7	100	7	20	50	3,000	1244.7	553	0.909	5.58E+10
54	35.5	400	7	70	50	8,000	3294.7	633	0.909	1.96E+12
55	17.6	375	7	70	50	7,000	2884.7	617	0.909	8.19E+11
56	5.5	375	7	70	50	6,000	2474.7	601	0.909	2.25E+11
57	4.1	375	7	30	50	5,000	2064.7	585	0.909	6.17E+10
59	39	200	7	70	50	9,000	3704.7	649	0.909	1.18E+12
60	35.7	225	7	70	50	8,000	3294.7	633	0.909	1.11E+12
61	1.7	250	7	70	50	7,500	3089.7	625	0.909	5.57E+10
62	13.5	375	7	70	50	8,000	3294.7	633	0.909	6.99E+11
63	23.9	375	7	70	50	7,000	2884.7	617	0.909	1.11E+12
64	2.1	250	7	70	50	7,500	3089.7	625	0.909	6.88E+10
65	7.8	375	7	70	50	8,000	3294.7	633	0.909	4.04E+11
66	1.4	500	7	70	50	7,500	3089.7	625	0.909	9.18E+10
67	5	525	7	70	50	8,000	3294.7	633	0.909	3.62E+11
68	13.4	450	7	70	50	10,000	4114.7	665	0.909	9.90E+11
69	32.7	400	7	70	50	9,000	3704.7	649	0.909	1.98E+12
70	19.6	625	7	70	50	9,000	3704.7	649	0.909	1.85E+12
71	3	450	7	70	50	8,500	3499.7	641	0.909	1.96E+11
72	5.8	800	7	70	50	8,000	3294.7	633	0.909	6.41E+11
73	12	825	7	70	50	7,000	2884.7	617	0.909	1.23E+12
74	3.7	800	7	70	50	6,500	2679.7	609	0.909	3.45E+11
75	12.2	625	7	70	50	7,000	2884.7	617	0.909	9.46E+11
76	6.9	550	7	30	50	5,000	2064.7	585	0.909	1.52E+11
78	3.1	450	7	30	50	5,500	2269.7	593	0.909	6.07E+10
79	0.72	500	7	30	50	5,500	2269.7	593	0.909	1.57E+10
80	6.8	150	7	70	50	11,000	4524.7	681	0.909	1.80E+11
81	5.3	150	7	70	50	10,000	4114.7	665	0.909	1.30E+11
82	36.5	150	7	70	50	9,000	3704.7	649	0.909	8.29E+11
83	29	375	7	70	50	9,000	3704.7	649	0.909	1.65E+12
84	13.2	375	7	70	50	8,000	3294.7	633	0.909	6.83E+11
85	82.5	625	7	70	50	8,000	3294.7	633	0.909	7.12E+12
86	28.9	650	7	70	50	7,000	2884.7	617	0.909	2.33E+12
87	39.2	650	7	70	50	6,000	2474.7	601	0.909	2.78E+12
92	15.6	550	7	30	50	4,000	1654.7	569	0.909	2.84E+11
92a	4	375	7	10	50	4,000	1654.7	569	0.909	1.65E+10
94	18.7	375	7	10	50	5,000	2064.7	585	0.909	9.38E+10
95	59.9	625	7	70	50	5,000	2064.7	585	0.909	3.51E+12
96	2.5	800	7	70	50	5,500	2269.7	593	0.909	2.03E+11
97	7.4	850	7	70	50	5,500	2269.7	593	0.909	6.39E+11

*98	5.4	300	7	70	50	6,000	2474.7	601	0.909	1.77E+11
99	28.3	625	7	70	50	6,000	2474.7	601	0.909	1.93E+12
100	1.4	500	7	70	50	8,500	3499.7	641	0.909	1.01E+11
101	1.9	500	7	70	50	8,500	3499.7	641	0.909	1.38E+11
*102	2	150	7	70	50	9,000	3704.7	649	0.909	4.54E+10
103	4.1	400	7	70	50	8,000	3294.7	633	0.909	2.26E+11
104	1.2	450	7	70	50	7,000	2884.7	617	0.909	6.70E+10
105	1.1	450	7	70	50	6,000	2474.7	601	0.909	5.41E+10
106	1.6	450	7	70	50	5,000	2064.7	585	0.909	6.74E+10
107	2.1	450	7	70	50	4,000	1654.7	569	0.909	7.29E+10
108	1.9	450	7	70	50	4,000	1654.7	569	0.909	6.60E+10
109	3.1	450	7	70	50	5,000	2064.7	585	0.909	1.31E+11
110	2	450	7	70	50	6,000	2474.7	601	0.909	9.83E+10
111	1.8	450	7	70	50	7,000	2884.7	617	0.909	1.00E+11
*112	1.8	175	7	70	50	8,000	3294.7	633	0.909	4.35E+10
*113	1	200	7	70	50	7,000	2884.7	617	0.909	2.48E+10
*114	1.2	200	7	70	50	6,000	2474.7	601	0.909	2.62E+10
*115	1.3	200	7	70	50	5,000	2064.7	585	0.909	2.43E+10
*116	2.6	200	7	70	50	4,000	1654.7	569	0.909	4.01E+10
*117	2.1	200	7	70	50	5,000	2064.7	585	0.909	3.93E+10
*118	0.71	200	7	70	50	5,000	2064.7	585	0.909	1.33E+10
*119	1.7	225	7	70	50	6,000	2474.7	601	0.909	4.18E+10
									Total =	8.30E+13

Table 61: List of subplays in the lower unnamed member of the Fort Union Formation where the Waltman seal is present play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subtly to subtly within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The lower unnamed member in some of the subplays along the south flank of the Casper Arch is partly cut off by the Casper Arch thrust creating roughly wedge-shaped subplay volumes. These subplays contain approximately one-half the sandstone volume indicated from the sandstone isopach map. these subplays are also marked with an asterix in the table. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

\WINDRIVR\MASTERS\GTFU1.XLS

Play Name :		Tful, Waltman present								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe/TZ*	
	Range (%) =	30		30	50	60	80	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe/TZ*	*Pe/TZ*	*Pe/TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe/TZ*)^2	(Gas)^2
1	7.55	6.69	8.35	9.69	207177.1	50.63	5189.7	2647.82	57.28	7.75E+22
2	7.79	6.91	8.60	26.23	207177.1	50.63	5189.7	2647.82	60.93	2.23E+23
3	8.25	7.33	9.08	61.35	226002.0	50.63	5189.7	2647.82	68.29	6.38E+23
4	8.47	7.54	9.32	18.64	432258.3	50.63	5189.7	2647.82	72.00	3.91E+23
5	8.47	7.54	9.32	5.33	622452.0	50.63	5189.7	2647.82	72.00	1.61E+23
6	8.25	7.33	9.08	192.02	783308.3	50.63	5189.7	2647.82	68.29	6.92E+24
7	8.02	7.12	8.84	4.88	1127964.0	50.63	5189.7	2647.82	64.60	2.40E+23
8	8.02	7.12	8.84	1.01	828708.3	50.63	5189.7	2647.82	64.60	3.64E+22
9	7.79	6.91	8.60	186.50	783308.3	50.63	5189.7	2647.82	60.93	6.00E+24
10	7.31	6.47	8.09	26.23	1412512.8	50.63	5189.7	2647.82	53.67	1.34E+24
11	7.31	6.47	8.09	9.07	1729033.3	50.63	5189.7	2647.82	53.67	5.68E+23
12	6.81	6.01	7.55	8.48	1729033.3	50.63	5189.7	2647.82	46.56	4.60E+23
12a	6.81	6.01	7.55	4.88	1294856.6	50.63	5189.7	2647.82	46.56	1.98E+23
13	6.28	5.53	6.99	17.79	1294856.6	50.63	5189.7	2647.82	39.63	6.15E+23
14	6.01	5.28	6.69	4.03	1127964.0	50.63	5189.7	2647.82	36.26	1.11E+23
15	7.79	6.91	8.60	10.33	783308.3	50.63	5189.7	2647.82	60.93	3.32E+23
16	7.31	6.47	8.09	16.95	783308.3	50.63	5189.7	2647.82	53.67	4.80E+23
17	6.81	6.01	7.55	8.48	783308.3	50.63	5189.7	2647.82	46.56	2.08E+23
18	6.28	5.53	6.99	10.98	783308.3	50.63	5189.7	2647.82	39.63	2.30E+23
19	5.73	5.02	6.39	46.62	783308.3	50.63	5189.7	2647.82	32.96	8.11E+23
20	5.44	4.76	6.08	11.66	654781.8	50.63	5189.7	2647.82	29.74	1.53E+23
21	7.06	6.24	7.82	4.88	399647.1	50.63	5189.7	2647.82	50.09	6.58E+22
22	7.31	6.47	8.09	76.32	399647.1	50.63	5189.7	2647.82	53.67	1.10E+24
23	8.25	7.33	9.08	1510.14	432258.3	50.63	5189.7	2647.82	68.29	3.00E+25
24	7.79	6.91	8.60	1038.98	432258.3	50.63	5189.7	2647.82	60.93	1.84E+25
25	7.31	6.47	8.09	824.76	432258.3	50.63	5189.7	2647.82	53.67	1.29E+25
26	6.28	5.53	6.99	76.32	281991.0	50.63	5189.7	2647.82	39.63	5.75E+23
27	6.81	6.01	7.55	1365.50	368314.8	50.63	5189.7	2647.82	46.56	1.58E+25
28	6.28	5.53	6.99	1804.17	368314.8	50.63	5189.7	2647.82	39.63	1.77E+25
29	5.73	5.02	6.39	13.07	399647.1	50.63	5189.7	2647.82	32.96	1.16E+23
30	5.14	4.50	5.75	72.85	466148.4	50.63	5189.7	2647.82	26.60	6.09E+23
31	4.53	3.95	5.08	55.22	399647.1	50.63	5189.7	2647.82	20.64	3.07E+23
32	4.21	3.66	4.73	21.34	309486.7	50.63	2647.8	2647.82	17.84	4.05E+22
33	6.01	5.28	6.69	4.03	230836.2	50.63	5189.7	2647.82	36.26	2.28E+22
34	5.14	4.50	5.75	160.08	143873.0	50.63	5189.7	2647.82	26.60	4.13E+23
35	4.53	3.95	5.08	23.23	143873.0	50.63	5189.7	2647.82	20.64	4.65E+22
36	3.88	3.37	4.37	24.21	143873.0	50.63	5189.7	2647.82	15.17	3.56E+22
37	5.44	4.76	6.08	0.73	108064.6	50.63	5189.7	2647.82	29.74	1.58E+21
38	7.31	6.47	8.09	13.07	143873.0	50.63	5189.7	2647.82	53.67	6.80E+22
39	6.81	6.01	7.55	1.22	143873.0	50.63	5189.7	2647.82	46.56	5.51E+21
40	6.81	6.01	7.55	0.82	63943.5	50.63	5189.7	2647.82	46.56	1.64E+21
41	6.81	6.01	7.55	0.93	143873.0	50.63	5189.7	2647.82	46.56	4.19E+21

42	5.14	4.50	5.75	17.79	368314.8	50.63	5189.7	2647.82	26.60	1.17E+23
43	5.14	4.50	5.75	20.42	143873.0	50.63	5189.7	2647.82	26.60	5.27E+22
44	5.44	4.76	6.08	1.22	51794.3	50.63	5189.7	2647.82	29.74	1.27E+21
45	5.73	5.02	6.39	100.83	31332.3	50.63	5189.7	2647.82	32.96	7.02E+22
46	6.28	5.53	6.99	27.26	143873.0	50.63	5189.7	2647.82	39.63	1.05E+23
47	5.14	4.50	5.75	510.46	40923.9	50.63	5189.7	2647.82	26.60	3.74E+23
48	4.53	3.95	5.08	1533.65	31332.3	50.63	5189.7	2647.82	20.64	6.68E+23
49	3.88	3.37	4.37	1899.22	23019.7	50.63	2647.8	2647.82	15.17	2.28E+23
50	3.20	2.77	3.61	1200.15	15985.9	50.63	1694.6	2647.82	10.30	4.35E+22
51	2.48	2.14	2.81	1078.18	10231.0	50.63	423.7	2647.82	6.17	3.75E+21
54	5.73	5.02	6.39	1270.73	163695.5	50.63	5189.7	2647.82	32.96	4.62E+24
55	5.14	4.50	5.75	312.34	143873.0	50.63	5189.7	2647.82	26.60	8.06E+23
56	4.53	3.95	5.08	30.50	143873.0	50.63	5189.7	2647.82	20.64	6.10E+22
57	3.88	3.37	4.37	16.95	143873.0	50.63	953.2	2647.82	15.17	4.58E+21
59	6.28	5.53	6.99	1533.65	40923.9	50.63	5189.7	2647.82	39.63	1.68E+24
60	5.73	5.02	6.39	1285.09	51794.3	50.63	5189.7	2647.82	32.96	1.48E+24
61	5.44	4.76	6.08	2.91	63943.5	50.63	5189.7	2647.82	29.74	3.73E+21
62	5.73	5.02	6.39	183.77	143873.0	50.63	5189.7	2647.82	32.96	5.87E+23
63	5.14	4.50	5.75	575.96	143873.0	50.63	5189.7	2647.82	26.60	1.49E+24
64	5.44	4.76	6.08	4.45	63943.5	50.63	5189.7	2647.82	29.74	5.70E+21
65	5.73	5.02	6.39	61.35	143873.0	50.63	5189.7	2647.82	32.96	1.96E+23
66	5.44	4.76	6.08	1.98	255774.2	50.63	5189.7	2647.82	29.74	1.01E+22
67	5.73	5.02	6.39	25.21	281991.0	50.63	5189.7	2647.82	32.96	1.58E+23
68	6.81	6.01	7.55	181.05	207177.1	50.63	5189.7	2647.82	46.56	1.18E+24
69	6.28	5.53	6.99	1078.18	163695.5	50.63	5189.7	2647.82	39.63	4.71E+24
70	6.28	5.53	6.99	387.35	399647.1	50.63	5189.7	2647.82	39.63	4.13E+24
71	6.01	5.28	6.69	9.07	207177.1	50.63	5189.7	2647.82	36.26	4.59E+22
72	5.73	5.02	6.39	33.92	654781.8	50.63	5189.7	2647.82	32.96	4.93E+23
73	5.14	4.50	5.75	145.20	696345.1	50.63	5189.7	2647.82	26.60	1.81E+24
74	4.84	4.23	5.42	13.80	654781.8	50.63	5189.7	2647.82	23.56	1.44E+23
75	5.14	4.50	5.75	150.08	399647.1	50.63	5189.7	2647.82	26.60	1.08E+24
76	3.88	3.37	4.37	48.01	309486.7	50.63	953.2	2647.82	15.17	2.79E+22
78	4.21	3.66	4.73	9.69	207177.1	50.63	953.2	2647.82	17.84	4.43E+21
79	4.21	3.66	4.73	0.52	255774.2	50.63	953.2	2647.82	17.84	2.95E+20
80	7.31	6.47	8.09	46.62	23019.7	50.63	5189.7	2647.82	53.67	3.88E+22
81	6.81	6.01	7.55	28.32	23019.7	50.63	5189.7	2647.82	46.56	2.05E+22
82	6.28	5.53	6.99	1343.33	23019.7	50.63	5189.7	2647.82	39.63	8.26E+23
83	6.28	5.53	6.99	847.99	143873.0	50.63	5189.7	2647.82	39.63	3.26E+24
84	5.73	5.02	6.39	175.69	143873.0	50.63	5189.7	2647.82	32.96	5.61E+23
85	5.73	5.02	6.39	6862.84	399647.1	50.63	5189.7	2647.82	32.96	6.09E+25
86	5.14	4.50	5.75	842.15	432258.3	50.63	5189.7	2647.82	26.60	6.53E+24
87	4.53	3.95	5.08	1549.42	432258.3	50.63	5189.7	2647.82	20.64	9.32E+24
92	3.20	2.77	3.61	245.38	309486.7	50.63	953.2	2647.82	10.30	9.68E+22
92a	3.20	2.77	3.61	16.13	143873.0	50.63	105.9	2647.82	10.30	3.29E+20
94	3.88	3.37	4.37	352.60	143873.0	50.63	105.9	2647.82	15.17	1.06E+22
95	3.88	3.37	4.37	3617.84	399647.1	50.63	5189.7	2647.82	15.17	1.48E+25
96	4.21	3.66	4.73	6.30	654781.8	50.63	5189.7	2647.82	17.84	4.96E+22
97	4.21	3.66	4.73	55.22	739187.3	50.63	5189.7	2647.82	17.84	4.91E+23

*98	4.53	3.95	5.08	29.40	92078.7	50.63	5189.7	2647.82	20.64	3.77E+22
99	4.53	3.95	5.08	807.55	399647.1	50.63	5189.7	2647.82	20.64	4.49E+24
100	6.01	5.28	6.69	1.98	255774.2	50.63	5189.7	2647.82	36.26	1.24E+22
101	6.01	5.28	6.69	3.64	255774.2	50.63	5189.7	2647.82	36.26	2.28E+22
*102	6.28	5.53	6.99	4.03	23019.7	50.63	5189.7	2647.82	39.63	2.48E+21
103	5.73	5.02	6.39	16.95	163695.5	50.63	5189.7	2647.82	32.96	6.16E+22
104	5.14	4.50	5.75	1.45	207177.1	50.63	5189.7	2647.82	26.60	5.39E+21
105	4.53	3.95	5.08	1.22	207177.1	50.63	5189.7	2647.82	20.64	3.52E+21
106	3.88	3.37	4.37	2.58	207177.1	50.63	5189.7	2647.82	15.17	5.47E+21
107	3.20	2.77	3.61	4.45	207177.1	50.63	5189.7	2647.82	10.30	6.39E+21
108	3.20	2.77	3.61	3.64	207177.1	50.63	5189.7	2647.82	10.30	5.23E+21
109	3.88	3.37	4.37	9.69	207177.1	50.63	5189.7	2647.82	15.17	2.05E+22
110	4.53	3.95	5.08	4.03	207177.1	50.63	5189.7	2647.82	20.64	1.16E+22
111	5.14	4.50	5.75	3.27	207177.1	50.63	5189.7	2647.82	26.60	1.21E+22
*112	5.73	5.02	6.39	3.27	31332.3	50.63	5189.7	2647.82	32.96	2.27E+21
*113	5.14	4.50	5.75	1.01	40923.9	50.63	5189.7	2647.82	26.60	7.40E+20
*114	4.53	3.95	5.08	1.45	40923.9	50.63	5189.7	2647.82	20.64	8.26E+20
*115	3.88	3.37	4.37	1.70	40923.9	50.63	5189.7	2647.82	15.17	7.13E+20
*116	3.20	2.77	3.61	6.82	40923.9	50.63	5189.7	2647.82	10.30	1.94E+21
*117	3.88	3.37	4.37	4.45	40923.9	50.63	5189.7	2647.82	15.17	1.86E+21
*118	3.88	3.37	4.37	0.51	40923.9	50.63	5189.7	2647.82	15.17	2.13E+20
*119	4.53	3.95	5.08	2.91	51794.3	50.63	5189.7	2647.82	20.64	2.10E+21

Table 62: List of subplays in the lower unnamed member of the Fort Union Formation where the Waltman seal is present play with estimates of ranges in percent for the six play attributes.

Play Name :		Tful, Waltman present								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	2.54E+11	1.30E+22	1.14E+11	26.1691	0.427968	1.15E+11	1.74E+11	2.32E+11	3.09E+11	4.69E+11
2	4.31E+11	3.73E+22	1.93E+11	26.6979	0.427852	1.95E+11	2.95E+11	3.93E+11	5.25E+11	7.95E+11
3	7.29E+11	1.07E+23	3.27E+11	27.2235	0.427632	3.29E+11	4.99E+11	6.65E+11	8.88E+11	1.34E+12
4	5.71E+11	6.53E+22	2.56E+11	26.9787	0.427527	2.58E+11	3.90E+11	5.21E+11	6.95E+11	1.05E+12
5	3.66E+11	2.69E+22	1.64E+11	26.5353	0.427527	1.65E+11	2.51E+11	3.34E+11	4.46E+11	6.75E+11
6	2.40E+12	1.16E+24	1.08E+12	28.4155	0.427632	1.08E+12	1.64E+12	2.19E+12	2.92E+12	4.43E+12
7	4.47E+11	4.01E+22	2.00E+11	26.7337	0.42774	2.02E+11	3.06E+11	4.08E+11	5.44E+11	8.24E+11
8	1.74E+11	6.08E+21	7.80E+10	25.7911	0.42774	7.86E+10	1.19E+11	1.59E+11	2.12E+11	3.21E+11
9	2.23E+12	1.00E+24	1.00E+12	28.3437	0.427852	1.01E+12	1.53E+12	2.04E+12	2.72E+12	4.12E+12
10	1.06E+12	2.24E+23	4.74E+11	27.594	0.428087	4.77E+11	7.22E+11	9.64E+11	1.29E+12	1.95E+12
11	6.87E+11	9.50E+22	3.08E+11	27.1645	0.428087	3.10E+11	4.70E+11	6.27E+11	8.37E+11	1.27E+12
12	6.19E+11	7.71E+22	2.78E+11	27.0593	0.428339	2.79E+11	4.23E+11	5.65E+11	7.53E+11	1.14E+12
12a	4.06E+11	3.32E+22	1.82E+11	26.6385	0.428339	1.83E+11	2.78E+11	3.71E+11	4.95E+11	7.50E+11
13	7.15E+11	1.03E+23	3.21E+11	27.2044	0.428608	3.22E+11	4.89E+11	6.53E+11	8.71E+11	1.32E+12
14	3.04E+11	1.87E+22	1.37E+11	26.3488	0.428749	1.37E+11	2.08E+11	2.77E+11	3.70E+11	5.62E+11
15	5.26E+11	5.55E+22	2.36E+11	26.8968	0.427852	2.37E+11	3.60E+11	4.80E+11	6.40E+11	9.70E+11
16	6.32E+11	8.04E+22	2.84E+11	27.081	0.428087	2.85E+11	4.32E+11	5.77E+11	7.70E+11	1.17E+12
17	4.16E+11	3.49E+22	1.87E+11	26.6634	0.428339	1.88E+11	2.85E+11	3.80E+11	5.07E+11	7.69E+11
18	4.37E+11	3.86E+22	1.96E+11	26.7119	0.428608	1.97E+11	2.99E+11	3.99E+11	5.32E+11	8.07E+11
19	8.22E+11	1.36E+23	3.69E+11	27.3424	0.428896	3.70E+11	5.61E+11	7.49E+11	1.00E+12	1.52E+12
20	3.57E+11	2.57E+22	1.60E+11	26.5081	0.429048	1.61E+11	2.44E+11	3.25E+11	4.34E+11	6.59E+11
21	2.34E+11	1.10E+22	1.05E+11	26.0874	0.428211	1.06E+11	1.60E+11	2.14E+11	2.85E+11	4.32E+11
22	9.58E+11	1.85E+23	4.30E+11	27.4968	0.428087	4.32E+11	6.55E+11	8.74E+11	1.17E+12	1.77E+12
23	5.00E+12	5.02E+24	2.24E+12	29.1494	0.427632	2.26E+12	3.42E+12	4.56E+12	6.09E+12	9.22E+12
24	3.92E+12	3.08E+24	1.76E+12	28.9052	0.427852	1.77E+12	2.68E+12	3.58E+12	4.77E+12	7.23E+12
25	3.28E+12	2.16E+24	1.47E+12	28.7262	0.428087	1.48E+12	2.24E+12	2.99E+12	3.99E+12	6.05E+12
26	6.92E+11	9.65E+22	3.11E+11	27.1705	0.428608	3.12E+11	4.73E+11	6.31E+11	8.42E+11	1.28E+12
27	3.62E+12	2.64E+24	1.63E+12	28.8269	0.428339	1.63E+12	2.48E+12	3.31E+12	4.41E+12	6.69E+12
28	3.84E+12	2.98E+24	1.73E+12	28.8854	0.428608	1.73E+12	2.63E+12	3.51E+12	4.68E+12	7.10E+12
29	3.11E+11	1.95E+22	1.40E+11	26.37	0.428896	1.40E+11	2.12E+11	2.83E+11	3.78E+11	5.74E+11
30	7.12E+11	1.02E+23	3.20E+11	27.1986	0.429205	3.20E+11	4.86E+11	6.49E+11	8.67E+11	1.31E+12
31	5.05E+11	5.17E+22	2.27E+11	26.8559	0.429535	2.27E+11	3.45E+11	4.61E+11	6.15E+11	9.34E+11
32	1.83E+11	6.83E+21	8.26E+10	25.843	0.429709	8.25E+10	1.25E+11	1.67E+11	2.23E+11	3.39E+11
33	1.38E+11	3.82E+21	6.18E+10	25.5556	0.428749	6.20E+10	9.40E+10	1.26E+11	1.68E+11	2.54E+11
34	5.86E+11	6.95E+22	2.64E+11	27.0045	0.429205	2.64E+11	4.00E+11	5.34E+11	7.14E+11	1.08E+12
35	1.97E+11	7.83E+21	8.85E+10	25.9122	0.429535	8.84E+10	1.34E+11	1.79E+11	2.39E+11	3.63E+11
36	1.72E+11	6.01E+21	7.75E+10	25.7785	0.429888	7.73E+10	1.17E+11	1.57E+11	2.10E+11	3.18E+11
37	3.62E+10	2.65E+20	1.63E+10	24.221	0.429048	1.63E+10	2.47E+10	3.30E+10	4.41E+10	6.69E+10
38	2.38E+11	1.14E+22	1.07E+11	26.1036	0.428087	1.07E+11	1.63E+11	2.17E+11	2.90E+11	4.39E+11
39	6.77E+10	9.23E+20	3.04E+10	24.8467	0.428339	3.05E+10	4.63E+10	6.18E+10	8.24E+10	1.25E+11
40	3.69E+10	2.75E+20	1.66E+10	24.2406	0.428339	1.67E+10	2.52E+10	3.37E+10	4.50E+10	6.82E+10
41	5.91E+10	7.03E+20	2.65E+10	24.7106	0.428339	2.66E+10	4.04E+10	5.39E+10	7.20E+10	1.09E+11
42	3.13E+11	1.98E+22	1.41E+11	26.3759	0.429205	1.41E+11	2.13E+11	2.85E+11	3.81E+11	5.77E+11
43	2.09E+11	8.86E+21	9.41E+10	25.9749	0.429205	9.42E+10	1.43E+11	1.91E+11	2.55E+11	3.87E+11
44	3.25E+10	2.13E+20	1.46E+10	24.1111	0.429048	1.46E+10	2.22E+10	2.96E+10	3.95E+10	6.00E+10

45	2.42E+11	1.18E+22	1.09E+11	26.1187	0.428896	1.09E+11	1.65E+11	2.20E+11	2.94E+11	4.46E+11
46	2.95E+11	1.76E+22	1.33E+11	26.3193	0.428608	1.33E+11	2.02E+11	2.69E+11	3.60E+11	5.45E+11
47	5.58E+11	6.30E+22	2.51E+11	26.9557	0.429205	2.51E+11	3.81E+11	5.09E+11	6.80E+11	1.03E+12
48	7.45E+11	1.13E+23	3.36E+11	27.245	0.429535	3.35E+11	5.09E+11	6.80E+11	9.08E+11	1.38E+12
49	4.35E+11	3.85E+22	1.96E+11	26.707	0.429888	1.96E+11	2.97E+11	3.97E+11	5.30E+11	8.05E+11
50	1.90E+11	7.35E+21	8.57E+10	25.8782	0.430262	8.54E+10	1.30E+11	1.73E+11	2.32E+11	3.52E+11
51	5.58E+10	6.34E+20	2.52E+10	24.652	0.430649	2.50E+10	3.80E+10	5.08E+10	6.80E+10	1.03E+11
54	1.96E+12	7.76E+23	8.81E+11	28.2123	0.428896	8.83E+11	1.34E+12	1.79E+12	2.39E+12	3.62E+12
55	8.19E+11	1.36E+23	3.68E+11	27.3387	0.429205	3.68E+11	5.59E+11	7.47E+11	9.97E+11	1.51E+12
56	2.25E+11	1.03E+22	1.01E+11	26.0484	0.429535	1.01E+11	1.54E+11	2.05E+11	2.74E+11	4.16E+11
57	6.17E+10	7.73E+20	2.78E+10	24.753	0.429888	2.77E+10	4.21E+10	5.62E+10	7.51E+10	1.14E+11
59	1.18E+12	2.81E+23	5.30E+11	27.7056	0.428608	5.32E+11	8.07E+11	1.08E+12	1.44E+12	2.18E+12
60	1.11E+12	2.48E+23	4.98E+11	27.6425	0.428896	5.00E+11	7.58E+11	1.01E+12	1.35E+12	2.05E+12
61	5.57E+10	6.28E+20	2.51E+10	24.6518	0.429048	2.51E+10	3.81E+10	5.08E+10	6.79E+10	1.03E+11
62	6.99E+11	9.87E+22	3.14E+11	27.1809	0.428896	3.15E+11	4.77E+11	6.38E+11	8.51E+11	1.29E+12
63	1.11E+12	2.50E+23	5.00E+11	27.6447	0.429205	5.00E+11	7.59E+11	1.01E+12	1.35E+12	2.05E+12
64	6.88E+10	9.58E+20	3.10E+10	24.8631	0.429048	3.10E+10	4.70E+10	6.28E+10	8.38E+10	1.27E+11
65	4.04E+11	3.29E+22	1.81E+11	26.6323	0.428896	1.82E+11	2.76E+11	3.68E+11	4.92E+11	7.46E+11
66	9.18E+10	1.70E+21	4.13E+10	25.1508	0.429048	4.13E+10	6.27E+10	8.37E+10	1.12E+11	1.70E+11
67	3.62E+11	2.65E+22	1.63E+11	26.5241	0.428896	1.63E+11	2.48E+11	3.31E+11	4.41E+11	6.69E+11
68	9.90E+11	1.97E+23	4.44E+11	27.529	0.428339	4.46E+11	6.77E+11	9.03E+11	1.21E+12	1.83E+12
69	1.98E+12	7.91E+23	8.89E+11	28.2226	0.428608	8.93E+11	1.35E+12	1.81E+12	2.41E+12	3.66E+12
70	1.85E+12	6.94E+23	8.33E+11	28.157	0.428608	8.36E+11	1.27E+12	1.69E+12	2.26E+12	3.42E+12
71	1.96E+11	7.71E+21	8.78E+10	25.907	0.428749	8.81E+10	1.34E+11	1.78E+11	2.38E+11	3.61E+11
72	6.41E+11	8.29E+22	2.88E+11	27.0938	0.428896	2.89E+11	4.38E+11	5.84E+11	7.80E+11	1.18E+12
73	1.23E+12	3.05E+23	5.52E+11	27.7441	0.429205	5.53E+11	8.38E+11	1.12E+12	1.50E+12	2.27E+12
74	3.45E+11	2.42E+22	1.55E+11	26.4761	0.429367	1.55E+11	2.36E+11	3.15E+11	4.21E+11	6.38E+11
75	9.46E+11	1.81E+23	4.25E+11	27.483	0.429205	4.26E+11	6.46E+11	8.62E+11	1.15E+12	1.75E+12
76	1.52E+11	4.71E+21	6.86E+10	25.6565	0.429888	6.84E+10	1.04E+11	1.39E+11	1.85E+11	2.82E+11
78	6.07E+10	7.47E+20	2.73E+10	24.7369	0.429709	2.73E+10	4.14E+10	5.53E+10	7.39E+10	1.12E+11
79	1.57E+10	4.98E+19	7.05E+09	23.3823	0.429709	7.04E+09	1.07E+10	1.43E+10	1.91E+10	2.90E+10
80	1.80E+11	6.50E+21	8.06E+10	25.8233	0.428087	8.11E+10	1.23E+11	1.64E+11	2.19E+11	3.32E+11
81	1.30E+11	3.43E+21	5.86E+10	25.5028	0.428339	5.88E+10	8.92E+10	1.19E+11	1.59E+11	2.41E+11
82	8.29E+11	1.39E+23	3.72E+11	27.3517	0.428608	3.74E+11	5.67E+11	7.56E+11	1.01E+12	1.53E+12
83	1.65E+12	5.47E+23	7.39E+11	28.038	0.428608	7.42E+11	1.13E+12	1.50E+12	2.01E+12	3.04E+12
84	6.83E+11	9.43E+22	3.07E+11	27.1584	0.428896	3.08E+11	4.67E+11	6.23E+11	8.32E+11	1.26E+12
85	7.12E+12	1.02E+25	3.20E+12	29.5018	0.428896	3.21E+12	4.86E+12	6.49E+12	8.67E+12	1.31E+13
86	2.33E+12	1.10E+24	1.05E+12	28.3847	0.429205	1.05E+12	1.59E+12	2.12E+12	2.84E+12	4.30E+12
87	2.78E+12	1.57E+24	1.25E+12	28.5623	0.429535	1.25E+12	1.90E+12	2.54E+12	3.39E+12	5.14E+12
92	2.84E+11	1.64E+22	1.28E+11	26.2785	0.430262	1.27E+11	1.93E+11	2.59E+11	3.46E+11	5.25E+11
92a	1.65E+10	5.56E+19	7.45E+09	23.4359	0.430262	7.43E+09	1.13E+10	1.51E+10	2.01E+10	3.06E+10
94	9.38E+10	1.79E+21	4.23E+10	25.1719	0.429888	4.22E+10	6.40E+10	8.55E+10	1.14E+11	1.73E+11
95	3.51E+12	2.49E+24	1.58E+12	28.7928	0.429888	1.58E+12	2.39E+12	3.20E+12	4.27E+12	6.48E+12
96	2.03E+11	8.36E+21	9.14E+10	25.9444	0.429709	9.13E+10	1.39E+11	1.85E+11	2.47E+11	3.75E+11
97	6.39E+11	8.27E+22	2.88E+11	27.0903	0.429709	2.87E+11	4.36E+11	5.82E+11	7.78E+11	1.18E+12
*98	1.77E+11	6.34E+21	7.96E+10	25.8069	0.429535	7.96E+10	1.21E+11	1.61E+11	2.16E+11	3.27E+11
99	1.93E+12	7.56E+23	8.70E+11	28.1973	0.429535	8.69E+11	1.32E+12	1.76E+12	2.35E+12	3.57E+12
100	1.01E+11	2.07E+21	4.55E+10	25.2502	0.428749	4.57E+10	6.93E+10	9.25E+10	1.23E+11	1.87E+11
101	1.38E+11	3.82E+21	6.18E+10	25.5556	0.428749	6.20E+10	9.40E+10	1.26E+11	1.68E+11	2.54E+11
*102	4.54E+10	4.16E+20	2.04E+10	24.4475	0.428608	2.05E+10	3.10E+10	4.14E+10	5.53E+10	8.39E+10

103	2.26E+11	1.04E+22	1.02E+11	26.0537	0.428896	1.02E+11	1.55E+11	2.07E+11	2.76E+11	4.18E+11
104	6.70E+10	9.07E+20	3.01E+10	24.8354	0.429205	3.01E+10	4.57E+10	6.11E+10	8.16E+10	1.24E+11
105	5.41E+10	5.92E+20	2.43E+10	24.6212	0.429535	2.43E+10	3.69E+10	4.93E+10	6.59E+10	9.99E+10
106	6.74E+10	9.22E+20	3.04E+10	24.8416	0.429888	3.03E+10	4.60E+10	6.15E+10	8.21E+10	1.25E+11
107	7.29E+10	1.08E+21	3.29E+10	24.9198	0.430262	3.27E+10	4.97E+10	6.65E+10	8.88E+10	1.35E+11
108	6.60E+10	8.85E+20	2.97E+10	24.8197	0.430262	2.96E+10	4.50E+10	6.01E+10	8.04E+10	1.22E+11
109	1.31E+11	3.46E+21	5.88E+10	25.503	0.429888	5.87E+10	8.91E+10	1.19E+11	1.59E+11	2.42E+11
110	9.83E+10	1.96E+21	4.42E+10	25.2191	0.429535	4.42E+10	6.71E+10	8.96E+10	1.20E+11	1.82E+11
111	1.00E+11	2.04E+21	4.52E+10	25.2409	0.429205	4.52E+10	6.86E+10	9.16E+10	1.22E+11	1.86E+11
*112	4.35E+10	3.82E+20	1.95E+10	24.4039	0.428896	1.96E+10	2.97E+10	3.97E+10	5.30E+10	8.03E+10
*113	2.48E+10	1.24E+20	1.12E+10	23.8422	0.429205	1.12E+10	1.69E+10	2.26E+10	3.02E+10	4.58E+10
*114	2.62E+10	1.39E+20	1.18E+10	23.8973	0.429535	1.18E+10	1.79E+10	2.39E+10	3.19E+10	4.85E+10
*115	2.43E+10	1.20E+20	1.10E+10	23.8231	0.429888	1.09E+10	1.66E+10	2.22E+10	2.97E+10	4.50E+10
*116	4.01E+10	3.27E+20	1.81E+10	24.3224	0.430262	1.80E+10	2.74E+10	3.66E+10	4.89E+10	7.42E+10
*117	3.93E+10	3.14E+20	1.77E+10	24.3026	0.429888	1.77E+10	2.68E+10	3.59E+10	4.79E+10	7.27E+10
*118	1.33E+10	3.59E+19	5.99E+09	23.2182	0.429888	5.98E+09	9.07E+09	1.21E+10	1.62E+10	2.46E+10
*119	4.18E+10	3.54E+20	1.88E+10	24.3634	0.429535	1.88E+10	2.85E+10	3.81E+10	5.09E+10	7.72E+10
P.P.C.	8.30E+13	1.39E+27	3.73E+13			3.74E+13	5.67E+13	7.57E+13	1.01E+14	1.53E+14

Table 63: List of subplays in the lower unnamed member of the Fort Union Formation where the Waltman seal is present play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

\WINDRIVR\ASSESS\GTFU2.XLS

Play Name :	Tful, no Waltman									(Panel 1)
						a =	0.41	0.016	0	
						b =	14.7	505	0.909	
Subplay	Closure	Thickness	Porosity	Trap fill	HC Sat.	Depth	Pressure	Temp.	Gas Comp.	Gas in place
No.	(sq.mi.)	(feet)	(%)	(%)	(%)	(feet)	(PSI)	(Deg.Rank.)	(no units)	(CF)
1	2.5	450	8	30	50	11,000	4524.7	681	0.909	9.71E+10
2	2.7	450	8	30	50	12,000	4934.7	697	0.909	1.12E+11
3	0.8	500	8	30	50	12,500	5139.7	705	0.909	3.79E+10
4	3	625	8	30	50	12,500	5139.7	705	0.909	1.78E+11
5	27.4	625	8	30	50	12,000	4934.7	697	0.909	1.58E+12
6	15.7	675	8	30	50	11,000	4524.7	681	0.909	9.15E+11
7	3.2	725	8	30	50	10,000	4114.7	665	0.909	1.87E+11
8	0.6	750	8	30	50	9,000	3704.7	649	0.909	3.34E+10
9	8.8	875	8	30	50	12,000	4934.7	697	0.909	7.08E+11
10	6.9	875	8	30	50	11,000	4524.7	681	0.909	5.21E+11
11	3.2	875	8	30	50	10,000	4114.7	665	0.909	2.25E+11
12	3	875	8	30	50	9,000	3704.7	649	0.909	1.95E+11
13	8.2	1,100	8	30	50	12,000	4934.7	697	0.909	8.30E+11
14	11	1,125	8	30	50	11,000	4524.7	681	0.909	1.07E+12
15	3.6	1,125	8	30	50	10,000	4114.7	665	0.909	3.26E+11
16	3.8	1,125	8	30	50	9,000	3704.7	649	0.909	3.17E+11
17	0.34	1,200	8	30	50	8,500	3499.7	641	0.909	2.89E+10
18	11.3	1,300	8	30	50	11,000	4524.7	681	0.909	1.27E+12
19	16.7	1,300	8	30	50	10,000	4114.7	665	0.909	1.75E+12
20	9	1,300	8	30	50	9,000	3704.7	649	0.909	8.68E+11
21	0.33	1,250	8	30	50	8,500	3499.7	641	0.909	2.93E+10
22	19.2	1,125	8	30	50	9,000	3704.7	649	0.909	1.60E+12
23	3.8	1,200	8	30	50	9,500	3909.7	657	0.909	3.53E+11
24	1	1,100	8	30	50	8,500	3499.7	641	0.909	7.80E+10
25	2.3	1,000	8	30	50	8,500	3499.7	641	0.909	1.63E+11
26	8.8	900	8	30	50	9,000	3704.7	649	0.909	5.87E+11
27	17	875	8	30	50	8,000	3294.7	633	0.909	1.01E+12
28	1.5	750	8	30	50	7,500	3089.7	625	0.909	7.23E+10
29	6.6	700	8	30	50	7,000	2884.7	617	0.909	2.81E+11
30	18.6	675	8	30	50	7,000	2884.7	617	0.909	7.63E+11
31	14.3	600	8	30	50	6,000	2474.7	601	0.909	4.59E+11
32	12.6	550	8	30	50	5,000	2064.7	585	0.909	3.18E+11
33	15.7	450	8	30	50	5,000	2064.7	585	0.909	3.24E+11
34	0.2	500	8	30	50	5,500	2269.7	593	0.909	4.97E+09
35	32	350	8	10	50	4,000	1654.7	569	0.909	1.41E+11
37	6.3	250	8	20	50	4,000	1654.7	569	0.909	3.97E+10
38	15	200	8	10	50	3,000	1244.7	553	0.909	2.92E+10
43	1.4	500	8	30	50	4,500	1859.7	577	0.909	2.93E+10
44	9.3	450	8	30	50	5,000	2064.7	585	0.909	1.92E+11
45	14.8	400	8	20	50	4,000	1654.7	569	0.909	1.49E+11
46	25.2	375	8	10	50	3,000	1244.7	553	0.909	9.21E+10
53	3.1	375	8	30	50	5,000	2064.7	585	0.909	5.33E+10
54	0.46	500	8	30	50	5,500	2269.7	593	0.909	1.14E+10
55	6	600	8	30	50	6,000	2474.7	601	0.909	1.93E+11
56	0.67	600	8	30	50	6,500	2679.7	609	0.909	2.30E+10
									Total =	1.82E+13

Table 64: List of subplays in the lower unnamed member where the Waltman seal is absent play. To obtain a point estimate of the in-place gas of a subplay, point estimates were made of the six attributes listed in columns 2 through 7. These may vary from subplay to subplay within a play. An estimate of the Z factor or gas compressibility factor is listed in column 10. The parameters listed under a and b at the top of the spread sheet are pressure and temperature attributes respectively, and the values listed are applied to all of the subplays in the play. The point estimate of in-place gas of a subplay listed in the last column is taken as a mean estimate.

Play Name :		Tful, no Waltman								(Panel 2)
		Depth		Closure	Thickness	Porosity	Trap Fill	HC Sat.	*Pe /TZ*	
	Range (%) =	30		30	50	60	100	80		
Subplay	Expect	F95 D.	F5 D.	Expect	Expect	Expect	Expect	Expect	Expect	Expect
No.	*Pe /TZ*	*Pe /TZ*	*Pe /TZ*	(Clo.)^2	(Thick.)^2	(Por.)^2	(Trap)^2	(HC S)^2	(*Pe /TZ*)^2	(Gas)^2
1	7.31	6.47	8.09	6.30	207177.1	66.13	983.1	2647.82	53.67	1.17E+22
2	7.79	6.91	8.60	7.35	207177.1	66.13	983.1	2647.82	60.93	1.55E+22
3	8.02	7.12	8.84	0.65	255774.2	66.13	983.1	2647.82	64.60	1.78E+21
4	8.02	7.12	8.84	9.07	399647.1	66.13	983.1	2647.82	64.60	3.91E+22
5	7.79	6.91	8.60	757.00	399647.1	66.13	983.1	2647.82	60.93	3.07E+24
6	7.31	6.47	8.09	248.54	466148.4	66.13	983.1	2647.82	53.67	1.04E+24
7	6.81	6.01	7.55	10.33	537765.2	66.13	983.1	2647.82	46.56	4.31E+22
8	6.28	5.53	6.99	0.36	575491.8	66.13	983.1	2647.82	39.63	1.38E+21
9	7.79	6.91	8.60	78.08	783308.3	66.13	983.1	2647.82	60.93	6.21E+23
10	7.31	6.47	8.09	48.01	783308.3	66.13	983.1	2647.82	53.67	3.37E+23
11	6.81	6.01	7.55	10.33	783308.3	66.13	983.1	2647.82	46.56	6.28E+22
12	6.28	5.53	6.99	9.07	783308.3	66.13	983.1	2647.82	39.63	4.70E+22
13	7.79	6.91	8.60	67.80	1237946.9	66.13	983.1	2647.82	60.93	8.53E+23
14	7.31	6.47	8.09	122.01	1294856.6	66.13	983.1	2647.82	53.67	1.41E+24
15	6.81	6.01	7.55	13.07	1294856.6	66.13	983.1	2647.82	46.56	1.31E+23
16	6.28	5.53	6.99	14.56	1294856.6	66.13	983.1	2647.82	39.63	1.25E+23
17	6.01	5.28	6.69	0.12	1473259.1	66.13	983.1	2647.82	36.26	1.04E+21
18	7.31	6.47	8.09	128.75	1729033.3	66.13	983.1	2647.82	53.67	1.99E+24
19	6.81	6.01	7.55	281.21	1729033.3	66.13	983.1	2647.82	46.56	3.77E+24
20	6.28	5.53	6.99	81.67	1729033.3	66.13	983.1	2647.82	39.63	9.33E+23
21	6.01	5.28	6.69	0.11	1598588.5	66.13	983.1	2647.82	36.26	1.06E+21
22	6.28	5.53	6.99	371.71	1294856.6	66.13	983.1	2647.82	39.63	3.18E+24
23	6.55	5.77	7.27	14.56	1473259.1	66.13	983.1	2647.82	43.07	1.54E+23
24	6.01	5.28	6.69	1.01	1237946.9	66.13	983.1	2647.82	36.26	7.55E+21
25	6.01	5.28	6.69	5.33	1023096.6	66.13	983.1	2647.82	36.26	3.30E+22
26	6.28	5.53	6.99	78.08	828708.3	66.13	983.1	2647.82	39.63	4.28E+23
27	5.73	5.02	6.39	291.40	783308.3	66.13	983.1	2647.82	32.96	1.25E+24
28	5.44	4.76	6.08	2.27	575491.8	66.13	983.1	2647.82	29.74	6.47E+21
29	5.14	4.50	5.75	43.92	501317.3	66.13	983.1	2647.82	26.60	9.77E+22
30	5.14	4.50	5.75	348.84	466148.4	66.13	983.1	2647.82	26.60	7.21E+23
31	4.53	3.95	5.08	206.19	368314.8	66.13	983.1	2647.82	20.64	2.61E+23
32	3.88	3.37	4.37	160.08	309486.7	66.13	983.1	2647.82	15.17	1.25E+23
33	3.88	3.37	4.37	248.54	207177.1	66.13	983.1	2647.82	15.17	1.30E+23
34	4.21	3.66	4.73	0.04	255774.2	66.13	983.1	2647.82	17.84	3.07E+19
35	3.20	2.77	3.61	1032.51	125329.3	66.13	109.2	2647.82	10.30	2.47E+22
37	3.20	2.77	3.61	40.02	63943.5	66.13	437.0	2647.82	10.30	1.95E+21
38	2.48	2.14	2.81	226.87	40923.9	66.13	109.2	2647.82	6.17	1.06E+21
43	3.55	3.08	4.00	1.98	255774.2	66.13	983.1	2647.82	12.65	1.07E+21
44	3.88	3.37	4.37	87.21	207177.1	66.13	983.1	2647.82	15.17	4.57E+22
45	3.20	2.77	3.61	220.86	163695.5	66.13	437.0	2647.82	10.30	2.76E+22
46	2.48	2.14	2.81	640.32	143873.0	66.13	109.2	2647.82	6.17	1.05E+22
53	3.88	3.37	4.37	9.69	143873.0	66.13	983.1	2647.82	15.17	3.53E+21
54	4.21	3.66	4.73	0.21	255774.2	66.13	983.1	2647.82	17.84	1.62E+20
55	4.53	3.95	5.08	36.30	368314.8	66.13	983.1	2647.82	20.64	4.60E+22
56	4.84	4.23	5.42	0.45	368314.8	66.13	983.1	2647.82	23.56	6.55E+20

Table 65: List of subplays in the lower unnamed member where the Waltman seal is absent play with estimates of ranges in percent for the six play attributes.

Play Name :		Tful, no Waltman								(Panel 3)
	In-place	In-place	In-place			In-place Fractiles				
Subplay	Mean gas	Var. gas	S.D. gas			F95	F75	F50	F25	F5
No.	(CF)	(CF)^2	(CF)	Mu	Sigma	(CF)	(CF)	(CF)	(CF)	(CF)
1	9.71E+10	2.25E+21	4.75E+10	25.1921	0.462794	4.08E+10	6.39E+10	8.73E+10	1.19E+11	1.87E+11
2	1.12E+11	2.98E+21	5.46E+10	25.3327	0.462576	4.69E+10	7.35E+10	1.00E+11	1.37E+11	2.15E+11
3	3.79E+10	3.42E+20	1.85E+10	24.251	0.462473	1.59E+10	2.49E+10	3.40E+10	4.65E+10	7.29E+10
4	1.78E+11	7.52E+21	8.67E+10	25.7959	0.462473	7.46E+10	1.17E+11	1.60E+11	2.18E+11	3.42E+11
5	1.58E+12	5.92E+23	7.69E+11	27.9785	0.462576	6.61E+11	1.04E+12	1.42E+12	1.93E+12	3.03E+12
6	9.15E+11	2.00E+23	4.47E+11	27.4349	0.462794	3.84E+11	6.02E+11	8.22E+11	1.12E+12	1.76E+12
7	1.87E+11	8.32E+21	9.12E+10	25.8446	0.463026	7.82E+10	1.23E+11	1.68E+11	2.29E+11	3.59E+11
8	3.34E+10	2.67E+20	1.63E+10	24.1238	0.463275	1.40E+10	2.19E+10	3.00E+10	4.10E+10	6.42E+10
9	7.08E+11	1.20E+23	3.46E+11	27.1791	0.462576	2.97E+11	4.66E+11	6.36E+11	8.69E+11	1.36E+12
10	5.21E+11	6.49E+22	2.55E+11	26.8723	0.462794	2.19E+11	3.43E+11	4.68E+11	6.40E+11	1.00E+12
11	2.25E+11	1.21E+22	1.10E+11	26.0326	0.463026	9.44E+10	1.48E+11	2.02E+11	2.76E+11	4.33E+11
12	1.95E+11	9.07E+21	9.53E+10	25.8873	0.463275	8.16E+10	1.28E+11	1.75E+11	2.39E+11	3.75E+11
13	8.30E+11	1.64E+23	4.05E+11	27.3374	0.462576	3.48E+11	5.46E+11	7.46E+11	1.02E+12	1.60E+12
14	1.07E+12	2.73E+23	5.22E+11	27.59	0.462794	4.48E+11	7.03E+11	9.60E+11	1.31E+12	2.05E+12
15	3.26E+11	2.53E+22	1.59E+11	26.4017	0.463026	1.37E+11	2.14E+11	2.92E+11	4.00E+11	6.26E+11
16	3.17E+11	2.41E+22	1.55E+11	26.375	0.463275	1.33E+11	2.08E+11	2.85E+11	3.89E+11	6.10E+11
17	2.89E+10	2.01E+20	1.42E+10	23.9812	0.463406	1.21E+10	1.90E+10	2.60E+10	3.55E+10	5.57E+10
18	1.27E+12	3.84E+23	6.20E+11	27.7615	0.462794	5.32E+11	8.34E+11	1.14E+12	1.56E+12	2.44E+12
19	1.75E+12	7.28E+23	8.53E+11	28.0808	0.463026	7.32E+11	1.15E+12	1.57E+12	2.14E+12	3.36E+12
20	8.68E+11	1.80E+23	4.25E+11	27.3819	0.463275	3.64E+11	5.70E+11	7.79E+11	1.07E+12	1.67E+12
21	2.93E+10	2.05E+20	1.43E+10	23.9922	0.463406	1.23E+10	1.92E+10	2.63E+10	3.59E+10	5.63E+10
22	1.60E+12	6.14E+23	7.84E+11	27.995	0.463275	6.72E+11	1.05E+12	1.44E+12	1.97E+12	3.08E+12
23	3.53E+11	2.97E+22	1.72E+11	26.4812	0.463149	1.48E+11	2.32E+11	3.17E+11	4.33E+11	6.78E+11
24	7.80E+10	1.46E+21	3.82E+10	24.973	0.463406	3.27E+10	5.13E+10	7.01E+10	9.58E+10	1.50E+11
25	1.63E+11	6.38E+21	7.99E+10	25.7106	0.463406	6.84E+10	1.07E+11	1.47E+11	2.00E+11	3.14E+11
26	5.87E+11	8.26E+22	2.87E+11	26.9917	0.463275	2.46E+11	3.86E+11	5.28E+11	7.21E+11	1.13E+12
27	1.01E+12	2.43E+23	4.92E+11	27.5295	0.463542	4.21E+11	6.61E+11	9.03E+11	1.23E+12	1.94E+12
28	7.23E+10	1.25E+21	3.54E+10	24.896	0.463683	3.03E+10	4.75E+10	6.49E+10	8.87E+10	1.39E+11
29	2.81E+11	1.89E+22	1.37E+11	26.2528	0.463828	1.18E+11	1.84E+11	2.52E+11	3.45E+11	5.41E+11
30	7.63E+11	1.40E+23	3.74E+11	27.2525	0.463828	3.19E+11	5.01E+11	6.85E+11	9.36E+11	1.47E+12
31	4.59E+11	5.06E+22	2.25E+11	26.7447	0.464134	1.92E+11	3.01E+11	4.12E+11	5.64E+11	8.84E+11
32	3.18E+11	2.43E+22	1.56E+11	26.3768	0.46446	1.33E+11	2.09E+11	2.85E+11	3.90E+11	6.12E+11
33	3.24E+11	2.53E+22	1.59E+11	26.3961	0.46446	1.35E+11	2.13E+11	2.91E+11	3.98E+11	6.24E+11
34	4.97E+09	5.95E+18	2.44E+09	22.2195	0.464294	2.08E+09	3.27E+09	4.46E+09	6.11E+09	9.58E+09
35	1.41E+11	4.80E+21	6.93E+10	25.5644	0.464806	5.89E+10	9.26E+10	1.27E+11	1.73E+11	2.72E+11
37	3.97E+10	3.80E+20	1.95E+10	24.2959	0.464806	1.66E+10	2.60E+10	3.56E+10	4.87E+10	7.65E+10
38	2.92E+10	2.07E+20	1.44E+10	23.9908	0.465164	1.22E+10	1.92E+10	2.62E+10	3.59E+10	5.64E+10
43	2.93E+10	2.07E+20	1.44E+10	23.9934	0.464631	1.23E+10	1.92E+10	2.63E+10	3.60E+10	5.65E+10
44	1.92E+11	8.87E+21	9.42E+10	25.8724	0.46446	8.02E+10	1.26E+11	1.72E+11	2.36E+11	3.70E+11
45	1.49E+11	5.36E+21	7.32E+10	25.62	0.464806	6.23E+10	9.79E+10	1.34E+11	1.83E+11	2.88E+11
46	9.21E+10	2.05E+21	4.53E+10	25.1382	0.465164	3.85E+10	6.04E+10	8.27E+10	1.13E+11	1.78E+11
53	5.33E+10	6.84E+20	2.62E+10	24.5915	0.46446	2.23E+10	3.50E+10	4.79E+10	6.54E+10	1.03E+11
54	1.14E+10	3.15E+19	5.61E+09	23.0524	0.464294	4.78E+09	7.51E+09	1.03E+10	1.40E+10	2.20E+10
55	1.93E+11	8.92E+21	9.44E+10	25.8762	0.464134	8.06E+10	1.26E+11	1.73E+11	2.36E+11	3.71E+11
56	2.30E+10	1.27E+20	1.13E+10	23.7503	0.463978	9.62E+09	1.51E+10	2.06E+10	2.82E+10	4.43E+10
P.P.C.	1.82E+13	7.95E+25	8.92E+12			7.64E+12	1.20E+13	1.64E+13	2.24E+13	3.51E+13

Table 66: List of subplays in the lower unnamed member where the Waltman seal is absent play with calculated fractiles for in-place gas. Mean in-place gas is listed in column 2 for comparison.

Aggregation Name :			Wind River Basin					
	In-place	In-place	In-place	In-place Fractiles				
Play	Mean gas	Var. gas	S.D. gas	F95	F75	F50	F25	F5
Name	(CF)	(CF)^2	(CF)	(CF)	(CF)	(CF)	(CF)	(CF)
TFU1	8.3E+13	1.39E+27	3.73E+13	3.74E+13	5.67E+13	7.57E+13	1.01E+14	1.53E+14
TFU2	1.82E+13	7.95E+25	8.92E+12	7.64E+12	1.20E+13	1.64E+13	2.24E+13	3.51E+13
LANCE1	3.16E+14	6.37E+27	7.98E+13	2.03E+14	2.59E+14	3.06E+14	3.62E+14	4.61E+14
LANCE2	4.89E+13	5.72E+26	2.39E+13	2.05E+13	3.22E+13	4.40E+13	6.01E+13	9.41E+13
MEET1	5.13E+13	1.59E+26	1.26E+13	3.34E+13	4.23E+13	4.98E+13	5.86E+13	7.42E+13
MEET2	5.97E+13	2.27E+26	1.51E+13	3.84E+13	4.89E+13	5.79E+13	6.84E+13	8.71E+13
MEET3	1.25E+13	3.72E+25	6.1E+12	5.23E+12	8.20E+12	1.12E+13	1.53E+13	2.40E+13
KMV1	3.47E+13	7.3E+25	8.55E+12	2.26E+13	2.86E+13	3.37E+13	3.97E+13	5.02E+13
KMV2	1.72E+13	1.89E+25	4.35E+12	1.11E+13	1.41E+13	1.67E+13	1.98E+13	2.52E+13
KMV3	3.84E+12	3.52E+24	1.88E+12	1.61E+12	2.52E+12	3.45E+12	4.71E+12	7.38E+12
KMV4	4.89E+13	1.45E+26	1.21E+13	3.19E+13	4.03E+13	4.75E+13	5.60E+13	7.08E+13
KMV5	7.18E+13	3.28E+26	1.81E+13	4.63E+13	5.89E+13	6.96E+13	8.23E+13	1.05E+14
KMV6	1.74E+13	7.24E+25	8.51E+12	7.30E+12	1.14E+13	1.56E+13	2.14E+13	3.35E+13
CODY1	3.06E+13	5.67E+25	7.53E+12	1.99E+13	2.52E+13	2.97E+13	3.50E+13	4.42E+13
CODY2	1.92E+13	2.34E+25	4.84E+12	1.24E+13	1.57E+13	1.86E+13	2.20E+13	2.80E+13
CODY3	1.97E+12	9.31E+23	9.65E+11	8.25E+11	1.29E+12	1.77E+12	2.42E+12	3.79E+12
FRONT1	1.18E+14	8.39E+26	2.9E+13	7.65E+13	9.69E+13	1.14E+14	1.34E+14	1.70E+14
FRONT2	2.92E+13	5.46E+25	7.39E+12	1.88E+13	2.39E+13	2.83E+13	3.35E+13	4.26E+13
FRONT3	3.95E+12	3.74E+24	1.93E+12	1.65E+12	2.60E+12	3.55E+12	4.85E+12	7.60E+12
FALES1	1.18E+12	8.5E+22	2.92E+11	7.71E+11	9.76E+11	1.15E+12	1.35E+12	1.71E+12
FALES2	7.31E+12	3.42E+24	1.85E+12	4.70E+12	5.99E+12	7.08E+12	8.38E+12	1.07E+13
FALES3	5.36E+11	6.89E+22	2.62E+11	2.25E+11	3.53E+11	4.82E+11	6.58E+11	1.03E+12
Aggregation:								
P.P.C.	9.95E+14	8.48E+28	2.91E+14	6.03E+14	7.88E+14	9.52E+14	1.15E+15	1.53E+15

Table 67: List of mean in-place gas and the five fractiles for in-place gas for each of the 22 plays in the Wind River Basin. An aggregation of in-place gas for all 22 plays is listed at the bottom if the table.