

Split Estates and Surface Owner Perceptions of Shale Gas Drilling

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Introduction:

Land and Mineral Property Rights

- Property is defined by Black's Law Dictionary as anything that can be owned and consists of a bundle of rights.
- Under the common law developed in England, fee simple title to land conferred ownership “from the center of the earth to an altitude above the land which is necessary for the enjoyment of the land”.
- Property ownership also confers to the owner the ability to sever one right from the bundle of other rights. In the U.S. and a few other countries, land ownership included mineral rights which can be transferred to another owner separately from the rest of bundle of land rights. This separation of mineral from surface ownership of land is called split estates.

Introduction:

Split Estates vs. Fee Simple

- Under common law, mineral right ownership is recognized as the dominant estate, such that it is assumed that both the original surface and mineral right owners at the time of severance intended for the minerals to be developed.
- Thus, mineral right holders have the right to perform activities that are “fairly necessary” on the land surface such as these activities that would have been contemplated by the original parties of the severance agreement in order to extract minerals, even over the objections of the current surface owner.

Introduction:

Split Estates Are Common

- Nationwide, the federal government has retained mineral right ownership on about 58 million acres of private lands across the western U.S.
- Separation of surface and mineral rights also is not uncommon in the Appalachian region.
- In West Virginia, over 40% of the completed Marcellus Shale gas wells were located on split estate properties.

Introduction:

Research Objective

- In a perfect world, who owns the surface versus the mineral rights should not change the drilling process or the manner upon which this process is completed by the drilling company. Since this perfect world does not exist, the objective of this research was to test whether split estate ownership of property rights leads more perceived problems or issues with shale gas drilling by surface owners and therefore a higher level of dissatisfaction with the outcome of natural gas extraction.
- Expectation: split estate owners have a greater perception of problems or issues with shale gas drilling and more dissatisfaction with the outcome than fee simple owners.

Methods:

Survey Methods

Data:

- Completed shale gas well permits - West Virginia Geologic and Economic Survey
- Mailing addresses for surface owners with at least one completed well - the Office of Oil and Gas in the West Virginia Department of Environmental Protection
- 481 surface owners were sent an invitation to participate on-line or by mail – 2/3 split, 1/3 fee simple.
- Owners were contacted at least three times to participate between Dec. 2012 through April 2013.

Methods:

Survey Returns

- In total, 33 surveys were completed on-line, 101 paper surveys were returned, and 20 respondent refusals and/or indicated no well was drilled on their property.
- The survey response rate was 43.1% after subtraction of 125 non-deliverable addresses and deceased surface owners.
- 61.5% of sample respondents were split estates with 90% reporting to be the sole owner of surface rights. The remaining 38.5% were fee simple estates – only 1/3 were sole owners of all rights.

Methods:

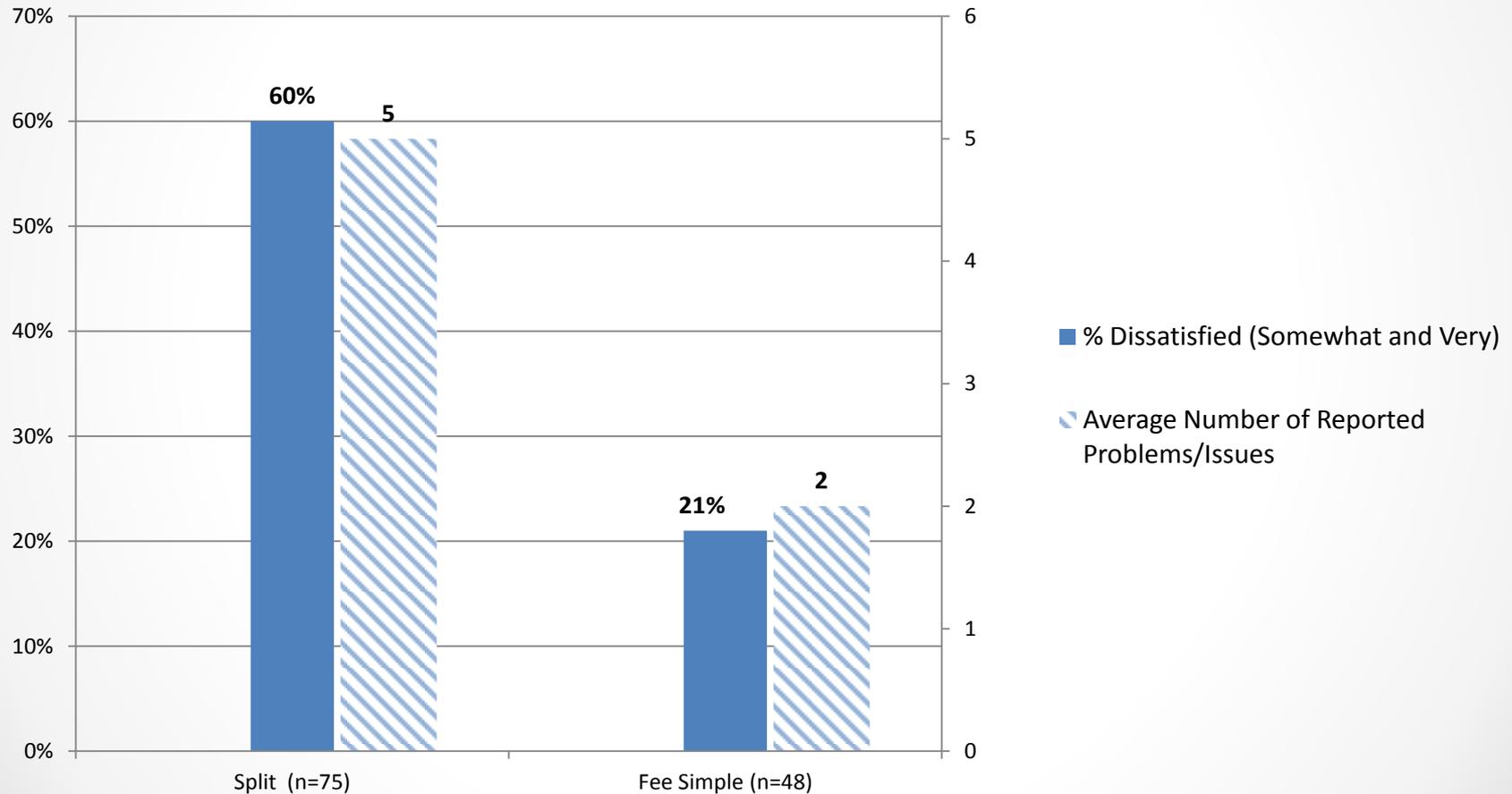
Survey Questions Analyzed

- Respondents were asked to report problems or issues with drilling in three groups: environmental; financial; and human health & quality of life.
- On a five level scale of Satisfaction to Dissatisfaction, respondents were asked:

“There are many impacts that occur as result of leasing and drilling – environmental, financial, health, safety, quality of life, etc. Overall, in thinking about all of these impacts (both good and bad), how would you rate your level of satisfaction with all the outcomes from the drilling and fracturing processes that were conducted on your property? (Please check only one)”.

Methods:

Simple Analysis Shows Dramatic Differences



Methods:

Multiple Factors May Impact Surface Owner Perceptions

- This simple analysis comparison is not sufficient because there are unique features of each individual land owner and drilling situation which must be accounted for when determining the potential impacts on a surface owner's perceptions. These features were viewed as potential explanatory variables for surface owners' perceptions of drilling.

Methods:

Multiple Factors May Impact Surface Owner Perceptions

These factors include:

- the size of the property relative to the number of wells drilled,
- the type of well drilled,
- how the land was used prior to drilling,
- what other types of development for extraction occurred on the property (gas lines, ponds, compressor stations, etc.),
- the types of regulations in place during the drilling,
- the level of compensation received by the land owner (both monetary and non-monetary),
- whether or not an agreement was signed with the driller, and
- what complaints the neighbors had about the drilling.

Methods:

Next Approach: Three Separate Analyses

- Three regression models were developed to assess the impact of split estates and other variables on:
 - (I) whether a surface owner identified a non-zero number of problems or issues associated with drilling,
 - (II) the number of problems or issues among the non-zero respondents; and
 - (III) dissatisfaction versus satisfaction of a surface owner with the outcome of drilling.

Results:

Summary of Survey

	Respondents who Reported at Least One Problem/Issue	Average Number of Reported Problems/Issues	Most Common Problem/Issue Reported
Entire Sample (n=129)	57.4%	4	Land surface damages (34.9%)
Ownership Type			
Split (n=78)	69.2%	5	Land surface damages (52.0%)
Fee Simple (n=49)	38.8%	2	Not enough money was included in the lease (18.0%)
Well Type ^a			
Horizontal (n=30)	73.3%	7	Truck traffic (51.7%)
Vertical (n=49)	53.1%	3	Land surface damages (27.7%)
Conventional (n=39)	56.4%	3	Land surface damages (34.2%)

Results:

Summary of Survey

	Respondent Quality of Life Change			Reported Change in Stress		
	Improved	Declined	No Change	Less	More	No Change
Entire Sample (n=126)	15.9%	24.6%	54.8%	6.3%	43.7%	46.0%
Ownership Type						
Split (n=75)	5.3%	30.7%	57.3%	4.0%	56.0%	36.0%
Fee Simple (n=50)	32.0%	16.0%	52.0%	10.0%	24.0%	62.0%
Well Type						
Horizontal (n=30)	20.0%	33.3%	36.7%	10.0%	46.7%	40.0%
Vertical (n=47)	21.3%	21.3%	57.4%	6.4%	34.0%	55.3%
Conventional (n=38)	5.3%	26.3%	60.5%	5.3%	57.9%	36.8%

Results:

Summary of Survey

DEP Contact

- 25% of the respondents reported that they had contacted the DEP with a complaint.
- About half of respondents who expressed dissatisfaction with drilling outcomes (47%) contacted the DEP.
- Those respondents that contacted the DEP had, on average, were more likely to have a holding pond developed on their property (78%), owned a split estate (80%), had a horizontal well on their property (42%), and were very dissatisfied with the outcomes of drilling and fracturing (72%).
- The main problems noted by more than half of those that contacted the DEP were land surface damages, lack of cooperation by the drilling company, loss of property value, and inadequate compensation in the lease.

Results:

Models Estimated

- The main independent variables of interest were: SPLIT OWNER and HORIZONTAL WELL.
- SPLIT OWNER had a statistically significant, positive impact in Model I, increasing the likelihood of a surface owner reporting a problem.
- HORIZONTAL WELL had a statistically significant, impact coefficient in Model II, explaining the number of problems reported by a surface owner.
- Neither variable had a statistically significant impact on dissatisfaction level.

Results:

Split Estates Increase Likelihood of a Reported Problem

- For Model I, split estate ownership increased the probability of a respondent reporting a problem with drilling by 22.4% - the third largest impact of any variable behind neighbor complaints and inadequate compensation.
- Split estate owners were more likely to identify problems related to:
 - financial concerns** (land surface damages and property value declines)
 - process related concerns** (lack of cooperation and notice by the drilling company)

Results:

Horizontal Drilling Increases Number of Reported Problems

- The horizontal well variable had the largest average marginal effect of any independent variable on the number of reported problems, increasing the number of reported problems by 2.8 in Model II.
- Horizontal drilling problems were:
 - Quality of Life** (truck traffic, road damages, noise, odor, and lack of notice)
 - Surface Water Withdrawal**

Results:

Dissatisfaction Related to Compensation and Neighbors

- When a respondent reported inadequate compensation, the probability of dissatisfaction increased by an average of 41.7%, by far the largest impact of any variable.
- Conversely, respondents who received non-monetary compensation had, on average, a 19.7% lower probability of being dissatisfied.
- When a respondent reported that a neighbor complained about the drilling, there was a 24.4% greater probability of surface owner dissatisfaction with drilling.
- Residence on property also had a statistically significant impact.

Conclusions:

Research Summary

- Regression analyses were conducted for three models: surface owner reported at least one problem (yes or no), the number of problems reported, and dissatisfaction versus satisfaction.
- The econometric results showed that a split estate owner was more likely to report a problem while a horizontal well increased the number of problems reported.
- Surface owner dissatisfaction was not impacted significantly by either split estates or horizontal wells. It was mainly explained by surface owner compensation, neighbor complaints, and residence on the property.

Conclusions:

Split Estate Owners Need More Protection

- The combination of survey and econometric results does indicate a need to expand surface owner rights in West Virginia, particularly when there is a residence on the property where wells are drilled.
- Quite often the separation of mineral from surface rights occurred decades to generations ago. With changing technology making shale gas resources available that previously were not accessible, split estate owners are faced with an unfortunate situation where their property basically “enslaved” by an industrial process of drilling and fracturing for the sole benefit of mineral right holders.
- The wealth created in society by shale gas extraction should not be exploited by imposing excessive extraction burdens on surface owners without mineral rights.

Conclusions:

Surface Owner Policies in Other States

- Other states (Colorado and New Mexico) have responded to split estate issues with legislation to expand surface owner rights, termed “surface owners’ bill of rights”.
- For example in New Mexico, the Surface Owners Protection Act of 2007 includes provisions of: a 30 day notice prior to drilling, a written agreement must exist between the surface owner and driller or drillers must pay for the use of the land surface, and drillers must provide a description of the proposed operations such that the owner can evaluate the effects on the property.

Conclusions:

Surface Owner Policies in WV

- WV does have surface owner protections (not very strong) and these were somewhat expanded for surface owners with horizontal wells.
- A current policy proposal by the West Virginia Surface Owner Rights Organization (<http://www.wvsoro.org/index.html>) advocates a process to reunify surface and mineral rights by notification and creation of an opportunity for surface owners to purchase back mineral rights upon non-payment of property taxes.
- In addition, there is a legal case currently before the West Virginia Supreme Court could expand surface owner rights.

Conclusions:

Take Home Thoughts for Everyone

- Split estates are one of many factors involved in determining surface owner perceptions of drilling outcomes – not a dominant one in dissatisfaction.
- Neighbor complaints play an important role in surface owner perceptions of drilling.
- Don't count on surface owner to contact the WV DEP if there are problems.
- Adequate compensation is a key component to surface owner satisfaction.