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Exhibit 15

**The Local Economic Impacts of Natural Gas Development
in Valle Vidal, New Mexico**

**A Report Prepared as Comments
to the
Carson National Forest**

by

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2. Local Versus State Impacts: An Important Distinction

It is often pointed out that the oil and gas industry is an important part of the New Mexico economy and contributes significantly to the state's tax base. About 6 percent of the total economic value created in the state (gross state product, GSP) is attributable to oil and gas production. However, because the industry is land and capital intensive, only a small fraction of this value, about a quarter, flows to workers in the form of wages, salaries, and proprietors' income. In 2001 only seven-tenths of one percent of New Mexico personal income came from labor earnings from oil and gas production and only six-tenths of one percent of jobs.¹ The pay and job contribution of the New Mexico oil and gas industry is only one-tenth of its contribution to the aggregate of economic value produced in the state.

Because the state and federal governments can tax and/or collect royalties on the value of the oil and gas produced, oil and gas production can have a much larger impact on government revenues than on private employment and income. In recent years about a quarter of the revenues flowing into the New Mexico general fund came from oil and gas severance taxes, rents and royalties, and interest paid on the land grant permanent fund. In the early 1980s, these sources represented almost half of the state general fund.² Because of the major contributions oil and gas production make to state government revenue flows, it is possible to link much of the state government's investment in basic public infrastructure such as roads, and schools to oil and gas production.

¹ Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce.

² "The Oil and Gas Industry in New Mexico: An Economic Perspective," Laird Graeser, Chapter 2 in *Decision-Makers Field Guide 2002*, Brian S. Brister and L. Greer Price, Editors, New Mexico Bureau of Geology, <http://geoinfo.nmt.edu/publications/decisionmakers>, p. 52.

Although this is true for the state government, it is not true at the local government level. Oil and gas taxes play a much more modest role in most local government budgets simply because the level of local taxation of oil and gas activities is so much smaller than the taxes and royalty shares collected by the state government.

Of course, the state government shares its oil and gas revenues with local governments in a variety of ways. However, it is important to realize that all areas of the state are supported by these state programs, not just those where oil and gas production take place. In fact, areas with little mineral production get a larger share of those state mineral revenues. The New Mexico school equalization program is a good example. Although individual school districts levy property taxes, including taxes on oil and gas and other mineral production, and receive payments from the federal government in lieu of taxes and to offset federal impacts, the New Mexico school funding system largely offsets these local revenue sources. It does this by calculating the cost of educating students, subtracting from this most of the local revenues the school districts have access to, and then making up the difference. The result is that school districts have about the same revenues available to support their students regardless of how rich or poor the local tax base is. This is accomplished by having the state government collect both the state royalties on mineral development, the state's share of the federal royalties, and many of the taxes on mineral production. It then disperses its school funds in a manner designed to equalize the per student resources all school districts have available.

The significant role of mineral production in supporting state government in New Mexico should not be confused with the much more modest role that mineral production plays in directly supporting local governments.

3. Employment and Income Impacts of Natural Gas Development

a. The Reasonable Foreseeable Development Projection

A Reasonable Foreseeable Development (RFD) scenario usually projects **the most likely level** of development, rather than simply describing a broad range of potential developments with no known probabilities for each of those possible levels of development. A broad range of *possibilities* is not very useful since it is likely to include something close to the minimum, zero development, as well as the physical maximum, an extremely large number of wells. The Valle Vidal RFD (Chapter 6) focused on the level of development that would take place if the entire Eastern Unit were open to development at 160-acre well spacing.³ At that level of well spacing, the physical area of the Eastern Unit could accommodate about 250 wells. Some of these drilling sites, however, were unlikely to be

³ Oil and Gas Resource Development Potential Easter Valle Vidal Unit: A 20-year Reasonable Foreseeable Development Scenario, Carson National Forest, Brian S. Brister, et al., New Mexico Bureau of Geology and Mineral Resources, July 9, 2004.

developed because of the steepness of the slope or because of the need for buffers around "fractured igneous intrusions (dikes)" where drilling would negatively impact adjacent producing wells. This reduced the number of likely wells from the physically-possible number of wells, 250, to 191 wells. This was the number of wells on which the "Surface Occupancy and Disturbance" estimate in the RFD was based (Chapter 6).

However, both the Conclusion and the Executive Summary sections of the RFD document briefly discussed other possible scenarios if "better-than-anticipated geologic conditions" were found or if drilling provided evidence justifying an 80-acre per well spacing instead of 160-acre per well spacing and that higher well density were to be approved (p. 75). These latter *possibilities* (that could not be labeled likely at this point) could lead to as many as 500 wells being drilled rather than the 191 projected by the RFD.

The Executive Summary of the RFD actually labeled the 191 wells as the *minimum*, but that is not how that level of development was characterized in the main body of the text. The actual minimum might well be a very small number of wells if the initial drilling led to "less-than-anticipated geologic conditions" and, therefore, the abandonment of an extensive drilling program. In fact, the RFD projects that initially about 10 exploratory wells would be drilled to determine the economic rationality of further development.

The RFD says that the 500-well projection was tied to what "some operators believe." As part of the RFD analysis, a survey was conducted of various gas operators familiar with the area. Four such operators responded and three of the four indicated a desire for 80-acre per well spacing. The RFD Summary and Conclusions appears to have been influenced by the preferences of that small number of commercial parties.

The fact that there are *possible* outcomes that are much higher and much lower than the *expected* outcome is not a sign that the expected outcome is too low. Each possible outcome must be weighted by the probability that it will occur. A lottery ticket that has one chance in a million of paying \$10 million is not worth \$10 million. Its probability-weighted value is \$10 ($\$10,000,000 \times .000001$). Similarly a possible 5,000 wells that has a one chance in a thousand of occurring has a probability-weighted value of 5 wells ($5,000 \times .001$).

If the probability of 500 wells was 15 percent, the probability of 75 wells was also 15 percent, and the probability of 150 wells was 70 percent, the probability weighted outcome (the *expected* outcome) would be 191 wells. Note that saying that the expected level of development is 191 wells does not contradict the *possibility* that 500 wells might be developed or that only 75 wells might be developed. Specifying the expected level of development conveys real information. Specifying a wide range of possibilities while explicitly stating, as the

RFD does, that probabilities cannot be assigned to those possibilities conveys little information.

If the 191-well and 500-well scenarios were equally likely, the expected (probability-weighted) development would be 346 wells, about 80 percent above the 191-well level.

b. Employment and Income Impacts

Mineral extraction often leads to the production of substantial wealth. The Reasonable Foreseeable Development (RFD) projections developed for the Carson National Forest for the eastern Valle Vidal region by the New Mexico Bureau of Geology and Mineral Resources indicates that each well drilled could produce, at a minimum, natural gas worth a million dollars.⁴ It might be expected that such wealth production would also lead to the generation of substantial income and employment in the local economy. In general that does not happen with natural gas production. Natural gas development and production is a land, capital, and technology intensive activity that makes limited use of human labor. That, in fact, is one of the reasons that it is so productive and profitable.

Natural gas has been produced elsewhere in the Raton Basin north and east of Valle Vidal since the late 1990s. Coal bed methane development has been underway in the Colorado portion of the Raton Basin, Las Animas County, since 1997. Over 1,000 wells have been developed. Gas development in the Colfax County, New Mexico, portion of the Basin began two years later. 350 wells had been installed in Colfax County by the middle of 2004. Producing wells are located almost immediately adjacent to Valle Vidal on the Vermejo Park Ranch. These gas production operations and the employment and payroll associated with them provide information on what can be expected if gas development takes place in Valle Vidal. In addition, extensive coal bed methane development in the southern portion of Colorado in La Plata County also provides relevant economic information.

The employment and payroll associated with natural gas development are associated with two distinct phases of that development: The first phase involves the actual drilling and development of the wells, including the development of the road system and other infrastructure and the necessary pipeline system to collect the gas and dispose of the water. The second phase involves the operation and maintenance of the wells and collection system once they are in place.

The drilling and development largely employ specialized skilled workers who move from one drilling site to another. Other construction workers are needed for

⁴Oil and Gas Resource Development Potential Eastern Valle Vidal Unit: A 20-Year Reasonable Foreseeable Development Scenario, July 9, 2004. The adjacent VRP D gas fields are projected to produce a minimum of 300,000 mcf of natural gas per well over their productive lives (p.60). Valued at \$3.33 per mcf this would represent a million dollars in value.

the roads and pipeline infrastructure. If the employment associated with these activities over the year is divided by the number of wells developed, there is about one job associated with the development of each well.⁵

The operation and maintenance of the gas field once it is producing is less labor intensive. The employment level per operating well appears to vary considerably among different areas, possibly depending on the density of the wells. In the Colorado portion of the Raton Basin, employment in oil and gas production is quite low compared to the number of wells (0.12 jobs per well). In the Colfax County portion of the Basin, the number of jobs per well appears much higher, 0.46 jobs per well. In La Plata County, Colorado, employment per well is in between these two values, 0.33 jobs per well.

The Reasonable Foreseeable Development estimate prepared for the Carson National Forest projects, in the main body of the report, that 191 gas wells could be developed in Valle Vidal. If gas production were similar to that on the Vermejo Park Ranch to the north of Valle Vidal (VRP D), production per well could be 300,000 mcf over the lifetime of the well. Those wells producing similar to the wells to the east of Valle Vida (VRP B) could produce 150,000 mcf.

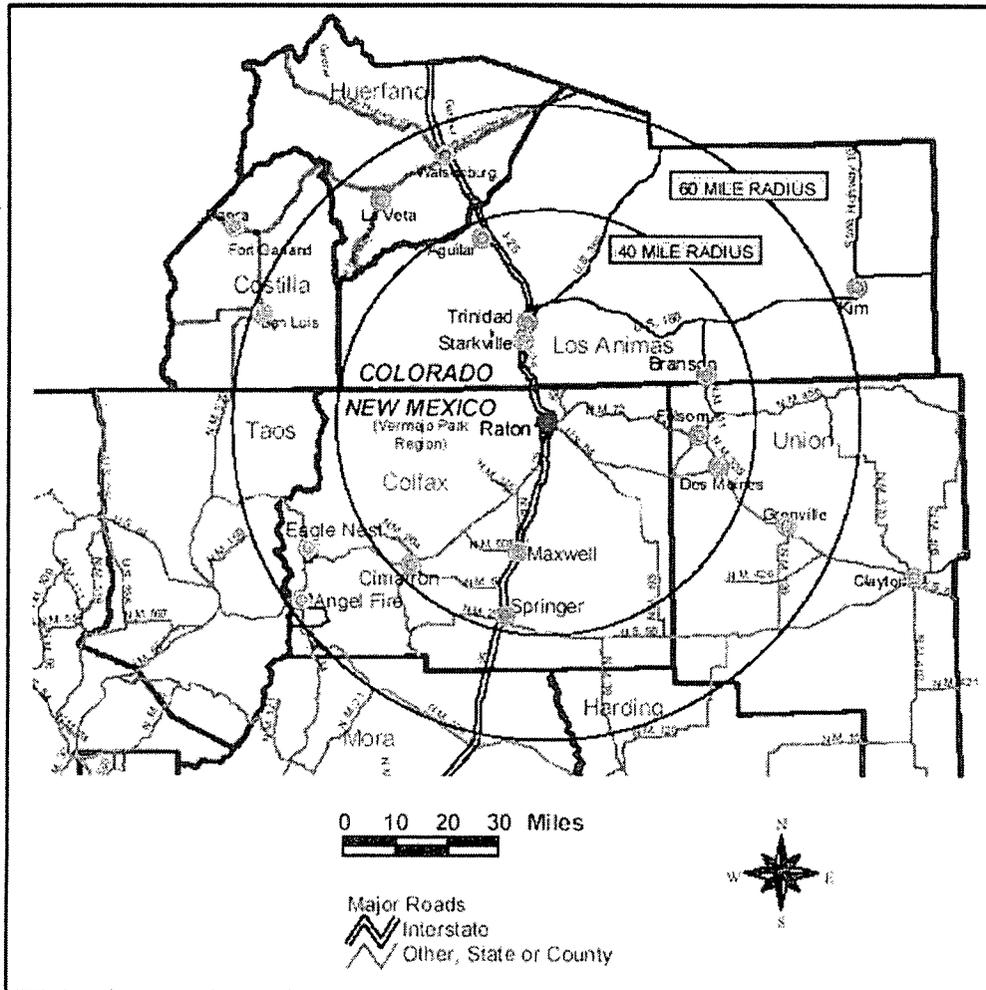
If the experience so far in Colfax County is used to project employment associated with the development of Valle Vidal, 94 jobs would be created with a payroll of about \$4.5 million.⁶

Colfax County, New Mexico, and Las Animas County, Colorado, are part of a common regional economy. Large parts of both counties and the principal cities (Raton and Trinidad) are within commuting distance of each other. Workers, especially highly mobile mineral industry workers, commute across the state line to jobs in the two states.⁷ See the map on the next page. The total number of jobs in the two counties is about 17,000. The 94 jobs associated with potential gas development in Valle Vidal represent a little over one half of one percent of those jobs.

⁵ This estimate is based on the experience thus far just to the east of Valle Vidal in Colfax County, across the border in Las Animas County, Colorado, and La Plata County, Colorado. Gas industry analysis for the Powder River Basin in Montana projects much lower levels of employment and income. See Coalbed Methane Development: Powder River Basin of Montana—Economic and Social Impacts of Proposed Development, Anderson ZurMuehlen & Co., June 1, 2001.

⁶ This estimate assumes that the drilling would proceed at a pace similar to that on the Vermejo Ranch. At that pace the 191 wells would be drilled over a four-year period. At production rates similar to those in VRP B and VRP D, the lifetime production projected by the RFD for the entire eastern Valle Vidal would be reached over a ten-year period.

⁷ City of Raton Community Audit, Demographic, Economic and Labor Force Analysis, University of New Mexico Bureau of Business and Economic Research, November 2003, page 6, map 3.1.



Because these natural gas jobs pay well above the average wage, the contribution to total personal income would be larger, but still less than one percent. See the table below.⁸

These estimates are based on the 191-well RFD scenario. *If* the 191- and 500-well scenarios are equally likely, the impacts would be 80 percent higher: Instead of being somewhat less than one percent they would be somewhat more than one percent.

⁸ Regional employment and income data come from the Regional Economic Information System of the Bureau of Economic Analysis, US Department of Commerce.

Job and Income Impact of Proposed Valle Vidal NG Development			
	Colfax New Mexico	Las Animas Colorado	Total
Total Personal Income (2002)	\$ 312,087,000	\$ 339,534,000	\$ 651,621,000
Total Jobs (2002)	8,405	8,266	16,671
Valle Vidal Estim. NG Labor Income	\$ 4,473,000	\$ 4,473,000	\$ 4,473,000
Valle Vidal Estim. NG Jobs	94	94	94
Valle Vidal NG Lab Inc as % Total Income	1.4%	1.3%	0.7%
Valle Vidal NG jobs as % Total Jobs	1.1%	1.1%	0.6%

Only the *direct* impact within the gas and construction industries are included in the impacts discussed above and reported in the table. There can also be indirect and induced impacts as gas companies purchase necessary material to carry out their development and workers spend the income they receive. These gas company expenditures can become income to other local businesses and workers. Those types of "spillover" impacts as gas company expenditures circulate within the local economy can lead the direct impact to be amplified or "multiplied."

In a relatively rural area such as Valle Vidal and Colfax and Las Animas Counties, however, the multiplier impacts are likely to be quite small for several reasons. First the number of jobs associated with the production phase of a gas field is relatively low. Second, there is no local processing of the gas. It is fed into a pipeline largely as it comes out of the ground and exported. Third there is no established gas industry service center within the local economy. As a result, most gas company expenditures on materials and equipment will flow out of the local economy. Fourth, many of the jobs associated with gas drilling, production, and collection require specialized workers who are likely to temporarily locate within the local economy. Much of the income they earn will also flow quickly out of the local economy to their home bases. Gas development in rural areas has very small multiplier impacts. In Otero Mesa, a very rural area, the IMPLAN multiplier was estimated by the BLM to be 1.28. In La Plata County, Colorado, where the Durango-Farmington trade centers could capture more of the expenditures, the estimated multiplier was 1.45. In the rural Powder River Basin in Montana the multiplier was estimated at 1.35.⁹ In Colfax and Las Animas Counties, the multiplier is likely to be closer to that found in Otero County, quite small.

If an employment multiplier of 1.3 is used, in addition to the average of 94 direct jobs associated with gas development in Valle Vidal, another 28 jobs would be

⁹ Coalbed Methane Development: Powder River Basin of Montana—Economic and Social Impacts of Proposed Development, Anderson ZurMuehlen & Co., June 1, 2001. Draft RMP/AEIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties, pp. 4-55 to 4-61. La Plata County Impact Report, Final, October 2002.