Community Effects of Development

Farm managers are likely to see the effects of oil and gas (and other mineral) development beyond their direct involvement in leasing arrangements or through the effects of the exploration and development work, but the degree of impact will depend on the nature of the mineral activity. In many areas of the US for instance, oil and gas development is disbursed widely enough that the economic activity generated is a complement to agricultural business. For instance, land owning farmers and ranchers often receive significant cash from signing bonuses as well as royalty payments from production, but they experience minimal disturbance by the development.

Some areas experience quite intense mineral development. For instance, some mineral plays are in small geographic areas, so the disruption of normal life and farm operations is more significant and permanent. Notable areas in the US include the Bakken formation (in the Williston Basin, underlying parts of Montana, North Dakota, and Saskatchewan) and the Jonah Field (in the Green River Basin in Wyoming).

In these locations, a true boom town situation exists in which all aspects of life are affected by mineral development. Effects may include the following.

- **Increased labor costs and reduced labor availability**. An increase in demand for workers in mineral development as well as supporting industries like construction will attract workers away from other, lower-paying jobs. Impacts will include labor turnover and labor shortages leading to declines in productivity. It is likely that mineral development will drive up the cost of all labor. As a side note, job satisfaction of those employed may be high, but they may be dissatisfied with their new community. (Gilmore & Duff).
- **Increased costs of production**. Mineral development will require the development of supporting infrastructure. Prices for all types of resources are likely to be affected, from the price of land to the price of gravel, as well as materials that will have to be shipped in from further away. So employers in a development area will have to deal with numerous supply frustrations. Agriculturalists will face these same supply issues as well as increased prices for land.

- **Lower quality of life.** Growth in mineral development may strain the local service sector's ability to provide housing, health services, schooling, retailing and urban services. Adequate housing may be unavailable (or available at high rates), health services (both physical and mental health) may be inadequate, schools may be overcrowded and unable to serve the needs of the students enrolled, and local businesses may not be able meet the consumer and recreation needs of a growing population. Other problems may include the cost of living rising faster than the national rate and increased crime (burglary and larceny, but perhaps also drugs and prostitution). (Gilmore & Duff).
- **Strains on local government**. Municipal services such as police and fire protection may be at risk. The high costs of expanding water, sewer, and transportation may be beyond the ability of the local government to keep up. In addition, government operations may be affected by reduced manpower. (Gilmore & Duff).
- **Changed wildlife habitat.** Impacts of mineral development will include the direct loss (i.e., surface disturbance) of habitat to well pad, access road, and pipeline construction. Additional indirect habitat losses may occur if increased human activity (*i.e*., traffic, noise) associated with infrastructure cause animals such as deer to be displaced or alter their habitat use patterns.
- **Air quality degradation**. In some locations, impacts on air quality may be observed. Drilling of new wells, routine maintenance, and gas-field equipment release substances that contribute to ozone pollution, including volatile organic compounds and nitrogen oxides. In new wells unwanted gases are burned using open gas flares.

In some situations a boom town is able to transform itself into a sustainable community. But the risk of a dramatic decline in population after the boom is over is always a possibility, leaving creating further undesirable circumstances.

Conclusion

Oil and gas development is now using techniques that make exploration and development of resources more economical. This mineral exploration and development can dramatically affect the land and the future use of it as well as the financial condition of the mineral owner and surface user. Once a mineral owner is approached about leasing

minerals, important points to address in the negotiation of the lease are the terms of royalty rates and signing bonus, and issues of importance such as rents, compensation for damages, disruption of activities on the surface, and reclamation of exploration and development sites.

Once the core elements of the deal are set, it is in a landowner's best interest to make sure that the rights and responsibilities of the parties entering into the agreement are clearly stated and have specific instructions to follow if problems arise. Think through all the possible situations that could be encountered and address issues of importance in the lease and the addendums.

Mineral development can lead to changes in the operation of a farm or ranch during the development process. Further changes may be noted as mineral development expands in the area.

References

Gilmore, J. & Duff, M. (1975) *Boom Town Growth Management: A Case Study of Rock Springs-Green River, Wyoming*. Westview Press. Pp 10 to 15.