

## ***Well Potential***

The exploration and production of natural gas is a risky business. Despite a wealth of experience and the use of modern exploration technology, we cannot guarantee success. Consequently, some newly drilled wells do not go into production. Some turn out to be “dusters” or dry holes, which must be plugged and abandoned. Others are marginal wells that may be temporarily suspended until some new event or factor is introduced that changes the analysis.

Even with the wells that are good enough to equip for production, there is still uncertainty. There are only two predictions that can be confidently made about a natural gas well; the production volume will decrease over time, and the well’s monthly volume eventually will fall below an economic level to produce.

## ***Life Expectancy of a Well***

Each well also has its own production personality. Some wells flow steadily, but others produce unpredictably as they stop and start for various reasons.

The output of all wells decreases over time as the reservoir is depleted. Hydrocarbon fossil fuels do not regenerate, so there is no comeback potential.

It is still too early to predict the average life expectancy of a Trenton Black River well in our area. We do believe that more than half of the well’s available gas is produced in the first five to seven years. Some wells have been known to decline quickly without warning and others may slowly decrease over many years.

## ***Abandoning a Well***

When a well is determined to be too poor to produce economically, it may be temporarily suspended or permanently abandoned.

The New York State Department of Environmental Conservation (NYSDEC) has established specific procedures for abandoning a well. The well must be plugged at specified levels and the top fifty feet filled with concrete. NYSDEC requires that enough money be bonded to finish plugging each well before a drilling permit is issued to start the well.

### **NATURAL GAS IS A FOSSIL FUEL**



### **ABANDONED AND RECLAIMED GANUNG #1 WELL SITE NEAR RIG DRILLING GANUNG #2 WELL IN TOWN OF DIX**



## ***Temporary Suspension***

At times, a new well's test results are inconclusive. When this occurs, the well may be temporarily suspended or put on hold, hoping that new information or a change in economic factors will make a difference. Such a well by itself may not have enough gas reserves to justify the construction of well production equipment and a gathering system.

Several possible events may introduce new determining factors. A gathering line may be built past this site in the future to reach another more productive well. It might then prove economic to tie in the well at a reduced cost. Alternatively, our engineering staff may develop a technological solution to redrill, rework or stimulate the well. The selling price of natural gas may also rise, changing the economics. Each new factor is weighed in turn to reassess the well's future.

NYSDEC requires a report of all temporarily abandoned or suspended wells and regulates time limits and renewals of this status.

## ***Temporary Shut-In***

Sometimes in the life of a well, short periods of inactivity will help to build pressure that will push the gas up past water accumulation in the well. The well must be "shut-in" or turned off for these periods of time. A shut-in may also be necessary for other maintenance or construction work on the well site or the gathering system. Generally, these shut-ins last for a few hours, or days at most.

Fortuna's operations staff regularly visit all shut-in wells to check on their condition and status.

## ***Site Reclamation***

Fortuna Energy plans for the eventual restoration of all facility locations even *before* initial construction begins. Topsoil is scraped off the surface and set aside. Design and operational engineering plans are put in place for waste management, environmental monitoring, and prevention of problems while the facility is in operation.

Once a site is determined to have no further economic potential, the abandonment and clean-up process is initiated. This process, called reclamation, works to restore the land to its previous or other agreed upon use. Fortuna strives to remove any evidence of our operations by restoring the topsoil, reseeding the land and preparing the location for a subsequent use. State regulations have specific standards; Fortuna is committed to meeting these standards.



***TEMPORARY SUSPENSION OF GANUNG #2 WELL  
IN TOWN OF DIX***

*For further information, please access our website at  
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