

1 STATE OF NEW MEXICO
2 BEFORE THE ENVIRONMENTAL IMPROVEMENT BOARD

3
4 IN THE MATTER OF THE PROPOSED OF REGULATIONS

5 20.2.350 NMAC – Greenhouse Gas Cap & Trade Provisions EIB 11-15(R)

6 20.2.300 NMAC - Reporting of Greenhouse Gas Emissions

7 20.2.301 NMAC - GHG Emissions - Verification Requirements EIB 11-17(R)

8 STATEMENT OF ROGER ARMSTRONG

9 ***I. BACKGROUND:***

10 My name is Roger Armstrong. I have worked in the gas industry since 1985
11 beginning as a welder fabricating gas compression equipment then moving to the
12 maintenance of gas compressors and then to being a well operator. The last 20
13 years have been here at Twin Stars maintaining and leasing equipment, half of that
14 as the General Manager and minority owner.

15 Twin Stars is a small to mid-sized privately held Gas Compression leasing and
16 maintenance company based in Bloomfield, New Mexico for the last 20 years.

17 Our primary focus is in on smaller well head compressor needs for roughly 24
18 operators in the San Juan Basin although we have recently expanded into the
19 Permian Basin in SE NM providing gas compression, vapor recovery, and
20 equipment maintenance to the two big operators in Artesia. We have grown our
21 company from a single employee to thirty-two by maintaining, leasing, designing,
22 and contracting the construction of well head compression equipment.

1 Our company currently owns and leases 450 well head compressors and
2 maintains an additional 450 pieces of well head equipment such as customer
3 owned compressors, pumping units, and transfer pumps.

4 **A. The Independent Petroleum Association of New Mexico**

5 The Independent Petroleum Association of New Mexico (IPANM) represents
6 over 300 member companies and thousands of employees in New Mexico.
7 Founded in 1978, IPANM works to promote legislation, regulations and policies
8 that benefit industry and the citizens of New Mexico. On average, companies
9 represented by IPANM employ fewer than 50 persons and are considered ‘small
10 businesses’ under the requirements of the Small Business Regulatory Relief Act.

11 **II. SUMMARY**

12 New Mexico is highly dependent on the revenue sources from the oil and gas
13 industry. However, the basins are now considered mature basins requiring
14 additional compression to maintain production levels. Transportation, gathering
15 and processing natural gas to ensure pipeline quality also requires a significant
16 amount of compression. Traditional compression is obtained using natural gas
17 fired engines which have been measured to produce fewer GHG emissions than
18 fueling electric compression engines

1 The current Rules 350, 300 and 301 create administrative and regulatory
2 burdens for small independent operators in New Mexico. Of prime concern is the
3 fast approaching reporting requirement under Rule 300. Second, the reporting
4 scheme created in Rule 300 varies significantly from the recently promulgated
5 Environmental Protection Agency regulations for GHG reporting. The very
6 complex EPA rule is vastly different from the NMED reporting rule which creates
7 duplicative reporting burdens on operators. Although the current reporting
8 thresholds are such that most independent operators would most likely not own a
9 single source that would need to report, mid-stream companies and utilities would
10 face additional costs because of these regulations. Invariably, those costs for
11 transportation, gathering and processing or for increased use of electricity will be
12 borne by the smaller independent operators of New Mexico

13 **A. Natural gas in New Mexico**

14 In 2009, New Mexico had more than 53,142 active oil and natural gas wells in
15 its basins in the northwestern and southeastern sections of the state. According to
16 the Energy Information Administration, New Mexico's 2009 oil production is
17 approximately 3.3% of the US total production. New Mexico ranks tenth in the
18 nation in total energy production for 2009, topping out at 2,412 trillion Btu. About

1 65,010 thousand barrels of crude oil and about 1,383,004 million cu feet of natural
2 gas were marketed from New Mexico in 2010.

3 The Permian Basin, most of which lies in West Texas, is one of the most
4 productive areas in oil production in the United States. Similarly, New Mexico is
5 one of the top natural gas producing States in the Nation, with our production
6 accounting for close to one-tenth of the US total. Although production of natural
7 gas declined in the 1980s, the rapid development of coal-bed methane in the 1990s
8 revived the industry. Today, coalbed methane which is considered
9 ‘unconventional’ development accounts for about one third of New Mexico’s
10 natural gas production. More than two-thirds of New Mexico’s households use
11 natural gas as their primary energy source for home heating, but the State’s overall
12 natural gas consumption is low. Less than one-tenth of the natural gas produced in
13 New Mexico is used in the State. New Mexico delivers natural gas via pipeline to
14 consumption markets in Arizona and to market centers in West Texas that supply
15 the Midwest. New Mexico’s Blanco Hub, located in the San Juan basin, is a major
16 gathering point for Rocky Mountain natural gas supplies heading to West Coast
17 markets.

1 *1. The Permian Basin*

2 The Permian Basin is an area approximately 250 miles wide and 300 miles
3 long that New Mexico shares with Texas. In 1924, New Mexico hit the petroleum
4 jackpot in the Dayton-Artesia field, about eight miles south of Artesia. Not long
5 after its discovery, the Permian Basin quickly became, and still remains, one of the
6 major oil-producing areas in the world. New Mexico's Permian Basin contains
7 three of the 100 largest oil fields in the United States. According to New Mexico
8 Oil Conservation Division statistics, the Permian produces oil and natural gas from
9 approximately 53,500 wells. The most recent U.S. Geological Survey estimated
10 that an additional 41 trillion cubic feet (Tcf) of natural gas and 1.3 billion barrels
11 of oil lie undiscovered in the Permian Basin area. According to a recent study
12 completed by the Petroleum Recovery Research Center of New Mexico Tech, the
13 untapped oil and gas resources in the SE area commonly known for Potash
14 development was estimated to be about 1.4 billion BOE (Barrels Oil Equivalent),
15 or 468 million barrels of oil and 5 TCF of gas. Secondary recovery could add an
16 additional 318 million barrels of oil. The estimated economic value of these
17 resources was between \$56 billion to \$118 billion. While the majority of this area,
18 also known as the R-111p area, is administered by the Bureau of Land
19 Management, the remainder, or 19.4% are New Mexico State Trust Lands. The

1 royalties and taxes for a fully developed R-111p area are estimated to be about
2 \$11.4 to \$24 billion in revenues for Federal, State and County governments.

3 2. The San Juan Basin

4 Natural gas was discovered in two wells drilled in Southeast New Mexico in
5 1908 and 1909, but it wasn't until 1921 that New Mexico's largest store of the
6 clean-burning fuel was discovered in San Juan County, in the far Northwest corner
7 of New Mexico. As natural gas gained importance as an energy commodity
8 through the mid-20th century, the San Juan Basin, which straddles the New Mexico-
9 Colorado border, became increasingly important to the nation's economy. The San
10 Juan Basin has the largest field of proven natural gas reserves in the Nation.
11 According to the EIA, the San Juan Basin is also the leading coalbed methane-
12 producing region in the United States. New Mexico rivals Colorado and Wyoming
13 as the Nation's leading coalbed methane producer and is responsible for around
14 one-fourth of all coalbed methane produced in the United States. There are
15 currently 20,000 producing wells in the San Juan Basin extracting mostly natural
16 gas. The newest U.S. Geological Survey projections for the San Juan Basin
17 calculate possible undiscovered resources at more than 50 Tcf of natural gas, 148
18 million barrels of natural gas liquids and between 7 and 35 million barrels of oil.

1 3. The Raton Basin and Bravo Dome

2 The Raton Basin, which encompasses 2,200 square miles in Colfax and Taos
3 counties and southeastern Colorado, is another small, but important, contributor of
4 coal bed methane. The Bravo Dome, located in northeastern New Mexico in Union
5 and Harding Counties, is the number one producer of naturally occurring carbon
6 dioxide, used for enhanced oil recovery.

7 **B. The Economic Benefits of Oil and Gas production in NM**

8 According to figures released by the New Mexico Taxation and Revenue
9 Department, in 2008, over \$2.4 billion was directly contributed by the oil and gas
10 industry to the New Mexico state coffers. In FY 2010, the price sensitivity
11 analysis showed that for every \$.10 drop in the price of natural gas, there is a \$9.2
12 million impact on the State's General Fund and a \$6 million dollar impact on the
13 Land Grant Permanent Fund. For every dollar the price of oil decreases, there is a
14 \$3.9 million impact on the General Fund and a \$4.8 million impact on the state
15 Permanent Funds.

16 The New Mexico Land Grant Permanent Fund (LGPF) has been in existence
17 since 1898. It came about when the U.S. government transferred 13.4 million
18 acres of federal minerals and 9 million surface acres to the State of New Mexico.
19 The transferred land was put into a State Trust, managed by the State Land

1 Commissioner who is tasked with leasing the land and the minerals and collecting
2 royalties from the extraction of the minerals and grazing of the land. The
3 Commissioner may also sell lands or swap with other government entities. In
4 every instance, however, he must seek to profit from the ownership of the land.
5 The proceeds from those leases are transferred into the LGPF. The interest
6 earnings and royalties from oil, natural gas, and minerals and the proceeds from
7 lease sales are held in trust for the benefit of 21 public entities including public
8 schools, universities, hospitals, the capitol buildings, water reservoirs, the state
9 penitentiary, public roads, buildings, state parks, and state government. New
10 Mexico earns interest on the fund's principal and distributes a portion of that
11 interest every year to the beneficiaries throughout the state. The State Land Office
12 reports that as of June 30, 2009, the market value of the LGPF was approximately
13 \$8.0 billion. Approximately \$481 million flowed into the fund in fiscal year 2009,
14 more than 95 percent of which was generated by oil and natural gas development.
15 The total distribution to the beneficiaries in 2009 was \$521 million.

16 Established in 1973 by the New Mexico Legislature, the Severance Tax
17 Permanent Fund is an endowment Trust that receives residual revenues from the
18 Oil and Gas Severance Tax. The STPF moneys allow for construction of bricks and
19 mortar projects such as public schools, municipal, state and local buildings and
20 additional bonding capacity. More than 99 percent of the money going into the

1 STPF comes from oil and gas exploration and production. In FY2010, the STPF
2 distributed \$322 million to the General Fund.

3 **B. Compression is needed for oil and gas operations in NM**

4 Because natural gas is a finite commodity, there is declining production from
5 the moment of the inception of a well. As production rates over the life of a well
6 decline, additional compression is needed to maintain economic levels.
7 Compression is also needed to move gas out of the field through gathering systems
8 to processing plants, it is needed to move the gas through the plants themselves and
9 to deliver pipeline quality natural gas to end users.

10 *1. At the well-head compression*

11 According to the US Department of Energy, a ‘stripper’ or ‘marginal’ well is
12 one that produces 60 thousand cu ft of gas per day. Oil wells are generally
13 classified as stripper wells when they produced ten barrels per day or less for any
14 twelve month period. In 2008, there were over 340,000 stripper oil wells in the
15 US which produced 260 million barrels of oil. Similarly, the 300,000 stripper gas
16 wells produced 2 trillion cubic feet of gas in 2008. The DOE Stripper Well
17 Revitalization program notes that many of these stripper wells are marginally
18 economic and at risk of being plugged, sometimes leaving as much as two thirds of
19 the original oil in the ground. Once a well is plugged, it is unlikely any remaining

1 fossil fuel will ever be recovered. Low commodity pricing, high cost of water
2 disposal, increased regulatory costs or increased operations costs passed from
3 either the midstream, service or refining sectors could render a well noneconomic
4 leading an operator to make the decision to plug and abandon the well.

5 In New Mexico, some small producers have specialized in retrofitting marginal
6 wells which are in a declining production curve or on the fringes of a field. This
7 effort keeps a valuable energy source active but is extremely sensitive to
8 commodity pricing and overhead burden and must be operated in a very lean
9 fashion. Marginal wells generally also produce larger amounts of water which
10 must be hauled to an Oil Conservation Division approved facility pursuant to
11 19.15.17 NMAC, the “Pit Rule”.

12 2. Electric compression is not the answer

13 In addition, new wells drilled on the fringes of a field or in a wild cat area do
14 not have access to electricity to operate compression on location. The electric grid
15 is simply not available on a the majority of the site in the San Juan Basin. In many
16 cases the cost of electricity as a small well head site makes the use of electric
17 driven compression uneconomical. One of our clients had us fabricate two electric
18 driven compressors for two sites in the city of Farmington only to change them out
19 after only a year and a half to engine driven units due to the price they were having

1 to pay for electric power. Now Twin Stars has two pieces of equipment sitting
2 idle.

3 **II. SMALL OPERATOR CONCERNS WITH RULES 300, 301, 350**

4 Rule 300 requires reporting of GHG emissions to the NMED by April 2012.
5 Operators with a single source of emissions greater than 10,000 mtCO₂e must
6 report their annual emissions levels to the NMED. Operators of single sources
7 greater than 25,000mtCO₂e must report numbers that have been verified by a
8 qualified third party. The larger emitters must also agree to participate in the full
9 cap and trade program of Rule 350. Effectively this means that operators must
10 already be monitoring and collecting information for the April 2012 report in order
11 to determine their annual emissions rate. As noted above, emissions of 10,000
12 mtCO₂e from a single source owned by an independent operator is unlikely. But
13 there is a significant concern that the arbitrary nature of the reporting number could
14 change, particularly in light of the significant differences with the EPA required
15 reporting. In addition, the small operators who find themselves in need of
16 additional compression will have additional regulatory burdens of determining
17 their threshold requirements. Finally, the mid stream operations which do require
18 quite a bit of compression, will have additional reporting and GHG trading costs
19 that will get passed down to producers.

1 **A. NMED Rule 300 conflicts with Federal Regulations**

2 *1. The NMED Program is Burdensome*

3 Under the requirements of the current Rule 300 and 301 NMAC, operators
4 with emissions sources in New Mexico must file a GHG report in April, 2012. This
5 report must include all facilities that emitted more than 10,000 metric tons of
6 carbon dioxide equivalent (CO₂e) from stationary combustion and acid gas
7 removal activities during 2011. The NMED regulation defines “facility” as it is
8 traditionally understood: for producers, an individual facility would be considered
9 a single wellpad or individual booster station. The NMED GHG report will
10 require producers to calculate emissions using EPA’s Subpart C methodologies for
11 stationary combustion sources, and use the NMED methodology outlined in the
12 NMED regulation for calculating emissions from any acid gas removal sources
13 located at the facility. A booster station with as little as 3,000 (approximate value
14 based on 7,000 btu/hp-hr and Subpart C calculation methodologies found in 40
15 CFR 98) horsepower of reciprocating compression (less if the booster station is
16 equipped with an amine unit) would trigger this threshold for NMED reporting.

17 In September 2012, producers must then file GHG reports to the EPA for the
18 same activities but calculated and aggregated in different ways. EPA's federal
19 reporting program, Subpart W, requires producers to “aggregate” all activities from
20 more than 17 emission source types within a producing hydrocarbon basin. In New

1 Mexico, therefore, all emissions from all operations owned by one legal entity in
2 the San Juan Basin would have to be ‘aggregated’ or combined for the EPA
3 reporting. While producers must aggregate all wellpads within a basin, booster
4 stations (as outlined above) are exempt from reporting under a federal program
5 altogether. In effect, producers will be reporting wellpad and compressor station
6 emissions by basin to the EPA, while reporting booster station and other facility-
7 wide wellpad emissions to the NMED using different methodologies. The EPA
8 regulation requires entirely different methodologies than the NMED regulation to
9 calculate emissions from field gas stationary combustion and acid gas removal vent
10 stacks. Therefore, absolutely none of the effort expended to calculate emissions for
11 the New Mexico GHG report can be used in calculating emissions required by the
12 subsequent federal Subpart W report.

13

14 2. The NMED Program is Duplicative

15 In addition to being burdensome, simply put: the EPA program captures
16 more oil and gas sources than the New Mexico program. Under Subpart W,
17 producers must include emissions from seventeen source types. The source types
18 addressed in NMED's program are also addressed in the federal GHG reporting
19 program.

1 Under the federal program, independent producers are pulled into reporting
2 requirements because of the wide net of basin-wide aggregation. Although the
3 EPA's threshold is higher than NMED's, the federal program covers more
4 activities and more sources than the NMED program. According to the EPA's
5 estimates EPA's Subpart W assessment tool,
6 <http://www.epa.gov/climatechange/emissions/GHG-calculator/step2a.html> ,
7 producers completing as few as seven (7) gas wells completions with hydraulic
8 fracturing in a basin will trigger the reporting threshold from that single activity
9 alone. As little as a basin-wide total of 7,500(approximate value based on 7,000
10 btu/hp-hr and Subpart C calculation methodologies found in 40 CFR 98)
11 horsepower of compression will trigger the federal reporting threshold. Of course,
12 once vented methane is taken into consideration (which it is under the federal rule,
13 but not for the NMED regulation), it is reasonable to expect that even small
14 operators could be pulled into the federal reporting program. It simply makes no
15 sense to have an additional layer of reporting required under the NMED that pulls
16 in some sources, leaves others out, and offers no overlap between calculation
17 methodologies.

18 In addition, the EPA has clearly dedicated significant resources to develop a
19 federal GHG reporting program for oil and natural gas operators. The EPA is
20 taking steps to further regulate the oil and gas industry with the recently proposed

1 NSPS OOOO and MACT HH; the current EPA is committed to regulating air
2 emissions from the oil and gas industry. As the NMED is moving forward with
3 their own GHG reporting program, it is unclear whether the NMED is able to
4 dedicate significant resources to develop a duplicative oil and gas GHG reporting
5 program? It seems that the NMED's Air Quality Bureau resources would be best
6 spent in issuing permits rather than reviewing and analyzing duplicative reports.

7 3. The NMED Program is Confusing

8 Any time there are two rules regulating the same activities in different ways,
9 it leads to confusion. The NMED regulation and the federal program have
10 completely different definitions of "facility" as outlined above. Furthermore, there
11 are exclusions in the federal program of boosting stations which does not align
12 with the NMED program; however, the federal program includes more sources
13 because of the basin-wide aggregation of sites.

14 It is important for the NMED not to add to the confusion of the complex and
15 ever changing world of regulatory compliance, particularly that of GHG reporting
16 for the oil and gas industry. Further adding to the problem is that as Subpart W
17 continues to change, the NMED regulation remains "frozen" in time. This will
18 keep operators frozen in outdated methodologies, definitions, and requirements.

1 4. The NMED Program Hurts New Mexico Businesses

2 The San Juan Basin is a declining field – as such, as noted above, it takes
3 significant amounts of compression to extract natural gas. As producers are facing
4 new GHG regulations in New Mexico that they don't have to face elsewhere, our
5 company has seen first-hand how complex New Mexico specific regulatory issues
6 drives production into neighboring states.

7 Another concern that operators in a State with its own GHG program have to
8 face is the cost of controls to continue to reduce emissions into perpetuity. Once
9 the 'low-hanging' fruit in leak detection, minor offsets and accounting mechanisms
10 are taken, the cost of additional emissions reductions will be prohibitive for all
11 operators and especially small independents with a few wells in New Mexico.
12 These concerns would clearly impact investment decisions regarding operations in
13 the state versus other states without GHG emissions programs.

14 5. The Federal Regulation is Complex

15 The oil and gas industry is scrambling to comply with the complex and ever
16 changing federal GHG reporting rule. As of today, the federal regulation remains
17 in flux (on September 9, the EPA published a host of changes to the rule leaving
18 oil and gas operators in limbo until the changes are ultimately finalized. The most
19 recently proposed rule can be found here: <http://www.gpo.gov/fdsys/pkg/FR-2011->

1 [09-09/pdf/2011-21725.pdf](#)). The industry is unlikely to have a finalized rule much
2 before 2012, despite the fact that required monitoring for the federal program
3 commenced on January 1, 2011. Furthermore, the industry is struggling to
4 quantify GHG emissions from activities never before measured using unproven
5 methods and approaches. Specifically, the federal program requires reporting of
6 emissions from stationary combustion and acid gas removal venting (as the NMED
7 program does), but also requires oil and gas operators to include emissions from
8 dehydrators, well venting during liquids unloading, well venting during
9 completions and workovers, compressor venting, pneumatic device venting,
10 enhanced oil recovery activities – the list goes on.

11 In conclusion, the NMED program is burdensome, duplicative, confusing and
12 ultimately hurts New Mexico business while not covering the sources and activities
13 covered under the federal program. Independent producers are struggling to
14 comply with a slew of new air regulations that are introduced at break-neck speed.
15 Just like the NMED, independent producers are spread thin with personnel
16 resources and often have only one person on staff to address environmental
17 compliance. When there are not in-house resources available, producers often must
18 rely on outside consultants to assist with compliance: consultants are not
19 inexpensive and producers cannot afford to spend precious resources complying
20 with a reporting rule that simply makes no sense given the federal atmosphere with

1 regards to GHG reporting. Oil and gas operators already have a complex terrain of
2 GHG reporting to navigate; the NMED program is simply unnecessary with a
3 federal program in place capturing oil and gas activities.

4