

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION**

**IN THE MATTER OF THE APPLICATION OF THE NEW MEXICO OIL
CONSERVATION DIVISION FOR REPEAL OF EXISTING RULE 50
CONCERNING PITS AND BELOW GRADE TANKS AND ADOPTION OF A
NEW RULE GOVENING PITS AND BELOW GRADE TANKS, CLOSED LOOP
SYSTEMS AND OTHER ALTERNATIVE METHODS TO THE FOREGOING,
AND AMENDING OTHER RULES TO CONFORMING CHANGES
STATEWIDE.**

CASE NO. 14015

**The Oil & Gas Accountability Project's Closing Argument and Proposed Changes
to Proposed Ruled 50**

The Oil & Gas Accountability Project ("OGAP") hereby submits its closing statement and proposed changes to the proposed Rule 50 ("Pit Rule") in the above-captioned proceeding.

I. Proposed Changes

OGAP proposes that the following provisions of the proposed Pit Rule be stricken in their entirety:

19.15.17.9.C.(1);

19.15.17.10.C;

19.15.17.11.J;

19.15.17.13.B(2);

19.15.17.13.F; and

19.15.17.13.G.(2).

II. Rationale for Changes and Closing Arguments

Based on the evidence and testimony presented during the hearing in the above matter, OGAP supports the proposed Pit Rule as written, with the exceptions noted above. OGAP is more convinced than ever that on-site waste burial should not be permitted in any circumstance. OGAP bases its position on two primary factors. First, the evidence presented shows that pit contents constitute a public health and environmental threat. Second, the evidence overwhelmingly shows that the economic burdens to industry will be minimal.

A. Pit Contents Present a Public Health and Environmental Threat

The New Mexico Oil and Gas Act (“Act”) authorizes the Oil Conservation Commission (“Commission”) to make rules, regulations and orders “to regulate the disposition of nondomestic wastes resulting from the exploration, development, production or storage of crude oil or natural gas to protect public health and the environment.” 1978 NMSA, § 70-2-12(B)(21). Although the New Mexico Industry Committee (“Industry Committee”) witness, Dr. Ben Thomas testified that a risk assessment regime was implied by this language, the better interpretation would be that a precautionary principle framework is implied by that provision. Whatever the Act’s implied mandate, the evidence presented in this proceeding has convincingly shown that pit contents present a threat to public health and the environment.

1. Pit Contents are Toxic

Both OGAP and the Oil Conservation Division (“Division”) presented testimony and evidence that the contents of drilling, reserve, and disposal pits are toxic.

a. Dr. Theo Colborn

OGAP's witness, Dr. Theo Colborn, who was qualified as an expert in environmental health, presented an analysis of what pollutants were found in pits based on oil and gas industry data and the sampling done by the Industry Committee and the Division. Dr. Colborn then reviewed toxicological and epidemiological literature to determine which, if any, of the chemicals had health effects and what those effects were. Based on that analysis, Dr. Colborn concluded that, overall, 80% of the chemicals typically found in pits have reported adverse health effects. See, OGAP Exhibit ("Ex.") 2 at 3. Based on her analysis of the pit sampling data from the Industry Committee and the Division, Dr. Colborn found that 94% of the pit contents in New Mexico had adverse health effects. OGAP Ex. 2 at 7, Chart 1. Importantly, of the 12% of toxins found in pits in New Mexico that are either water soluble or miscible, 100% are carcinogens - which even Industry Committee witness Dr. Thomas acknowledged do not have any safe exposure levels as specified by the U.S. Environmental Protection Agency - 100% are immunotoxicants, and 67% are endocrine disruptors. Id. at 10, Fig. 4. In her testimony, Dr. Colborn explained that endocrine disruptors interfere with the timing and production of hormones and can therefore damage growth and development in humans and non-human animals alike. Dr. Colborn further testified that the effects of endocrine disruptors may not be seen immediately, but may manifest in later generations. Finally, Dr. Colborn noted that of the thirteen pollutants found in New Mexico pits that exceeded state standards, 84.6% were listed on the Comprehensive Environmental Response, Compensation, and Liability Act list of hazardous substances. Id. at 14, Fig. 11.

b. Glenn von Gonten

Dr. Colborn's testimony was largely corroborated by the Division's witness, Mr. Glenn von Gonten, a Division hydrologist. Mr. von Gonten presented the results of the Division's pit sampling in northwest and southeast New Mexico. Mr. von Gonten explained that the Division took both sludge and liquid samples from a series of non-randomly chosen pits. Mr. von Gonten noted that the sampling process involved operator representatives and the results were shared with the oil and gas industry. Mr. von Gonten summarized the results, and demonstrated that at least seventy-seven pollutants were detected in at least one sludge or liquid sample. Division Ex. 15, p. 30. Additionally, five of the Division's samples failed the Toxicity Characteristic Leaching Procedure ("TCLP") test¹ – a test used to characterize waste as hazardous or non-hazardous according to the Resource Conservation and Recovery Act ("RCRA")². Division Ex. 15, p. 31. But for the RCRA exemption of oil and gas wastes, the constituents of the pits would be considered "hazardous". Id. Additionally, Mr. von Gonten testified that seventeen pollutants, including benzene, toluene, naphthalene, lead, mercury, and arsenic, in pits were found in concentrations that exceeded the New Mexico Environment Department's ("NMED") groundwater standards. Ex. 15, pp. 36-37.

c. Dr. Ben Thomas

While the Industry Committee and the Independent Petroleum Association of New Mexico ("Independent Producers") (collectively, "the Industry") presented several

¹ The Industry Committee inappropriately used the TCLP method to determine contaminant mobility and bioavailability in its pit sampling. Division Ex. 15, p. 32.

² Oil and gas wastes are not classified as "hazardous" under RCRA because of an exemption. 42 U.S.C. §§ 6921(b)(2)(A), (C). However, this does not mean that oil and gas wastes cannot and do not cause adverse health effects.

witnesses, for example, Mr. John Byrom and Mr. Tom Mullins, who testified that pit contents do not present any public health or environmental danger, only Industry Committee witness Dr. Ben Thomas was qualified to make any conclusions about the health effects of pit contents. Any other testimony presented by Industry on the health effects of pit contents should be disregarded.

Dr. Thomas, who was qualified as an expert in toxicology and risk assessment, testified that the contents of the pits sampled by the Industry Committee were not of concern, with the exception of sodium. Indeed, on cross-examination, Dr. Thomas testified that children's playgrounds could be constructed with pit contents. However, Dr. Thomas' conclusions are flawed in several material respects.

i. Dr. Thomas' Conclusion that Pit Contaminants are Generally Immobile and Dilute is Not Credible

First, in evaluating the pollutants from the industry sampling that have the potential to contaminate groundwater, Dr. Thomas assumed a dilution/attenuation factor ("DAF") of greater than 100, even though the New Mexico Environment Department uses DAFs of 1 and 20 in its groundwater soil screening levels ("SSLs") when evaluating whether a pollutant may pose a risk to groundwater. Thus, Dr. Thomas assumed that pit pollutants would be significantly less concentrated as they move toward groundwater than would be assumed under NMED protocol.

Moreover, Dr. Thomas admitted that he did not compare the levels of pollutants found in the pits to the NMED's groundwater contamination SSLs. NMED groundwater SSLs were specifically formulated to address the potential leaching of contaminants from the vadose zone to groundwater. See, Technical Background Document for Development

of Soil Screening Levels (Rev. 4.0) at 27 (2006).³ Therefore, when comparing the pit contents as sampled by the Industry Committee to NMED residential SSLs and concluding that few SSLs were exceeded, Dr. Thomas engaged in selective and incomplete comparisons.

Finally, Dr. Thomas conceded that he had no data to support his conclusions that contaminants would not migrate and would dilute and attenuate. Thus, Dr. Thomas' testimony about the inability of pit contaminants to migrate to possible receptors, such as humans, in concentrations that are dangerous, fundamentally lacks credibility.

ii. The Sampling Process upon Which Dr. Thomas Bases His Conclusions is Flawed

Dr. Thomas' testimony also exposed some important flaws with the Industry Committee sampling methodology and contaminant analysis. First, the pit samples were not split with the Division or any other party to this proceeding. Nor were Division employees invited to participate in the sampling process.

Second, the exposure levels of the pit contaminants were determined by the TCLP method. Dr. Thomas conceded that in New Mexico the TCLP method is only used to characterize waste as hazardous or non-hazardous. Indeed, Commissioner Olson noted that in his own experience he has observed instances where samples analyzed by the TCLP method showed low levels of contaminants, but further investigation demonstrated that the contaminant actually exceeded NMED groundwater standards. It is therefore likely that the contaminant concentrations reported to Dr. Thomas by the Industry Committee, and upon which Dr. Thomas based his conclusions are lower than in reality.

³ Dr. Thomas referred to this document during his testimony.

iii. Dr. Thomas failed to Conduct a Thorough Analysis of Pit Contents and Their Health Effects

Dr. Thomas also failed to conduct a thorough analysis of the pit contents and their health effects. On cross-examination by Division attorney Mr. Brooks, Dr. Thomas conceded that he had not evaluated the Division pit sampling results showing groundwater standards exceedences for lead and mercury. Additionally, Dr. Thomas admitted that he failed to conduct any analysis for cumulative or synergistic effects of the pit contaminants.

iv. Dr. Thomas's Conclusions Regarding Air Pollution, Traffic Related Deaths and Injuries, and Economic Consequences are Baseless

Dr. Thomas concluded that if the proposed Pit Rule were implemented, there would be substantial increases in air pollution and traffic related deaths and injuries. However, the primary basis for his conclusions, Industry Committee Exhibit 10, is critically flawed and not credible. Industry Committee Exhibit 10, which is a report written by Daniel B. Stephens & Associates, Inc. entitled Effects of NMOCD Proposed Rule 53 [sic] Reserve Pits Removal (Oct. 24, 2007), purports to show, in relevant part, that the proposed Pit Rule will increase truck traffic and therefore also increase air pollution, highway maintenance, and traffic related injuries and fatalities. However, the witness who provided the foundation for Exhibit 10, Mr. Eric Pease, under cross-examination, conceded that 1) he merely compiled the report and was not involved in the calculation of the proposed rule's purported increased impacts, other than the section of the report that addresses landfill capacity, and 2) the actual numbers upon which the calculations in the report were based were provided by the Industry Committee. Mr. Pease was simply given a series of input values and had not seen the raw data upon which

those values were based. Therefore, Mr. Pease admitted that neither he, nor anyone else at Daniel B. Stephens & Associates, could comment on the accuracy, reasonableness, or ultimate sources for the data that were the foundation for the report he presented and which Dr. Thomas relied upon for his conclusions.⁴ Moreover, no adverse party to this proceeding was allowed to examine the data upon which Industry Committee Exhibit 10 is based or to cross-examine any witness about the data. Therefore, Dr. Thomas' testimony regarding the impacts of purported increased truck traffic due to the proposed Pit Rule is not credible and should be disregarded.

v. Dr. Thomas' Testimony Concerning the Risks of Multiple On-site Waste Burial vs. Burial at a Centralized Facility is Not Credible

Finally, Dr. Thomas concluded that the risk associated with multiple on-site pit closures was lower than the risk associated with placing pit wastes in a centralized, Division approved landfill. However, upon cross-examination, Dr. Thomas admitted that in his experience, he was unaware of any long-term groundwater monitoring, extensive hydrological or geological evaluation, or contingency plans at on-site closures.

In contrast, Mr. von Gonten testified that landfills have contingency plans, long-term groundwater monitoring, bonding requirements, secondary containment in the event the primary waste containment fails, and the ability to control any contaminant plume with pump and treat methods. Mr. von Gonten further testified that without groundwater monitoring, the Division would normally only be aware of groundwater contamination when a complaint is registered with the Division. In such an instance, the complaint could be from a citizen whose drinking water well has been contaminated by pit wastes

⁴ Dr. Thomas testified that his conclusions were based on his experience, but could not quantify his experience or give actual numbers, other than those presented in Exhibit 10, regarding increased air pollution, highway maintenance, and traffic injuries and fatalities.

and could have been ingesting the contaminants for years. Moreover, Dr. Thomas ignored testimony by Division witnesses Mr. von Gonten and Mr. Wayne Price that groundwater contamination from pits has already occurred in New Mexico – in excess of 300 documented cases. Dr. Thomas’ testimony regarding the risks of on-site waste burial compared to burial at a centralized facility is flawed and should be disregarded.

B. The Proposed Pit Rule’s Economic Burden on the Oil and Gas Industry is Minimal

A major complaint, if not the primary complaint, of Industry about the proposed Pit Rule is its alleged significant economic impacts. The testimony and evidence presented in the proceeding, however, demonstrate the economic impact will be minimal. The range of costs associated with digging and hauling waste or using a closed loop system would run between 3% and 10% of total drilling costs and would, in a worst case scenario, reduce an operator’s rate of return by about 5%. Given the large costs oil and gas wastes impose on public through health costs and environmental remediation costs, requiring the oil and gas industry to pay a small sum for properly managing its own waste is a reasonable policy choice.

1. Mary Ellen Denomy

OGAP’s witness, Ms. Mary Ellen Denomy, was qualified as an expert in Petroleum Accounting. Ms. Denomy concluded that in her experience representing working interests in oil and gas operations, royalty owners and county governments, the increased costs associated with digging and hauling pit wastes were minimal and that using closed loop systems could actually save an operator money.

Testimony by Ms. Denomy, the Division and Industry established well depths in the San Juan Basin as typically between 900 feet and 8000 feet and well depths in the

Permian Basin as deep as 14,000 feet. Ms. Denomy established that the deeper the well, the higher the cost of drilling and waste disposal.

Ms. Denomy began her cost analysis by assuming a typical well depth of 7200 feet. Ms. Denomy testified that this was a reasonable estimate given the range of well depths that exist. Based on a total depth of 7200 feet, Ms. Denomy calculated the total well cost as approximately \$1.5 million. Ms. Denomy calculated the costs for on-site pit closure as \$98,710.00, which includes all the costs associated with roads and pits drilling, water drilling, road and pit completion, water completion, and trucking. The costs of on-site burial costs represent 6.58% of the total drilling costs. Ms. Denomy arrived at her cost figures based on actual costs she has seen in her experience.

Using the same assumptions, but adding the cost of digging and hauling waste to a centralized landfill, Ms. Denomy calculated the cost of digging and hauling waste to an operator at \$140,710.00 or 9.38% of the total drilling costs.

Finally, Ms. Denomy calculated the costs associated with closed loop drilling systems, again using the same assumptions. However, in the case of closed loop systems, Ms. Denomy factored in savings associated with water re-use and drilling mud re-use. The total costs associated with a closed loop drilling system are \$53,730.00, or 3.58% of the total drilling costs.

Ms. Denomy also testified as to the typical income generated by a gas well over its lifetime. For this calculation, Ms. Denomy assumed that the well would produce 1 million mcf (one mcf is 1000 cubic feet of gas) over its lifetime of 25-30 years at an average price of \$5.00 per mcf. This amounts to a \$5 million gross income over the life of the well. After taking into account the lifetime drilling and operations costs, including

waste disposal, and tax withholdings, Ms. Denomy calculated that a typical gas well will yield a net income after taxes of \$2,222,960.00 or \$74,099.00 per year. In light of these numbers, the cost of compliance with the proposed Pit Rule is minimal.

2. Mr. Sam Small

The Independent Producers presented Mr. Sam Small to testify about the costs associated with the proposed Pit Rule. Mr. Small concluded that the costs to operators under the proposed rule would increase substantially. See, Independent Producers' Ex. 13 at 4-5. However, upon cross-examination, Mr. Small revealed that his calculations for the costs of the proposed rule were based on a waste volume that was **twice** the volume that could fit in a typical pit. Additionally, Mr. Small assumed the same amount of waste generated for pits when compared to closed loop systems, even though he conceded that less waste is generated by closed loop systems. Therefore, Mr. Small's cost calculations for dig and haul and closed loop systems are grossly exaggerated and are not credible.

Moreover, Mr. Small acknowledged that the cost of groundwater contamination remediation can cost hundreds of thousands to millions of dollars, not including the value of the destroyed groundwater resource. Mr. Small did not include these cost savings into his calculations.

3. Mr. Al Springer

Mr. Al Springer, a drilling engineer for Yates Petroleum, testified for the Independent Producers that in his experience, a closed loop system for a 12,500 foot well would cost \$249,000. While this cost estimate is consistent with the cost range for closed loop systems presented in OGAP Ex. 11, Fig. 9, it is **lower** than the cost estimate provided by Mr. Small for a 7500 foot well.

4. Mr. Tyson Foutz

Mr. Tyson Foutz, a petroleum engineer for Merrion Oil, testified on behalf the Independent Producers about the costs of the proposed Pit Rule. Mr. Foutz testified that if Merrion Oil were forced to use closed loop systems, it would "kill" them. However, upon questioning by the Commission, it was apparent that Mr. Foutz was entirely unfamiliar with the proposed Pit Rule, believing that it required closed loop systems under all circumstances. Additionally, Mr. Foutz admitted that he did not know the basis for his economic analysis. Mr. Foutz's testimony is not credible and should be disregarded.

5. Mr. Tom Mullins

Mr. Mullins, a petroleum engineer and partner in Synergy operating testified on behalf of the Independent producers. Mr. Mullins testified that the incremental increase of closed loop systems on his operations would be \$35,800.00 for a 1000 foot well. Upon questioning by the Commission, Mr. Mullins testified that for the entire range of wells in the northwest and southeast parts of the state, the added cost of closed loop systems would be between 8% - 10%. He testified that this incremental cost would reduce his company's rate of return from 29% to 24%, a difference of 5%.

6. Mr. Larry Scott

In public testimony, Mr. Scott, an oil and gas operator, testified that in his experience, closed loop systems would be a significant economic burden on all producers in the state. However, upon questioning by the Commission, Mr. Scott revealed that his statewide cost analysis was extrapolated from his experience with a single well that was uneconomic in the first place. Mr. Scott's testimony is therefore not credible.

7. Mr. John Byrom

Mr. Byrom, the President of D.J. Simmons, Inc., testified on behalf of the Independent Producers, and was qualified as an expert on oil and gas production. Mr. Byrom testified that “marginal” wells would be most affected by the cost increases associated with the proposed Pit Rule. Mr. Byrom concluded that based on the cost increases associated with the proposed Pit Rule, well drilling in the San Juan Basin would decrease by 30%. Mr. Byrom’s conclusions, however, are flawed in several respects.

First, Mr. Byrom used Mr. Small’s cost estimates as the basis for his calculations. As demonstrated above, Mr. Small’s cost estimates are grossly inflated and not credible.

Second, Mr. Byrom conceded that his conclusions were based on a fixed commodity price and that as the price of oil and gas rose, the less impact costs would have.

Third, Mr. Byrom assumed that anything under a 15% rate of return would be uneconomic. However, Mr. Byrom conceded that some operators might accept a lower rate of return.

Finally, and most importantly, Mr. Byrom’s ultimate conclusion is contradicted by his own exhibit. Independent Producers’ Ex. 32, slides 11-14 clearly show that even using Mr. Byrom’s assumptions, the actual number of wells that might not be drilled because they are considered uneconomic due to the proposed Pit Rule would be very small.

In these slides, Mr. Byrom shows the number of wells in various formations in the San Juan Basin that have already been drilled. He assumed that a well would be uneconomical if its rate of return were less than 15%. He also calculated that this rate of

return would be made at a certain mcf of production, depending on the formation. Under the current pit rule, any well producing less than that mcf figure is considered uneconomic. This production level is represented in Mr. Byrom's slides as a solid blue line.

Mr. Byrom then calculated the production requirements for economic viability under the proposed Pit Rule. In Mr. Byrom's slides, this is represented by a purple dashed line. Mr. Byrom concluded that **all** the wells under the purple dashed line, approximately 30%, would not be drilled if the proposed rule were enacted.

However, Mr. Byrom's conclusion ignores the fact that all the wells below the blue line would have been, and indeed were, drilled anyway. Even though they were ultimately uneconomic, the operator that drilled them did not know this prior to drilling, or would not have drilled them, under most circumstances. In other words, the proposed Pit Rule would not effect the blue line's location at all.

Rather than considering **all** the wells below the purple dashed line as casualties of the proposed Pit Rule, the more appropriate analysis would have been to consider the number of wells that would be affected by the new rule, i.e., those between the blue line and the purple dashed line. In that case, the impact of the proposed Pit Rule becomes minimal. In Mr. Byrom's slide 11, wells in the Dakota formation, this would amount to three of seventeen wells, or about 17.6%. In the Mesa Verde formation (slide 12) this would amount to 6 of 78 wells or about 7%. In the Pictured Cliffs formation (slide 13), no wells would be affected. In the Dakota/Mesa Verde commingle (slide 14), 9 of about 150 wells, or 6% would be affected. Based on Mr. Byrom's own assumptions, data and exhibit, the impact on marginal wells would be minimal.

8. John Poore

Finally, ConocoPhillips presented Mr. John Poore to discuss the economic impact of the proposed rule on ConocoPhillips. Mr. Poore is a reservoir engineer and is responsible for generating long-range economic plans for his company. Mr. Poore calculated the additional costs for using a closed loop system to ConocoPhillips at \$115,000 for a deep (average depth of 7900 feet) Dakota or Mesa Verde formation well and at \$49,500 for a shallow Fruitland Coal or Pictured Cliffs (average depth of 2800 feet) formation well. Upon questioning by the Commission Mr. Poore estimated the total cost for drilling a Dakota/Mesa Verde well at \$1.3 million and a Fruitland Coal/Pictured Cliffs well at \$800,000. He did not calculate the revenue for any well in preparation for this proceeding.

Accepting Mr. Poore's figures, the incremental cost of closed loop systems for Dakota/Mesa Verde wells would be about 8% of total drilling costs. The incremental cost of a closed loop system for a Fruitland Coal/Pictured Cliffs well would be about 6%.

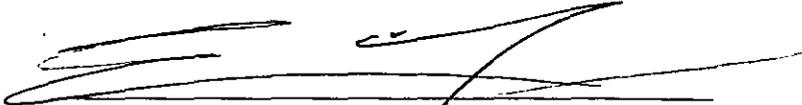
Further, although Mr. Poore did not calculate the revenues of typical wells in the San Juan Basin, using Ms. Denomy's figure of \$2.2 million net revenue per well, the increased cost of using a closed loop system would amount to roughly 5% of net revenues.

Mr. Poore also testified that these increased costs would force ConocoPhillips to reduce its proposed drilling by 10%. However, upon questioning by the Commission, Mr. Poore testified that the gas in San Juan basin would not be wasted. He testified that ConocoPhillips would not forego drilling 10% of its reserves, but would instead defer drilling those wells to a later time.

III. Conclusion

Based on the evidence presented in this proceeding, the demonstrated and potential public health and environmental threats posed by on-site burial of pit wastes clearly outweighs the minimal costs to oil and gas operators to properly manage their industrial wastes. Moreover, it can be assumed that once the proposed Pit Rule is implemented, more familiarity with closed loop systems, economies of scale and market forces will drive the costs of the proposed rule down. OGAP therefore supports the proposed Pit Rule as written with the exception that on-site waste burial should be prohibited entirely.

Respectfully submitted this 10th day of December, 2007.



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CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of December, 2007, I have delivered a copy of the foregoing pleading in the above-captioned case via email, facsimile, or U.S. mail to the following:

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