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Addressing Perceptions of Procedural Unfairness in Compulsory Unitization by Appointing Neutral Experts

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Addressing Perceptions of Procedural Unfairness in Compulsory Unitization by Appointing Neutral Experts

Keywords

Unitization, Compulsory Unitization, Neutral Experts, Correlative Rights

COMMENTS

ADDRESSING PERCEPTIONS OF PROCEDURAL UNFAIRNESS IN COMPULSORY UNITIZATION BY APPOINTING NEUTRAL EXPERTS

GIDEON WIGINTON*

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INTRODUCTION

Predictions that demands on the world oil supply will soon peak, with dire consequences for the United States and world economies,¹ are prompting government agencies, industry experts, and legal scholars to consider a wide range of solutions to satisfy future energy needs.² Among the proposed solutions is a renewed focus on enhanced oil recovery (“EOR”) as a major contributor to future

1. See Peter Maass, *The Breaking Point*, N.Y. TIMES, Aug. 21, 2005, § 6 (Magazine), at 30 (noting that unlike the 1973 oil crisis, today there is a narrow gap between supply and demand, increasing the risk of an oil shortfall); Avrel Seale, *How Long Do We Have?*, ALCALDE, July-Aug. 2005, at 40 (highlighting speculation that the gap between supply and demand could widen “exponentially” and result in “runaway inflation, depression, and eventual economic collapse”). But see Doris Leblond, *IEA Underscores Technology’s Contribution to Future Oil Supply*, OIL & GAS J., Oct. 17, 2005, at 18 (stating that the International Energy Agency Executive Director dismissed “the ‘peak oil’ notion that conventional oil is entering a period of inevitable decline”).

2. See Ron Gold, John Lichtblau, & Larry Goldstein, *Energy Policy Act of 2005 Leaves U.S. with Open Issues*, OIL & GAS J., Aug. 22, 2005, at 20, 21 (noting the importance of “supply-oriented policy”); see also Leblond, *supra* note 1, at 20 (discussing various technological solutions to meeting increased demands on the world’s oil supply, including steam-assisted gravity drainage and cold heavy oil production with sand); Seale, *supra* note 1, at 41-45 (highlighting assessments of current world oil production by three University of Texas faculty members).

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domestic and world oil supplies.³ EOR is the use of a variety of techniques to increase the total amount of oil a field can produce.⁴ EOR is a form of conservation because it produces oil that would otherwise remain trapped or “wasted” in the ground.⁵ Enhanced recovery operations require that all tracts overlying an oil field merge into one production unit controlled by a single operator,⁶ through a legal process called unitization.⁷ The first unitization laws were voluntary, and their failure to substantially increase the number of unit operations led most states to enact compulsory unitization statutes. Compulsory unitization laws allow State conservation

3. See Leblond, *supra* note 1, at 19 fig.3 (indicating that additional EOR potential may provide nearly ten percent (300 billion barrels) of the ultimately recoverable conventional oil worldwide); U.S. Dep’t of Energy, DOE Selects New Projects to Enhance Oil and Gas Production (Dec. 8, 2004), <http://www.fossil.energy.gov/news/techlines/2004> (follow “DOE Selects New Projects to Enhance Oil and Gas” hyperlink) [hereinafter U.S. Dep’t of Energy, DOE Selects New Projects] (stating that projects that implement EOR techniques could reach “billions of barrels of oil that today are left behind in the nation’s oil fields”); see also Ernest E. Smith, *Legal Issues Involved in Expanding the U.S. Oil and Gas Supply Base*, 52 INST. ON OIL & GAS L. & TAX’N 4-1, 4-2 (2001) (prefacing his proposals for changing current oil and gas laws with the idea that expanding U.S. oil and gas reserves depends on implementing existing technology that is “commercially feasible and legally practicable”).

4. See Owen L. Anderson, *Mutiny: The Revolt Against Unsuccessful Unit Operations*, 30 ROCKY MTN. MIN. L. INST. 13-1, 13-5 n.6 (1984) (“Methods of enhanced recovery are divided into two broad categories: Secondary recovery which refers to the more conventional methods of waterflooding and gas injection, and tertiary recovery which refers to the more complex and relatively new techniques, such as surfactant flooding, carbon dioxide flooding, steam injection, and fire flooding.”).

5. See Owen L. Anderson & Ernest E. Smith, *Exploratory Unitization Under the 2004 Model Oil and Gas Conservation Act: Leveling the Playing Field*, 24 J. LAND RESOURCES & ENVTL. L. 277, 278 (2004) [hereinafter Anderson & Smith, *Playing Field*] (describing how early oil regulation allowed operators to drill too many wells, which “dissipated the natural reservoir energy that pushed the oil and gas through the reservoir” and resulted in underground waste as oil and gas “became unrecoverable”).

6. INTERSTATE OIL AND GAS COMPACT COMM’N MODEL STATUTE AND FIELDWIDE UNITIZATION REFERENCES § III (1999) [hereinafter IOGCC REFERENCES] (describing the prerequisites and purposes of EOR processes, namely to operate as one unit and to substantially increase primary recovery production rates) (on file with the American University Law Review).

7. Unitization, also called unit operation, is “the operation of separately owned tracts of land for oil and gas as if they are one tract under one ownership and with disregard to property lines or interests, except for the apportionment of the costs and proceeds . . . whether the aggregate of the area developed is large or small.” 1 W. L. SUMMERS, *THE LAW OF OIL AND GAS* § 5.49 (3d ed. 2004). Unitization is intended to regulate oil production involving an entire field or a large part of a field and requires the cooperation of various mineral interest owners and operators in the field. 5 EUGENE KUNTZ, *A TREATISE ON THE LAW OF OIL AND GAS* § 78.1 (1987). Unitization “addresses fractionalization and subdivision by consolidating multiple tracts and interests into a single unified block to allow for orderly development and efficient operations to prevent surface, underground, and economic waste.” Owen L. Anderson & Ernest E. Smith III, *The Use of Law to Promote Domestic Exploration and Production*, PETROLEUM ACCT. & FIN. MGMT. J. 67, 68 (2000) [hereinafter Anderson & Smith, *Use of Law*].

commissions to force reluctant owners to join unit operations. However, most compulsory unitization laws include provisions requiring approval of the unitization plan by a substantial majority of owners before the commission can order unitization. These provisions hamper the effectiveness of compulsory unitization laws by allowing small interest owners to prevent unitization.⁸ Small interest owners may oppose unitization despite the unitization's long term benefits, including increased total recovery, because they believe the unitization process is inherently unfair.⁹ The opposition to unitization that results from the perception of unfairness poses a major challenge to wider implementation of unit operations and increased use of enhance recovery techniques.

This Comment posits that mandatory appointment of neutral experts in compulsory unitization proceedings may decrease opposition to unitization by providing greater assurance that every interest owner will receive a fair share of oil production. At the heart of many of these disputes is the "allocation formula," which should apportion a fair and equitable share of production to each interest owner.¹⁰ While the allocation formula should be based on "pertinent engineering, geological and operating factors,"¹¹ it is often more influenced by the interests and bargaining power of the parties.¹²

8. See Anderson & Smith, *Use of Law*, *supra* note 7, at 88-89 (comparing the percentages required in compulsory pooling to those for unitization); Paula C. Murray & Frank B. Cross, *The Case for a Texas Compulsory Unitization Statute*, 23 ST. MARY'S L.J. 1099, 1148-49 (1992) (arguing that the best compulsory unitization law has no ratification requirement).

9. For the purposes of this Comment, "small interest owners" includes working interest owners and mineral interest owners whose proportional interest in a given unit is insufficient to allow them to prevent creation of the unit. "Small interest" refers to the relative size of an interest owner's share in the overall unit as compared with the ratification requirement in the state statute. For example, the Oklahoma statute requires that not less than sixty-three percent of the working interest and royalty owners approve the unitization plan. OKLA. STAT. ANN. tit. 52, § 287.5 (West 2000). See Raymond M. Myers, *Agreements Relative to Secondary Recovery Operations, Their Negotiation and Execution, and the Role of the Landman*, 6 ROCKY MTN. MIN. L. INST. 245, 267-68 (1961) (detailing various state ratification requirements). Thus, a hypothetical working interest owner with thirty-seven percent of the vote in a proposed unit in Oklahoma could be a small interest owner because his vote alone would not block the Corporation Commission from ordering creation of the unit.

10. See, e.g., LA. REV. STAT. ANN. § 30:18A (1989); OKLA. STAT. ANN. tit. 52, § 287.4(b) (West 2000); WYO. STAT. ANN. § 30-5-110(e) (2005); see also William F. Carr, *Compulsory Fieldwide Unitization*, 49 ROCKY MTN. MIN. L. INST. 21-1, 21-11 (2003) (noting that with all compulsory unitization acts the state regulatory authority must determine whether the proposed unit participation formula is "fair and equitable").

11. OKLA. STAT. ANN. tit. 52, § 287.4(b) (West 2000).

12. See Owen L. Anderson & Dr. John D. Pigott, *3D Seismic Technology: Its Uses, Limits, & Legal Ramifications*, 42 ROCKY MTN. MIN. L. INST. 16-1, 16-64 (1996) (suggesting that commission-approved allocation formulas are "more likely to represent the biased interests of those who voted to approve the formula at the expense of those who opposed it"); Myers, *supra* note 9, at 261 (suggesting that while

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When disputes over allocation arise, the adversarial nature of compulsory unitization proceedings often results in major operators advocating their unitization plan and allocation formula against opposition from wary small interest owners in a battle of experts before the state conservation commission.

Small interest owners enter the unitization process wary of major operators proposing unitization for a variety of reasons, including an awareness that major operators' considerable financial and technological resources give them superior bargaining power.¹³ State commissions, whose conservation duty to prevent wasteful production of oil precedes the duty of ensuring fair production allocation, often order unitization based on the major operator's plan, despite conflicting evidence that the proposal might be unfair.¹⁴ These aspects of the compulsory unitization process have resulted in the perception that it inherently results in an unfair allocation of production to small interest owners.

For years courts and regulatory agencies have appointed neutral experts to obtain unbiased assessments of scientific evidence. In the case of oil and gas regulation, several states have provisions that allow their conservation commissions to appoint independent examiners and consultants to advise the commission. In the compulsory unitization context, Professor Owen L. Anderson has proposed the appointment of independent consultants to review unitization plans to reduce skepticism about the fairness of compulsory unitization proceedings. As in other settings, neutral experts may benefit from compulsory unitization proceedings in a number of ways, including encouraging the parties to settle their disputes outside the commission and the courts.

Part I of this Comment traces the development of compulsory unitization through the context of oil reservoir geology, the history of oil and gas regulation, and the importance of enhanced oil recovery to conservation. Part II examines the basis for small interest owners' objections to unitization and highlights the importance of the allocation formula in securing agreement and fairness. Part II then argues that the failure of the compulsory unitization process to deal

the ideal formula should be proportioned to each tract's exact contribution to the unit, "too often it is a question of give and take").

13. See *infra* Part II.C.1 (highlighting the sources of small interest owners' skepticism of major operators and the inherent disadvantages small interest owners face in negotiating allocation formulas).

14. See *infra* Part II.C.2 (explicating how the commission's preeminent duty to prevent waste and tendency to approve unitization agreements in the face of conflicting evidence, adds to the perception that unitization is inherently unfair).

effectively with small interest owners' concerns has resulted in the perception that unitization is inherently unfair to small interest owners. Part III analyzes the authority and context for appointing neutral experts in the courts, federal agencies, and state conservation agencies, demonstrates how neutral experts may help assure small interest owners of the fairness of compulsory unitization, and addresses traditional criticism of neutral experts as applied to the unitization process. Part IV suggests that compulsory unitization statutes should allow interest owners to demand that the conservation commission appoint a neutral expert to review disputed allocation formulas before issuing an order for unitization. This proposal aims to reassure small interest owners that they can receive a fair share of production, thereby helping to eliminate the perception that the compulsory unitization process is inherently unfair and reducing opposition to unitization.

I. DEVELOPMENT OF COMPULSORY UNITIZATION

A. *The Geology of Oil and the Rule of Capture*

Classical property law fails to adequately address the physical properties of oil and gas.¹⁵ Oil and gas reservoirs are found in geologic formations where impermeable rock layers surround and trap oil and gas in porous rock layers below.¹⁶ The size and shape of reservoirs vary and they often extend for miles below the surface and underlie multiple surface property lines.¹⁷ The geological features of a reservoir, such as porosity, permeability, thickness, and quantity of oil or gas, generally vary across the reservoir.¹⁸ Gas and water, also found in the reservoir, create the natural pressure that drives oil out

15. See Murray & Cross, *supra* note 8, at 1102 (noting that the physical characteristics of oil and gas conflict with traditional property law "because geology does not follow Blackstone").

16. Stephen L. McDonald, *Unit Operation of Oil Reservoirs as an Instrument of Conservation*, 49 NOTRE DAME LAW. 305, 305 (1973-74); see also H. H. Kaveler, *The Engineering Basis for and the Results from the Unit Operation of Oil Pools*, 23 TUL. L. REV. 331, 338 (1948-49) (positing that these two qualities are "fundamental principles that apply to . . . oil production" which permit a "more intelligent approach to the problem of oil recovery and conservation").

17. Murray & Cross, *supra* note 8, at 1103 (noting that classical property law and the rule of capture work reasonably well for solid minerals but create problems for gas and liquids).

18. See Anderson & Smith, *Use of Law, supra* note 7, at 73 (noting that conservation commissions typically treat all the tracts the same, despite varying geological factors, because they assume that reservoirs are heterogeneous, that wells drain evenly and in a predictable pattern, and that neighboring wells will not make their operation problematic).

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of the ground during production.¹⁹ During production, oil migrates through the reservoir without regard for the surface property lines above.²⁰ This fugacious characteristic of oil is the cause of problems associated with the regulation of oil production.

The initial legal response to disputes over oil production was the rule of capture.²¹ Applied to the context of oil drilling and production, the rule of capture entitles a landowner to produce as much oil as possible without incurring liability to neighboring landowners for oil drained from beneath their property.²² Lacking a legal remedy when one landowner drills a well, the only option for neighboring landowners was to drill offset wells to prevent drainage.²³ Thus, neighboring landowners and producers had to compete in drilling and production to maintain an interest in the oil beneath their property.²⁴ This type of production resulted in economic, surface, and underground waste.²⁵ In spite of this fact, the rule of

19. L. Proctor Thomas, Comment, *Prospects for Compulsory Fieldwide Unitization in Texas*, 44 TEX. L. REV. 510, 512 (1966) (describing the “mechanics” of three types of natural driving forces, solution-gas, gas-cap and water drives, and concluding that fieldwide recovery is the most effective use of natural pressure); see also David W. Eckman, *Statutory Fieldwide Oil and Gas Units: A Review for Future Agreements*, 6 NAT. RESOURCES LAW. 339, 342 (1973) (stating that displacement, the process in which gas and water take the place of oil as it is produced, is one of “three important principles that make unitization valuable”).

20. See McDonald, *supra* note 16, at 306 (noting that “the capacity of oil to flow freely in the reservoir to points of relatively low pressure creates the possibility of [competing producers in a common reservoir] inducing a flow across property lines”); Ernest E. Smith, *The Kansas Unitization Statute: Part I*, 16 U. KAN. L. REV. 567, 567 (1967-68) [hereinafter Smith, *Kansas I*] (“The reservoir is a geologic unit which rarely, if ever, corresponds with the boundaries of surface ownership.”).

21. See *Westmoreland & Cambria Natural Gas Co. v. De Witt*, 18 A. 724, 725 (Pa. 1889) (adopting the rule of capture for oil by analogizing the fugitive nature of oil and gas to that of wild animals); see also Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture—An Oil and Gas Perspective*, 35 ENVTL. L. 899, 906-07 (2005) (discussing the importance of *De Witt* in establishing a line of cases that resulted in “the ‘pure’ form of the rule of capture” as the predominant rule for oil and gas ownership); Laura H. Burney, *A Pragmatic Approach to Decision Making in the Next Era of Oil and Gas Jurisprudence*, 16 J. ENERGY NAT. RESOURCES & ENVTL. L. 1, 19-20 (1996) (discussing the search by judges in early oil and gas cases for analogous areas of law on which to base their legal reasoning).

22. 1 HOWARD R. WILLIAMS & CHARLES J. MEYERS, OIL AND GAS LAW, at 56 (Patrick H. Martin & Bruce M. Kramer eds., Matthew Bender 1996) [hereinafter WILLIAMS & MEYERS, LAW]; see also Robert E. Hardwicke, *The Rule of Capture and Its Implications as Applied to Oil and Gas*, 13 TEX. L. REV. 391, 391 (1935) (highlighting the characterization and criticisms of the rule of capture).

23. Anderson & Smith, *Use of Law*, *supra* note 7, at 68-69; see also WILLIAMS & MEYERS, LAW, *supra* note 22, at 57 (characterizing the traditional remedy available to the injured party as “self-help”); see also Kaveler, *supra* note 16, at 334-35 (applying the rule of capture to a hypothetical situation where neighboring landowners attempt to maintain well parity).

24. See Anderson & Smith, *Use of Law*, *supra* note 7, at 69 (listing the standard legislative response to wasteful production associated with the rule of capture).

25. *Id.* (stating that the proliferation of oil well-related surface apparatuses

capture was the standard governing oil and gas production before state regulation.²⁶

B. Regulatory Response: Conservation and Protection of Correlative Rights

States legislatures responded to wasteful oil production under the rule of capture by enacting regulations on production²⁷ In 1900, the Supreme Court upheld a law that restricted the rights operators to flare natural gas during production as a valid use of state police power to prevent waste and protect correlative rights.²⁸ Correlative rights are the rights of owners to the opportunity to produce the oil and gas beneath their property.²⁹ The two constitutionally accepted bases for regulation remain the conservation of oil and gas through preventing waste and the protection of correlative rights.³⁰

In the early twentieth century, states also began delegating the authority to regulate production of oil and gas to newly formed or existing commissions.³¹ The two purposes of state regulations on

caused surface waste, the dissipation of natural energy resulted in underground waste, and the reduction in oil prices from increased production made drilling and production unprofitable).

26. See KUNTZ, *supra* note 7, at § 4.1 (arguing that the rule of capture requires “no apologies” since there is a void of conservation regulation that would otherwise govern decisions in this area). See generally Kramer & Anderson, *supra* note 21 (chronicling the late 19th and early 20th century history of the common law development of the rule of capture); Gary D. Libecap & James L. Smith, *The Economic Evolution of Petroleum Property Rights in the United States*, 31 J. LEGAL STUD. 589, 591 (2002) (characterizing this period in the development of oil and gas regulation as “extractive anarchy,” when “actions by individual producers intending to exploit the rule of capture . . . [went] unrestrained”).

27. See Eckman, *supra* note 19, at 345 (summarizing early conservation efforts in response to wasteful production under the rule of capture).

28. *Ohio Oil Co. v. Indiana*, 177 U.S. 190 (1900); see BRUCE KRAMER & PAT MARTIN, *THE LAW OF POOLING AND UNITIZATION* 2-10 (3d ed. 1996) [hereinafter KRAMER & MARTIN, *UNITIZATION*] (characterizing *Ohio Oil Co. v. Indiana* as “[a] landmark case that could have served as the basis for broadening the theory of common-law rule of capture”); Eckman, *supra* note 19, at 345 (stating that *Ohio Oil Company v. Indiana* “firmly established” conservation and protection of correlative rights as valid use of the state’s police power).

29. “Protection of correlative rights’ . . . means to afford a reasonable opportunity to each owner to recover, or to receive without causing waste, a just and equitable share of the production.” INTERSTATE OIL AND GAS COMPACT COMM’N 2004 MODEL OIL AND GAS CONSERVATION ACT § 1(16) (2004) [hereinafter IOGCC MODEL ACT] (on file with the American University Law Review).

30. See Gary L. Leary, *Compulsory Unitization—The Answer to Oil and Gas Conservation?*, 7 UCLA L. REV. 312, 314 (1960) (“If a statute bears a reasonable relationship either to conservation of resources or adjustment of correlative rights of owners, it is valid.”).

31. See JACQUELINE LANG WEAVER, *UNITIZATION OF OIL AND GAS FIELDS IN TEXAS* 38-40 (Jo Hinkel ed., 1986) [hereinafter WEAVER, *UNITIZATION*] (describing delegation of authority to the Texas Railroad Commission); Maurice H. Merrill, *Stabilization of the Oil Industry and Due Process of Law*, 3 S. CAL. L. REV. 396, 399 (1930) (tracing the development of oil regulation in Oklahoma).

production are the prevention of waste and protection of correlative rights.³² Over the years, states have used a variety of regulations to prevent waste and protect correlative rights, including well-spacing and density regulations,³³ prorationing,³⁴ maximum efficient rate (“MER”) production limits,³⁵ and pooling.³⁶ However, this “well-by-well regulatory approach”³⁷ has been criticized for failing to adequately protect correlative rights and prevent waste.³⁸

C. Unitization: “The Ultimate Conservation Tool”³⁹

Enhanced recovery is the most efficient method of producing oil and results in reduced costs and longer field life. Because successful enhanced recovery often depends on unitization prior to production operations, the growing importance of enhanced recovery led to calls for more unitization. The inability of owners to unitize voluntarily led states to enact compulsory unitization laws intended to overcome small interest owners who held out for greater concessions. While

32. KRAMER & MARTIN, UNITIZATION, *supra* note 28, at § 5.01.

33. Spacing and density rules limit the number of and minimum distance between wells that can be drilled in a given area. See Anderson & Smith, *Use of Law, supra* note 7, at 70 (explaining that such rules intend but often fail to result in a “uniform pattern of wells . . . based upon a pattern of drilling units of uniform size and shape”); Leary, *supra* note 30, at 316 (concluding that well spacing rules ultimately and unfortunately result in a proliferation of exceptions to those rules).

34. Under prorationing, states set production limits on wells based on predicted market demand. See Anderson & Smith, *Use of Law, supra* note 7, at 71 (defining that demand as “reasonable”); Leary, *supra* note 30, at 315 (asserting that production above reasonable demand results in waste by requiring greater above-ground storage).

35. MER places limits on production, which have been calculated to maximize recovery from a reservoir. See Anderson & Smith, *Use of Law, supra* note 7, at 70 (defining MER as the point at which an increase in production will reduce recovery).

36. See Anderson & Smith, *Playing Field, supra* note 5, at 281 (discussing how pooling fails adequately to address both conservation agency objectives and the potential for working interest owner free-riding).

37. Anderson & Smith, *Use of Law, supra* note 7, at 68, 69-73 (characterizing all oil and gas regulations except for unitization).

38. See Anderson & Smith, *Use of Law, supra* note 7, at 68-81 (arguing that the traditional well-by-well regulatory approach is plagued by problems that make it inefficient); James L. Smith, *Problematic Economic Aspects of Oil Field Unitization*, 53 INST. ON OIL & GAS L. 9-1, 9-2 (2002) (stating that traditional regulations provide “[e]ach . . . producing firm . . . an incentive to maximize the economic value of its leases, rather than that of the hydrocarbon reservoir as a whole,” which results in “dissipat[ion of] reservoir rents with excessive capital, too rapid production, and lost total recovery”); McDonald, *supra* note 16, at 307-08 (arguing that state attempts to address the problems created by the competition for oil and gas, such as density regulations, flaring prohibitions, production controls, and voluntary unitization, have failed to protect both correlative rights and to provide the maximum benefit to society through conservation); Murray & Cross, *supra* note 8, at 1118-19 (discussing the problems created by mandatory spacing rules and characterizing them as having limited effectiveness and leading to potential inequality between interest owners).

39. Anderson & Smith, *Use of Law, supra* note 7, at 67.

compulsory unitization procedures differ from state to state, virtually all contain certain procedural safeguards to protect owners' correlative rights.

1. The importance of enhanced recovery and reliance on unitization

The petroleum industry has long recognized the benefits of enhanced recovery.⁴⁰ Production of oil takes place in two stages, primary and enhanced recovery, although primary recovery does not have to be complete for enhanced recovery to begin. Primary production relies entirely on the natural pressure in the well⁴¹ and recovers only ten to thirty percent of the oil in a reservoir.⁴² On the other hand, enhanced recovery generally increases primary recovery by thirty to sixty percent and in some cases over 100%.⁴³ Enhanced recovery is a conservation measure because it allows for the production of oil that would otherwise remain trapped in the ground after primary production has exhausted the well's natural pressure.

As enhanced recovery technology developed and became more important to the nation's oil supply it generated greater calls for unitization.⁴⁴ Unitization is necessary to spread the high costs of

40. See Winfield S. Payne, Jr., *The Engineering Phases Applicable to Unit Plans*, 5 UCLA L. REV. 401, 401 (1958) (noting that by 1958, oil produced through secondary recovery had greatly increased total recovery and become a valuable source of daily oil supply).

41. HOWARD R. WILLIAMS & CHARLES J. MEYERS, MANUAL OF OIL AND GAS TERMS 746 (7th ed. 1987) [hereinafter WILLIAMS & MEYERS, TERMS].

42. IOGCC REFERENCES, *supra* note 6, app. A; see also Eckman, *supra* note 19, at 342 (discussing the geologic fundamentals needed to understand the purpose and value of unitization, including the necessity and ability to develop the reservoir as a whole, the effects of the process of displacement, and the required control of production rates to manage the reservoir); Jacqueline Lang Weaver, *The Federal Government as a Useful Enemy: Perspectives on the Bush Energy/Environmental Agenda From the Texas Oilfields*, 19 PACE ENVTL. L. REV. 1, 7 (2001) (noting that under unrestrained conditions, recovery can be as little as five percent).

43. IOGCC REFERENCES, *supra* note 6, § III; see also Myers, *supra* note 9, at 246 (suggesting that enhanced recovery operations increase ultimate recovery to as much as eighty percent). There are two main types of enhanced recovery: basic secondary recovery and more technologically advanced tertiary recovery. See *supra* note 4. Secondary recovery is "the deliberate, controlled injection of water into an oil-producing stratum for the purpose of increasing the percentage and rate of recovery of oil from the stratum." Thomas M. Golden, Comment, *Secondary Recovery Operations—Protection of Correlative Rights*, 2 LAND & WATER L. REV. 129, 130 (1967) (citations omitted); see also Myers, *supra* note 9, at 247 (describing the four recognized methods of secondary recovery). Tertiary recovery involves the injection of chemicals or energy to displace oil. WILLIAMS & MEYERS, TERMS, *supra* note 41, at 997.

44. See William L. Horner, *Calculation of Just and Equitable Shares*, 2 INST. ON MIN. LAW 69, 69 (1954) (citations omitted) ("In 1952 approximately 400 million barrels of oil, or one-fifth of the nation's production, came from fields with pressure regulation by fluid injection, mostly under some form of unit operation."); see also Kaveler, *supra* note 16, at 332 (noting that by 1949, "Committees of Government, the American Bar Association, the Interstate Oil and Gas Compact Commission, a large majority of the

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enhanced recovery⁴⁵ and because successful repressurization requires other wells to stop production.⁴⁶

2. *Development of compulsory unitization and compulsory unitization proceedings*

Compulsory unitization is universally recognized as the best way to conserve oil and gas while simultaneously protecting correlative rights.⁴⁷ States enacted compulsory unitization statutes because of interest owners' failure to unitize voluntarily.⁴⁸ Compulsory unitization statutes allow state conservation commissions to force non-consenting interest owners into a unitization agreement if the commission finds that the plan will prevent waste.⁴⁹

Oklahoma created the first compulsory unitization act for oil in 1945, which required the consent of eighty-five percent of the interest

oil producing industry, and a predominant majority of the engineering and geological professions all advocate[d] unit operation of oil and gas pools").

45. See Leary, *supra* note 30, at 319 (listing the reasons unit operations are necessary to use secondary recovery methods); see also Anderson & Smith, *Use of Law*, *supra* note 7, at 89 (arguing that the ratification requirement in compulsory unitization statutes exists because operators have to pay high costs for enhanced recovery).

46. See Leary, *supra* note 30, at 319 (reviewing the reasons interest owners refuse to unitize, including where unitization would require a production break); see also Howard R. Williams & Charles J. Meyers, *The Effect of Pooling and Unitization Upon Oil & Gas Leases*, 45 CAL. L. REV. 411, 435 (1957) (listing pressure maintenance, recycling, and secondary recovery as "sound conservation practices" that require large amounts of acreage without respect to property lines).

47. Jacqueline Lang Weaver, *The Tragedy of the Commons from Spindletop to Enron*, 24 J. LAND RESOURCES & ENVTL. L. 187, 187 (2004) [hereinafter Weaver, *Spindletop to Enron*] (noting that Texas is the only state without a compulsory unitization statute), see also McDonald, *supra* note 16, at 312 (arguing that compulsory unitization of all oil reservoirs would result in "conservation in a meaningful sense" and "true protection of correlative rights").

48. See Anderson & Smith, *Use of Law*, *supra* note 7, at 84 (discussing the reasons that voluntary unitization failed, the problem of "holdout" parties, and the government response); Richard A. Forster, *Oil and Gas: The Corporation Commission's Role in Evaluating the Prudence of Operations in Statutory Unitization*, 24 WASHBURN L.J. 191, 195 (1985) (summarizing development of compulsory unitization statutes). Voluntary unitization failed for many of the same reasons that continue to make compulsory unitization difficult. See Anderson & Smith, *Playing Field*, *supra* note 5, at 278 (reasoning that voluntary unitization fails because high transaction costs and strategic behaviors prevent parties from successfully negotiating an agreement); Jacqueline Lang Weaver, *Armtwisting Operators and Owners to Unitize: The Role of State Conservation Commissions in Preventing Waste*, 38 INST. ON OIL & GAS L. & TAX'N 4-1, 4-5 to 4-7 (1987) [hereinafter Weaver, *Armtwisting*] (discussing the obstacles to voluntary unitization); Smith, *Kansas I*, *supra* note 20, at 567-68 (indicating that mineral interest owners who benefit the most from unrestricted drilling also demand major concessions that effectively end voluntary unitization negotiations).

49. WEAVER, UNITIZATION, *supra* note 31, at 2; see also Carr, *supra* note 10, at 21-3 (summarizing the goal, effect and purpose of compulsory unitization); James M. Whittier, *Compulsory Pooling and Unitization: Die-Hard Kansas*, 15 U. KAN. L. REV. 307, 311 (1967) ("It is widely recognized that the value of unitization as a conservation measure justifies the compulsion of the dissenting minority.").

owners before the Oklahoma Corporation Commission could order unit operations.⁵⁰ The Oklahoma Supreme Court upheld the Act as a valid exercise of state police power.⁵¹ Following failed challenges to the Act in the courts and the legislature, the legislature lowered the consent requirement to sixty-three percent in 1951.⁵² Since then, every major oil producing state, with the exception of Texas,⁵³ has adopted a compulsory unitization statute.⁵⁴

While compulsory unitization process varies between states,⁵⁵ nearly all proceedings start with an application and a plan for unitization, require the commission to provide notice and a hearing to all interest owners, and result in a finding by the commission and an order to proceed once the requisite number of owners has ratified the ordered plan.⁵⁶ The compulsory unitization process usually begins when an operator submits a unitization plan to the conservation commission for approval.⁵⁷ These plans are often the result of years of research and analysis.⁵⁸ In many cases, extensive negotiations over

50. See Libecap & Smith, *supra* note 26, at 596 (tracing the development of compulsory unitization laws). See generally Barth P. Walker, *Recent Developments in Pooling and Unitization*, 6 INST. ON OIL & GAS L. & TAX'N 47, 118-37 (1955) (discussing the history of the Oklahoma Unitization Act).

51. *Palmer Oil Corp. v. Phillips Petroleum Co.*, 231 P.2d 997, 1005 (Okla. 1951) (holding that Oklahoma's Unitization Act was not an unconstitutional legislative delegation of power); *Palmer Oil Corp. v. Amerada*, 343 U.S. 390, 391 (1952) (dismissing the appeal for failure to raise a substantial federal question).

52. See Libecap & Smith, *supra* note 26, at 596 (noting that by 1951, little opposition remained to unitization in Oklahoma). The Oklahoma Unitization Act of 1951 was also challenged in the courts and survived on the same police power rationale as the 1945 Act. See Carr, *supra* note 10, at 21-4 (summarizing the history of compulsory unitization).

53. IOGCC REFERENCES, *supra* note 6, § I; Weaver, *Spindletop to Enron*, *supra* note 47, at 187.

54. See Carr, *supra* note 10, app. A (listing every state compulsory unitization statute).

55. *Id.* at 21-4 to -5. See generally Morris G. Gray & Oscar E. Swan, *Fieldwide Unitization in Wyoming*, 7 LAND & WATER L. REV. 433, 433-34 (1972) (discussing the history and procedures of the Wyoming unitization statute); Ernest E. Smith, *The Kansas Unitization Statute: Part II*, 17 U. KAN. L. REV. 133 (1968) [hereinafter Smith, *Kansas II*] (discussing compulsory unitization procedures under the Kansas unitization statute).

56. See Anderson, *supra* note 4, at 13-5 to -8 (describing the typical compulsory unitization process from development of the unitization plan and allocation formula to ratification); see also Carr, *supra* note 10, at 21-4 to -6 (discussing the common provisions and safeguards shared by all compulsory unitization procedures).

57. See *Trees Oil Co. v. Corp. Comm'n*, 105 P.3d 1269, 1272 (Kan. 2005) (noting that several operators submitted an application for unitization); *Eason Oil Co. v. Corp. Comm'n*, 535 P.2d 283, 285 (Okla. 1975) (stating that one operator, Sun Oil Company, had applied for unitization).

58. See *Eason Oil*, 535 P.2d at 285 (indicating that two years passed between initiation of the study in August 1971 and filing the application for unitization in 1973); *Jones v. Continental Oil Co.*, 420 P.2d 905, 907 (Okla. 1966) (noting that the unitization plan proposed resulted from a three-year study by the majority operators); Anderson, *supra* note 4, at 13-5 (describing the steps proponents of a

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the formula may precede the application.⁵⁹ After notice has been given to all interested parties, the commission holds a hearing in which parties present evidence on the fairness of the unitization plan and allocation formula.⁶⁰ In most cases the commission will approve the plan as submitted.⁶¹ The final requirement of almost every compulsory unitization statute is the ratification of the plan by a super majority of interest owners, between sixty-three percent and eighty percent in the major oil producing states.⁶² The ratification requirement necessary to order unitization is the primary procedural safeguard for owners and one of the major obstacles to more widespread unitization.⁶³

plan follow, including feasibility investigation and development of the allocation formula).

59. See *Gilmore v. Oil & Gas Conservation Comm'n*, 642 P.2d 773, 775 (Wyo. 1982) (noting that the operators held meetings in which they voted on nearly sixty different formulas before becoming “frustrated in their attempt” to meet the ratification requirement); see also Carr, *supra* note 10, at 21-5 (noting some states have a safeguard provision requiring interest owners to attempt to negotiate a voluntary agreement before applying to the commission to force unitization).

60. Anderson, *supra* note 4, at 13-7 n.11; see, e.g., *Trees Oil Co.*, 105 P.3d at 1272 (noting that at the hearing five “technical witnesses” testified and presented exhibits); *Bishop v. Corp. Comm'n*, 394 P.2d 235, 237 (Okla. 1975) (recounting the testimony at the hearing by expert witnesses for the proponent and opponent of the plan).

61. Anderson, *supra* note 4, at 13-7.

62. Texas, Alaska, California, Louisiana, New Mexico, Oklahoma, Wyoming, and Kansas were the top eight oil producing states in 2004. Energy Information Administration, Crude Oil Production, http://tonto.eia.doe.gov/dnav/pet/pet_crd_crdpn_adc_mbb1_a.htm (last visited May 27, 2006). Because Texas has no compulsory unitization law it is one of the more difficult places to implement unit operations. See Weaver, *Spindletop to Enron*, *supra* note 47, at 189 (characterizing the Texas Railroad Commission’s method of encouraging unitization as the “second-best solution” using “sticks and carrots to alternatively bludgeon and encourage Texas operators into unitizing voluntarily”). California, Louisiana, and New Mexico require seventy-five percent of owners to ratify the unitization plan. CAL. PUB. RES. CODE § 3642 (West 2001); LA. REV. STAT. ANN. § 30:5 (1989); N.M. STAT. ANN. § 70-7-8 (West 1978). Wyoming requires eighty percent ratification of a unitization plan, which the commission may lower to seventy-five percent if certain criteria are met. WYO. STAT. ANN. § 30-5-110 (2005); see also *Gilmore*, 642 P.2d at 775 (stating that the proponents of the plans met the criteria for lowering the ratification requirement). Alaska, the second largest producer of oil, has no ratification requirement; however, it is less comparable to other states because most of its oil is under federal land, thus subject to federal law. Anderson & Smith, *Use of Law*, *supra* note 7, at 84 n.50. In 2000, the Kansas legislature lowered the Kansas ratification requirement from seventy-five percent to sixty-three percent. KAN. STAT. ANN. § 55-1305 (Supp. 2003); see also *Trees Oil Co.*, 105 P.3d at 1276 (stating that the legislature intended to foster and enhance unitization by lowering the ratification requirement).

63. See Carr, *supra* note 10, at 21-5 to -6 (listing the “safeguards” in the compulsory unitization procedure that protect the interest owners, including the ratification formula); Anderson & Smith, *Use of Law*, *supra* note 7, at 84-86 (describing the two limits on the commission’s authority in compulsory unitization—the requirement of a significant percentage of voluntary agreement and a showing that unitization is necessary—and their effect on the process).

II. OBJECTIONS TO UNITIZATION AND THE PERCEPTION OF UNFAIRNESS

Despite the benefits of compulsory unitization,⁶⁴ obtaining greater unitization has been problematic.⁶⁵ Mineral interest owners—generally landowners who lease the right to produce the oil under their property to an operator in exchange for a royalty⁶⁶—and working interest owners—the operators who explore, drill, and produce the oil and gas⁶⁷—may oppose a particular unitization plan or the concept of unitization in general for a myriad of reasons. While some of these reasons are theoretical or personal in nature, the most common reason owners reject unitization agreements is the perception that the formula allocating production is unfair.⁶⁸

A. Theoretical and Individualized Objections to Unitization

Some objections to the concept of unitization are based on the notion that unitization is an invasion of personal property rights. One common criticism of compulsory unitization is that it disregards individual interests in favor of a “societal policy.”⁶⁹ Another popular argument is that compulsory unitization violates private property rights.⁷⁰ Similarly, some small operators oppose unitization because

64. See Weaver, *Spindletop to Enron*, *supra* note 47, at 187 (discussing the need for compulsory unitization statutes to ensure maximum efficient recovery of oil and protect correlative rights of owners).

65. See Libecap & Smith, *supra* note 26, at S590 (stating that “implementation has not been smooth”); see also Weaver, *Spindletop to Enron*, *supra* note 47, at 193 (concluding that in Texas, the only major producing state without compulsory unitization, oil fields are “imperfectly” and “partially” unitized); UNITED STATES GEOLOGICAL SURVEY, THE SIGNIFICANCE OF FIELD GROWTH AND THE ROLE OF ENHANCED OIL RECOVERY (Oct. 2000) <http://pubs.usgs.gov/fs/fs-0115-00/fs-0115-00po.pdf> (indicating that enhanced recovery techniques are still too expensive for widespread use).

66. See WILLIAMS & MEYERS, TERMS, *supra* note 41, at 562 (defining a mineral interest as “the property interest created in oil and gas after [an] . . . oil and gas lease”).

67. See *id.* at 1086 (defining working interest as “[t]he operating interest under an oil and gas lease . . . [whose] owner . . . has the exclusive right to exploit the minerals on the land”).

68. See *infra* note 84 (illustrating the centrality of allocation formulas to unitization agreements).

69. See John C. LaMaster, *Consent Requirements in Compulsory Fieldwide Unitization*, 46 LA. L. REV. 843, 845 (1985-86) (illustrating this point with the hypothetical situation of an individual who needs the money in the short-term and cannot wait for the long term benefits of unitization, but whose interests are overridden by society’s interest in conservation); see also Carr, *supra* note 10, at 21-4 (noting that “those who own interests subject to unitization are often faced with the loss of operational control and a short-term reduction of profits while they wait for long-term gains”); Merrill, *supra* note 31, at 407 (describing unitization as “limited scale . . . enforced communism, with a vengeance”).

70. See William Lutz, *Unitization Sparks Controversy in Railroad Commission Sunset*, LONE STAR REP., Apr. 20, 2001, at 8, available at <http://www.lonestarreport.org/newsletters/pdf/010420.pdf> (quoting Texas State Senator Chris Harris, an

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they “prize independence and complete control of their own operations.”⁷¹ However, because compulsory unitization is a valid use of state police powers, these types of objections carry little or no weight before the commissions and the courts.⁷²

Mineral interest owners are more difficult to convince of the benefits of unitization than operators.⁷³ Some mineral interest owners believe that unitization allows usurpation of their rights by working interests. A landowner may oppose a unitization plan out of anger at an operator for including the landowner’s tract without consultation,⁷⁴ or suspicion of the operator’s purpose in joining a unit.⁷⁵

On the working interest side, an operator may refuse to ratify a unitization plan to avoid being forced to assume their share of the high costs involved in some types of unit operations.⁷⁶ Several statutes

opponent of compulsory unitization in Texas, as saying he saw unitization as a “violation of property rights”); Patricia Muir, Letter to the Editor, *Against Forced Unity in Oil Industry*, WALL ST. J., Mar. 17, 1999, at T4, available at ProQuest, Doc. No. 39778503 (arguing that unitization “negates [royalty owners’] freedom to own and control private property as protected by the Constitution of the United States”). *But see* Kaveler, *supra* note 16, at 333 (arguing that “[u]nit operation of an oil pool is consistent with the American system of free enterprise, with the American system of law and with the American concept of the rights of individuals.”).

71. Weaver, *Armtwisting*, *supra* note 48, at 4-6 (listing “pride of ownership and control” as one of the obstacles to voluntary unitization); *see also* Murray & Cross, *supra* note 8, at 1115 (discussing psychological barriers to unitization such as pride in control of oil operation); Whittier, *supra* note 49, at 310 (listing “rugged individualism of the oil operators” as one of the main barriers to voluntary unitization) (citations omitted).

72. *See* Bruce M. Kramer, *Pooling and Unitization Orders—Application of Administrative Law Principles*, 34 INST. ON OIL & GAS L. & TAX’N 259, 263 (1983) [hereinafter Kramer, *Administrative Law*] (“In all instances in which compulsory pooling and unitization statutes were attacked as unconstitutional per se, they have been upheld as valid exercises of the police power.”).

73. *See* Anderson & Smith, *Use of Law*, *supra* note 7, at 82 (noting that “[l]essors who have heard horror stories about the evils of unitization are especially difficult to convince”); *see also* Eckman, *supra* note 19, at 358 (discussing that Maine’s tiered ratification provision, which lowers the ratification percentage for mineral interest owners, recognizes that mineral interest owners’ ratification is harder to get than that of working interest owners).

74. *See* Anderson & Smith, *Use of Law*, *supra* note 7, at 82 (describing the hypothetical case of a landowner who fails to read his lease before signing and then becomes upset when his tract is included in a unit through a unitization clause in the lease, which allows the operator to proceed in a unitization agreement on his behalf).

75. *See, e.g.*, *Chenoweth v. Pan Am. Petroleum Corp.*, 382 P.2d 743, 745 (Okla. 1963) (recounting the opponent’s argument that the unitization agreement was a scheme to “avoid the lessee’s failure to produce”); *see* Anderson, *supra* note 4, at 13-4 n.4 (noting that some mineral interest owners suspect unitization is a ploy by operators to hold on to leases without performing their duty to fully develop the field).

76. *See* Anderson & Smith, *Use of Law*, *supra* note 7, at 89 (indicating that the high costs of enhanced recovery operations can be a deterrent to operators, particularly if they believe that the proponents of the unitization plan have “grossly

address this concern by allowing “free-riders” to avoid the costs of enhanced recovery entirely, while most require payment of a “risk penalty,” which is deducted from later production.⁷⁷

One reason for opposing a particular unitization plan that both working interest and mineral interest owners may share is their own self-interest in maintaining an advantageous position with regards to their neighbors.⁷⁸ Occasionally “holdouts” may attempt to get more concessions out of the agreement by refusing their consent⁷⁹ or benefit from litigation against the unit operations on a number of theories.⁸⁰ Allowing an owner to maintain an advantage over neighboring property owners or to profit by withholding consent from a fair agreement constitutes a failure to protect all owners’ correlative rights.

B. Specific Objections to the Allocation Formula

Many non-consenting owners—mineral and working interest owners who refuse to ratify a unitization proposal—do not object to

underestimated” costs and overestimated potential additional recoveries).

77. See generally Bruce M. Kramer, *Compulsory Pooling and Unitization: State Options in Dealing with Uncooperative Owners*, 7 J. ENERGY L. & POL’Y 255 (1986) (surveying state compulsory unitization statutes with regard to free-rider and risk penalty provisions).

78. See Anderson, *supra* note 4, at 13-4 n.4 (stating that many interest owners, “especially those with highly productive wells in the heart of a field, may believe that their interests are best served by refusing to share any production with outlying properties”); see also Leary, *supra* note 30, at 321 (indicating that small interest owners would not voluntarily join a fair agreement for a variety of reasons, including the need for profit in the short-term); Payne, *supra* note 40, at 407 (noting that owners base their notions of fairness by comparing their present income to that proposed after unitization). Small independent producers rejected the idea of “fair share” during the Texas oil boom days because they were profiting disproportionately from the regulations in place at the time. Jacqueline Lang Weaver, *The Politics of Oil and Gas Jurisprudence: The Eighty-Six Percent Factor*, 33 WASHBURN L.J. 492, 500 (1994) [hereinafter Weaver, *Eighty-Six Percent*].

79. See Murray & Cross, *supra* note 8, at 1113 (stating that some owners who realize that their property is essential to the agreement “may engage in ‘profitable obstructionism’ holding out with ‘exorbitant demands as the price of their consent’”); Gary D. Libecap & Steven N. Wiggins, *The Influence of Private Contractual Failure on Regulation: The Case of Oil Field Unitization*, 93 J. POL. ECON. 690, 697 (1985) (on file with the American University Law Review) (noting that some owners may withhold consent in the negotiation stages to obtain concessions from other parties); see also *Gilmore v. Oil & Gas Conservation Comm’n*, 642 P.2d 773, 781 (Wyo. 1982) (surmising that the non-consenting owner had opposed the commission’s unitization order to force a settlement).

80. See Anderson & Smith, *Use of Law*, *supra* note 7, at 83 (indicating that a few courts have allowed “holdouts” to collect on trespass, nuisance, and strict liability theories, while others have not granted relief in cases where the non-consenting owner was given a “fair opportunity” to join the unit). See generally Ana Boswell Schepens, Comment, *Prospecting for Oil at the Courthouse: Recovery for Drainage Caused by Secondary Recovery Operations*, 50 ALA. L. REV. 603 (1999) (arguing against damage awards for drainage caused by state-ordered enhanced recovery where the neighboring interest owners refuse to join the unit).

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the concept of unitization, but are concerned they will not receive their fair share of production.⁸¹ Compulsory unitization statutes require that the proposed unitization plan include a formula that allocates each owner “their fair, equitable and reasonable share of the unit production.”⁸² While favoring unitization, some small interest owners refuse to consent because they believe that the allocation formula in the agreement is unfair.⁸³ The allocation formula is the most important part of the unitization agreement, the source of most conflicts, and the main barrier to greater unitization.⁸⁴

In theory, the percentage of production allocated to each tract should be equal to the percentage of oil it contributes to the unit as a whole.⁸⁵ The allocation formula is created by petroleum engineers and geologists and is based on geological, physical, and economic data that operators have collected on the field.⁸⁶ To determine the contribution of each tract to the unit, the formula uses geologic factors (*e.g.*, surface acreage, acre feet of oil beneath the surface,

81. See Scott B. Cline & Brian J. Stanley, *Unitization Formulas Need Scrutiny*, OIL & GAS J., Sept. 13, 1993, at 73 (discussing the need for caution in negotiating unitization agreements); Smith, *supra* note 3, at 4-24 (“In many instances, unitization . . . has not been achieved because of smaller operators’ concerns that their interests will not be adequately protected.”); see also Payne, *supra* note 40, at 404 (stating that disagreements arise between the parties over what “fair” participation means).

82. OKLA. STAT. ANN. tit. 52, § 287.4 (West 2000).

83. See, *e.g.*, Hatlestad v. Petrocorp Inc., 928 P.2d 295, 296 (Okla. 1996) (stating that the issues on appeal all related to the fairness of the allocation formula); Eason Oil Co. v. Corp. Comm’n, 535 P.2d 283, 285 (Okla. 1975) (indicating that the non-consenting party had proposed its own unitization plan and that the party’s opposition was “directed at the formula for the apportionment and allocation of the unit production contained in the plan”); Producers Dev. Co. v. Magna Oil Corp., 371 P.2d 702, 702-03 (Okla. 1962) (noting that the non-consenting party did not object to unitization of their tract, but argued that the allocation formula was unfair).

84. Cline & Stanley, *supra* note 81, at 73; see also Smith, *supra* note 3, at 4-24 (stating that disagreement over the allocation formula is the most common problem among working interest owners); Eckman, *supra* note 19, at 359 (stating that the allocation formula is the most contested issue concerning, and raises the highest obstacles to, fieldwide unitization); Myers, *supra* note 9, at 261 (characterizing the allocation formula as the “heart” of the unitization agreement).

85. See Myers, *supra* note 9, at 261 (emphasizing that ideally each operator’s share should be proportionate to his contribution to the unit); Payne, *supra* note 40, at 404 (defining a “fair plan” as one in which each tract receives a production percentage in “direct proportion” to the “relative contribution” of the tract to the total amount of oil and gas produced by the unit).

86. See Amoco Prod. Co. v. Heimann, 904 F.2d 1405, 1411 (10th Cir. 1990) (stating that the mineral interest owners’ share in New Mexico is “based on a pro rata share of the production attributable to its land” and the working interest owners’ share is “based on a participation formula calculated from geological, physical and economic data”); see also Gene E. Roark, *Matters of Mutual Concern to the Lawyer and Engineer in the Unitization Agreement*, 7 INST. ON OIL & GAS L. & TAX’N 275, 287-88 (1956) (describing the engineer’s role in creating the allocation formula as determining the “relative value” of each tract in a unit).

porosity) and production factors (*e.g.*, current production, number of wells, projected primary and secondary recovery).⁸⁷ The factors used in any given formula will vary depending on the characteristics of the reservoir and the conditions of production at the time of unitization.⁸⁸

The allocation of production may also determine the cost allocation for working interests,⁸⁹ the operation voting rights given to each operator,⁹⁰ and the voting percentages of each interest owner in the ratification.⁹¹ For example, if an allocation formula sets a tract's production share at ten percent, then the operator would be responsible for ten percent of the costs of the unit and have ten percent of the vote in a unit committee or similar body. Additionally,

87. OKLA. STAT. ANN. tit. 52, § 287.4 (West 2000) (listing a number of potential factors and providing for any other factors reasonably necessary to determine the contribution of the tract); *see also* Anderson, *supra* note 4, at 13-5 (highlighting a number of factors often used in the formulas, including "acreage of each tract, the net acre feet of pay and the volume of oil in place beneath each tract, the differences in porosity within the field, current production, cumulative production, the projected primary recovery from each well"); Cline & Stanley, *supra* note 81, at 93 (listing common factors used in allocation formulas and giving five example formulas); Payne, *supra* note 40, at 404-05 (listing traditional factors such as "[p]roductive surface acres, number of producing wells, oil and gas production rate prior to unitization"); WILLIAMS & MEYERS, LAW, *supra* note 22, § 970.1 (listing nine of the "numerous and complex variables in determination of the value of a tract"). *See generally* Horner, *supra* note 44 (discussing the principle factors for allocating production and various methods for calculating them).

88. *See Eason Oil Co.*, 535 P.2d at 287 (noting that the factors listed in the statute are "legislative guidelines," not mandates, in its holding that the five factors used in the allocation formula at issue were proper); *see also* Wendell J. Doggett, *Practical Legal Problems Encountered in the Formation, Operation and Dissolution of Fieldwide Oil and Gas Units*, 16 OKLA. L. REV. 1, 55 (1963) (indicating that allocation formulas "are limited only by the imagination of the engineers and geologists who concoct them").

89. *E.g.*, LA. REV. STAT. ANN. § 30:5 (2005) ("The order . . . shall also make provision for the proportionate allocation to the owners . . . of the costs and expenses of unit operation . . ."); *see also* Smith, *Kansas II*, *supra* note 55, at 143 (stating that most unitization statutes require that cost allocation equal production allocation, but not the Kansas statute). Some states, such as Oklahoma, do not require equal cost and production allocations. OKLA. STAT. ANN. tit. 52, § 287.4 (West 2000). However, as a rule, production and cost allocations for each tract should be identical. *See* Libecap & Smith, *supra* note 50, at 596 (arguing that unequal cost and production allocations are not in keeping with the fundamental principle of "unitized development" and can lead to "intense conflict" between the parties).

90. *E.g.*, WYO. STAT. ANN. § 30-5-110 (2005) ("Provides that each owner shall have a vote in the supervision and conduct of unit operations corresponding to the percentage of costs of unit operations chargeable against the interests of such person . . .").

91. *E.g.*, LA. REV. STAT. ANN. § 30:5 (2005) ("At least three-fourths of the owners and three-fourths of the royalty owners . . . such three-fourths to be in interest as determined under [the allocation of production subsection] hereof, shall have approved the plan and terms of unit operation . . ."); *see also* Payne, *supra* note 40, at 405 (concluding that the production formulas for determining voting percentages are more representative of the economic interest than the area formulas).

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the operator and mineral interest owner would each have ten percent of the vote to ratify the plan. If either owner believes he should receive a greater percentage of production, he will also feel he has a less than fair vote in the ratification. Thus, the allocation formula not only affects each owner's share of production, but also affects all of the important elements of the unitization, including ratification of the plan.

C. The Unitization Procedure: Inherent Disadvantages, Conflicting Experts, and Preeminence of Conservation Result in the Perception of Unfairness

Some small interest owners suspect the proponents of a unitization agreement of skewing the allocation formula in their favor. At the same time, these owners are aware that commissions will usually order unitization without modification, even when conflicting evidence is presented.⁹² These aspects combine to create the perception that the unitization process is inherently unfair.

1. Negotiating the unitization plan: disadvantages inherent in the position of the small interest owner

Small interest owners' distrust of major operators and their belief that they have a disadvantaged position may partially be attributed to the history of the oil industry. Before government regulation became commonplace, major operators, with a monopoly over pipeline transportation,⁹³ discriminated against small operators by giving preference to their own production in times of depressed prices, leaving small producers without a market for their oil.⁹⁴ The history of unfair treatment of small interest owners in unit operations may also serve as a basis for small operators and mineral interest owners' suspicions that major operators controlling the unit will not treat them fairly.⁹⁵

92. See Anderson & Smith, *supra* note 7, at 87 (describing how conservation agencies are not equipped to determine which formula best protects correlative rights and are therefore reluctant to require a change that may not meet the ratification requirement).

93. See Weaver, *Eighty-Six Percent*, *supra* note 78, at 497-98 (discussing historical factors that instilled independent oil producers of Texas with a distrust of major oil companies, which still exists today).

94. See McDonald, *supra* note 16, at 313-14 (arguing that past discrimination should not lead small interest owners to believe that major operators will discriminate in a similar way under unit operations because it would not be profitable).

95. Weaver, *Armtwisting*, *supra* note 48, at 4-6 ("Instances of unfair treatment of minority participants by the majority of unit members have caused some royalty owners and small operators to distrust unitization in principle."); see also LaMaster, *supra* note 69, at 845 (noting that some criticisms of unit production target major operators' administrative problems); McDonald, *supra* note 16, at 313 (discussing the

From the outset of the unitization process, small interest owners may believe that the superior bargaining power of proponents of the plan will result in an unfair allocation of production.⁹⁶ Additionally, proponents may withhold information to avoid supplying other interest owners with information that could be used to argue against their proposed allocation formula.⁹⁷ The research and analysis used to create the allocation formula may be based on “proprietary information” that is only available to the proponent’s own experts.⁹⁸ At the same time, financial constraints may prevent small interest owners from performing the type of fieldwide research and analysis that forms the basis for allocation formulas.⁹⁹ In at least one state, operators may refuse to disclose the information used to calculate the allocation formula to mineral interest owners seeking to challenge the proposal.¹⁰⁰

Even when proponent operators share information, the ease of adjusting the formula in one party’s favor may lead to doubts about its reliability.¹⁰¹ The complexity of the formula and imperfect knowledge about the reservoir may allow the proponents to skew the

reasons many small operators would prefer to continue with the present system, including the belief that major oil companies do not adequately consider their interests).

96. See Smith, *supra* note 3, at 4-24 (listing one of the reasons small operators oppose unitization as their “lack [of] bargaining clout . . . to negotiate a modification in the allocation formula proposed by the principal operators within the field”); Thomas, *supra* note 19, at 520 (highlighting the perceptions of small operators that large companies controlling unitization programs are in a superior position to bargain and do not appreciate the small operators’ needs, discussed in an interview with John Davenport, Chief Counsel for Texas Independent Producers and Royalty Owners Association, in Austin, Texas, June 25, 1965).

97. See Cline & Stanley, *supra* note 81, at 74 (indicating that small interest owners must often request the engineering report, that proponents might not even create one or intentionally leave it out of the information packets provided to owners, and that proponents will often include the allocation percentages without including the formula).

98. Libecap & Wiggins, *supra* note 79, at 696-97 (highlighting the difference in the perceived reliability of privately versus publicly held information).

99. See Smith, *supra* note 3, at 4-24 (noting that small operators’ lack of “field research” is another barrier in negotiating a modified allocation formula); Cline & Stanley, *supra* note 81, at 74 (highlighting the cost-benefit dilemma small interest owners face when deciding whether to perform an independent analysis or rely on the proponents calculations); see also Weaver, *Armtwisting*, *supra* note 48, at 4-6 (noting that “[i]t takes time and money” to develop a unitization plan and allocation formula).

100. See *Amoco Prod. Co. v. Heimann*, 904 F.2d 1405, 1413 (10th Cir. 1990) (concluding that the operator had no duty “to produce and disclose geologic facts to a [mineral interest owner] comparing the [owner’s] mineral interests to those in the rest of the unit”).

101. See Libecap & Wiggins, *supra* note 79, at 697 (stating that the information used to create an allocation formula “can be easily misrepresented and may not be considered reliable by other firms”).

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formula in their favor.¹⁰² Thus, from the disadvantaged position of the small interest owner, it appears that allowing unitization proponents to create the formula, at worst, gives them an opportunity to manipulate the formula and, at least, raises questions about its reliability.

2. Losing the battle of the experts: conflicting duties of the commission create doubts about neutrality

Disputes over the proper factors and the validity of information used to calculate the allocation formula may lead to a breakdown in negotiations and eventually a battle of experts in a hearing before the conservation commission.¹⁰³ Conflicts may arise over the accuracy of the data used in the formula,¹⁰⁴ which property should be included in or excluded from the unit¹⁰⁵ which factors to use in the formula,¹⁰⁶ and how much weigh each factor should be given.¹⁰⁷ Differences in the data on the field held by various operators may cause disputes

102. See Cline & Stanley, *supra* note 81, at 73 (noting that while the formulas are based on sound data in theory, this is not always the case in practice); LaMaster, *supra* note 69, at 853 (stating that “[n]egotiations of these complex formulae may allow larger interests or parties with expertise in these areas to adjust factors in their favor”); see also Cline & Stanley, *supra* note 81, at 74 (providing five examples of very different allocation formulas for fields with similar geology as a warning to owners to be wary of proponents’ “calculations”); Murray & Cross, *supra* note 8, at 1113-14 (noting that there is “an incentive to cheat on any cooperative agreement” such as unitization).

103. See Libecap & Wiggins, *supra* note 79, at 696 (discussing “subjective geological variables” that create problems in unitization negotiations).

104. See Bishop v. Corp. Comm’n, 394 P.2d 235, 237 (Okla. 1963) (discussing the different estimates of acre feet of sand); Chenoweth v. Pan Am. Petroleum Corp., 382 P.2d 743, 745 (Okla. 1963) (noting conflicting estimates of acre feet of sand); Producers Dev. Co. v. Magna Oil Corp., 371 P.2d 702, 703 (Okla. 1962) (noting differing estimates of net economically recoverable primary production); Spiers v. Magnolia Petroleum Co., 244 P.2d 843, 847 (Okla. 1951) (recounting a disagreement between experts due to insufficient data on the field).

105. See Hatlestad v. Petrocorp Inc., 928 P.2d 295, 296 (Okla. 1996) (noting the argument that the data should not have included neighboring non-productive land); Jones v. Cont’l Oil Co., 420 P.2d 905, 907 (Okla. 1966) (discussing plaintiff’s argument that the unitization plan should not have included plaintiff’s productive land).

106. See Jones, 429 P.2d at 910 (noting plaintiff’s opposition to the data because of the period year of production used to calculate the formula).

107. See Eason Oil Co. v. Corp. Comm’n, 535 P.2d 283, 287 (Okla. 1975) (noting opponents’ argument that there was “too much stress on present production and not enough importance placed on acre feet”); see also Scott B. Cline, *Spreadsheets Simplify Oil Field Unitization Calculations*, OIL & GAS J., Aug. 28, 1995, at 88 (noting the difficulty in reaching agreement on the weight of each factor because of their highly subjective nature); Cline & Stanley, *supra* note 81, at 73 (discussing problems that arise in negotiating the factors to be used in an allocation formula); Smith, *Kansas II*, *supra* note 55, at 140 (noting that while there are several advantages to single factor formulas, such as surface area, they are also “highly unsophisticated and almost certainly unfair”).

between the parties.¹⁰⁸ Reasonable disagreements between qualified experts over the proper factors to include in a formula are not uncommon.¹⁰⁹ However, it is the treatment of conflicting evidence by the commission that leads small interest owners to view the process as biased towards major operators.

Conservation commissions' duty to prevent waste and place in the process as an interested party contributes to the perception that the compulsory unitization process results in unfair treatment of small interest owners. While unitization prevents waste, an unfair allocation formula harms correlative rights. Thus, an allocation formula of questionable fairness creates a conflict between the commission's duties to prevent waste and protect correlative rights.¹¹⁰ When this conflict arises, the commission's duty to prevent waste supersedes its duty to protect the rights of small interest owners.¹¹¹ Faced with conflicting evidence, commissions generally order unitization based on the testimony of the applicant's expert witnesses.¹¹² At the same time, the state, through its conservation

108. See Libecap & Wiggins, *supra* note 79, at 697 (noting a finding in their study of unitization in Wyoming, Texas, and Oklahoma that "information issues" repeatedly stalled negotiations). *But see* Payne, *supra* note 40, at 403 (indicating that the further developed a field is, the greater the chance there will be agreement between the petroleum engineers and the geologists over interpretation of the data).

109. See Cline & Stanley, *supra* note 81, at 74 (cautioning that a demand for "more than reasonableness" may prevent unitization altogether); Smith, *Kansas II*, *supra* note 55, at 141 (noting that unanimous agreement on the factors and the weight given to each in a formula does not exist among experts).

110. Cline & Stanley, *supra* note 81, at 74.

111. See *Gilmore v. Oil & Gas Conservation Comm'n*, 642 P.2d 773, 779 (Wyo. 1982) (stating that the prevention of waste is of primary importance and noting that "substantial waste cannot be countenanced by a slavish devotion to correlative rights"); *Denver Producing & Ref. Co. v. State*, 184 P.2d 961, 964 (Okla. 1947) (stating that correlative rights "must yield . . . to a reasonable exercise [of conservation]"); see also IOGCC MODEL ACT, *supra* note 29, § 2 (advocating statutory language explicitly stating that "[i]n the event of a conflict between the duty to prevent waste and the duty to protect correlative rights, the primary duty of the [commission] is to prevent waste in a manner that will protect correlative rights to the extent reasonably possible given the [commission's] primary duty."); Anderson & Smith, *Playing Field*, *supra* note 5, at 286 (noting that with regard to the allocation formula, the conservation agency is "more likely to be concerned about orderly development and preventing waste"); Weaver, *Armtwisting*, *supra* note 48, at 4-3 (indicating that conservation is the preeminent concern of conservation agencies because it "is generally considered of greater public interest and value than the goal of distributing the pie fairly among its owners").

112. See Cline & Stanley, *supra* note 81, at 74 (advising small interest owners not to "rely too heavily on the state for protection" in light of the commission's duty to prevent waste); see, e.g., *Hatlestad v. Petrocorp Inc.*, 928 P.2d 295, 297 (Okla. 1996) (indicating that the administrative judge who heard eight days of extensive testimony favored the opponents plan, yet the appellate administrative law judge and the commission found for the applicant); *Chenoweth v. Pan Am. Petroleum Corp.*, 382 P.2d 743, 745 (Okla. 1963) (noting that both sides used technical expert evidence and that the commission accepted the evidence presented by the applicant);

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commission, is also an interested party to the compulsory unitization process because it affects the development of the state's interest in its natural resources.¹¹³ The failure of challenges to unitization because of the preeminence of the duty to prevent waste creates the impression that the commission simply "rubberstamps" unitization plans for its own benefit.¹¹⁴

In addition to a commission's duty to prevent waste, other limitations restrict the actions a commission can take to resolve conflicting evidence. While commissions may have the authority to modify the allocation formula,¹¹⁵ they are not required to do so and generally approve the plan submitted by the applicant.¹¹⁶ Most conservation commissions do not have the staff and funding to fully evaluate the various competing, highly technical plans and allocation formulas.¹¹⁷ Negotiations can result in owners proposing a large number of plans, further taxing the staff and resources of the commission.¹¹⁸

Producers Dev. Co. v. Magna Oil Corp., 371 P.2d 702, 703 (Okla. 1962) (acknowledging that the opponent experts presented contradictory evidence); Spiers v. Magnolia Petroleum Co., 244 P.2d 843, 848 (Okla. 1952) (noting both sides had qualified experts with similar testimony, but that the commission placed "great credence" on the testimony of the applicant experts).

113. See Carr, *supra* note 10, at 21-5 (describing the commission's role in compulsory unitization proceedings as balancing the state's interest against the rights of the interest owners).

114. See Anderson & Smith, *Use of Law, supra* note 7, at 93 ("The mere rumor that the agency will simply rubberstamp the submitted plan and the proposed allocation formula increases skepticism of many working interest and royalty owners concerning unitization.").

115. Oklahoma law states that:

[T]he Commission . . . shall make . . . an order creating the unit and providing for the unitization and unitized operation of the common source of supply or portion thereof described in the order, all upon such terms and conditions, as may be shown by the evidence to be fair, reasonable, equitable and which are necessary or proper to protect, safeguard and adjust the respective rights and obligations of the several persons affected

OKLA. STAT. ANN. tit. 52, § 287.3 (West 2000).

116. See Anderson, *supra* note 4, at 13-7 (noting that while the commission has the authority to order modifications, in most cases it approves the plan as submitted).

117. Anderson & Smith, *Use of Law, supra* note 7, at 89; see Gray & Swan, *supra* note 55, at 441 (arguing against the idea of commission-initiated unitization because commissions lack sufficient engineering staff and funds to develop their own unitization plans).

118. See Gilmore v. Oil & Gas Conservation Comm'n, 642 P.2d 773, 775 (Wyo. 1982) (noting that the owners created at least sixty-seven formulas, voted on nearly sixty of them, and still failed to reach the eighty percent consent needed for unitization); see also Anderson & Smith, *Use of Law, supra* note 7, at 89 (listing some working interest owners' questions regarding anticipated profit and recovery and allocation of costs as reasons they might not have confidence in the success of a unitization project for enhanced recovery).

There has not been a great deal of litigation on the use of compulsory unitization.¹¹⁹ One potential reason for this is the substantial evidence standard used in judicial review of unitization orders. In most states, courts must give at least substantial deference to the conservation commission in deciding whether a unitization plan meets all of the statutory requirements.¹²⁰ The court's role in reviewing an order of the commission is not to weigh the evidence presented to the commission, but to determine if there is substantial evidence to support the order.¹²¹ Thus, small interest owners understand that the courts, like the commission, offer little protection to their right to a fair share of production.

One Oklahoma case, *Bishop v. Corporation Commission*,¹²² illustrates how a commission's reliance on the proponents' experts can result in an unfair allocation formula. In *Bishop*, two large operators proposed a unitization agreement that included the Bishop family's tract.¹²³ At the commission hearing, the Bishops' expert witness testified that the allocation formula was based on a miscalculation of the productive feet of sand under the Bishops' tract and that they were entitled to more than double the percentage of production in the formula.¹²⁴ Despite the conflicting evidence, the commission approved the proponents' plan as proposed.¹²⁵ Three months after the order, the commission held another hearing on an application to amend the order to make it effective immediately.¹²⁶ During the hearing, an expert for the proponent corroborated the evidence that the Bishops' expert had previously presented, but the commission refused to modify the formula.¹²⁷ Although the Oklahoma Supreme

119. See Eckman, *supra* note 19, at 353 (suggesting three reasons for the dearth of litigation on unitization, including the idea that compulsory unitization is only used for "the most profitable, hence least objectionable, unitization projects").

120. See, e.g., *Trees Oil Co. v. Corp. Comm'n*, 105 P.3d 1269, 1278 (Kan. 2005) (noting that the "power of review . . . does not give the court authority to substitute its judgment for that of the Commission"); *Superior Oil Co. v. Corp. Comm'n*, 242 P.2d 454, 458 (Okla. 1952) (stating that the court "cannot substitute [its] judgment on disputed questions of fact unless the findings of the commission are not as commanded by the Constitution, supported by the law, and substantial evidence"); *Gilmore*, 642 P.2d at 776 (stating that the court "will not substitute [its] judgment for that of the agency"). See generally Kramer, *Administrative Law*, *supra* note 72 (discussing the various scopes of judicial review of commission decisions in Texas, Louisiana, and Oklahoma).

121. *Trees Oil Co.*, 105 P.3d at 1278; *Gilmore*, 642 P.2d at 776; *Producers Dev. Co. v. Magna Oil Corp.*, 371 P.2d 702, 703 (Okla. 1962).

122. 394 P.2d 235 (Okla. 1964).

123. *Id.* at 235-36.

124. *Id.* at 237.

125. *Id.* at 236.

126. *Id.* at 237.

127. *Id.*

Court eventually reversed the commission's order in *Bishop*,¹²⁸ the case sends a message to small interest owners that the only way to win the battle of experts is to have the proponents' experts testify that their own formula is unfair.¹²⁹

In sum, although unitization is heralded as the most effective method to conserve oil while protecting correlative rights, in practice, the unitization process creates an adversarial relationship between parties and their experts. Cases like *Bishop* demonstrate the reason small interest owners are wary of plans presented by major operators, believe that the commission will not protect their rights, and know that they cannot win the battle of the experts. These factors create a perception of unfairness, which poses a major challenge to greater unitization. In response to this challenge, legislatures must correct the process to assure small interest owners that they will receive their fair share.

III. NEUTRAL EXPERTS

In 1984, Professor Owen L. Anderson proposed a list of reforms to address the concerns of unitization opponents, including the suggestion that commissions hire an "outside consultant" to provide an "independent report on the fairness of the formulas [that] should lessen the fears of interest owners who feel that their correlative rights are not being protected."¹³⁰ This Part seeks to develop his proposal by first looking at the context for appointing neutral experts where party experts present conflicting scientific evidence and at the existing authority of courts, federal agencies, and conservation commissions to appoint neutral experts to review evidence. Then, this Part will examine and apply some of the justifications for and criticisms of appointing neutral experts in the compulsory unitization context.

A. *The Context for Appointing Experts: Party Presentation of Conflicting Scientific Evidence*

Appointing neutral experts to review the scientific evidence used to create and justify allocation formulas may serve to change small

128. See *id.* at 238 (reversing the Commission's unitization order because it was not supported by substantial evidence).

129. But see Eckman, *supra* note 19, at 360 (stating that current regulations afford protection to small interest owners through the commission's approval process and each ratifying party's "careful scrutiny of the information").

130. See Anderson, *supra* note 4, at 13-72 to -73 (suggesting that implementation of these proposed reforms should result in a substantial reduction or abandonment of the ratification provisions).

interest owners' perceptions of unitization.¹³¹ The use of scientific evidence challenges decisionmakers to comprehend and weigh the merits of potentially complex technical information.¹³² Party experts compound this challenge by presenting conflicting or incomplete evidence.¹³³ The challenges scientific evidence presents courts with result from the operation of the adversary system.¹³⁴ The adversary system is unsuited to scientific evidence because it encourages parties to hire experts who will testify favorably, instead of on the basis of their scientific knowledge and expertise.¹³⁵

Courts and regulatory agencies have the authority to appoint neutral experts in cases where scientific evidence demands an unbiased review. Congress drafted Federal Rule of Evidence 706 to codify courts' inherent power to appoint experts to testify.¹³⁶ Congress has given federal regulatory agencies broad authority to hire independent experts to review evidence in adjudications and implement independent peer review in agency rulemaking.¹³⁷ With regard to compulsory unitization proceedings, some state conservation agencies have the authority to appoint neutral experts to hear, review, or present evidence, although this authority is seldom, if ever, used.¹³⁸

131. Anderson & Smith, *Use of Law*, *supra* note 7, at 93 (suggesting a two-step hearing process that includes review of the plan and formula by an independent consultant to help decrease "the skepticism of many working interest and royalty owners concerning unitization").

132. See Ellen E. Deason, *Court-Appointed Expert Witnesses: Scientific Positivism Meets Bias and Deference*, 77 OR. L. REV. 59, 60 (1998) (identifying the challenges posed to judges and juries after "complex expert testimony has passed a preliminary test for reliability and been admitted").

133. *Id.* at 61; see also Note, *Developments in the Law: Confronting the New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1481, 1589 (1994-95) [hereinafter Harvard, *Developments*] (discussing the use of court-appointed experts in cases of "dueling experts or [failure] to present the facts adequately").

134. See Deason, *supra* note 132, at 61 (stating that the appointment of experts contravenes one of the basic principles of the zealous advocacy system); Harvard, *Developments*, *supra* note 133, at 1589 (noting that dueling experts and incomplete evidence are a result of "the nature of the adversarial process").

135. See Deason, *supra* note 132, at 66 (discussing early criticisms of adversary system's treatment of scientific evidence, which led to proposals for court-appointed experts); Dan L. Burk, *When Scientists Act Like Lawyers: The Problem of Adversary Science*, 33 JURIMETRICS J. 363, 365-67 (1992-93) (contrasting the professional norms of the adversary legal system with the professional norms of an unbiased and cohesive scientific community); Samuel R. Gross, *Expert Evidence*, 1991 WIS. L. REV. 1113, 1188 (characterizing the "dangers of adversarial expertise" as beginning with the selection of biased experts followed by their compensation and preparation, which creates more bias).

136. See Deason, *supra* note 132, at 73-74 (discussing the history of reform that led to the creation of Federal Rule of Evidence 706 in 1975).

137. See *infra* Part III.A.2 (discussing the authority of federal regulatory agencies to appoint independent experts).

138. See *infra* Part III.A.3 (discussing the existing authority of conservation

I. Court-appointed expert witnesses

Since the early twentieth century, courts have been searching for a solution to the problems that scientific-expert testimony creates.¹³⁹ Federal courts have broad discretion in appointing neutral experts as expert witnesses and technical advisors in cases where scientific evidence poses a challenge to decisionmakers.¹⁴⁰ Under Federal Rule of Evidence 706, “[t]he court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed”¹⁴¹ The popularity of the concept of court-appointed experts has grown over the years,¹⁴²

commissions to appoint neutral experts in compulsory unitization proceedings).

139. See Deason, *supra* note 132, at 66 (discussing early proposals for court-appointed experts based on “concern for the functioning of the jury” and a “general dissatisfaction with expert opinion testimony”).

140. See *id.* at 75 (stating that federal courts have authority under Rule 706 of the Federal Rules of Evidence to appoint expert witnesses in addition to inherent authority to appoint neutral expert witnesses and technical advisors); see also Si-Hung Choy, Comment, *Judicial Education After Markman v. Westview Instruments, Inc.: The Use of Court-Appointed Experts*, 47 UCLA L. REV. 1423, 1427-29 (2000) (distinguishing the appointment of “expert witnesses” under Rule 706 from the appointment of “technical advisors” under inherent power of judges); Note, *Improving Judicial Gatekeeping: Technical Advisors and Scientific Evidence*, 110 HARV. L. REV. 941, 947 (1996-97) [hereinafter Harvard, *Gatekeeping*] (discussing Rule 706 and the inherent authority of the courts as the sources of judicial authority to appoint experts). This Comment focuses on the role of neutral experts as witnesses under Rule 706. Technical advisors are experts who do not contribute evidence, perform independent fact-finding, or give their own opinions on the merits of the case. See Harvard, *Gatekeeping, supra*, at 948 (highlighting the limited authority under Rule 706 in appointing technical advisors). In major oil-producing states, professional petroleum engineers and geologists staff the commissions and provide technical expertise to the members of the commission. KRAMER & MARTIN, UNITIZATION, *supra* note 28, at 4-2 (3d ed. 1996). Additionally, commission members, unlike judges, develop experience and knowledge in oil and gas matters while serving on the commission. See Choy, *supra*, at 1444 (highlighting the differences between the role of technical advisors and that of law clerks). In states such as New Mexico, the commission itself is composed of experts. See *Amoco Prod. Co. v. Heimann*, 904 F.2d 1405, 1415-16 (10th Cir. 1990) (noting that the state statute requires that in the New Mexico Oil Conservation Commission sit “two designated members . . . ‘who have expertise in the regulation of petroleum production by virtue of education or training,’ . . . while the third member must either be a registered petroleum engineer or else, by virtue of education and experience, have experience in petroleum engineering”) (citations omitted).

141. FED. R. EVID. 706(a). It is also within the court’s discretion to refuse to appoint an expert even in cases when evidence presented by parties is in “extreme variation.” Joe S. Cecil & Thomas E. Willging, *Court-Appointed Experts*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 531-32 (1st ed. 1994), available at [http://www.fjc.gov/public/pdf.nsf/lookup/13.expert.pdf/\\$File/13.expert.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/13.expert.pdf/$File/13.expert.pdf) [hereinafter Cecil & Willging, *Court-Appointed*].

142. See FED. R. EVID. 706 advisory committee’s note (indicating that despite criticism of court-appointed experts, “the trend is increasingly to provide for their use”); Joe S. Cecil & Thomas E. Willging, *Accepting Daubert’s Invitation: Defining a Role for Court-Appointed Experts in Assessing Scientific Validity*, 43 EMORY L.J. 995, 1015 (1994) [hereinafter Cecil & Willging, *Invitation*] (concluding from their survey of judges for the Federal Judicial Center that, given the right circumstances, almost all

although actual appointments remain “a relatively infrequent occurrence.”¹⁴³

Courts have applied Rule 706 in a wide range of contexts.¹⁴⁴ In *Students of California School for the Blind v. Honig*,¹⁴⁵ the court appointed a neutral expert in a case involving complex scientific evidence on seismic safety claims over the proposed construction site of a school for disabled children.¹⁴⁶ During the trial, numerous experts presented “highly contradictory” testimony on the seismic safety of the proposed school.¹⁴⁷ The court found for the defendants on other claims, but “was unable to decide the seismic safety claims on the basis of evidence presented at trial.”¹⁴⁸ The court reopened the case and appointed a neutral expert to determine whether the state had adequately tested the proposed site.¹⁴⁹ The judge stated that a ruling for the defendants “did not seem fair because [they] had denied access to the type of testing that might be necessary to prove or disprove plaintiffs’ claim.”¹⁵⁰ Following completion of his own study, the neutral expert concurred with the plaintiff’s experts that the earlier studies were inadequate and recommended further tests.¹⁵¹

judges would consider appointing experts); see also Gross, *supra* note 135, at 1189-90 (indicating that revisions of Wigmore’s Treatise on Evidence reflect increasing favor to the concept of court-appointed experts).

143. FED. R. EVID. 706 advisory committee’s note. The reason for the lack of actual appointments may be the “sobering effect” the possibility of an appointment has on the parties and their experts. *Id.*; see also Cecil & Willging, *Court-Appointed*, *supra* note 141, at 530 (listing the conclusions from a survey of judges on their uneasiness with court-appointed experts, including difficulty in accommodating scientists in the adversarial court system).

144. See Cecil & Willging, *Invitation*, *supra* note 142, at 1006 (stating that “medical experts appointed in personal injury cases, engineering experts appointed in patent and trade secret cases, and accounting experts appointed in commercial cases” accounted for almost two-thirds of the appointments made by judges surveyed in their study); Deason, *supra* note 132, at 87-89 (noting that courts have used independent experts from numerous professions, including engineers, scientists, accountants, doctors, lawyers, and economists).

145. 736 F.2d 538 (9th Cir. 1984), vacated, 471 U.S. 148 (1985).

146. *Id.*; see Deason, *supra* note 132, at 94 (citing *Honig* as a case involving “technological complexity [and] scientific uncertainty where the need for a careful decision is heightened by a public interest dimension”) (736 F.2d 538 (9th Cir. 1984)); Cecil & Willging, *Invitation*, *supra* note 142, at 1011 (summarizing, in an interview with the *Honig* district judge, his need for a court-appointed expert after the parties’ experts became advocates for their side).

147. *Honig*, 736 F.2d at 541.

148. *Id.* The district judge characterized the party experts as “[o]utstanding . . . in the field” and their testimony as “in bitter opposition to each other.” Cecil & Willging, *Invitation*, *supra* note 142, at 1011.

149. *Honig*, 736 F.2d at 541.

150. Cecil & Willging, *Invitation*, *supra* note 142, at 1011.

151. See *Honig*, 736 F.2d at 548 (holding that the district court’s finding that the seismic tests were inadequate based on the neutral expert testimony was not clearly erroneous).

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After these tests eliminated the possibility of seismic danger, the judge refused to enjoin construction on the site.¹⁵²

2. *Federal agencies' appointment of neutral experts in adjudication and use of independent peer-review in rulemaking*

Compared to federal courts, federal agency appointment of neutral experts is more common.¹⁵³ Unlike courts, the authority of a federal agency to appoint neutral experts to participate in adjudication or rulemaking is limited to the procedures set out by the Administrative Procedure Act¹⁵⁴ and the powers granted in the agency's enabling statute.¹⁵⁵ Under the Administrative Procedure Act, a federal agency has the authority to appoint neutral experts to review evidence in adjudication as long as the agency provides the parties with notice and opportunity to participate.¹⁵⁶

The Supreme Court's decision in *Marsh v. Oregon Natural Resources Council*¹⁵⁷ indicates that independent experts can play an important role in agency decisionmaking through reviewing evidence. In *Marsh*, the Court upheld a decision by the Army Corps of Engineers not to prepare a supplemental environmental impact statement on a dam project to review new information presented by four nonprofit corporations.¹⁵⁸ The Court seemed to emphasize that the Corps' decision to hire two independent experts to evaluate the new information, in addition to its own experts' evaluations, was an important factor supporting the Corps' determination that one of the new documents did not present significant new information.¹⁵⁹

152. Cecil & Willging, *Invitation*, *supra* note 142, at 1011.

153. See Gross, *supra* note 135, at 1205 (comparing the limited use of neutral experts in courts to the common practice of appointing neutral medical experts in worker compensation proceedings); see also Lars Noah, *Scientific "Republicanism": Expert Peer Review and the Quest for Regulatory Deliberation*, 49 EMORY L.J. 1033, 1049 (2000) (noting that "[a]s compared to legislatures and courts, administrative agencies seem institutionally best equipped to understand and assimilate scientific information."); Gross, *supra* note 135, at 1206 (listing the factors that make using neutral experts in workers' compensation cases easier and more prevalent than in court, including the use of administrative law judges instead of juries, the less formal nature of the hearing, and the use of written reports as opposed to oral testimony).

154. 5 U.S.C. § 556 (2000).

155. See 1 KENNETH CULP DAVIS & RICHARD J. PIERCE, JR., ADMINISTRATIVE LAW TREATISE, at 107 (3d ed. 1994) ("Every agency decision must be anchored in the language of one or more statutes the agency is charged to implement.").

156. See 5 U.S.C. § 554(d) (2000) ("The employee who presides at the reception of evidence . . . may not . . . consult a person or party on a fact in issue, unless on notice and opportunity for all parties to participate . . .").

157. 490 U.S. 360 (1989).

158. *Id.* at 385.

159. See *id.* at 383 ("Moreover, in disputing the accuracy and significance of this information, the Corps did not simply rely on its own experts. Rather, two independent experts hired by the Corps to evaluate the ODFW study on which the

Subsequent lower court decisions also indicate the important role of independent experts in supporting agency decisionmaking.¹⁶⁰

In another adjudicatory setting, the Food and Drug Administration (“FDA”) responded to calls from scientists in the early 1980s for greater use of experts to resolve scientific disputes by creating a Public Board of Inquiry (“PBOI”)¹⁶¹ to review challenges to its product approval decisions.¹⁶² Although the FDA only used PBOIs in two cases before abandoning the idea,¹⁶³ the process has been recommended to other federal agencies as a method of considering scientific evidence.¹⁶⁴

Similarly, in recent years, regulatory agencies have begun using non-governmental peer review bodies when “making decisions in the face of scientific uncertainty.”¹⁶⁵ The Environmental Protection Agency (“EPA”) has employed independent experts to review its

Cramer Memorandum was premised found significant fault in the methodology and conclusions of the study.”). Although the Court seemed to place some degree of importance on the use of independent experts, it also held that “an agency must have discretion to rely on the reasonable opinions of its own qualified experts. . . .” *Id.* at 378. The holding suggests that the Corps could have supported its decision on the basis of its own experts’ opinions alone.

160. See, e.g., *Spiller v. White*, 352 F.3d 235, 245 (5th Cir. 2003) (holding that an Environmental Statement prepared by the Environmental Protection Agency and Department of Transportation that incorporated studies from various independent experts in addition to other support, complied with the National Environmental Protection Act); *Kroger Co. v. Reg’l Airport Auth.*, 286 F.3d 382, 390-91 (6th Cir. 2002) (holding that the determinations of the agency’s expert consultants supported the Regional Airport Authority’s decision to deny a full reimbursement of management wages to Kroger, and, therefore, the decision was not arbitrary and capricious).

161. See Noah, *supra* note 153, at 1056 (noting that use of Public Boards of Inquiry (“PBOI”) “represent adjudicatory instead of rulemaking proceedings”); Sidney A. Shapiro, *Scientific Issues and the Function of Hearing Procedures: Evaluating the FDA’s Public Board of Inquiry*, 1986 DUKE L.J. 288, 290 (“This hearing constitutes formal adjudication under the Administrative Procedure Act.”).

162. See Joel E. Hoffman, *The FDA’s New Forms of Public Hearing—Choosing Among the Alternatives*, 32 FOOD DRUG COSM. L.J. 330, 335 (1977) (recommending the appointment of a PBOI when the case involves technologically complex facts). See generally Shapiro, *supra* note 161 (analyzing the rationale for the PBOI, application of the PBOI procedure to the Aspartame and Depo-Provera cases, and the PBOI process).

163. Noah, *supra* note 153, at 1056 (indicating that the PBOI procedure was “cumbersome” and the FDA has “given up on using [it] to resolve scientific disputes”).

164. See Shapiro, *supra* note 161, at 342 (advocating the PBOI process for other agencies that make product safety determinations); see also Noah, *supra* note 153, at 1056-57 (noting that the Administrative Conference of the United States has called for further experimentation with panels similar to PBOIs and that Congress has “called on the FDA to create a dispute resolution mechanism for referring scientific controversies to expert advisory panels or committees”).

165. See Noah, *supra* note 153, at 1034 (referencing Congress’s growing interest in peer review of regulatory reform by independent experts).

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decisions on pesticides and pollution-control standards.¹⁶⁶ The purpose of the independent Science Advisory Board is to ensure that EPA decisions are based on “unbiased objective scientific opinion.”¹⁶⁷

3. *Conservation agency authority and use of neutral experts in the unitization process*

Like federal regulatory agencies, state statutes and, in some cases, constitutional provisions establish and grant authority to state conservation agencies.¹⁶⁸ Statutes limit the authority of conservation agencies to the powers “expressly granted” and “necessarily implied from those expressly granted.”¹⁶⁹ The statute that governs the commission also likely provides the procedures used in compulsory unitization proceedings.¹⁷⁰ Because compulsory unitization proceedings are adjudications,¹⁷¹ the commission must base its findings solely on the evidence presented at the hearing and “matters that were officially noticed.”¹⁷²

The use of neutral experts in compulsory unitization proceedings is not an entirely foreign concept to some state conservation commissions, although the practice does not appear to be very common.¹⁷³ Kansas’ compulsory unitization statute explicitly

166. See *id.* at 1052-54 (discussing Congress’s creation of the Scientific Advisory Panel and its codification of the EPA’s Science Advisory Board to assure quality and credibility in the agency’s decisionmaking).

167. *Id.* at 1053 (stating that Congress requires the EPA to consult the independent Scientific Advisory Panel before cancelling pesticide registrations).

168. See Kramer, *Administrative Law*, *supra* note 72, at 260 (noting that state legislatures have provided state conservation agencies with a “substantial amount of guidance in the exercise of the agency’s delegated authority”); see also KRAMER & MARTIN, UNITIZATION, *supra* note 140, at § 4.01 (illustrating the various ways state conservation agencies are created through examples in Louisiana, Oklahoma, Texas, and Utah).

169. See Kramer, *Administrative Law*, *supra* note 72, at 267 (discussing the application of the “*ultra vires* doctrine” to agency actions that exceed the scope of agency authority); see also KRAMER & MARTIN, UNITIZATION, *supra* note 140, at § 4.03 (suggesting that in the case of compulsory unitization, state conservation agencies’ discretion is limited).

170. See Kramer, *Administrative Law*, *supra* note 72, at 270 (“With . . . unitization orders, the actual procedures used by the agency in determining whether or not to . . . unitize are probably set forth in the general procedural rules of the relevant state agency.”).

171. See *id.* at 271 (“The typical . . . unitization proceeding would be an adjudication under the Model State Administrative Procedure Act since it involves individual parties, deals with past or present facts, and only applies to those who have participated in the process.”).

172. See *id.* at 274-75 (discussing the requirement that agencies make a record of the proceedings); see also Gray & Swan, *supra* note 55, at 443 (indicating that the “quasi-judicial” nature of disputes between private parties over the allocation formula requires the commission to make findings “based solely upon the evidence presented to it”).

173. The author searched LEXIS and Westlaw for opinions discussing the use of

authorizes the Kansas Corporation Commission to appoint a “qualified disinterested technical consultant” to aid the commission in understanding and assessing the issues and evidence.¹⁷⁴ However, the commission has not used this provision in any recent cases, and may never have used it.¹⁷⁵ Several states have provisions in their oil and gas conservation statutes granting the commission authority to hire consultants as needed to carry out its duties.¹⁷⁶

Several states, including Wyoming, have statutory provisions that allow their conservation commissions to appoint “[a]ny member of the commission, or its staff or any other person” as an examiner to conduct hearings and make reports and recommendations to the commission.¹⁷⁷ These provisions also provide that the commission “may enter orders based on the reports and recommendations of its examiners.”¹⁷⁸ Although not common practice, the Wyoming Oil and

independent or neutral experts in unitization and found none.

174. KAN. STAT. ANN. § 55-1309 (1994). The statute reads:

Employment of consultant to advise commission. Whenever in any contested proceeding before the commission for the unitization and unit operation of a pool or part of a pool, the commission determines that the engineering, geological, or other technical issues are such that it is in need of additional engineering, geological or other technical evidence as an aid to a proper understanding and appraisal of the issues and evidence, it may employ a qualified disinterested technical consultant for that purpose. All opinions, conclusions, evidence and testimony of such consultant shall be presented in an open hearing subject to examination by any interested party as well as the commission. The cost and expense of the employment of such a consultant shall be payable out of funds of the commission.

175. Telephone Interview with John McCannon, Assistant General Council, Kansas Corporation Commission (Feb. 14, 2006) (stating that in his twelve years at the commission, the commission had never appointed a disinterested technical consultant, nor had he seen any reference to previous use of the provision). The author searched LEXIS and Westlaw and found no opinions or other materials citing the Kansas disinterested technical consultant provision as of [Jan. 1, 2006]. Additionally, in the most recent unitization case to reach the Kansas Supreme Court, the parties called numerous experts, but the record does not indicate that the commission employed an outside consultant. *Trees Oil Co. v. Corp. Comm’n*, 105 P.3d 1269, 1273-75 (Kan. 2005).

176. *See, e.g.*, ALASKA STAT. § 31.05.023(d) (2004) (“In addition to its staff of regular employees, the commission may contract for and engage the services of consultants and experts the commission considers necessary.”); COLO. REV. STAT. § 34-60-104.5(2)(d) (2005) (“The director of the commission shall . . . [a]ppoint . . . such clerical and professional staff and consultants as may be necessary for the efficient and effective operation of the commission . . .”).

177. WYO. STAT. ANN. § 30-5-105 (2005); *see also* UTAH CODE ANN. § 40-6-10 (2005); WASH. REV. CODE ANN. § 78.52.032 (West 2005). Although a number of states have provisions for the appointment of hearing officers, many also limit the appointment to commission members and employees. *See* N.M. STAT. ANN. § 70-2-13 (West 1978) (limiting potential hearing examiners to member of “the commission or the director of the division or his authorized representative”).

178. WYO. STAT. ANN. § 30-5-105 (2005); *see also* UTAH CODE ANN. § 40-6-10 (2005); WASH. REV. CODE ANN. § 78.52.032 (West 2005). The Wyoming provision was originally intended to reduce the number of cases before the commission; however, the right of parties to demand a hearing before the commission lessened its effective

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Gas Commission has appointed hearing examiners who are not members or employees of the commission.¹⁷⁹

Some oil and gas conservation statutes may allow the commission to appoint neutral experts through a broad delegation of authority to take any reasonable action necessary to carry out its duties.¹⁸⁰ One Alabama case, *State Oil and Gas Board v. Anderson*,¹⁸¹ demonstrates how broad agency discretion in formulating procedure might allow neutral experts to play a role in devising fair and equitable allocation formulas. During an initial set of hearings, the State Board of Oil and Gas of Alabama heard testimony from the proponent's experts advocating a single-factor allocation formula as well as testimony from the opponent's experts proposing several alternative multiple-factor formulas.¹⁸² After this set of hearings, the Board devised its own formula and ordered the formation of a "committee of experts" to redetermine the tract participation values based on its new formula.¹⁸³ The expert committee met for three months and, following the proponent's submission of a revised application, the Board "heard more evidence and reviewed the data prepared by the expert committee."¹⁸⁴ The Board eventually issued an order to commence unit operations under the plan including its formula,¹⁸⁵ which the Alabama Court of Civil Appeals upheld.¹⁸⁶ Although the Board

use of examiners as proxy decision makers for the commission. See Houston G. Williams & George M. Porter, *Practice Before the Wyoming Oil and Gas Conservation Commission*, 10 LAND & WATER L. REV. 353, 375-76 (1975) (indicating that as of 1975, hearing examiners were only appointed for uncontested matters). *But see* Cook v. Oil & Gas Conservation Comm'n, 880 P.2d 583, 584 (Wyo. 1994) (stating that the hearing examiner in a contested application to expand a unit referred the case to the Commission because he was unsure about the required approval percentage).

179. Telephone Interview with Rick Marvel, Engineering Supervisor, Wyoming Oil and Gas Conservation Commission (Mar. 13, 2006) (noting a case in which the Commission appointed a retired Wyoming Supreme Court Justice to serve as a hearing examiner).

180. Unlike the Kansas statute, the Alabama statute does not explicitly delegate to the Board authority to form a committee of experts such as the one created in *State Oil & Gas Board v. Anderson*. 510 So. 2d 250, 252 (Ala. Civ. App. 1987). The Alabama Board's power to create a committee of experts likely comes from the broad delegation of authority to carry out its duties. See ALA. CODE § 9-17-6 (1975) ("The board shall have the authority and it shall be its duty to make such inquiries as it may think proper to determine whether or not waste . . . exists or is imminent. In the exercise of such power the board shall have the authority to . . . [t]ake such action as may be reasonably necessary to enforce this article.")

181. 510 So. 2d 250 (Ala. Civ. App. 1987).

182. See *id.* at 253 (suggesting formulas based on factors such as pore volume, historical average daily production, productive capacity, and productive acreage).

183. See *id.* at 252 (discussing the Commission's actions in the first hearing).

184. *Id.*

185. See *id.* at 253 (acknowledging the "ratification of the unit agreement and unit operating agreement by the statutorily required percentage of interest owners").

186. See *id.* (overturning the lower court's ruling that the Board's formula was unsupported by the evidence and noting "the flexibility afforded the State Oil and

carried out review and recalculation of the allocation formula, the broad discretion of the Board would likely have allowed it to appoint a neutral expert to do the same.¹⁸⁷

B. Benefits of Neutral Experts in Compulsory Unitization

1. Use of neutral experts to aid decisionmaking by resolving conflicting evidence and filling in information gaps

Appointing neutral experts to review evidence presented by parties in a dispute over unitization may provide the commission with an unbiased opinion of the evidence, fill in gaps in the evidence and information presented, and uncover formulas and plans based on insufficient data on the field. While the professional expert employees of a commission are equally capable of performing these functions, a neutral expert may give confidence to skeptical small interest owners that the commission will thoroughly address their concerns without draining the personnel resources of the commission.

Perhaps the most important role for neutral experts in the unitization process is to provide an objective opinion based on a more detailed review of the data than a commission is typically able to afford the parties.¹⁸⁸ In complex litigation, such as *Honig*,¹⁸⁹ court-appointed experts provide an independent opinion for the court to consider.¹⁹⁰ As demonstrated in *Marsh*, federal agencies may hire independent experts to evaluate the accuracy of scientific evidence, which will affect agency decisionmaking.¹⁹¹ To resolve conflicting

Gas Board in issuing relief pursuant to a petition for unitization”).

187. Telephone Interview with Marvin Rogers, Attorney for the Board, Oil and Gas Board of Alabama (Mar. 16, 2006) (suggesting that the Board’s discretion in carrying out its duties is likely broad enough to allow it to appoint a neutral expert in a compulsory unitization proceeding).

188. See Anderson & Smith, *Use of Law*, *supra* note 7, at 93 (suggesting that an agency could appoint a neutral expert to make a “meaningful” and objective evaluation of the proposed plan and allocation formula); see also Lawrence S. Pinsky, Comment, *The Use of Scientific Peer Review and Colloquia to Assist Judges in the Admissibility Gatekeeping Mandated by Daubert*, 34 HOUS. L. REV. 527, 554 (1997-98) (suggesting that peer review in the courts “places the task of evaluating technical claims made in the proffered testimony on the shoulders of those presumably most competent to judge the validity of the methodology and to comment on the nature of any deficiencies”).

189. 736 F.2d 538 (9th Cir. 1984).

190. See *supra* note 144 (describing the types of cases where courts have appointed experts).

191. See *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 383 (1989) (indicating that the Army Corps of Engineers hired independent experts to evaluate evidence presented by opponents of a dam project before making its decision not to prepare a supplement environmental impact statement).

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evidence in a dispute over an allocation formula, a commission could use its broad or express authority to appoint an independent expert to review the formula and testify to its accuracy and fairness at the hearing. Similarly, other commissions might appoint an independent expert as a hearing examiner to receive and review party evidence at a hearing and then provide the commission with a written report and recommendations.

Neutral experts could address the problems created when proponents of a particular unitization plan distribute incomplete or misleading information. The adversary system creates an incentive for each side to withhold unfavorable evidence, leaving the decisionmaker with an incomplete picture of the facts.¹⁹² This problem may arise in unitization proceedings if a party fails to present all of the data they have collected while preparing a unitization plan or allocation formula.¹⁹³ Allowing a neutral expert access to all of the information that exists on a proposed unit from all parties will help create a complete picture of the field. With a comprehensive collection of data, the neutral expert and commission can better determine the accuracy of the proposed formula and make suggestions for modifying it where needed.¹⁹⁴

Similarly, a neutral expert might identify unitization plans that are based on insufficient data on the reservoir.¹⁹⁵ Neutral experts reviewing evidence may recognize a lack of sufficient information to support the claims made by the parties.¹⁹⁶ In compulsory unitization, a neutral expert review may determine that there is insufficient data

192. See Deason, *supra* note 132, at 82 (noting that one of the strengths of the adversary system is that the parties decide what evidence is presented, thereby maintaining the neutrality of the decisionmaker, but this becomes a drawback when the facts are incomplete); see also Choy, *supra* note 140, at 1430 (highlighting the potential of court-appointed expert witnesses under Rule 706 to “fill in the gaps” where parties have found it beneficial to leave out unfavorable evidence or opinions).

193. See *supra* Part II.C.1 (discussing the disadvantages inherent in the position of small owners).

194. But see Deason, *supra* note 132, at 82 n.95 (stating that courts are justified in refusing a request to appoint an expert when both parties have provided adequate testimony because the additional expense might be burdensome).

195. See Cline & Stanley, *supra* note 81, at 73 (noting that sometimes proponents base their allocation formula on “limited engineering work or geological data”).

196. See *supra* notes 146-152 and accompanying text (describing a court-appointed expert who reviewed evidence and concluded that it was insufficient to provide the grounds for a decision); see also Deason, *supra* note 132, at 94 (referring to a case in which a court-appointed expert “evaluate[d] conflicting party expert testimony [and discovered] that both versions [were] based on inadequate information and [were] thus quite speculative”); Noah, *supra* note 153, at 1072 (indicating that peer review can “focus attention on . . . data gaps in time for corrections” in regulatory rulemaking procedures).

to support the proponent's claims that the allocation is fair, that the project is feasible, or that it will result in substantial additional recovery.

In some cases, a neutral expert may assist the commission by supplying greater evidence through independent investigation and analysis.¹⁹⁷ Courts have appointed experts to discover additional information through independent tests, inspections, and experiments.¹⁹⁸ Conservation commissions might similarly benefit when a neutral expert fills information gaps through independent collection of data on the field. For example, the neutral expert might conduct 3-D seismic testing¹⁹⁹ to determine the fairness of the production allocation formula.²⁰⁰

In reviewing conflicting testimony, defining information gaps, and providing additional evidence, neutral experts may provide the commission with the analysis needed to propose an alternative formula,²⁰¹ where the commission might otherwise approve or reject a plan as presented.²⁰² In this role, a neutral expert may serve to "level the playing field"²⁰³ for interest owners who lack the resources to protect their own interests in the agreement.²⁰⁴

197. See Deason, *supra* note 132, at 85-86 (stating that this aids courts in compensating for the lack of an investigative arm, such as those of the executive and legislative branches).

198. See *id.* at 86 (citing environmental and patent cases in which court-appointed experts "have performed an investigative function").

199. See generally Anderson & Pigott, *supra* note 12 (discussing the development and importance of 3-D seismic technology and problems associated with using 3D seismic data as evidence).

200. See *id.* at 16-64 (arguing that if conservation agencies required the submission of existing 3-D seismic data, unitization proceedings would be more successful because the accuracy of the data would give holdouts little to stand on and commissions would be more inclined to use "curtailment and shut-in orders" to encourage unitization). However, the cost of 3-D seismic testing may outweigh its benefits as a tool for assessing a unitization plan or allocation formula. See *id.* at 16-50 (suggesting that 3-D seismic testing may not be "the most cost-effective choice for every business opportunity").

201. See Anderson & Smith, *Use of Law, supra* note 7, at 93 ("Under [the two hearing] approach, competing allocation formulas could be more objectively evaluated, and the conservation agency could select or devise the formula that best protects correlative rights."); Deason, *supra* note 132, at 93 (discussing the value of expert analysis in cases where party expert damage valuations are extreme and the judge must choose one or the other).

202. See *supra* Part II.C.1 (noting that while commissions have the authority to modify unitization plans, they often do not because of limited resources).

203. Anderson and Smith, *Playing Field, supra* note 5, at 277.

204. See Deason, *supra* note 132, at 94 (arguing that court-appointed experts help compensate for the inequality created when one side is unrepresented or denied access to key information).

2. *Using neutral experts may encourage settlement and moderate party positions*

The prospect that the commission will appoint a neutral expert to review the evidence may lead parties to settle their disputes over the allocation formula before they reach the hearing stage. One of the unintended effects of using court-appointed experts has been to bring about settlement.²⁰⁵ A study conducted by the Federal Judicial Center found that one-third of judges who had appointed an expert on one occasion stated that they had used the threat of appointment on other occasions as a settlement device.²⁰⁶ This study also found that nine out of twenty-two cases where the court appointed an expert before trial resulted in a settlement “before the expert prepared a report or offered advice.”²⁰⁷ Parties disputing an allocation formula may be less willing to proceed to the hearing stage of unitization if they believe that a neutral expert review of their proposal may end up making them worse off. If the commission demonstrates that it is willing to appoint a neutral expert to review allocation formulas, this may result in a renewed effort of the parties to negotiate the allocation formula themselves rather than face the unknown.

The possibility that the commission will appoint a neutral expert may also deter parties and their experts from exaggerating their position.²⁰⁸ In unitization proceedings, this may dissuade proponents of unitization from overestimating additional recovery, underestimating costs, or manipulating allocation formula factors in their favor. At the same time, the potential for neutral expert review may discourage non-consenting owners from claiming that an allocation formula is unfair, as a pretext for prolonging the unitization process to gain concessions from the other parties.

205. See Cecil & Willging, *Invitation*, *supra* note 142, at 1012 (“Some judges suggested that appointment of an expert may bring about settlement, although enhancement of settlement prospects was rarely an articulated purpose of the appointment.”).

206. *Id.* at 1014.

207. *Id.* at 1013.

208. See FED. R. EVID. 706 advisory committee’s note (“The ever-present possibility that the judge *may* appoint an expert in a given case must inevitably exert a sobering effect on the expert witness of a party and upon the person utilizing his services.”); Deason, *supra* note 132, at 81-82 (indicating that the drafters of Rule 706 had hoped that allowing courts to appoint experts would cause parties to moderate their positions, thus reducing the need for neutral experts in the first place); Pinsky, *supra* note 188, at 554 (stating that the use of court-appointed experts has “the potential to restrain expert witnesses from making . . . claims in the first place that might seem reasonable to lay evaluators, but that will be more quickly exposed as spurious by their professional colleagues”).

*C. Criticism of Neutral Experts Applied to Compulsory
Unitization Proceedings*

One of the main reasons judges cite for their decisions not to use neutral experts is the lack of complex cases that demand such “extraordinary action.”²⁰⁹ A similar criticism in the compulsory unitization context might be that conservation commissions and their experts are presently capable of reviewing the fairness and accuracy of unitization plans and allocation formulas. The appointment of a neutral expert does not guarantee the accuracy or fairness of the allocation formula with any scientific certainty.²¹⁰ However, at a minimum, the independent expert provides one more layer of analysis likely to create the fairest and most accurate formula possible. Moreover, while neutral experts may not be necessary to meet the legal standards of fairness in the allocation formula, their appointment will signal to small interest owners that the commission is doing everything in its power to protect their correlative rights. In the long term this should help eliminate the perception of unfairness.

Another popular criticism of neutral experts is that the decisionmaker cannot guarantee an expert’s neutrality.²¹¹ Procedural safeguards are necessary to help ensure the neutrality of the appointed expert. For example, commissions could ask parties to participate in the selection process²¹² and should allow the parties to “scrutinize the nominated expert.”²¹³

209. See Cecil & Willging, *Invitation*, *supra* note 142, at 1015 (stating that the authors’ study found that fifty out of eighty-one judges characterized appointing an expert as an “extraordinary” action).

210. See Deason, *supra* note 132, at 99 (stating that the history of scientific decision-making over the last century makes “the notion of scientific certainty seem a bit quaint”); Gross, *supra* note 135, at 1193 (identifying a criticism that experts “are as fallible as anyone else, yet they project a false aura of infallibility”); Noah, *supra* note 153, at 1071 (arguing that “[n]o matter how thorough their consideration, independent experts cannot certify the accuracy of an agency’s scientific judgments.”).

211. See Deason, *supra* note 132, at 99-102 (discussing the sources of expert bias, including “partisanship” and “the influence of social and individual context” and their potential to affect court-appointed experts); see also Choy, *supra* note 140, at 1450 (discussing the various ways an “expert’s neutrality can be compromised”).

212. See FED. R. EVID. 706(a) (“The court may appoint any expert witnesses agreed upon by the parties, and may appoint expert witnesses of its own selection.”); see also Choy, *supra* note 140, at 1447-49 (suggesting that a judge should consult with the parties to define the scope of the experts’ review for reasons including enhancing the legitimacy of the appointment). *But see* Deason, *supra* note 132, at 101 (illustrating the potential danger posed by party-selected experts by describing a case in which a former colleague of a party expert was appointed); Cecil & Willging, *Court-Appointed*, *supra* note 141, at 545 (indicating that in forty-one out of sixty-six appointments, judges did not take suggestions from the parties).

213. See Choy, *supra* note 140, at 1450-51 (arguing that parties should always have

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If a commission acts on a neutral expert's findings that an allocation formula is unfair or that a plan is based on insufficient data, this will stall unitization and allow continued waste.²¹⁴ In the long term, however, this will provide additional assurance to hesitant interest owners that the commission will not impose unitization without sufficient data to ensure its success.

Another potential criticism is that appointing neutral experts in the unitization proceedings will create procedural uncertainty. If the commission decides to ignore the independent expert's testimony, report, or recommendations, the commission's order may be more vulnerable to being overturned by a court.²¹⁵ The broad deference that courts give to commission decisions makes it unlikely that a court will overturn a commission's order if it is based on substantial evidence.²¹⁶ On the other hand, the effect of a court overturning a commission's order because of contrary recommendations by a neutral expert may serve compulsory unitization in the long term by encouraging commissions to give greater weight to neutral expert recommendations, thereby increasing the confidence of interest owners that unitization orders are based on the most objectively created formula.

IV. ALLOWING PARTIES TO DEMAND THE APPOINTMENT OF NEUTRAL EXPERTS IN COMPULSORY UNITIZATION

Appointing neutral experts to review allocation formulas in the unitization process would help reduce small interest owner opposition to unitization. In 2000, Professors Anderson and Smith proposed a two-step compulsory unitization hearing process in which the commission would have the authority to hire an "independent consultant" to review the proposed unitization agreement and allocation formula.²¹⁷ However, it appears that most commissions

the right to scrutinize appointed experts and object to an expert "on the basis of bias or impartiality").

214. See Noah, *supra* note 153, at 1064-65 (noting one of the criticisms of peer review is "that negative comments from peer reviewers will . . . stall valuable rulemaking initiatives prematurely").

215. See *id.* (noting another criticism of peer review is "that negative comments from peer reviewers will . . . make final rules more vulnerable to reversal on judicial review").

216. See Jacqueline Lang Weaver, *The Legal Significance of Commission Approval of Unitized Oil and Gas Operations*, 37 INST. ON OIL & GAS L. & TAX'N 4-1, 4-53 (1986) (suggesting that "[i]n controversial fact situations, there is almost always enough evidence to support a commission order").

217. Anderson & Smith, *Use of Law*, *supra* note 7, at 93-94. Perhaps the most important element of this proposal is that, "[a]fter the specific unit operations and allocation formula receive agency approval, the necessary threshold percentages of

seldom, if ever, appoint neutral experts in compulsory unitization proceedings.²¹⁸ A provision that allows a commission to appoint neutral experts at its own discretion does not provide any additional protection of small interest owners' correlative rights. This Part proposes that unitization statutes or commission procedures include a provision allowing any interest owner involved in a compulsory unitization proceeding to demand the appointment of a neutral expert to review the unitization plan and allocation formula.

Such a provision would assure small interest owners of their ability to obtain an unbiased review of allocation formulas, increase their bargaining power with larger operators, and help reverse the perception that compulsory unitization is inherently unfair. The potential that a neutral expert will be appointed may also encourage parties to settle before coming to the commission, thereby expediting the unitization process without further taxing the resources of the commission.²¹⁹

The cost of the neutral expert is a major consideration in making this proposal viable. If the commission bears the cost, then neutral experts become a drain on its resources,²²⁰ deterring the commission from appointing them. At the same time, if the working interest proponents of the unitization plan are not responsible for the cost of the neutral expert, the possibility of an appointment may lose some of its value as a settlement device. On the other hand, if working interest owners bear the cost of the neutral expert, the possibility that a commission will appoint a neutral expert may deter operators from pursuing unitization, while allowing small interest owners, particularly mineral interest owners who do not pay the costs of unitization, to use the potential for a neutral expert as a means of increasing their bargaining power.

Kansas' "disinterested technical consultant" provision and Wyoming's hearing examiner provision both require the commission to pay the expert's costs.²²¹ However, in order for the neutral expert

approval... [are] reduced [and] could then be secured under threat of a production-curtailement or shut-in order." *Id.* at 93. If the statute grants the commission additional powers and reduces the ratification percentages on the condition that an independent consultant reviews the allocation formula, it is likely this will induce the commission to hire one.

218. See *supra* Part III.A.3.

219. See *supra* Part III.B.2 (discussing how the use of neutral experts encourages settlement).

220. See Noah, *supra* note 153, at 1064 (highlighting the criticisms of peer review including the suggestion that it "divert[s] scarce resources from enforcement and related activities to pay for these added procedures").

221. KAN. STAT. ANN. § 55-1309 (1994) ("The cost and expense of the employment of such a consultant shall be payable out of funds of the commission."); WYO. STAT.

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provision envisioned in this Comment to be effective, the commission should divide the cost of the neutral expert's review among the working interest owners following Professors Anderson and Smith's proposal.²²²

Unit operations are expensive, particularly when they involve enhanced recovery.²²³ These costs are traditionally paid by the working interest owners. The cost of one more expert, as long as it is reasonable, is unlikely to deter applicants who have spent years developing a unitization plan from proceeding or proposing unitization plans that will benefit them in the long run. At the same time, it might be significant enough to deter proponents of a plan from taking the hard line in negotiations with small interest owners. Giving small interest owners additional bargaining power will help reassure them that they will receive a fair share of production, thereby helping to reverse the negative perception of unitization that has developed over the years.

Another consideration is the possibility that additional time will be necessary for neutral expert review. The early appointment of a neutral expert or a neutral expert panel would save time, effort, and oil. Lost time in the unitization process equals lost production.²²⁴ Lost production harms all the parties, including the State. In addition to lost production, delaying agreement on a unitization plan poses a problem because the longer unitization negotiations go on, the more likely they are to fail.²²⁵ While the use of neutral experts has been criticized for increasing delays in decisionmaking,²²⁶ disputes between party experts over factors in the allocation formula already

ANN. § 30-5-105 (2005) ("The commission may also provide for additional compensation to be paid to a member of the commission appointed from the public at large or any other person designated by the commission for services performed as an examiner at the same rate as the at-large members of the commission are presently compensated.").

222. See Anderson & Smith, *Use of Law*, *supra* note 7, at 93 (discussing their proposal to use neutral experts in compulsory unitization).

223. See *supra* note 49 (noting that the high cost of enhanced recovery as one of the barriers to unitization).

224. See *Bishop v. Corp. Comm'n*, 394 P.2d 235, 237 (Okla. 1964) (indicating that the reservoir was losing 10,000 barrels of oil a month just prior to unitization, which prompted the proponents of the plan to apply for an amendment to the order making it effective immediately).

225. See Cline & Stanley, *supra* note 81, at 74 (noting that unit interest owners should "weigh the economic effect of changes in participation formulas against delays in unitization caused by arguments over formulas").

226. See Noah, *supra* note 153, at 1064 (noting that peer review "exacerbate[s] delays in rulemaking because of the additional time required for external scrutiny"); see also Choy, *supra* note 140, at 1445 (describing the various ways that a court-appointed expert lengthens the duration of the litigation).

result in huge delays.²²⁷ To avoid a detrimental increase in the length of the unitization process, the provision should allow any owner involved in negotiating a unitization agreement to petition the commission to appoint a neutral expert when negotiations have failed to reach a consensus after a set period of time. The process might work as follows: As soon as a proponent sends out a unitization plan to the interest owners for ratification the clock begins to run. If after six months, for example, negotiations over the allocation formula or unitization plan have failed to reach a consensus, any interest owner could then ask the commission to appoint a neutral expert to review the plans and suggest an allocation formula that provides a fair share of production to all interest owners. Neutral expert review will inevitably add to the length of the process, but this type of provision may help reduce overall negotiation time and in some cases jumpstart the process before it collapses.

CONCLUSION

A new approach to the compulsory unitization process is needed to change small interest owners' perception of unitization and lessen their resistance to a conservation tool that should benefit all parties and the public. Appointing neutral experts would make the process less adversarial, help neutralize the superior bargaining power of proponents of unitization plans, and reverse the perception among small interest owners that unitization is unfair. Allowing interest owners to demand the appointment of a neutral expert is one method of ensuring that commissions will use their authority to appoint experts to review allocation formulas before ordering unitization. Broader implementation of unitization will permit greater use of enhanced oil recovery operations and help increase the domestic oil reserves.

227. See Libecap & Wiggins, *supra* note 79, at 696-97 (illustrating the problem of lengthy negotiations by describing the negotiations for a voluntary unit on the Prentice field in West Texas where differences over estimates of porosity delayed agreement for nine years).