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The Regulatory Framework of Produced Water in New Mexico and Why N.M. Stat. Ann. § 72-12-25(B)(1) (2009) Should be Amended

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Scott Woody*

**THE REGULATORY FRAMEWORK OF
PRODUCED WATER IN NEW MEXICO AND WHY
N.M. STAT. ANN. § 72-12-25(B)(1) (2009) SHOULD
BE AMENDED**

ABSTRACT

Produced water is a problem. This brackish byproduct of oil and gas production contains salts, dissolved solids, organic compounds, and naturally occurring radioactive materials. And that is putting it nicely. Produced water is seen as a liability to oil and gas producers and is generally disposed of via reinjection or open pits. The disposal is costly and creates future environmental hazards. However, through emerging technology and minor alterations to the New Mexico Statutes, this liability can be converted to an asset for all New Mexicans. In 2009, the New Mexico Legislature bifurcated the appropriation method for produced water by the intended future use of the water. Appropriations for certain industrial and agricultural uses are allowed under a truncated appropriation process; while any other use must follow the costlier traditional appropriation method. Under the new rules, oil and gas producers need only file a form with the State to ‘appropriate’ the water for reinjection or disposal via certain industrial uses. However, if the producer desires to use the produced water in any non-enumerated purpose, including making the water potable, the producer must follow the costly and time consuming traditional appropriation route. By removing this bifurcation, the New Mexico Legislature would encourage producers to actively seek additional uses of what was once deemed a liability. This would reduce environmental concerns and lower overall oil and gas production costs while ‘creating’ more water resources in an arid state.

I. INTRODUCTION

In 2015, New Mexico oil and gas production generated almost 900 million barrels¹ of briny water that is produced along with oil and gas. This briny water is

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referred to in the oil and gas industry as “produced water.” Currently produced water is reinjected, placed in temporary surface pits, or reused in oil and gas recovery.² Traditionally, produced water has been seen as a liability to oil and gas producers due to increased production, separation, and disposal costs.³ However, developing technology may allow for more uses, including for agricultural and even potable drinking water.⁴

To encourage reuse of produced water, the Forty-Sixth New Mexico Legislature amended part of the New Mexico Oil and Gas Act.⁵ The amendment granted the New Mexico Oil Conservation Division (“OCD”) the authority to regulate the disposition by use of produced water⁶ and stated that no permits are required from the state engineer for this disposition by use.⁷ Despite the statutory amendment, confusion existed concerning the OCD’s authority to regulate the disposition by use of produced water. To clarify the situation, the OCD issued a

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1. MARTHA CATHER, ET. AL, ACCESSING PRODUCED WATER DATA IN NEW MEXICO: IMPROVING AND UPDATING THE NM PRODUCED WATER QUALITY DATABASE AND WEB SITE, WRRRI TECHNICAL REPORT NO. 375, 1 (Oct. 2016), *available at* <https://nmwri.nmsu.edu/wp-content/uploads/2015/technical-reports/tr375.pdf>. This amount of produced water is approximately 116,000 acre-feet per year.

2. Most produced water is reinjected either for disposal or for use in enhanced oil recovery processes. *See* ENID J. SULLIVAN GRAHAM, PH.D. AND KWABEAN ADDAE SARPONG, THE REGULATORY FRAMEWORK SURROUNDING PRODUCED WATER IN N.M. AND IMPACTS ON POTENTIAL USE, N.M. WATER RES. RESEARCH INST., 8 (June 2016); *see also* U.S. GEO. SURVEY, USGS INVESTIGATIONS OF WATER PRODUCED DURING HYDROCARBON RESERVOIR DEVELOPMENT, 1 (Nov. 2014) (noting nationwide “more than 95 percent of produced water from hydrocarbon resource development is disposed of by injection . . .”), *available at* <https://pubs.usgs.gov/fs/2014/3104/pdf/fs2014-3104.pdf>.

3. Cather, *supra* note 1, at 1. *See* BRIAN P. DWYER AND FRANK MCDONALD, TREATMENT OF OIL & GAS PRODUCED WATER, SANDIA NATIONAL LABORATORIES 3 (Feb. 2016) (noting the costs of reinjecting produced water into salt disposal wells is approximately \$5 per barrel), *available at* <http://prod.sandia.gov/techlib/access-control.cgi/2016/161153.pdf>. If all the produced water in New Mexico was reinjected into salt disposal wells this would add \$4.5 billion in costs for oil and gas production for 2015. *But see* R. LEBAS, ET. AL, DEVELOPMENT AND USE OF HIGH-TDS RECYCLED PRODUCED WATER FOR CROSSLINKED-GEL-BASED HYDRAULIC FRACTURING, Society of Professional Engineers 163824, 1 (2013) (noting most “produced water is reinjected into disposal wells at an average cost of US\$ 0.75 to US\$ 1.00 per bbl.”), *available at* <http://www.ftwatersolutions.com/pdfs/ProducedWaterPaper.pdf>.

4. *See* DWYER AND MCDONALD, *supra* note 3, at 3 (noting an innovative pre-treatment scheme appears to show a “complete removal of hydrocarbons and the majority of organic constituents . . . “ from gas well production water); *See also* SOCIETY OF PETROLEUM ENGINEERS, CHALLENGES IN REUSING PRODUCED WATER (“The large quantity of produced water generated from oil and gas production worldwide can be potential freshwater sources for various applications, including potable consumption.”), *available at* <http://www.spe.org/industry/challenges-in-reusing-produced-water.php>; *see also* Sara Jerome, *Reusing Produced Water to Irrigate Crops*, WATER ONLINE, Jan. 27, 2015, (noting Chevron routinely has sent 30,000 acre-feet per year of produced water into the Cawelo Water District to grow almonds and pistachios), *available at* <https://www.wateronline.com/doc/reusing-produced-water-irrigate-crops-0001>.

5. S.B. 313, 46th Leg., 2nd. Sess. (NM. 2004) [hereinafter SB 313].

6. N.M. STAT. ANN. § 70-2-12(B)(15) (1978).

7. N.M. STAT. ANN. § 70-2-12.1 (1978).

Notice Letter,⁸ reaffirming that an OCD permit is not needed for the disposition by use of produced water.

The OCD is within its statutory authority to issue the Notice Letter, but neither the Notice Letter nor the 2004 amendments address whether a permit is required from the state engineer to appropriate the water in the first place. The New Mexico Constitution declares that all unappropriated water in New Mexico belongs to the public⁹ and is subject to the doctrines of beneficial use¹⁰ and appropriation.¹¹

Given the current technology, the reuse of produced water in unconventional oil and gas extraction or secondary recovery may be the most beneficial use of produced water. Reuse may provide an overall lower cost of oil and gas production¹² and be a more environmentally responsible alternative to reinjection.¹³ In addition, reuse may decrease the use of scarce freshwater sources in the oil and gas industry.¹⁴ However, parties seeking to reuse produced water must follow the constitutional mandate of appropriation and the statutory requirements set forth in Section 72 of the New Mexico statutes. Generally, to obtain this right of appropriation, the user must apply for a permit or give notice of intent to the state engineer.¹⁵

In this paper, I contend that despite a 2004 amendment intending to reduce administrative burdens on oil and gas producers for the disposition by use of produced water, a 2009 amendment places most produced water firmly under the jurisdiction of the state engineer. The 2009 amendment requires oil and gas producers to file the truncated appropriation notice with the state engineer to acquire rights in produced water for industrial uses such as oil and gas production, mining, and agricultural uses.¹⁶ Currently, all other uses, including subsequent use as potable water and municipality use, require the producers to appropriate the water via the formal application and permit process via the state engineer.¹⁷

I further contend that the State Legislature should amend Subsection 72-12-25(B) to reduce the administrative burdens on oil and gas producers by allowing the truncated appropriation process for all subsequent uses of produced water,

8. N.M. Oil Conservation Div., No OCD Permit Required for Re-Use of Produced Water (Sept. 9 2013), [hereinafter Notice Letter], available at <http://www.emnrd.state.nm.us/OCD/documents/Noticeproducedwaterre-use.pdf>.

9. N.M. Const. Art. XVI, Sec. 2.

10. For a discussion of the doctrine of beneficial use, *see infra*, Part III.b.

11. For a discussion of the doctrine of appropriation, *see infra*, Part III.a.

12. *See* Dwyer, *supra* note 3, for a discussion of the cost per barrel to inject produced water.

13. *See* MARK D. PETERSEN, ET AL., INCORPORATING INDUCED SEISMICITY IN THE 2014 UNITED STATES NATIONAL SEISMIC HAZARD MODEL-RESULTS OF 2014 WORKSHOP AND SENSITIVITY STUDIES, 43 (2014) (noting a possible link between wastewater injection and an increase in seismic activity in Oklahoma), available at <https://pubs.usgs.gov/of/2015/1070/pdf/ofr2015-1070.pdf>; *see also* Oklahoma Secretary of Energy and Environment, Earthquakes in Oklahoma, <https://earthquakes.ok.gov/> (noting the general view is “that injection of disposal of wastewater into basement rock present a potential for triggering seismicity”) (last visited April 21, 2017).

14. *See* N.M. LEGIS. FIN. COMM., FISCAL IMPACT REPORT SB313, 46th Leg., Reg. Session, at 2 (February 12, 2004) [hereinafter SB 313 Fiscal Impact Report].

15. For a general discussion of the duties of the New Mexico state engineer *see infra*, Part III.a.

16. N.M. STAT. ANN. § 72-12-25(B)(1) (1978).

17. N.M. STAT. ANN. § 72-12-25(B)(2) (1978).

except appropriations for municipal uses. This truncated process will allow oil and gas producers to effectively shift produced water from a liability to an asset, thus reducing overall costs and spurring economic development. This proposed amendment could be an economic boom while remaining true to the statutory intent of both the 2004 and 2009 amendments.¹⁸

Part II of this article provides a brief introduction to produced water. Part III provides a brief primer on water rights in New Mexico, including the doctrines of appropriation and beneficial use. Part IV discusses the roles of the state engineer and the Oil Conservation Division in regulating produced water. Part V, discusses why oil and gas producers must first appropriate produced water via a truncated process and why this process should be expanded to other uses beyond oil and gas production. Finally, Part VI summarizes the findings.

II. WHAT IS PRODUCED WATER?

Produced water is water that is “an incidental byproduct from drilling for or the production of oil and gas.”¹⁹ Produced waters²⁰ include natural waters which were originally trapped in underground formations²¹ and are brought to the surface with the oil or gas.²² Because these natural waters were previously bound in formation, the waters are new to the hydrologic cycle²³ and therefore are unappropriated waters.

18. See SB 313 Fiscal Impact Report (noting the bill would make the disposition by use of produced water more economically attractive which in turn would possible reduce the amount of produced water that is disposed of by injection and help conserve potable water); see also HB 19 Fiscal Impact Report, *infra* note 56 (noting an impetus of the bill was to place deep water aquifers under the jurisdiction of the state engineer, thus preventing municipalities from obtaining water rights to the deep water aquifers without going through the regular appropriation process; while not piling unnecessary expenses on the oil and gas industry).

19. N.M. STAT. ANN. § 70-2-33(K) (1978); see also U.S. DEPT. OF THE INTERIOR, BUREAU OF RECLAMATION RESEARCH AND DEV. OFFICE, SUMMARY OF CURRENT RESEARCH ON PRODUCED WATER TREATMENT, FINAL REPORT NO. ST-1601-2016-01, 1 (Sept. 2016), available at www.usbr.gov/research/publications/download_product.cfm?id=2459.

20. Produced water should be differentiated from flow back water. Flow back water is water that has been injected into the well, usually during the hydraulic fracturing process, to stimulate natural fractures and increase the permeability of the reservoir, allowing oil and gas to flow into the wellbore. The waters then return or “flow back” to the surface. See Monika Ehrman, *The Next Great Compromise: A Comprehensive Response to Opposition Against Shale Gas Developments Using Hydraulic Fracturing in the United States*, 46 TEX. TECH L. REV. 423, 433 (2014).

21. See MARTIN ET AL., CASES AND MATERIALS: THE LAW OF OIL AND GAS 2 (10th ed. 2016) (noting that generally oil and gas deposits are confined to sedimentary rocks).

22. See Sierra Club, Lone Star Chapter v. Cedar Point Oil Co. Inc., 73 F.3d 546, 550 (5th Cir. 1996); see also Thomas W. Merrill & David M. Schizer, *The Shale Oil and Gas Revolution, Hydraulic Fracturing, and Water Contamination: A Regulatory Strategy*, 98 MINN. L. REV. 145, 185 (2013) (noting that produced water is water that has naturally accumulated in shale formations).

23. See Xochitl Torres-Small, *Water Use and Recycling in Hydraulic Fracturing: Creating a Regulatory Pilot for Smart Water Use in the West*, 55 NAT. RESOURCES J. 409, 412 (2014) (citing Katie L. Benko & Jorge E. Drewes, *Produced Water in the Western United States: Geographical Distribution, Occurrence, and Composition*, 25 ENVTL. ENGINEERING SCI. 239, 239 (2008)).

This brackish byproduct generally contains salts, other dissolved solids, organic compounds, and naturally occurring radioactive minerals.²⁴ The salinity of these waters is generally reported as total dissolved solids (“TDS”). The salinity level, type, and amount of dissolved materials vary greatly by location, well-type and depth.²⁵ In addition to the variability of composition, the amount of produced water produced varies significantly in relation to the amount of oil and gas produced. In 2016, oil production in the southeast corner of New Mexico produced almost six barrels of produced water for every barrel of oil.²⁶ However, in the northwest corner of the state, the produced water to oil production ratio is significantly less at approximately 2.5 to 1, during the same period.²⁷

III. A BRIEF PRIMER ON WATER RIGHTS IN NEW MEXICO

In New Mexico, battles over water are not uncommon due to the scarcity of the resource and the fact that perfecting a water right is challenging. All waters in New Mexico belong to the public.²⁸ Although individuals may use these public waters, the state constitution mandates that a prior appropriator of water has a superior right of use over a later user in time.²⁹ Not only must a user have a superior right to the water, but the user must also demonstrate that the use is beneficial under the circumstances.³⁰

New Mexico water rights reflect the diverse cultures inhabiting the area since before statehood. Grounded in Spanish Colonialism, New Mexico has followed the concept of public ownership of water.³¹ This concept is articulated in the New Mexico Constitution, which states that the “unappropriated water . . . is hereby declared to belong to the public”³² Per the New Mexico Supreme

24. ENV'T'L. PROT. AGENCY, HYDRAULIC FRACTURING FOR OIL AND GAS: IMPACTS FROM THE HYDRAULIC FRACTURING WATER CYCLE ON DRINKING WATER RESOURCES IN THE UNITED STATES 29 (2016); *see also* Torres-Small, *supra* note 23, at 415 (noting “produced water naturally contains trace amounts of mercury, lead, arsenic, radioactive material . . . and organic material.”).

25. *See* C. E. CLARK & J. A. VEIL, PRODUCED WATER VOLUMES AND MANAGEMENT PRACTICES IN THE UNITED STATES 14 (2009); *see also* U.S. Geo. Survey, *supra* note 2, at 3 (noting samples from a conventional oil well in Ohio contained 472,000 mg/liter of total dissolved solids, while a coalbed methane well in Wyoming only contained 1,020 mg/liter).

26. N.M. Oil Conserv. Div., *Natural Gas and Oil Production*, EMNRD, available at <https://wwwapps.emnrd.state.nm.us/ocd/ocdpermitting//Reporting/Production/ExpandedProductionInjectionSummaryReport.aspx> (last visited April 11, 2017). The Oil Conservation Division updates the data monthly.

27. *Id.*

28. N.M. Const. Art. XVI, § 2.

29. *Id.*

30. *See* N.M. Const. Art. XVI, § 3 (noting “[b]eneficial use shall be the basis, the measure and the limit of the right to the use of water.”). *See also* Jicarilla Apache Tribe v. United States, 657 F.2d 1126 (10th Cir. 1981) (noting “no one is entitled to receive water for a use not recognized as beneficial use.”).

31. *See* Albuquerque Land & Irrigation v. Gutierrez, 1900-NMSC-017, ¶ 4, 10 N.M. 177, 61 P. 357 (1900), (noting “[i]t is undoubtedly true that the diversion and distribution of water for irrigation and other domestic purposes in New Mexico, and other Western states where irrigation is necessary, is a public purpose.”).

32. N.M. CONST. art. XVI, § 2.

Court, this constitutional provision did not establish state ownership of the water but was “merely declaratory of existing law.”³³

The New Mexico Legislature expressly applied this concept to underground waters by statute, such that the “water of underground streams, channels, artesian basins, reservoirs or lakes . . . is declared to belong to the public”³⁴ However, while produced water includes all water that is “an incidental byproduct from drilling for or the production of oil and gas”³⁵ some produced water may have been microscopically bound in formation.³⁶ This microscopically bound water is not part of an underground stream, channel, artesian basin, reservoir or lake, and is therefore not subject to the statute. Regardless, under the New Mexico Constitution:

All water within the state, whether above or beneath the surface of the ground belongs to the state, which authorizes its use, and there is no ownership in corpus of the water but the use thereof may be acquired and the basis of such acquisition is beneficial use.³⁷

Based on the history of water rights in New Mexico, the New Mexico Constitution, and New Mexico judicial rulings; the ‘ownership’ of produced water rests firmly with the State of New Mexico.³⁸ Therefore, any use of water in New Mexico must be evaluated under the dual prongs of appropriation and beneficial use.

A. Doctrine of Appropriation

Appropriation has always been the law of the land in what would become New Mexico.³⁹ The New Mexico Constitution drafters were simply reaffirming the status of the law of water within the state from Spanish rule to Mexican rule to the Kearny Code to the New Mexico territorial courts.⁴⁰ However, constitutional

33. *Yeo v. Tweedy*, 1929-NMSC-033, ¶8, 34 N.M. 611, 286 P. 970; *see Snow v. Abalos*, 1914-NMSC-022 18 N.M. 681, 140 P. 1044 (noting the NM Territorial Supreme Court in *Albuquerque Land & Irrigation v. Gutierrez*, *supra* note 31 “did not make the law; it only recognized the law as it had been established and applied by the people, and as it had always existed from the first settlement of this portion of the country.”).

34. N.M. STAT. ANN. § 72-12-1 (1978). The concept that underground waters belonged to the public was included in the Laws of New Mexico 1931 at Chapter 131 §1.

35. N.M. STAT. ANN. 70-2-33(K) (1978).

36. *See Merrill and Schizer supra* note 22, at 185.

37. *State ex rel. Erickson v. McLean*, 1957-NMSC-012, ¶23 62 N.M. 264, 308 P.2d 983. The underlying issue in *Erickson* was if an appropriate right could be lost via non-beneficial use. To reach the conclusion the Court first had to establish the limit of the user’s rights.

38. The ‘ownership’ of water within the boundaries of New Mexico is not an absolute ownership right but more akin to the right of a sovereign to hold the natural resource in trust for the benefit of public use (Public Trust Doctrine).

39. *See Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 98 (1938).

40. *See Charles T. DuMars*, *NEW MEXICO WATER LAW: AN OVERVIEW AND DISCUSSION OF CURRENT ISSUES*, 22 NAT. RESOURCES J. 1045, 1046 n.12; *see also Trambley v. Luteran*, 1891-NMSC-016, ¶ 4, 6 N.M. 15, 27 P. 312 (noting prior appropriation is the law of the land).

codification was an important action as now any limitation or change in the appropriation doctrine would require a state constitutional amendment.⁴¹

Under the doctrine of appropriation, the person who first acts toward applying the water in a beneficial manner has the superior right.⁴² Generally, any appropriator intending to acquire this right must first file an application with the state engineer for a permit to appropriate.⁴³ When evaluating the application, the state engineer must also consider if the appropriation interferes with an existing right and if the use will be beneficial.⁴⁴ There are two recognized exceptions to the requirement that a person must file for a permit with the state engineer to appropriate water.⁴⁵ First, a holder of a prior appropriation established pre-1907⁴⁶ would not require a permit.⁴⁷ The second exception is when a user appropriates waters from a non-potable deep aquifer for certain industrial uses.⁴⁸

B. Doctrine of Beneficial Use

Beneficial use is “the basis, the measure and the limit of the right of the use of water.”⁴⁹ This constitutional mandate is the measure against which all water appropriations are evaluated and no party has “the right to use . . . water except for beneficial use.”⁵⁰ The beneficial use can be consumptive or non-consumptive,⁵¹ but “maximum utilization is a requirement second to none”⁵² However,

41. See generally G. EMLÉN HALL, WET WATER LAW NEW MEXICO STYLE 4TH EDITION (2007) [hereinafter HALL-WET WATER].

42. See Hinderlider, *supra* note 39, at 98. (describing the “so-called appropriation doctrine of water use”).

43. Permits for appropriations of surface water rights are covered under N.M. STAT. ANN. § 72-5-1, while permits for appropriations of groundwater rights are covered under N.M. STAT. ANN. § 72-12-3. The requirement to file an application to appropriate is also in 19.26.2.10 NMAC and 19.27.1.9 NMAC respectively.

44. See N.M. Const. Art. XVI § 3 (noting a beneficial use requirement to obtain a property right in water).

45. A third class of appropriators are a unique category. Persons seeking to appropriate waters for domestic use must file a permit with the state engineer. However, the state engineer does not have the current authority to deny these persons a permit. See N.M. STAT. ANN. § 72-12-1.1 (1978) (noting the state engineer “shall issue a permit to the applicant to use the underground waters applied for . . .”).

46. Water to which users can demonstrate appropriation and beneficial use before passage of the Water Code of 1907 are exempt from the state engineer’s jurisdiction. See generally HALL, *supra* note 41. See also N.M. STAT. ANN. § 72-1-3 (1978) (noting how any person, firm, or corporation can establish a right that was vested prior to passage of the Water Code of 1907).

47. However, such a right holder would need to file a record with the state engineer if the right is transferred or apply for a permit if the point of diversion is changed. See 19.26.2.11 NMAC (noting “Any change in point of diversion, place of use, or purpose of use . . . may be made only upon issuance of a permit by the state engineer.”).

48. See N.M. STAT. ANN. § 72-12-25(B)(1) (1978) (noting appropriations from non-potable deep aquifers for use in oil and gas exploration and production, prospecting, mining, generation of electricity, use in an industrial process or geothermal use are subject to Sections 72-12-25 thru 72-12-28).

49. N.M. Const. Art. XVI, § 3.

50. Erickson, 1957-NMSC-012 at ¶ 28.

51. See Carangelo v. Albuquerque-Bernalillo Cnty. Water Util. Auth., 2014-NMCA-032, ¶ 40 (2014) (noting “A non-consumptive, beneficial use can be the basis for an appropriation of water as much as a consumptive use.” *cert. denied*, 2014-NMCERT-002).

52. Kaiser Steel Corp. v. W.S. Ranch Company, 467 P.2d 986, 1970-NMSC-043, ¶15 (1970).

properly appropriated water rights can be forfeited if the court determines the appropriator “fails to beneficially use all or any part of the water”⁵³

IV. PRODUCED WATER AND REGULATORY AGENCIES

Administrative agencies often have overlapping authority.⁵⁴ This overlapping authority can create a regulatory patchwork⁵⁵ and increase administrative costs and burdens.⁵⁶ In New Mexico, two distinct agencies possibly have jurisdiction over the use of produced water. Generally, the state engineer has jurisdiction over water while the Oil Conservation Division has jurisdiction over oil and gas production.

A. Jurisdiction of the State Engineer

New Mexico has vested the rights and obligations associated with the public’s ownership of appropriated and unappropriated water in the state engineer.⁵⁷ This vestment predates statehood, as the New Mexico territorial laws granted the territorial engineer the “supervision of the apportionment of the water . . . in the territory.”⁵⁸ This grant of supervision was part of the New Mexico Water Code of 1907,⁵⁹ which remains a basis for New Mexico water laws and regulation to this day.⁶⁰ The Water Code sets forth existing rights and practices and centralized the administration of water-related governmental activities via the territorial engineer.⁶¹

Under current law, the state engineer’s authority is broad and includes “general supervision of waters of the state . . . , appropriation, distribution . . . and

53. N.M. STAT. ANN. § 72-5-28 (2002). New Mexico courts have found forfeiture of rights for waste, *Erickson v. Mclean*, *supra* note 37, ¶ 25 and even non-use, *Office of State Eng’r v. Elephant Butte Irrigation District*, 287 P.3d 324, 2012-NMCA-090 287 P.3d 324 (2012).

54. *See Thompson Medical Co., Inc. v. F.T.C.*, 791 F.2d 189, 192 (C.A.D.C. 1986) (noting a series of cited cases show overlapping and concurring regulatory jurisdiction). *See also* KRISTEN L. JOHNS, FARM FISHING HOLES: GAPS IN FEDERAL REGULATION OF OFFSHORE AQUACULTURE, 86 S. CAL. L. REV. 681 (2013) (noting seven federal agencies invoke jurisdiction to regulate aquaculture activities in federal waters).

55. JOHNS, *supra* note 54 at 699.

56. N.M. LEGIS. FIN. COMM., FISCAL IMPACT REPORT HOUSE BILL 19, 49th Legis., Reg. Sess. (Feb. 13, 2009) (noting regulation by two agencies leads to conflicts and increases costs to the industry regulated). [hereinafter HB 19 Fiscal Impact Report].

57. N.M. STAT. ANN. § 72-2-1 (1978).

58. 1907 N.M. Territorial Laws, ch. 49, § 12.

59. *Id.*

60. *See*, HISTORY OF NEW MEXICO WATERS: A BRIEF OVERVIEW, BASIC WATER LAW CONCEPTS, WATER MATTERS, (2015) at 3, available at http://utntoncenter.unm.edu/pdfs/water-matters-2015/01_Basic_Water_Law_Concepts.pdf; *see also* Martha C. Franks, WATER, THEOLOGY, AND THE NEW MEXICO WATER CODE, 48 NAT. RESOURCE J. 208 No. 2, at 232.

61. *Id.* Other authors have noted that in addition to seeking to codify the existing rights and thus possibly alleviating the strain of litigation on the courts, the precipice of the Water Code was the founding of the United States Reclamation Service. The Reclamation Service founding principle was to ‘reclaim’ the arid west and increase agriculture via public work dam projects. However, the federal government was wary of initiating costly projects until the territories in question established comprehensive water codes. *See* Franks, *supra* note 60 at 232, 233; *see also* G. Emlen Hall, THE FIRST 100 YEARS OF THE NEW MEXICO WATER CODE, 48 NAT. RESOURCES J. 247 [hereinafter Hall-FIRST 100 YEARS].

such other duties as required.”⁶² Despite this broad authority, the state engineer is limited by several factors including specific statutes and judicial interpretation.⁶³ As a statutory creature, the state engineer can have its authority broadened or reduced by the New Mexico Legislature.⁶⁴ Further, New Mexico courts retain the right to review any state executive officer’s action or refusal to act in matters relating to water rights de novo.⁶⁵

In addition to the aforementioned limitations, the language⁶⁶ in the Water Code of 1907 appeared to grant the territorial engineer jurisdiction over surface rights only. The Territorial Court agreed with this interpretation and reasoned that the Legislature “did not confer upon the territorial engineer jurisdiction . . . of all waters within the territory, but only over . . .”⁶⁷ the waters listed in Section 1 of the Water Code. In *Vanderwork v. Hewes*⁶⁸, the New Mexico Supreme Court expressly stated, “the territorial engineer had no authority to grant” a permit for the appropriation of seepage water under Section 1 of the Water Code.⁶⁹ In a subsequent case, the court found that the legislature in no doubt considered “that statutes, in addition to the Water Code, would be necessary to subject artesian waters appropriators to the jurisdiction of the state engineer.”⁷⁰

1. Underground Basins

New Mexico first attempted to write down in statutes the existing law regarding groundwater in 1927.⁷¹ The statute granted “the supervision and control of all such underground waters . . .” to the state engineer,⁷² but the statute was found unconstitutional based on a technical issue.⁷³ However, the court noted that the law’s declaration that underground waters belong to the public was not a subversion of the landowners’ vested rights because the law was “declaratory of

62. N.M. STAT. ANN. § 72-2-1 (1978).

63. Other factors include “Mendenhall” rights and the possibly lack of authority over non-adjudicated pre-1907 rights. However, in 2003 the New Mexico Legislature delegated the State Engineer new authority over non-adjudicated water as long as appropriate regulations were issued by the State Engineer. See N.M. STAT. ANN. § 72-2-9.1 (1978); see also HALL-WET WATER, *supra* note 41, at 351.

64. See N.M. STAT. ANN. § 72-12-1 (1978) (expanding the state engineer’s jurisdiction to subsurface water); See also N.M. STAT. ANN. § 72-12-25 (1978) (expanding the state engineer’s jurisdiction to non-potable deep water aquifers); but see N.M. STAT. ANN. § 70-2-12.1 (1978) (requiring no permit from the state engineer for the disposition of produced water).

65. N.M. Const. Art. XVI, Sec. 5. This Section was added by vote on November 7, 1967.

66. See N.M. STAT. ANN. § 72-1-1 (1978) (noting “[a]ll natural waters flowing in streams and watercourses, . . . are subject to appropriate for beneficial use.”).

67. *Vanderwork v. Hewes*, 1910-NMSC-031, ¶ 7, 110 P. 567 (1910).

68. *Id.*

69. *Id.* at ¶10.

70. *El Paso & R.I. Ry. Co. v. District Court of Fifth Judicial Dist. Within and for Chaves County*, 1931-NMSC-055, ¶ 29, 8 P.2d 1064 (1931).

71. 1927 N.M. Laws 450.

72. *Id.* at Section 2.

73. See *Yeo v. Tweedy*, *supra* note 33 (declaring the law “void as in contravention Constitution, art. 4, § 18 that no law shall be revised or amend, or the provisions thereof extend by reference to its title only . . . (internal quotations removed)).

existing law.”⁷⁴ The legislature corrected the constitutional issues and passed the Groundwater Code in 1931.⁷⁵

The Groundwater Code of 1931 was intended to extend the basic principles of the Water Code to groundwater while recognizing the differences between the two resources.⁷⁶ The Groundwater Code declared public ownership of underground waters but limited the ownership to waters “having reasonably ascertainable boundaries”⁷⁷ Until an underground basin was declared, the state engineer had no authority to control the appropriation and use of the underground water.⁷⁸ The state engineer can reasonably ascertain the boundaries “by scientific investigations, or by surface indications.”⁷⁹ The state engineer began the process of ascertaining underground boundaries in 1931 and declared the final remaining groundwater basins in 2005.⁸⁰

2. Non-Potable Deep Water Aquifers

A notable exception to the state engineer’s jurisdiction under the original Groundwater Act was for non-potable deep water aquifers. Non-potable deep water aquifers have tops greater than 2,500 feet below the surface and contain not less than one thousand parts per million of dissolved solids.⁸¹ Prior to 2009, “[n]o past or future order of the state engineer declaring an underground water basin . . . shall include waters . . . “ constituting a non-potable deep water aquifer.”⁸² Because the state engineer could not declare the underground basin, the state engineer did not have jurisdiction over the basin.⁸³

In 2009, the New Mexico State Legislature amended Section 72-12-25 of the New Mexico statutes to subject non-potable deep water basins to the state engineer’s administration.⁸⁴ The legislature, however, specifically bifurcated the applicability of the state engineer’s jurisdiction by the water’s use. The legislature mandated that industrial processes such as oil and gas exploration would be subject to Sections 72-12-25 through 72-12-28;⁸⁵ while other uses would remain subject to

74. *Id.* at *Syllabus by the Court.*

75. 1931 N.M. Laws 229 (codified as N.M. STAT. ANN. §72-12 (1931)).

76. Hall-FIRST 100 YEARS, *supra* note 61.

77. N.M. STAT. ANN. § 72-12-1 (1978).

78. *See* *McBee v. Reynolds*, 1965-NMSC-007, 399 P.2d 110, (1965) (noting that in a string of cases starting with *Yoe v. Tweedy*, the New Mexico Supreme Court has unequivocally held that a State Engineer could not exercise jurisdiction over underground waters until he had declared a basin); *See also* 1949-50 Op. Attorney Gen. No. 49-5185 (noting after declaring the reasonably ascertainable boundaries of a basin, the State Engineer can declare the waters are public waters subject to his administrative jurisdiction).

79. *Yeo v. Tweedy*, *supra* note 33, at ¶32.

80. N.M. OFFICE OF THE STATE ENGINEER, SPECIAL ORDERS DECLARING AND EXTENDING UNDERWATER GROUNDWATER BASINS NOS. 161-66 (September 5, 2005), <http://www.ose.state.nm.us/Orders/orders.php#groundwater>.

81. *See* N.M. STAT. ANN. § 72-12-25 (1978).

82. N.M. STAT. ANN. §72-12-25 (1978) (amended 2009).

83. *See McBee*, *supra* note 78.

84. N.M. STAT. ANN. § 72-12-25 (1978).

85. N.M. STAT. ANN. § 72-12-25(B)(1) (1978).

Sections 72-12-1 through 72-12-24⁸⁶. The bifurcation was an attempt to establish state engineer control over non-potable deep aquifers while limiting agency oversight to industrial uses such as the oil and gas industry.⁸⁷ Section 72-12-26 removed these waters from the normal appropriation process and instead mandated that users seeking to appropriate these waters “file a notice of intention . . . “ with the state engineer.⁸⁸

B. Jurisdiction of the Oil Conservation Division

The Oil Conservation Division (the “OCD”) was created via statute under the Oil and Gas Act in 1953 and is a subdivision of the New Mexico Energy, Minerals and Natural Resources Department (“EMNRD”). The OCD is empowered to prevent the waste of oil and gas and protect the correlative rights of owners of a common reservoir of oil and gas.⁸⁹ The duty to prevent waste and protect correlative rights is the basis of the OCD’s power.⁹⁰

To accomplish these duties, the OCD has been granted a statutory list of enumerated powers.⁹¹ The enumerated powers, in Section 70-2-12 of the New Mexico statutes, include the authorization “to make rules, regulations, and orders for the purpose and with respect to the subject matter . . . “ in Subsection B of that Section.⁹² In 2004, the legislature amended Subsection B to include the authorization to regulate the disposition of produced water “by use in drilling for or production of oil or gas. . . . “⁹³ The bill to amend Subsection B also included an

86. N.M. STAT. ANN. § 72-12-25(B)(2) (1978).

87. N.M. STAT. ANN. § 72-12-25(B)(1) (1978). HB 19 Fiscal Impact Report noted that a primary driving force of the legislature was the sudden increase of municipalities filing notices of intent to drill wells in these aquifers. The notices increased from 40,000 acre feet in 2008 to 400,000 acre feet in 2009. However, the Association of Commerce and Industry expressed concern, that unless exempted, the oil and gas industry would be subject to two agencies, the State Engineer and OCD, thus increasing costs to an industry that provides over 25% of the state budget. HB 19 Fiscal Impact Report, *supra* note 56, at 2, 5.

88. N.M. STAT. ANN. § 72-12-26 (1978).

89. N.M. STAT. ANN. § 70-1-1 (1978). In an oil and gas context, waste generally means any action or event that does not maximize the recovery or use of the product. The New Mexico statutory definition of waste is broad and includes inefficient use or dissipation of reservoir that reduces the total quantity of product recovered or even production in excess of reasonable market demand. N.M. STAT. ANN. § 70-2-3 (1978). Correlative rights are “rights which one owner possesses in a common source of supply in relation to those rights possessed by other owners in the same common source of supply.” *United Petroleum Expl., Inc. v. Premier Resources*, 511 F. Supp. 127,129 (W.D. Okla. 1980). New Mexico defines correlative rights in N.M. STAT. ANN. § 70-2-33(H).

90. *See Cont’l Oil Co. v. Oil Conservation Comm’n*, 1962-NMSC-062, ¶ 11, 70 N.M. 310, 373 P.2d 809 (1962) (noting the OCD “has jurisdiction over matters relating to the conversation of oil and gas in New Mexico, *but* the basis of its power is founded on the duty to prevent waste and to protect correlative rights.” ¶11 (emphasis added)).

91. N.M. STAT. ANN. § 70-2-12 (1978).

92. N.M. STAT. ANN. § 70-2-12(B) (1978).

93. N.M. STAT. ANN. § 70-2-12(B)(15) (1978). The original Senate Bill included the word ‘disposal’ which was subsequently replaced with the word ‘disposition’. The word change was based on OCD’s recommendation that the difference “may have implications regarding applicability of federal environmental laws.” Legislative Fin. Comm., N.M. Legislature, Fiscal Impact Report SB313, February 12, 2004.

amendment stating that no permit is required from the state engineer “for the disposition of produced water in accordance with rules promulgated . . . “ under Section 70-2-12.⁹⁴

With this new statutory authority, the OCD issued a rule providing no permit or registration is required from OCD for the “disposition by use of produced water for drilling, completion, producing, [or] secondary recovery”⁹⁵ Despite this administrative rule, there was “some confusion about the applicability of OCD rules to reuse produced water and whether prior authorization from OCD [was] needed for reuse of produced water.”⁹⁶

In September 2009, the OCD issued a notice in an attempt to clear up the confusion.⁹⁷ The notice stated that “[n]o permit or authorization [was] required for reuse of produced water, . . . as a drilling or completion or other type of oil field fluid”⁹⁸ However, the notice stated that any other OCD regulated reuse of produced water requires “an authorization or permit from OCD”⁹⁹

V. PRODUCERS MUST APPROPRIATE PRODUCED WATER VIA THE STATE ENGINEER FOR SUBSEQUENT USE IN OIL AND GAS PRODUCTION

The OCD’s Notice Letter¹⁰⁰ relieved producers from obtaining a permit or authorization from the OCD for the reuse of produced water in oil and gas production. However, two questions remain. First, did the OCD have the statutory authority to allow producers to reuse produced water in oil and gas production? Second, even if OCD’s notice is on firm statutory footing, does a producer still need a permit from the state engineer to appropriate the produced water for reuse in oil and gas production? An analysis of the 2004 and 2009 amendments shows that while the OCD has authority over the disposition by use of produced water, oil and gas producers must first obtain a right to the produced water via the state engineer.

A. The 2004 Amendments to the OCD’s and State Engineer’s Jurisdiction

OCD based the Notice Letter on the agency’s authority to regulate the disposition of produced water under Section 70-2-12 of the New Mexico statutes.¹⁰¹ Section 70-2-12 is an enumeration of OCD’s powers and includes the power to regulate the disposition of produced water in connection with oil and gas production.¹⁰² However, this expansion of power initiates two questions. First, did

94. N.M. STAT. ANN. § 70-2-12.1 (1978).

95. Statutory Authority, 19.15.34.3 NMAC (3/31/15); Requirements for Disposition By Use, Recycling Facilities or Disposal of Produced Water, Subsection A(1) 19.15.34.8 NMAC (12/1/08).

96. Notice Letter, *supra* note 8.

97. *Id.*

98. *Id.*

99. *Id.*

100. *Id.*

101. *Id.*

102. N.M. STAT. ANN. § 70-2-12(B)(15) (1978).

the OCD utilize this expansion of power to create a rule¹⁰³ that appears to be in direct conflict with another agency rule?¹⁰⁴ Second, can the New Mexico Legislature decree that the state engineer has no authority over the disposition of produced water? As explained below, the apparent conflict does not override the fact that OCD's rule requiring no permit for disposition by use is within the OCD's fundamental duties and within the legislative intent of the 2004 Amendments. In addition, as a statutory creature, the legislature can expand or contract the state engineer's jurisdiction.

In 2004, the New Mexico Legislature passed two relevant amendments via Senate Bill 313 and duplicate bill, House Bill 153.¹⁰⁵ The bills were a "consensus product . . . regarding the disposal of produced water from oil and gas drilling and production."¹⁰⁶ Representatives of the oil and gas industry, the state engineer, and the OCD contributed to the bill.¹⁰⁷ The bills amended Section 70-2-12(B)(15) of the New Mexico statutes by adding the authority to regulate "disposition by use in drilling for or producing oil or gas . . ." ¹⁰⁸ to the list of the OCD's enumerated powers. The bills also included a new subsection mandating that the "state engineer shall not require a permit for the disposition of produced water disposed . . ." ¹⁰⁹ pursuant to rules implemented by the OCD. Both additions were codified under Section 70-2-12¹¹⁰, which lists OCD's enumerated powers. After codification of the 2004 amendments, OCD amended Section 19.15.34.8 of the New Mexico Administrative Code.

Prior to 2009, Section 19.15.34.8 of the New Mexico Administrative Code was titled "Transportation of Produced Water, Drilling Fluids, and Other Liquid Oil Field Waste."¹¹¹ The agency rule required persons seeking to remove or transport produced water to apply for authorization via OCD form C-133.¹¹² However, in 2009, the OCD amended the rule to incorporate the 2004 statutory

103. 19.15.34.8 NMAC (stating that no permit or registration is needed from the OCD for the disposition by use of produced water in drilling, completion, producing, secondary recovery, pressure maintenance or plugging of wells).

104. *C.f.* 19.15.26.8 NMAC (conflicting with NMAC 19.15.26.8 states 34.8 in requiring states a permit is for an operator to inject water or any other fluid into a reservoir or formation to maintain reservoir pressure or other enhanced recovery or for injection into a formation for disposal).

105. The bills contained three major Sections. The first Section provided for a tax credit for the use of produced water in electricity generation and is not discussed in this paper. Sections 2 and 3 of the bills were to "amend the Oil and Gas Act to clarify the authority of the Oil Conservation Division of the Energy, Minerals and Natural Resources Department to regulate the disposition of produced water, including disposition by use in drilling for or production of oil or gas, and that a permit from the State Engineer is not required for such disposition." *See* FISCAL IMPACT REPORT, S.B. 313, 46th Leg., Reg. Session, at 2 (2004); *See also* H.B. 153, 46th Leg., Reg. Session (2004).

106. FISCAL IMPACT REPORT, S.B. 313, 46th Leg., Reg. Session, at 4 (2004).

107. *Id.*

108. FISCAL IMPACT REPORT, S.B. 313, 46th Leg., Reg. Session, at 6 (2004) (codified in N.M. STAT. ANN. §70-2-12(B)(15) (1978)).

109. FISCAL IMPACT REPORT, S.B. 313, 46th Leg., Reg. Session, at 3 (2004) (codified in N.M. STAT. ANN. §70-2-12(B)(15) (1978)).

110. *See* N.M. STAT. ANN. § 70-2-12 (1978).

111. 19.15.34.8 NMAC (later this rule became 19.15.34.17 NMAC).

112. *See, e.g.*, STATE OF N.M. ENERGY MINERALS AND NAT. RES., *C-133*, (2013), <http://www.emnrd.state.nm.us/OCD/documents/LIVEFORMC-133.pdf>.

change¹¹³ authorizing the agency to regulate the disposition of produced water.¹¹⁴ The agency then created a new rule requiring no permit or registration for “disposition by use of produced water for drilling, completion, producing, secondary recovery, pressure maintenance or plugging of wells”¹¹⁵ However, this rule appears to be in direct conflict with another OCD rule.¹¹⁶

While not requiring a permit for disposition by use,¹¹⁷ the OCD requires a permit to inject water or other fluids into a reservoir or formation for secondary or enhanced recovery.¹¹⁸ The OCD may contend that the perceived conflict is not a conflict but demonstrates that a permit is needed to dispose of water or other fluids and a separate permit is not needed if the water or other fluid is produced water. Despite the apparent conflict between the two rules, 19.15.34.8¹¹⁹ is consistent with the agency’s fundamental duties, the purpose of the agency’s rules concerning produced water, and the legislative intent of the 2004 amendment.

The two fundamental powers of the OCD are the prevention of oil and gas waste and protection of the correlative rights of common owners of the reservoir.¹²⁰ By reducing the regulatory burdens for the reuse of produced water, the OCD is encouraging producers to recover a greater amount of available resources and to decrease the potential waste of both oil and gas and produced water in formation. In addition, the OCD has stated the objective of the produced water rules in 19.15.34 of the New Mexico Administrative Code is to “encourage the recycling reuse or disposition of produce manner that affords reasonable protection of fresh water.”¹²¹ This objective is echoed in the legislative intent of Senate Bill 313.¹²² The fiscal impact report on Senate Bill 313 noted that the EMNRD reported the enactment of the amendments would “help conserve scarce fresh water in the present drought.”¹²³

The second major amendment in the bill¹²⁴ was the addition of Section 70-12-12.1, which states “[n]o permit shall be required from the state engineer for the disposition of produced water”¹²⁵ This language was codified under the

113. N.M. STAT. ANN. § 70-2-12(B)(15) (1978).

114. See 19.15.34.8 NMAC. The agency subsequently implemented NMAC 19.15.34.17 which contains the same language as the former 19.15.34.8.

115. 19.15.34.8 NMAC. However, the rule does require prior approval of any other disposition by use of produced water. See also 19.15.34.8(A)(2) NMAC.

116. 19.15.34.8 NMAC.

117. 19.15.34.8 NMAC.

118. 19.15.34.8 NMAC.

119. 19.15.34.8 NMAC.

120. See *Cont’l Oil Co. v. Oil Conservation Comm’n*, 373 P.2d 809 (N.M. 1962) (noting “the basis of [the agency’s] power is founded on the duty to prevent waste and protect correlative rights.” at ¶11); see also N.M. STAT. ANN. §70-2-2 (1978) (noting that waste is prohibited). Waste invokes a different context in the oil and gas industry and includes “any event to embrace the inefficient, excess or improper, use or dissipation of the reservoir energy . . . in a manner to reduce or tend to reduce the total quantity . . . “ of oil or gas. N.M. STAT. ANN. § 70-2-3(A) (1978).

121. 19.15.34.6 NMAC.

122. See SB 313, *supra* note 5.

123. SB 313 Fiscal Impact Report, *supra* note 14, at 2.

124. SB 313, *supra* note 5.

125. N.M. STAT. ANN. § 70-2-12.1 (1978).

enumerated powers of the OCD and effectively superseded the state engineer's statutory duties over the state's water in regards to produced water.¹²⁶ As the state engineer is a creature of the legislature, the legislature can expand or limit the state engineer's authority and jurisdiction.¹²⁷ This limitation of authority and jurisdiction appears to be one of the bases behind the bill.¹²⁸

EMNRD noted in its report to the legislature concerning Senate Bill 313 that both the amendments to Sections 70-2-12(B)(15) and 70-2-12.1 "clarify the authority from which permits must be obtained for the use of produced water; . . ." ¹²⁹ However, EMNRD's report also noted: "Sections 72-12-1 through 72-12-28 NMSA 1978 could be construed to require a permit from the State Engineer, as well OCD, for use of produced water . . ." ¹³⁰ Therefore, Senate Bill 313 was necessary to provide "certainty regarding regulatory requirements . . ." to the use of produced water by the oil and gas industry.¹³¹ This certainty would "facilitate the use of produced water as a substitute for fresh water . . ." ¹³² where it was economically and environmentally appropriate, thus helping "to conserve scarce fresh water . . ." ¹³³

OCD clearly has the statutory authority to issue the Notice Letter. The agency applied Sections 70-2-12(B)(15) and 70-2-12.1¹³⁴ to issue an agency rule requiring no permit or registration from the agency for the disposition by use of produced water.¹³⁵ While New Mexico does not defer to an agency's statutory interpretations, the courts will "give effect to the Legislature's intent."¹³⁶ Here, the legislative intent of the 2004 amendments was to provide for regulatory certainty to "facilitate the use of produced water as a substitute for fresh water . . ." ¹³⁷ The

126. See N.M. STAT. ANN. § 72-2-1 (1978).

127. See *Vanderwerk*, *supra* note 67. The New Mexico Legislature has expanded the state engineer's jurisdiction on several occasions including the Groundwater Act and by amending the state engineer's jurisdiction of non-potable deepwater aquifers.

128. See SB 313 Fiscal Impact Report, *supra* note 14, at 2.

129. *Id.*

130. *Id.* This section from the EMNRD noted that water extracted from a non-potable deep aquifer would be exempt from the state engineer's jurisdiction. However, this was before the 2009 amendment to N.M. STAT. ANN. § 72-12-25 which squarely placed non-potable deep aquifers within the state engineer's jurisdiction. See N.M. STAT. ANN. § 72-12-25 (1978) (noting waters in non-potable deep aquifers are "subject to state engineer administration in accordance with Sections 72-12-25 through 72-12-2 NMSA 1978.").

131. SB 313 Fiscal Impact Report, *supra* note 14, at 2.

132. *Id.*

133. *Id.*

134. N.M. STAT. ANN. § 70-2-12(B)(15) (1978); N.M. STAT. ANN. § 70-2-12.1 (1978).

135. 19.15.34.8 NMAC.

136. *Marbob Energy Corp. v. N.M. Oil Conservation Com'n*, 2009-NMSC-013, ¶ 9, 206 P.3d 135 (2009) (citing *N.M. Indus. Energy Consumers v. N.M. Pub. Regulation Comm.*, 2007-NMSC-053, ¶ 20, 168 P.3d 105 (2007)). At issue in *Marbob* was the OCC's authority to assess civil penalties and other sanctions for violations under the Oil and Gas Act. The OCC had issued NMAC 19.15.5.10(B)(2) allowing for assessment of civil penalties based on the language in N.M. STAT. ANN. §§ 70-2-22, -31, and -36. The *Marbob* Court rejected the authority based on a plain language argument and did not reach a legislative intent analysis of the statute. *Id.* at ¶ 1.

137. SB 313 Fiscal Impact Report, *supra* note 14, at 2.

amendments,¹³⁸ OCD's rule,¹³⁹ and the Notice Letter accomplish this intent by stating that no permit or registration is needed from the OCD¹⁴⁰ or the state engineer¹⁴¹ for the disposition of produced water. However, authority to regulate the disposition by use is not the same as the authority to grant the initial appropriation of water,¹⁴² and this appropriation must go through the state engineer.¹⁴³

B. Producers Must File Notice to Appropriate Produced Water

The 2004 amendments¹⁴⁴ and associated Senate Bill 313 Fiscal Impact Report¹⁴⁵ go to great lengths to clarify that the authority to regulate the disposition of produced water lies with the OCD and no permit is required by the state engineer.¹⁴⁶ However, despite the lack of a permit or authorization needed for the disposition by use of produced water, producers must file a notice of intent to appropriate the produced water.¹⁴⁷ The notice is required under Section 72-12-26 of the New Mexico statutes, in that any person proposing to drill wells to appropriate waters from non-potable deep aquifers shall file notice with the state engineer.¹⁴⁸ The analysis of why the notice is required despite the 2004 amendments¹⁴⁹ is based on a plain language reading of the 2004 amendments and the 2009 expansion of the state engineer's jurisdiction,¹⁵⁰ and the statutory intent of the 2009 expansion.¹⁵¹

Section 70-2-12(B)(15) of the New Mexico statutes grants the OCD the power to "regulate the disposition of water produced or used in connection with . . .

138. See N.M. STAT. ANN. §§ 70-12-12(B)(15) (1978), 70-12-12.1 (1978).

139. 19.15.34.8 NMAC.

140. ENERGY, MINERALS & NAT. RES. DEP'T, NOTICE: NO OCD PERMIT REQUIRED FOR RE-USE OF PRODUCED WATER AS OIL AND GAS OPERATIONS; 19.15.34.8 NMAC.

141. N.M. STAT. ANN. §70-12-12.1 (1978).

142. See HB 19 Fiscal Impact Report, *supra* note 56, at 6 (noting EMNRD did not believe HB 19 conflicted with the "statutory grant of jurisdiction to the OCD because [HB 19] addresses the appropriation of water, rather than the disposition of water" (underline added)).

143. See N.M. STAT. ANN. § 72-12-25(A) (1978) (noting non-potable waters from deep water aquifers are subject to state engineer administration); see also N.M. STAT. ANN. § 72-12-26 (1978) (noting any person seeking to appropriate non-potable waters from deep aquifers must file a notice of intent with the state engineer).

144. SB 313, *supra* note 5, was codified as N.M. STAT. ANN. §§ 70-12-12(B)(15) (1978) and 70-12-12 (1978). The companion bill in the House was House Bill 153.

145. SB 313 Fiscal Impact Report, *supra* note 14.

146. See SB 313, *supra* note 5; see also SB 313 Fiscal Impact Report, *supra* note 14.

147. N.M. STAT. ANN. § 72-12-26 (1978).

148. See N.M. STAT. ANN. § 72-12-26 (1978) (discussing the steps appropriators must take with the state engineer regarding waters listed in Section 72-12-25). Section 72-12-25 waters include declared aquifers 2,500 feet or more below the ground surface and which contain only non-potable water.

149. SB 313, *supra* note 5.

150. H.B. 19, 49th Leg., Reg. Sess. (2009) [hereafter HB 19]. The bill received unanimous support and passed the House of Representatives with a 64 to 0 vote and the Senate with a 30 to 0 vote (See Actions of the 2009 Regular Session House Bill 19, <https://www.nmlegis.gov/Legislation/Legislation?Chamber=H&LegType=B&LegNo=19&year=09> (last visited Jan. 29, 2018)). The amendments were subsequently codified at N.M. STAT. ANN. § 72-12-25 (2009).

151. *Id.*

“oil and gas production.¹⁵² Section 70-2-12.1 states that “[n]o permit shall be required . . . for the disposition of produced water . . .”¹⁵³ The plain language of both amendments utilizes the word ‘disposition’ to describe what actions are covered under the respective statute.¹⁵⁴ Black’s Law Dictionary defines disposition as the “relinquishing of property.”¹⁵⁵ To relinquish the property, the person must first have a right to said property. Generally, in New Mexico, a party must go through the state engineer to obtain a property right in regards to waters.¹⁵⁶

Unappropriated waters in New Mexico “belong to the public . . .”¹⁵⁷ and New Mexico has vested the rights and obligations of this public ownership with the state engineer.¹⁵⁸ To obtain a property right in groundwater a party would need to apply to,¹⁵⁹ or file a notice with,¹⁶⁰ the state engineer. The water in both situations remains under the jurisdiction of the state engineer and the right is subject to forfeiture.¹⁶¹ The plain language of the 2004 amendments effectively places the authority to regulate the *disposition* of produced water under the auspices of the OCD. However, the disposition is not appropriation and the plain language does

152. N.M. STAT. ANN. § 70-2-12(B)(5) (1978).

153. N.M. STAT. ANN. § 70-2-12.1 (1978).

154. The original bills used the word “disposal” but was changed to avoid any potential conflicts with federal regulations. *See* SB 313, *supra* note 5.

155. Black’s Law Dictionary (Bryan A. Garner ed., Thomas Reuters 10th ed. 2014). The OCD may contend that the use of a non-sequitur term such as ‘disposition by use’ is simply nomenclature to avoid any conflict with federal regulations. This would be similar as to how the terms are used in the Resource Conservation and Recovery Act (“RCRA”). RCRA does not regulate produced water, but how RCRA differentiates between disposal and disposition is helpful. *See* ENVTL. PROT. AGENCY, RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) OVERVIEW, <https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview>, (noting RCRA requires wastes to be discarded to be applicable) (last visited April 24, 2017); *Compare* *No Spray Coal. Inc. v. City of New York*, 252 F.3d 148, 150 (2d Cir. 2001) (noting pesticides are not discarded when sprayed in the air with the design of effecting the pesticides intended purpose), *with* *Community Ass’n for Restoration of the Env’t v. George & Margaret LLC*, 954 F.Supp.2d 1151, 1158 (E.D. WA 2013) (noting that over application of manure on fields and leakage from storage lagoons can constitute waste under RCRA).

156. *See* N.M. Stat. Ann. § 72-1-2.1 (1978). The most notable exceptions are when a party has established a right in the water prior to the establishment of the state engineer, pre-1907 rights, and a party that has established a right in groundwater before the expansion of the state engineer’s declaration of an underground basin, Mendenhall rights. *See* *State v. Mendenhall*, 362 P.2d 998, 68 N.M. 467 (1961).

157. N.M. Const. Art. XVI, § 2.

158. *See* N.M. STAT. ANN. § 72-2-1 (1978).

159. Generally, persons seeking to appropriate groundwater would need to satisfy the requirements set forth in N.M. STAT. ANN. § 72-12-3 (1978). However, exceptions apply for non-potable deep aquifers and domestic uses. *See infra* note 159 (discussing non-potable deep aquifers); *see also* N.M. STAT. ANN. §72-12-1.1 (1978) (noting persons desiring to use underground water for domestic uses shall apply to the state engineer but the state engineer shall issue a permit). For a discussion of the constitutionality of N.M. STAT. ANN. §72-12-1.1 (1978), *see also* *Bounds v. State ex rel. D’Antonio*, 306 P.3d 457, 2013-NMSC-037 (2013).

160. N.M. STAT. ANN. §72-12-25 (1978) notes all appropriations of a non-potable water basin for use in oil and gas exploration and production are subject to N.M. STAT. ANN. §§ 72-12-25 (1978) through 72-12-28. N.M. STAT. ANN. §72-12-26 (1978) notes persons proposing to drill wells to appropriate waters from non-potable deep aquifers shall file a notice of intention to drill with the state engineer.

161. *See* N.M. STAT. ANN. § 72-5-28 (1978).

not overcome the constitutional mandates of public ownership of New Mexico waters or the vestment of these rights with the state engineer.

The OCD and other parties may contend that the 2004 amendments clearly grant the OCD the authority to regulate disposition and the implied authority to regulate the appropriation of water¹⁶². However, this implied authority would be based on a perceived ambiguity in the statute's language. If the OCD could successfully convince a court that the language in the 2004 amendments is ambiguous, a court would then examine the statutory intent.

Based on the statutory intent of the 2004 amendments, a court would most likely determine that the amendments place the authority to regulate the disposition by use of produced water solely under the jurisdiction of the OCD. This authority might also include the requirement that no permit is needed from the state engineer to appropriate produced water that is subsequently disposed of by use in the drilling for or production of oil or gas or both.¹⁶³

The Senate Bill 313 Fiscal Impact Report clearly notes that Sections 72-12-1 through 72-12-28 "could be construed to require a permit from the state engineer . . ."¹⁶⁴ However, the legislative intent was to provide certainty regarding regulatory requirements to facilitate the use of produced water in helping to conserve scarce fresh water.¹⁶⁵ Therefore, the legislature recognized the possible ambiguity and sought to relieve producers of the administrative hurdles of having to apply to the state engineer's office for a permit to appropriate the produced water. However, this legislative intent must be viewed in light of the subsequent 2009 amendments to the state engineer's jurisdictions codified in Section 72-12-25.¹⁶⁶

Prior to 2009, Section 72-12-25 noted that "[n]o past or future order of the state engineer . . ."¹⁶⁷ had an effect over non-potable aquifers with tops 2,500 feet or more below the ground surface. In 2009, the 49th New Mexico Legislature amended Section 72-12-25 to expand the state engineer's jurisdiction over certain non-potable underground aquifers¹⁶⁸ to protect these usable waters for future

162. OCD may also contend that the agency's authority under N.M. STAT. ANN. § 70-2-6 (1978). Section 70-2-6 gives OCD the "jurisdiction and authority of all matters relating to the conservation of oil and gas . . ." This Section grants the agency jurisdiction, authority, and control over all persons, matters, or things needed to enforce the Oil and Gas Act. However, the issue remains that is the authority to regulate disposition by use the same as authority to regulate appropriation of water.

163. See N.M. STAT. ANN. § 70-12-12(B) (15) (1978) (granting the OCD to regulate the disposition of water produced or used in connection with the drilling for or producing of oil or gas or both); See also N.M. STAT. ANN. § 70-12-12.1 (1978) (stating no permit shall be required from the state engineer for the disposition of produced water in accordance with rules implemented pursuant to N.M. STAT. ANN. § 70-2-12 (1978)).

164. SB 313 Fiscal Impact Report, *supra* note 14, at 2. The Fiscal Impact Report noted the water could be subject to appropriation via the state engineer unless the water was obtained from a non-potable deep aquifer. However, the SB 313 Fiscal Impact Report and Senate Bill 313 both occurred 5 years before the Legislature amended N.M. STAT. ANN. § 72-12-25 (1978) to extend state engineer jurisdiction to non-potable deep water aquifers.

165. *Id.*

166. See N.M. STAT. ANN. §72-12-25 (1978).

167. N.M. STAT. ANN. §72-12-25 (1978) (repealed 2009).

168. HB 19, 49th Leg., Reg. Sess., at 1 (N.M. 2009).

use.¹⁶⁹ This expansion squarely placed these waters “subject to state engineer administration”¹⁷⁰ The expansion was deemed necessary to protect the usable waters.¹⁷¹ Once the state engineer’s jurisdiction is established, parties must go through the appropriation process established by the state engineer.¹⁷²

However, the legislature bifurcated the method of appropriation by the intended use of the waters. The bifurcation was deemed necessary to protect these waters from overuse for domestic and municipal purposes¹⁷³ while continuing to allow a truncated method for an enumerated list of industrial uses. Appropriations for industrial uses, such as oil and gas exploration and production, remained subject to Sections 72-12-25 through 72-12-28, while all other uses became subject to Sections 72-12-1 through 72-12-24.¹⁷⁴

Appropriation of waters for oil and gas exploration and production involves a truncated process. Sections 72-12-25 through 72-12-28¹⁷⁵ do not remove the non-potable water from the jurisdiction of the state engineer,¹⁷⁶ but these sections do allow producers to appropriate water without going through the normal appropriation process.¹⁷⁷ Any person seeking to appropriate these non-potable waters must simply file a notice with the state engineer and publish the notice once a week for three consecutive weeks.¹⁷⁸ This truncated process reduces administrative burdens and overall costs.¹⁷⁹

169. Fiscal Impact Rep., H.B. 19, 49th Legis. Fin. Comm., Reg. Sess., at 4 (N.M. 2009). The HB 19 Fiscal Impact Report also notes that these non-potable waters are useable waters and the appropriation of these waters “should be regulated.”*Id.*

170. N.M. STAT. ANN. §72-12-25 (1978). The introduction to House Bill 19 was telling as it was an “act relating to water; providing jurisdiction over certain nonpotable underground aquifers.” 49th Legislature House Bill 19 (2009).

171. Fiscal Impact Rep., H.B. 19, 49th Legis. Fin. Comm., Reg. Sess., at 4 (N.M. 2009).

172. *See* N.M. STAT. ANN. § 72-12-1 (2003) (noting underground waters belong to the public and are subject to appropriation); *see also* 19.27.1.9 NMAC through 19.27.1.15 (describing the requirements to appropriate underground waters via the state engineer’s office).

173. LEGIS. FIN. COMM., FISCAL IMPACT REP., H.B. 19, Reg. Sess., *supra* note 56, at 4. One of the impetuses of HB 19 was an 900% increase in notices of intent to appropriate these waters for municipal and domestic uses between 2008 and 2009.

174. N.M. STAT. ANN. § 72-12-25(B) (1978). The statute enumerates the industrial uses as “oil and gas exploration and production, prospecting, mining, road construction, agriculture, generation of electricity, use in an industrial process or geothermal use. . . .” N.M. STAT. ANN. § 72-12-25(B)(1) (1978).

175. *See* N.M. STAT. ANN. §§72-12-25 (1978) through 72-12-28 (1978).

176. *See* LEGIS. FIN. COMM., FISCAL IMPACT REP., H.B. 19, Reg. Sess., *supra* note 56, at 6 (noting the office of the state engineer indicated the legislation “would improve the State Engineer’s performance by allowing him to exercise his general supervision of all groundwater of the State of New Mexico, including non-potable water in aquifers that are deeper than 2,500 feet.”).

177. Generally, appropriators must apply to the state engineer for a permit to appropriate waters. The formal application process can be lengthy and carries high administration costs.

178. *See* N.M. STAT. ANN. §72-12-26 (1967). The publication requirement is the same as for other uses and is governed under N.M. CODE R. § 19.27.1.12 (2001).

179. The reduction of overall costs and administrative burdens were factors considered in the passage of HB 19. *See* LEGIS. FIN. COMM., FISCAL IMPACT REP., H.B. 19, Reg. Sess., *supra* note 56.

The state engineer does not have complete authority to administer jurisdiction over these waters¹⁸⁰ because the non-potable waters are appropriated under Sections 72-12-25 through 72-12-28.¹⁸¹ However, the state engineer does have the authority to “require that pertinent data for each well be filed . . . such wells be metered and the amount of water produced and an analysis of the water be reported quarterly.”¹⁸² The state engineer has the discretionary authority to choose to require this information,¹⁸³ but the requirement to file notice with the state engineer to appropriate these waters is mandatory.¹⁸⁴

Notwithstanding the permissive language in Section 72-12-27,¹⁸⁵ the state engineer should require oil and gas producers to report this data. This water is a valuable resource that should be regulated¹⁸⁶ and while these sources may be large, the sources may also be non-rechargeable and finite.¹⁸⁷ In addition, produced water from non-deep water aquifers may prove to be a significant source of water that future state populations may rely on.¹⁸⁸ Because of this importance, it is incumbent upon the state engineer to monitor this vital resource¹⁸⁹ that belongs to the public.¹⁹⁰

VI. APPROPRIATION OF PRODUCED WATER FOR OTHER USES

Technological advancements have opened the possibility that produced water can have other beneficial uses beyond reuse in oil and gas production.¹⁹¹ These advancements have made it economically feasible¹⁹² to recondition the waters to meet applicable standards in some situations.¹⁹³ These waters can then be used for agricultural purposes and possibly even as a potable water source.¹⁹⁴

180. See LEGIS. FIN. COMM., FISCAL IMPACT REP., H.B. 19, Reg. Sess., *supra* note 56, at 5. In the Attorney General’s report concerning HB 19, the Attorney general noted that the “state engineer has no authority to administer” under Sections 72-12-25 through 72-12-28.

181. N.M. STAT. ANN. §§72-12-25 through 72-12-28.

182. N.M. STAT. ANN. § 72-12-27 (1978).

183. See N.M. STAT. ANN. 72-12-27 (1978) (noting the state engineer *may* require these actions).

184. See N.M. STAT. ANN. §72-12-26 (1978) (requiring appropriators of non-potable waters shall file notice with the state engineer and shall publish the notice once a week for three weeks).

185. N.M. STAT. ANN. § 72-12-27 (1978). This Section states the state engineer *may* require the pertinent data to be filed.

186. LEGIS. FIN. COMM., FISCAL IMPACT REP., H.B. 19, Reg. Sess., *supra* note 56, at 4.

187. *Id.* at 6.

188. *Id.* at 4.

189. See *id.*, at 4 (noting it is “incumbent upon the State to require the State Engineer to exercise his expertise to evaluate the water supply to be appropriated to provide water for future population growth . . .”).

190. N.M. CONST. art. XVI, § 2.

191. See DWYER AND McDONALD, *supra* note 3; see also SOCIETY OF PETROLEUM ENGINEERS, *supra* note 4.

192. See SOCIETY OF PETROLEUM ENGINEERS, *supra* note 4; see also Sara Jerome *supra* note 4.

193. Surface waters that have a ‘significant nexus’ to traditional navigable water or interstate water would be subject to the Clean Water Act (“CWA”). The CWA is codified at 33 U.S.C. § 1251 et. seq. (1972). However, even surface waters not subject to the CWA could be subject to the New Mexico Water Quality Act. The New Mexico Water Quality Act is codified at N.M. STAT. ANN. §§ 74-6-1 through 74-6-7.

194. See SOCIETY OF PETROLEUM ENGINEERS, *supra* note 4.

Appropriation of produced water for agricultural uses are governed under Section 72-12-25(B)(1) of the New Mexico statutes.¹⁹⁵ Appropriators would follow the same truncated procedures as those using produced water for oil and gas production¹⁹⁶ and be subject to the state engineer's request to file pertinent data, meter the well, and report the information quarterly.¹⁹⁷ These truncated requirements are consistent with Environmental Protection Agency rules allowing produced waters to be used for agricultural uses west of the 98th Principal Meridian.¹⁹⁸

To appropriate produced waters for future potable uses, or any other use not listed in Section 72-12-25(B)(1),¹⁹⁹ the appropriator must follow the normal appropriation procedure.²⁰⁰ This process requires the appropriator to file the appropriate forms with the state engineer,²⁰¹ publish notice of the application,²⁰² and be subject to hearings²⁰³ if there is a challenge.²⁰⁴ These steps raise the administrative burdens and overall costs while reducing the certainty of obtaining a right in the waters. This uncertainty, additional burdens, and costs will reduce the economic incentives for producers to convert produced water to other beneficial uses beyond those listed in Section 72-12-25(B)(1).²⁰⁵

Instead of providing an enumerated list and requiring all other uses to follow the regular appropriation process, the legislature should mandate appropriations for municipal and domestic use must follow the regular appropriation process. The legislature should then declare that appropriations for all other uses are subject to the truncated appropriation process.

This expansion of uses available through the truncated procedure will provide economic incentives to oil and gas producers that do not originate as a cost to the state. Oil and gas producers will have a wider variety of possibilities to reuse the produced water instead of simply disposing of the water in surface pits or by

195. N.M. STAT. ANN. § 72-12-25(B)(1) (1978).

196. See 19.27.1.12 NMAC (describing the process to appropriate water).

197. N.M. STAT. ANN. § 72-12-27 (1978).

198. 40 C.F.R. § 435.50 (2014); see 81 Fed. Reg. 41845, 41850 (June 28, 2016) (*noting* produced water has a use in agriculture or wildlife propagation and that the term 'agriculture or wildlife propagation' means the produced water is good enough for livestock watering or agricultural uses); *but see* U.S. DEP'T OF THE INTERIOR, OIL AND GAS PRODUCED WATER MANAGEMENT AND BENEFICIAL USE IN THE WESTERN UNITED STATES, Report No. 157 28 (2011), *available at* <https://www.usbr.gov/research/dwpr/reportpdfs/report157.pdf> (*noting* the recommend total dissolved solids in produced water should not exceed 10,000 mg/L for livestock watering use).

199. N.M. STAT. ANN. § 72-12-25(A)(1) (1978).

200. Applications for the use of underground waters is governed by N.M. STAT. ANN. § 72-12-3 (1978) and §§ 19.27.1.9 NMAC through 19.27.1.16 NMAC.

201. § 19.27.1.9 NMAC.

202. § 19.27.1.12 NMAC. After an application is received the state engineer will issue a notice to the applicant. The applicant must then publish the notice weekly, for three consecutive weeks, in a newspaper of general circulation within the county of the wellsite.

203. N.M. STAT. ANN. § 72-12-3(F) (1978) notes after a protest has been filed the state engineer may either deny the application, with no hearing, or hold a hearing. However, 19.27.15 NMAC notes that a hearing is mandatory if an application is protested.

204. 19.27.1.14 NMAC. (Persons who believe the application would be detrimental to their rights may protest the application in writing. The applicant may choose to answer the protest in writing.)

205. N.M. STAT. ANN. § 72-12-25(B)(1) (1978).

injection. This will decrease overall production costs, increase in oil and gas production, and incentivize the recycling of produced waters.

Some have suggested creating a regulatory framework, including freshwater caps and taxation, to incentivize wastewater recycling.²⁰⁶ This regulatory framework is a valid approach that may serve to stimulate wastewater recycling. However, these approaches are punitive in nature and may be viewed as increasing the costs of oil and gas production in New Mexico. Oil and gas exploration and production is highly speculative and any increase in up-front costs may serve to decrease production as producers move to less costly locations. Increasing the potential uses of produced water via the suggested change to Section 72-12-25(B) is a viable alternative to the proposed regulatory framework.

Oil and gas producers are leaders in water conservation.²⁰⁷ By expanding the potential uses in Section 72-12-25(B), the New Mexico Legislature can further incentivize these conservation efforts. The expansion will increase the ease of which producers can gain a property right in the produced water, which can be a valuable asset through the use of emerging technology. This may also incentivize operators to subsidize research in produced water recycling, which will benefit all parties in New Mexico.

The 2004 amendments²⁰⁸ to Section 70 of the New Mexico statutes successfully place the authority to regulate the disposition by use under the OCD. However, the 2009 amendment²⁰⁹ places the jurisdiction of produced water squarely under the state engineer and notes appropriation for use in oil and gas production shall be subject to Sections 72-12-25 through 72-12-28.²¹⁰ Section 72-12-26²¹¹ expressly states that any person proposing to appropriate non-potable waters shall file notice of intention to drill. An argument that oil and gas producers are not drilling wells to appropriate waters but to obtain oil or gas is unpersuasive for three reasons. First, the produced water byproduct is almost a certainty in most wells drilled in New Mexico. To assert the producer is seeking to secure their property right in the oil or gas and inadvertently obtains a property right in the produced water is contrary to property rights in general. Second, the right to withdraw the oil or gas does not give the producer the right to withdraw another asset such as produced water. Third, produced water belongs to citizens of New Mexico,²¹² and to obtain a right in the water the producer must follow the procedures set forth in Section 72-12-26.²¹³

VII. CONCLUSION

Reuse in the production of oil and gas is most likely the most beneficial use of produced waters given the current technology. Reuse reduces the risk of

206. See TORRES-SMALL, *supra* note 23, at 414.

207. *Id.*, at 440.

208. SB 313, *supra* note 5.

209. HB 19, *supra* note 56.

210. N.M. STAT. ANN. §72-12-25(A) (1978).

211. *Id.*, §72-12-26 (1978).

212. N.M. Const. art. XVI, § 2.

213. *Id.*, §72-12-26.

contamination to surface waters in relation to either surface storage or disposal by injection.²¹⁴ Reuse also reduces the possible risk of seismic activity,²¹⁵ the overall costs due to disposal by injection,²¹⁶ and the amount of scarce potable water used in oil and gas production.²¹⁷ Nonetheless, a party seeking rights in water must follow the statutory requirements set forth in Section 72 of the New Mexico statutes²¹⁸ to appropriate the waters.

214. See Hannah Wiseman, *Fracturing Regulation Applied*, 22 DUKE ENVTL. L. & POL'Y F. 361, 374 (2012) (noting over one-third of violations in New Mexico, during the period 2000-2011, involved surface spills of produced water); see generally, Merrill & Schizer, *supra* note 22 at 185. (Merrill & Schizer's focus is on fracturing fluid but the authors do include produced water in a discussion of risks of water contamination.)

215. See PETERSEN, ET AL., *supra* note 13 at 3.

216. See DWYER AND MCDONALD, *supra* note 3 at 7.

217. SB 313 Fiscal Impact Report, *supra* note 14; see also U.S. DEP'T OF THE INTERIOR, *supra* note 198 at 24 (noting "treatment [of produced water] creates a product of sufficient quality to alleviate dependences on local fresh water sources for many applications.").

218. N.M. STAT. ANN. §§ 72-1to -20 (1978).