

Message from the Editor

Josh Mann

The first student article in this edition of the NREEL Newsletter Kristin Casper provides an update of the 2009 New Mexico Legislative Session and explores a curious undercurrent running through many of the bills. In the next article Sally Paez discusses the “ironic intersection” of threats facing the lesser prairie chicken in New Mexico “as our state and nation take the important steps towards ‘greening’ our energy portfolio.” Then Keri Hatley probes the impacts of water rights transfers to the “public welfare” and looks at how Taosños worked through that issue with their regional water plan.

Also, included in this issue is an article contributed by Professor Denise Fort and Anthony Edwards, which examines the impacts to New Mexico water resources from the state’s growing dairy industry.

continued on page 6

NREEL’s 2009 Legislative Update: Legislators Consider Regulatory Roll-Backs

Kristin Casper

The 2009 New Mexico legislative session was marked by a flurry of bills that would either significantly empower or disempower executive agencies.¹ While some groups experience growing frustration with powerful executive agencies and their associated regulatory processes, others are seeking to further expand the jurisdiction and power of these agencies. A few bills passed by the legislature demonstrated compromise and cooperation between the legislature and the executive, such as H.B. 19,² which provides the State Engineer administrative jurisdiction over deep brackish water. However, five notable bills were introduced that exemplified the jurisdictional and regulatory tug-of-war between the executive and legislative branches of New Mexico’s government. This article highlights bills that were introduced during the 2009 legislative session that are of particular interest to the legal community because of their jurisdictional and regulatory impacts. A list of other bills pertaining to natural resources, environmental, and energy law that may be of general interest is provided at the end of this article.

Questions linger following the 2009 legislative session, such as: (1) who should regulate the use of State resources or activities impacting the environment; and (2) if an executive agency is given regulatory jurisdiction, how much power should the agency have? The New Mexico legislature will not meet again until January 19, 2010.³ Between now and then, lawyers and lawmakers should debate complex issues of jurisdiction and regulatory power, so that the new decade is marked by action rather than frustration.

I. Bills Passed and Signed into Law

Three bills passed and signed into law concerning jurisdictional and regula-

continued on page 2

Inside this Issue

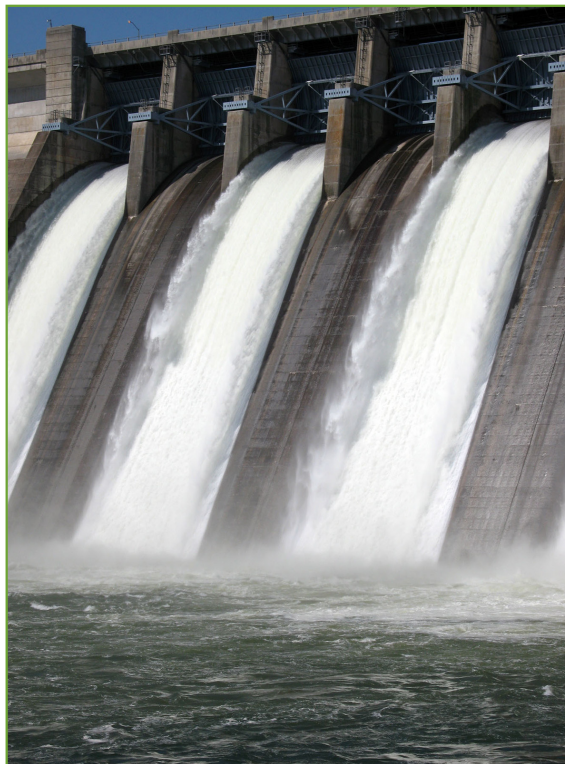
Renewable Energy and Wildlife ...	7
Taos Regional Water Plan	11
Dairies in New Mexico	13

tory power demonstrated cooperation and compromise between the legislature and the executive. First, H.B. 19⁴ significantly increases the State Engineer's jurisdiction over aquifers. Sponsored by Representative Mimi Stewart, the Act provides that:

An undeclared underground water basin having reasonably ascertainable boundaries that consists of an aquifer, the top of which aquifer is at a depth of two thousand five hundred feet or more below the ground surface at any location at which a well is drilled and which aquifer contains only nonpotable water, is subject to state engineer administration in accordance with Sections 72-12-25 through 72-12-28 NMSA 1978.⁵

When signing the Bill on March 30, 2009, Governor Bill Richardson stated that H.B. 19 “closed a major loophole in the existing aquifer jurisdiction law.”⁶ New Mexico State Engineer, John D’Antonio, noted that in the past year “[a]lready more than 50 Notices of Intent have been filed...to drill deep wells to pump more than 1-million acre-feet of water a year.”⁷ When taking into account return flows, this is more than four times the water the City of Albuquerque consumed in 2004.⁸

At the same time, the State Engineer’s administrative jurisdiction was limited by H.B. 63,⁹ sponsored by Representative Larry Larrañaga, which relieves the State Engineer of jurisdiction over small dams. The Bill amends the Dam Construction Statute by raising the minimum size limit for dams subject to mandatory pre-approval by the State Engineer from 10 feet high and 10 acre-feet of capacity, to 25 feet high and 50 acre-feet of capacity. Under this law, flood control dam proponents do not need to file an application for appropriation of water as long as the proposed dam drains in less than 96 hours.¹⁰ When signing this bill into law on March 30, 2009, the Governor remarked: “Now the Office of the State Engineer will be able to focus their resources on the larger, more critical dams around the state that may be hazardous.”¹¹



Senate Bill 206¹² sets water quality rulemaking limits on the Environment Department and was passed by the legislature after significant debate. The Governor signed the Bill, sponsored by Senator Clinton Harden, on April 7, 2009.¹³ It requires water quality regulations to be adopted for the dairy and copper industries. After the regulations have been adopted, discharge permits for facilities in the dairy and copper industries will be subject to the conditions contained in the associated regulations.¹⁴ The thrust of this bill is not jurisdictional, but rather the Water Quality Commission’s regulatory power to set conditions on discharge permits. By requiring the adoption of regulations specifically for these two

industries, the Bill attempts to ensure that the Commission is consistent and transparent in setting conditions on discharge permits.¹⁵

II. Unsuccessful Bills

Five bills were introduced and ultimately died during the session concerning (1) the jurisdiction of executive agencies and (2) the regulatory power of executive agencies. While unsuccessful, these bills are important because they symbolize the tension between a more expansive and powerful executive branch and the legislature’s attempt to roll-back such power.

Two bills, S.B. 607 and H.B. 604, concerned the composition of commissions. Senate Bill 607¹⁶ sought to completely eliminate the current composition of the Water Quality Control Commission, which is staffed by primarily executive branch offices and department heads, and instead staff the Commission with “five members appointed by the governor and confirmed by the senate representing each of the five public regulation commission districts defined pursuant to the Public Regulation Commission Apportionment Act.”¹⁷ Similarly, House Bill 604 would have required that State Game Commission members be elected from seven districts in New Mexico rather than being appointed by the Governor.¹⁸ It appears that the aim of both of these bills was to limit the participation of career government bureaucrats

and to allow for greater state representation in these commissions.

Three bills addressed the regulatory power of executive agencies. Senate Bill 479,¹⁹ sponsored by Senator David Ulibarri, sought to limit the jurisdiction of the Environment Department. Currently, the Environment Department's Water Quality Commission has sole permitting and enforcement authority over discharge permits.²⁰ Senate Bill 479 would have designated the New Mexico Department of Agriculture as the constituent agency for water quality and regulation of the agriculture industry.²¹ In essence, this bill would have eliminated the Environment Department's regulatory power over the agricultural industry, transferring it to the Department of Agriculture.

Senate Bill 732,²² also sponsored by Senator David Ulibarri, proposed an added layer of restrictions on executive agency regulatory authority. The Bill would have required each state agency to promulgate rules establishing specific time frames for responding to license applications. "License" was defined broadly to include "any permit, certificate, approval, registration, charter, membership, statutory exemption or other form of permission required by law."²³ This Bill is a prime example of the frustration expressed by some groups over perceived executive agency slowness.

Unlike the other two bills that sought to restrict executive agency regulatory power, H.B. 653,²⁴ sponsored by Representative Benjamin Rodefer, proposed to empower the Environment Department's Environmental Improvement Board (EIB) by authorizing it to adopt rules to reduce the State's greenhouse gas emissions. House Bill 653 proposed a new section in the State's Air Quality Control Act requiring the EIB to establish a greenhouse gas cap-and-trade program.²⁵ Under significant political pressure, the House Energy and Natural Resources Committee issued a "do not pass" recommendation to the Judiciary Committee.²⁶

However, whether the EIB has authority to regulate greenhouse gas emissions and whether any legal obstacles might bar an EIB cap-and-trade program will continue to be debated outside the Roundhouse. For example, in April 2009 the EIB took under consideration briefs filed regarding New Energy Economy's petition in support of the EIB's authority to cap greenhouse gas emissions.²⁷

III. New Mexico's Goldilocks Dilemma: Too much or too little agency power?

Strong arguments exist on both sides of the regulatory roll-

back debate. The New Mexico Cattle Growers Association is on one side of the spectrum. According to Caren Cowan, Executive Directive of the New Mexico Cattle Growers Association, the Association pushed for regulatory reform in New Mexico during the 2009 legislative session because there are "so many state agencies going in different directions it is impossible for the public to participate in rulemaking. Additionally, those being governed by the agencies' rules need a clear picture on how to comply across the board."²⁸

Similar to the position taken by the New Mexico Cattle Growers Association, some believe that the powers wielded by executive agencies are too broad and that there is no consistency in the State's regulatory processes or how regulations are promulgated. Bills, such as S.B. 607 and H.B. 604, were proposed to limit the jurisdiction of executive agencies. Other bills, such as S.B. 479 and S.B. 732, were introduced to limit executive agency regulatory power and discretion. Legislators were able to express some of their frustration through these bills; however, in the end the bills failed because of a lack of broad support.

On the other end of the spectrum, some wish to see executive agencies have greater jurisdiction over natural resources and environmental issues and take a more active role in regulating the use of State resources or activities impacting the environment. According to Leanne Leith of Conservation Voters New Mexico, "Given some of the problems we have encountered recently, like the national financial crisis and the recall of food and toy products, it is amazing that special interests want to dismantle the regulations that protect public health and environmental quality for all New Mexicans."²⁹

This camp of policy and lawmakers believe that the legislature does not have time to consider technical issues because of the nature of New Mexico's part-time legislative system. Senate Bill 653, which would have authorized the EIB to adopt rules to reduce the State's greenhouse gas emissions, is a great example of an executive agency taking action on a highly technical issue. If the legislature worked full-time, then it may be feasible for political leaders to be more hands-on with regulatory issues. Some argue that the legislature is responsible for political decisions and does not afford a sufficient public process for highly technical regulatory issues. Yet, agencies and departments have scientific, political, and technical expertise and the time to ensure a proper public process.

From an agency perspective, John D'Antonio, New Mexico State Engineer, stated "Agencies should be responsible for

regulating and protecting resources, but this needs to be done in a balanced manner.”

³⁰ He further explained that agencies need to be inclusive and transparent, and this can be accomplished “by creating an opportunity through an extended public process.”³¹ By doing so, he believes that agencies “can make much better progress in promulgating effective rules for all involved.”³² By going above and beyond what is statutorily required, frustrations over the regulatory process could be addressed.³³

There are a few facts that everyone can agree on. First, the State is facing tremendous environmental challenges in the forms of water scarcity and climate change. Second, executive agency rulemaking, licensing, and regulatory processes are imperfect. Third, the Legislature has too little time and far too few resources to adequately address urgent and highly technical issues.

What is the solution? There needs to be more public debate about New Mexico’s regulatory process. Legislators should take advantage of the interim session to analyze these complex issues and take action during special sessions when there is less pressure and activity and more time to focus on effective, systematic, and common-sense approaches to natural resources and environmental governance in New Mexico.

List of Relevant Bills³⁴

Bills passed and signed by the Governor:

S.B. 237 (Cisneros)

Title: Renewable Energy Tax Credit

Purpose: This Bill expands the current tax credit for clean energy generating sources, allows income tax credits for up to 6% of plant costs, and increases the time the tax credit can be carried forward from 5 years to 10 years. The cap for the net tax credit remains at \$60 million. Covered sources include “large solar thermal plants, coal plants that produce less than 1100 lbs CO₂/MWh by 2017 (and not larger than 700 MW), and recycled energy (less than 15 MW which converts otherwise lost energy).”³⁵



S.B. 257 (Keller)

Title: Solar Market Tax Development Credit

Purpose: This Act increases incentives for homeowners and businesses to invest in solar energy by adding a 10% state credit above and beyond the 30% federal credit. This means the maximum credit available is 40% instead of 30%.

S.B. 291 (Feldman)

Title: Sustainable Building Tax Credit Provisions

Purpose: This Act amends the Sustainable Building Tax Credit Act by enabling non-profits to take advantage of tax credits by allowing the transfer of the credits. Also, the Act expands eligibility of multi-family housing and manufactured housing.

S.B. 318 (Griego)

Title: Development Training Funds for Green Jobs.

Purpose: With the aim of expanding green industries in New Mexico, S.B. 318 will facilitate an investment of up to \$1 million from the development training program to companies training workers in green industries that provide clean, high-paying, career-track jobs.

S.B. 379 (Griego)

Title: Off-Highway Vehicle Regulations

Purpose: Recognizing the threats posed by irresponsible use of off-highway vehicles (OHVs) to private landowners and natural ecosystems, S.B. 379 adds restrictions to the use of OHVs, adds penalty assessments for OHV violations, and makes the Department of Game & Fish responsible for the administration of the Act.

S.B. 647 (Wirth)

Title: Renewable Energy Financing District Act

Purpose: The Act authorizes local governments to form improvement districts to help finance renewable energy investments on residential, commercial or industrial properties. The improvements will be funded by bonds backed by property tax assessments on participating properties.

H.B. 40 (Bandy)

Title: Prohibit Condemnation by Municipalities

Purpose: Recognized by the Governor as one of the most

important bills passed in 2009,³⁶ H.B. 40 prohibits municipalities from condemning irrigation water rights. Farmers, ranchers, acequia associations, sportsmen and some environmental organizations supported this bill; however, there are concerns that this bill could limit the ability of cities to meet obligations to purchase water rights which could in turn “jeopardize” deliveries the State must make to Texas under the Rio Grande Compact.³⁷

H.B. 572 (Egolf)

Title: Solar Energy Improvement Special Assessments

Purpose: H.B. 572 authorizes the Board of County Commissioners to enact an ordinance providing for a solar energy improvement special assessment to be imposed on a single-family residential property within the county if requested by the property owner. “This is often referred to as the ‘Berkeley Model’ of encouraging rooftop solar installations.”³⁸

H.B. 622 (Lujan)

Title: Green Jobs Bonding Act

Purpose: H.B. 622 directs the Higher Education Department to develop a state plan for the development of green jobs training programs, with a focus on rural and tribal communities, by no later than the end of 2010 and establishes a “green jobs fund” that will be financed by the federal Green Jobs Act of 2007.

A Bill that was passed but vetoed by the Governor:

S.B. 548 (Griego) and H.B. 340 (Nuñez)

Title: New Emission Standards to Take Effect in 2015

Purpose: The Act would have delayed the implementation of greenhouse gas emissions standards. The “clean cars” standards would not have become effective before Model Year 2013.

Bills that did not pass:

S.B. 208 (Harden)

Title: Ownership of Pore Space under Surface Land

Status: Died in the House.

Purpose: The Act would have established property rights for the pore space. Because this is a complicated legal area, a more interim study may be needed.³⁹

S.B. 387 (Fischmann)

Title: Natural Resource Damage Recovery

Status: Died in the Senate Conservation Committee.

Purpose: Bill gave the State explicit authority to seek claims for damages from polluters. The bill would have closed a

loophole in federal law that currently prevents the State from recovering damages for groundwater contamination, such as oil pollution or nitrate contamination, in many circumstances. One of the findings was that the natural resources of the State are held in trust for the beneficial use of the public.

S.B. 391 (Sanchez)

Title: Landowner Takings of Certain Animals
Status: Passed in the Senate, but died on the House calendar.

Purpose: Under current law, landowners can kill any wildlife if it poses an immediate threat to life, property, or crops. S.B. 391 would have restricted this authority to predators, including bears, cougars, and bobcats, and required that the Department of Game and Fish to provide assistance to landowners to prevent or remedy property damage or physical harm resulting from predators or other wildlife.

H.B. 219 (Egolf)

Title: Free Market Energy Restoration Act

Status: Died in the House Judiciary Committee.

Purpose: The Act would have expanded the notice required to surface owners by oil and gas companies that plan to develop their mineral rights by providing the surface owner with sufficient time to contract with the mineral rights holder to avert or limit oil and gas operations. H.B. 219 would have also required notice of public sales of oil and gas leases.

H.B. 520 (Chasey)

Title: Consolidated Environmental Review

Status: Died in the House Appropriations and Finance Committee.

Purpose: Bill aimed to streamline environmental permitting processes, reduce costly litigation, and protect public and environmental health. It included a citizen lawsuit provision.

None of the uranium bills passed:

H.B. 84 (Uranium Legacy Clean Up Act) would have linked clean-up with new uranium mines.

H.B. 749 (Uranium Legacy Clean Up Act) would have allowed a percentage of money from capital outlays to be used for clean up.

H.B. 755 (Uranium Mining Liability) would have allowed the State to go after companies responsible for pre-1971 contamination.

(Endnotes)

¹ For the purposes of this article, the term “agencies” is defined as offices, departments, boards, and commissions.

² H.B. 19, 49th leg., 1st Sess. (N.M. 2009), Laws 2009, ch. 35.

³ New Mexico Legislature, Session Dates, <http://legis.state.nm.us/lcs/default.aspx> (last visited Apr. 4, 2009).

⁴ H.B. 19.

⁵ *Id.* (to be codified at NMSA 1978, § 72-12-25(A)).

⁶ Press Release, State of New Mexico, Governor Bill Richardson, Governor Bill Richardson Signs Key Water Legislation (Mar. 30, 2009).

⁷ *Id.* (alteration made by author with the State Engineer's telephonic approval provided on May 4, 2009).

⁸ See Martin J. Chávez, *Albuquerque Makes Water Conservation*, U.S. MAYOR NEWSPAPER, June 7, 2004, http://www.usmayors.org/usmayornewspaper/documents/06_07_04/albuquerque.asp (stating that in 2004 Albuquerque consumed around 110,000 acre-feet of water).

⁹ H.B. 63, 49th leg., 1st Sess. (N.M. 2009), Laws 2009, ch. 36.

¹⁰ H.B. 63 (to be codified at NMSA 1978, § 72-5-32(A)-(E)).

¹¹ Press Release, *supra* note 6.

¹² S.B. 206, 49th leg., 1st Sess. (N.M. 2009), Laws 2009, ch. 194.

¹³ Press Release, State of New Mexico, Governor Bill Richardson, Governor Bill Richardson's Final Bill Action (Apr. 10, 2009).

¹⁴ S.B. 206.

¹⁵ See generally New Mexico Legislature, Bill Locator, <http://www.nmlegis.gov/Sessions/09%20Regular/bills/senate/SB0206.html> (last visited Apr. 21, 2009).

¹⁶ S.B. 607, 49th leg., 1st Sess. (N.M. 2009).

¹⁷ *Id.*

¹⁸ H.B. 604, 49th leg., 1st Sess. (N.M. 2009).

¹⁹ S.B. 479, 49th leg., 1st Sess. (N.M. 2009).

²⁰ See NMSA 1978, § 76-6-5.

²¹ S.B. 479.

²² S.B. 732, 49th leg., 1st Sess. (N.M. 2009).

²³ *Id.* at (C)(3), available at <http://www.nmlegis.gov/Sessions/09%20Regular/bills/senate/SB0732COS.html>.

²⁴ H.B. 653, 49th leg., 1st Sess. (N.M. 2009).

²⁵ *Id.*

²⁶ HENRC Rep., H.B. 653, available at <http://www.nmlegis.gov/Sessions/09%20Regular/bills/house/HB0653EN1.html>.

²⁷ Environmental Improvement Board, Agenda 10, <http://www.nmenv.state.nm.us/eib/AgendaItem10Briefs.html> (last visited Apr. 21, 2009).

²⁸ Telephone interview with Caren Cowan, Executive Director, New Mexico Cattle Growers Association (Apr. 23, 2009).

²⁹ Telephone interview with Leanne Leith, Political and Programs Director, Conservation Voters New Mexico (Apr. 21, 2009).

³⁰ Telephone interview with John D'Antonio, New Mexico State Engineer, Office of the State Engineer (May 4, 2009).

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ See Conservation Voters New Mexico, 2009 Legislative Priorities, <http://www.cvnw.org/Scorecard/2009-Legislative-Agenda.html> (last visited Apr. 22, 2009). The author would like to thank Conservation Voters New Mexico for the Organization's thorough and informative website. The author used information from the Organization's website to create the list of bills at the end of this article. Also, the author consulted the helpful bill locator tool on the New Mexico Legislature's website. See also New Mexico Legislature, Bill Locator, <http://www.nmlegis.gov/Sessions/09%20Regular/bills/senate/SB0206.html> (last visited Apr. 21, 2009).

³⁵ Coalition for Clean Affordable Energy, 2009 Legislative Priorities, <http://www.cfcae.org/> (last visited Apr. 22, 2009).

³⁶ Staci Matlock, *Governor Signs Water-Rights Bill*, SANTE FE NEW MEXICAN, Apr. 9, 2009, <http://www.santafenewmexican.com/Local%20News/Gov--signs-water-rights-bill>.

³⁷ *Id.*

³⁸ Coalition for Clean Affordable Energy, 2009 Legislative Priorities, <http://www.cfcae.org/> (last visited Apr. 22, 2009).

³⁹ See Staci Matlock, *State studies who owns gaps underground*, SANTE FE NEW MEXICAN (Mar. 4, 2009) available at <http://www.santafenewmexican.com/SantaFeNorthernNM/2009-legislature-State-studies-who-owns-tiny-gaps-underground>.

Message from the Editor

continued from page 1

If you have any comments or questions regarding these articles or if you would be interested in submitting a short article for our next newsletter, which we aim to publish again in Winter 2010, please contact me at joshandsabrina@msn.com.

*Thanks for your support,
Josh Mann, Editor*

Renewable Energy Development and Wildlife: Mitigating the Impacts of Wind Energy on the Lesser Prairie-Chicken in New Mexico

Sally Paez

The U.S. Department of the Interior recently released the State of the Birds Report 2009, which details the alarming decline of bird populations across the United States.¹ A myriad of human-caused threats have contributed to the decline of birds nationwide, including habitat loss, energy production, and climate change.² The State of the Birds Report states that “strategic land management and conservation action can reverse the declines of birds.”³ Today there is an ironic new threat facing birds: as we transition to renewable energy sources to boost our economy and help prevent climate change, the development and production of these new energy resources can have significant negative impacts on wildlife. For example, wind energy facilities and transmission lines can negatively impact the lesser prairie-chicken, a candidate species under the Endangered Species Act⁴ (ESA), by fragmenting its already marginalized habitat. The transition to renewable energy should be accompanied by land management decisions that take wildlife conservation into consideration.

Under the administration of Barak Obama, the United States has embarked on a transition to a more diversified energy portfolio with an emphasis on renewable energy. Under a President who believes that “the country that harnesses the power of clean renewable energy will lead the 21st century,” the United States is expected to “double [the] nation’s supply of renewable energy in the next three years.”⁵ To work towards this goal, the American Recovery and Reinvestment Act of 2009⁶ includes many provisions that will further renewable energy development, including grants, tax credits, and loan guarantees.⁷



Even before the federal government began the transition to renewable energy, New Mexico had begun taking steps to address climate change and develop renewable energy sources. In 2004, Governor Bill Richardson declared New Mexico to be the “Clean Energy State” and created the Clean Energy Development Council within the New Mexico Energy, Minerals, and Natural Resources Department.

On February 26, 2007, the Governor entered into the Western Regional Climate Action Initiative⁹ with governors of four other states with the purpose of “taking the lead on combating global climate change—while Washington D.C. sits on its hands.”¹⁰

Wind energy is a major player in both the nation’s and the state’s renewable energy future.¹¹ Wind energy has many benefits as a “green” energy source: according to the American Wind Energy Association (AWEA), the operation of wind energy systems does not produce air emissions, water emissions, or hazardous waste; and increased use of wind energy has numerous benefits including helping to prevent climate change and decreasing the cost of health care.¹² As wind energy and transmission lines are developed, however, it is important to understand and mitigate any potentially negative environmental consequences. Harmful impacts of wind energy development on wildlife including the lesser prairie-chicken can only be mitigated if stakeholders understand how wind turbines and transmission lines affect the species.

The lesser prairie-chicken is a round, chicken-sized grouse that once inhabited a large contiguous area in New Mex-

ico, Colorado, Texas, Kansas, and Oklahoma.¹³ Unfortunately, however, both lesser prairie-chicken population size and occupied habitat have declined significantly since the 1800's.¹⁴ By the 1990's, the status of the lesser prairie-chicken was dire, having vanished from more than 90 percent of its former range, including a drastic disappearance from 78 percent of its range in 30 short years.¹⁵ Although exact demographic information is difficult to obtain, estimates indicate that the historical lesser prairie-chicken population size in New Mexico was 125,000 birds,¹⁶ while the population size in the early twenty-first century has been estimated at about 9,600 birds.¹⁷ Population trends indicate that the species is currently in a long-term decline.¹⁸

Due to the drastic decline in lesser prairie-chicken numbers and occupied range, on October 6, 1995 the Biodiversity Legal Foundation petitioned the U.S. Fish and Wildlife Service (USFWS) to list the lesser prairie-chicken as threatened under the ESA.¹⁹ On June 9, 1998, the lesser prairie-chicken became a candidate species under the Endangered Species Act.²⁰ Although the USFWS has sufficient information on file to conclude that candidate species, including the lesser prairie-chicken, are biologically vulnerable and threatened, candidate species do not receive the protections of the ESA because their listing is precluded by other higher priorities.²¹

Official USFWS policy under the Bush administration was to "strongly encourage collaborative conservation efforts for candidate species and offer technical and financial assistance to facilitate such efforts."²² This policy, however, could change in the near future. Under the Obama administration, the Department of the Interior may move candidate species including the lesser prairie-chicken to the ESA's list of threatened or endangered species. Stakeholders therefore have a strong incentive to protect lesser prairie-chicken habitat to avoid increasing the necessity of a listing action.

Although a myriad of human caused threats has led to the dramatic decline in lesser prairie-chicken populations, most of the threats are related to habitat loss and fragmentation. Construction of wind energy projects can reduce, alter, and fragment habitat within the "construction footprints of turbines and support facilities, along new access road corridors, and within new utility [right-of-ways]."²³ Because lesser prairie-chickens require large contiguous areas of habitat, habitat fragmentation, or the breaking of

large areas of continuous suitable habitat into smaller isolated patches of habitat,²⁴ is a serious threat to the lesser prairie-chicken's long term survival.

The effects of habitat fragmentation are exacerbated by the structural avoidance behavior exhibited by lesser prairie-chickens. Research has shown that lesser prairie-chickens place nests far from anthropogenic features including oil and gas pump-jacks, power lines, buildings, and improved roads.²⁵ While it is not certain why nesting lesser prairie-chickens avoid anthropogenic features, it is probable that this avoidance behavior is caused by movement, noise, or both.²⁶ In his well-known research, wildlife ecologist Robert Robel analyzed the distance between lesser prairie-chicken nests and anthropogenic features to establish "avoidance buffers" where otherwise suitable habitat was rendered unusable for nesting lesser prairie-chickens.²⁷ Robel's avoidance behavior studies have yielded dramatic results—for example, Robel found that the presence of anthropogenic features reduced 214,183 acres of apparently suitable nesting habitat in Finney County, Kansas to just 88,221 acres of actually suitable nesting habitat.²⁸ Thus, management to address lesser prairie-chicken avoidance behavior is a critical element of any plans to develop renewable energy resources and transmission lines in lesser prairie-chicken habitat.

Considering the effects on habitat fragmentation and avoidance behavior on lesser prairie-chickens, it is not surprising that research has shown wind energy facilities; including turbines, transmission lines, and roads, have a negative impact on lesser prairie-chicken populations.²⁹ Based on the behavior of the closely-related greater prairie-chicken, Robel estimated that lesser prairie-chickens would give a single wind-turbine an avoidance zone with a one-mile radius.³⁰ Research compiled by the USFWS indicates even greater impacts from commercial wind turbines³¹—the USFWS has issued guidance recommending that wind turbines not be constructed within five miles of lesser prairie-chicken mating grounds.³² Nonetheless, transmission lines and wind energy developments are rapidly expanding throughout occupied lesser prairie-chicken habitat, especially in Texas, Kansas, Oklahoma, and Colorado.³³

There are many efforts under way to mitigate the effects of wind energy development on the lesser prairie-chicken in New Mexico. The steps taken by the Bureau of Land Management (BLM) in New Mexico are especially sig-

nificant—five percent of the lesser prairie-chicken's total range is located on BLM land in New Mexico.³⁴ In the spirit of USFWS policy to encourage collaborative conservation efforts for candidate species, in 2003 the BLM initiated a working group made up of stakeholders in New Mexico to develop a collaborative conservation agreement to enhance and secure the population of lesser prairie-chickens in the state. The working group published a report in May 2005 detailing the threats facing the lesser prairie-chicken and recommending ways to reduce those threats while still maintaining other uses of the land.³⁵ Many of the findings and recommendations of the collaborative conservation strategy were incorporated into the Bureau of Land Management's final management rule for the Pecos District promulgated in April 2008.³⁶ The management rule states that, in order to protect and expand lesser prairie-chicken habitat, applications to develop solar or wind facilities will be denied unless the "applicant can demonstrate no negative impacts on occupied and suitable lesser prairie-chicken...habitat."³⁷

In addition to the steps taken on BLM land, since the lesser prairie-chicken has been listed as a candidate species under the ESA, landowners and managers can take advantage of the USFWS's Candidate Conservation Program (CCP). Within the CCP, the USFWS offers two types of voluntary conservation agreements to landowners, Candidate Conservation Agreements (CCA) and Candidate Conservation Agreements with Assurances (CCAA).³⁸ CCAs are partnerships between the USFWS and other federal agencies designed to develop and implement strategies to conserve candidate species.³⁹ Building on the BLM's management rule, the USFWS, BLM, and Center of Excellence for Hazardous Materials Management joined forces to cooperatively develop a Candidate Conservation Agreement for the lesser prairie-chicken in New Mexico.⁴⁰ CCAAs are partnerships through which the USFWS offers incentives to non-federal landowners including States, Tribes, citizens, and local governments to enter voluntary conservation agreements.⁴¹ A CCAA for non-federal landowners is currently under development to supplement the CAA.⁴² Under the CCAA and CAA, landowners who enroll their land in the CAA or CCAA agree not to allow wind energy development in enrolled lesser prairie-chicken habitat.⁴³

It will take the commitment of all landowners and land managers to protect the lesser prairie-chicken. This protection will require addressing the ironic fact that as our state and nation take the important steps towards "greening"

our energy portfolio, there may be negative environmental impacts on our nation's biodiversity. By understanding these consequences of green energy development we can do our best to minimize and mitigate negative impacts on the natural world, including the lesser prairie-chicken.

(Endnotes)

¹ U.S. DEPT. OF INTERIOR, THE STATE OF THE BIRDS: UNITED STATES OF AMERICA (2009) (report prepared as part of the North American Bird Conservation Initiative).

² *Id.* at 30–31.

³ *Id.* at 2.

⁴ Endangered Species Act of 1973, 16 U.S.C. §§ 1531–44 (West 2009).

⁵ President Barak Obama, Address to Joint Session of Congress (Feb. 24, 2009) (remarks as prepared for delivery), *available at* http://www.whitehouse.gov/the_press_office/remarks-of-president-barack-obama-address-to-joint-session-of-congress/.

⁶ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115.

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⁸ State of N.M., Office of the Governor, Exec. Order No. 2004-019 (Apr. 14, 2004).

⁹ Western Regional Climate Action Initiative (Feb. 26, 2007), *available at* <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F12775.pdf>.

¹⁰ Press Release, State of N.M., Office of the Governor, Governor Bill Richardson Leads Regional Climate Change Initiative (Feb. 26, 2007).

¹¹ While this article focuses on the impacts of wind energy, other renewable energy sources can have similar negative impacts on wildlife including the lesser prairie-chicken.

¹² American Wind Energy Association (AWEA), <http://www.awea.org>.

¹³ KENNETH M. GIESEN, *Lesser Prairie-Chicken*, in 364 THE BIRDS OF NORTH AMERICA 1–2 (Alan Poole & Frank Gill eds., 1998).

¹⁴ Christian A. Hagen et al., *Guidelines for Managing Lesser Prairie-Chicken Populations and Their Habitats*, 32 WILDLIFE SOCIETY BULLETIN 69, 69 (2004).

¹⁵ James A. Bailey & Sartor O. Williams III, *Status of the Lesser Prairie-Chicken in New Mexico*, 1999, 32 THE PRAIRIE NATURALIST 157, 157 (2000).

¹⁶ *Id.* at 158.

¹⁷ N.M. DEPART. OF GAME & FISH, DAWN M. DAVIS,

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¹⁸ Bailey & Williams, *supra* note 12, at 163.

¹⁹ Endangered and Threatened Wildlife and Plants; 90 day Finding for a Petition to List the Lesser Prairie-Chicken as Threatened, 62 Fed. Reg. 36482 (July 8, 1997) (to be codified at 50 C.R.F. pt. 17).

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²¹ U.S. Fish and Wildlife Serv., The Endangered Species Act and Candidate Species, http://library.fws.gov/Pubs9/esa_cand01.pdf. (last visited Jan. 26, 2009).

²² Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates For Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions, 72 Fed. Reg. 69034, 69034 (Dec. 6, 2007) (to be codified at 50 C.F.R. pt. 17).

²³ BUREAU OF LAND MGMT., WIND ENERGY FINAL PROGRAMMATIC EIS, vol. 1 at 5-41 (June 2005), *available at* <http://windeis.anl.gov/documents/fpeis/index.cfm>.

²⁴ DAVIS, *supra* note 15, at 18.

²⁵ Robert J. Robel et al., *Effect of Energy Development and Human Activity on the Use of Sand Sagebrush Habitat by Lesser Prairie Chickens in Southwestern Kansas*, in TRANS-ACTIONS OF THE SIXTY-NINTH NORTH AMERICAN WILDLIFE AND NATURAL RESOURCES CONFERENCE 251, 252 (Jennifer Rahm ed., 2004).

²⁶ *Id.* at 258.

²⁷ *Id.* at 263.

²⁸ *Id.*

²⁹ *Id.* at 262-63.

³⁰ *Id.*

³¹ U.S. FISH AND WILDLIFE SERV., SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM: *TYMPANUCHUS PALLIDICINCTUS* 8 (2005), *available at* http://ecos.fws.gov/docs/candforms_pdf/r2/BOAZ_V01.pdf.

³² U.S. DEPT. OF THE INTERIOR, FISH AND WILDLIFE SERV., SERVICE INTERIM GUIDANCE ON AVOIDING AND MINIMIZING WILDLIFE IMPACTS FROM WIND TURBINES 4 (May 13, 2003), *available at* <http://www.fws.gov/habitatconservation/wind.pdf>.

³³ U.S. FISH AND WILDLIFE SERV. ET AL., CANDIDATE CONSERVATION AGREEMENT FOR THE LESSER PRAIRIE-CHICKEN (*TYMPANUCHUS PALLIDICINCTUS*) AND SAND DUNE LIZARD (*SCELOPORUS ARENICOLUS*) IN NEW MEXICO 14 (Dec. 8, 2008), *available at* http://www.fws.gov/southwest/es/NewMexico/documents/CCA_CCAA_LPC_SDL_2008_final_signed.pdf

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³⁵ THE NEW MEXICO LPC/SDL WORKING GROUP, COLLABORATIVE CONSERVATION STRATEGIES FOR THE LESSER PRAIRIE-CHICKEN AND SAND DUNE LIZARD IN NEW MEXICO: FINDINGS AND RECOMMENDATIONS OF THE NEW MEXICO LPC/SDL WORKING GROUP (August 2005), *available at* http://nwc.org/Resources/LPC_SDL_Conservation_Strategy_CD.pdf.

³⁶ U.S. DEPART. OF THE INTERIOR, BUREAU OF LAND MGMT., SPECIAL STATUS SPECIES RECORD OF DECISION AND APPROVED RESOURCE MANAGEMENT PLAN AMENDMENT (2008), *available at* http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/roswell/rfo_planning/special_status_species.Par.34868.File.dat/pdf/sss_rod_rmpa_May_2008.pdf.

³⁷ *Id.* at 14.

³⁸ Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates For Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions, 72 Fed. Reg. 69034, 69054 (Dec. 6, 2007) (to be codified at 50 C.F.R. pt. 17).

³⁹ Announcement of Final Policy for Candidate Conservation Agreements with Assurances, 64 Fed. Reg. 32726, 32727 (June 17, 1999).

⁴⁰ U.S. FISH AND WILDLIFE SERV. ET. AL., CANDIDATE CONSERVATION AGREEMENT FOR THE LESSER PRAIRIE-CHICKEN (*TYMPANUCHUS PALLIDICINCTUS*) AND SAND DUNE LIZARD (*SCELOPORUS ARENICOLUS*) IN NEW MEXICO 2 (Dec. 8, 2008), *available at* http://www.fws.gov/southwest/es/NewMexico/documents/CCA_CCAA_LPC_SDL_2008_final_signed.pdf.

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⁴³ *Id.* at 7.

Taos Regional Water Plan: Taoseños Tell the State Engineer what 'Public Welfare' Means to Them

Keri Hatley

New Mexico water law obliges the Office of the State Engineer to consider whether granting a water right transfer application is contrary to the “public welfare,” but the slippery term remains undefined. The Taos Regional Water Plan’s comprehensive public welfare statement seeks to change the way the Office of the State Engineer (“OSE”) processes transfer applications. The Regional Water Plan seeks to direct the State Engineer to consider what uses of water Taoseños want to be protected as the OSE evaluates what “public welfare” means in the Taos Region.

In this arid state, where all available water is fully appropriated and few viable new sources of water are in sight, new water demands are accommodated primarily by transferring existing water rights to the highest bidder. In the Middle Rio Grande, as the mesas fill with houses, the legal section of local newspapers brim with notices of the proposed water transfers that will move water to the taps of new subdivisions in these growing urban areas. Moving water through this water market from existing uses to uses of water in the highest demand offers tremendous benefits in terms of flexibility and efficiency, but offers no protection for underlying community values which are invisible to market forces. As urban uses expand, the water-reliant rural cultures and lifestyles from which water is transferred dwindle with every water right that is transferred away.

Agriculture accounts for a staggering three-quarters of New Mexico’s water consumption,¹ making agricultural water rights the primary source of water available for purchase. As the price of water skyrockets, water is often



worth more than the appurtenant land. When water is transferred from an agricultural area that water is taken out of irrigation and the previously irrigated parcel of land is taken out of agricultural use. “In the West, if land has a water right it has a future, even if currently populated only by sagebrush, tumbleweed and prairie dogs.”²

Many New Mexican communities have underlying values which were built around water as their sacred, life-giving centerpiece. However, even within these communities where the most precious resource is water, water is transferred with no community involvement; water transfers are, by their very nature, a private contractual arrangement between buyer and seller. Even if farmers get a good price for their water right, the community still sees the loss in tax base and economic decline from cessation of production at that property. In rural communities built upon a certain use of water, such as acequia communities, there is a tension between the rights of private property owners to freely transfer their water right and the public welfare of the local area facing the loss of that water and its associated use.

In 1985, the New Mexico legislature directed the State Engineer to consider the public welfare and conservation of water when approving or denying transfers of existing water rights and changes in location of water use.³ Prior to this change, in deciding whether to approve a water right transfer, the State Engineer simply ensured that the proposed transfer would not impair existing users and that the water would be put to beneficial use. This legislative change provided a mechanism for the State Engineer to

go beyond these narrow confines when considering transfers. Now, consideration of the panoramic environmental and social repercussions that could flow from the proposed transfer is required. Despite opening the door for the State Engineer to incorporate social values in transfer decisions, the legislature did not define the term ‘public welfare’ or provide any criteria for the State Engineer to use when making public welfare deliberations. To date, the OSE has not promulgated regulations defining the term and has proffered little guidance on how they apply the public welfare consideration in their water transfer decision making.⁴

Faced with the increasing demand for water and recognizing that difficult water planning decisions are more effective when made at the local level, the legislature created a regional water planning program.⁵ Administered by the Interstate Stream Commission, the regional water planning program provides a broad forum for water users from local communities to determine future uses of water from the grassroots level which culminates in the region’s presentation of a Regional Water Plan to the Interstate Stream Commission.⁶ Water planning helps local communities define their water needs, providing essential security and reliance interest to industry and other new uses considering moving or investing in the area. This is not a state-dictated plan; instead, the regional water plans are a bottom-up partnership with the State through which state funds make community planning possible.

These regional water plans allow local communities to define what ‘public welfare’ means in their area and empowers the State Engineer to not only consider broad social values in making water transfer decisions, but to consider effected third parties that would not otherwise have a voice in the transfer process and competing uses for the water. In theory, the regional water plans could constitute a fundamental shift in water transfer decision-making, dethroning economics as the sole driver of water transfers *if* the State Engineer uses them as guidance in making decisions about water transfer applications.

The last of the state’s Regional Water Plans to be finalized, the Taos plan delineates specific criteria that, according to the plan, “should be considered by the State Engineer in assessing whether granting a water transfer application is detrimental to the public welfare of the state, or is contrary to the conservation of water within the state.”⁷ Public participation in the process that guided the devel-

opment of the Taos Regional Water Plan was the driving force behind this plan, incorporating community members and stakeholders from a broad range of perspectives. The community wanted a broad, holistic statement of public welfare, a multi-faceted definition with a full list of substantive criteria. The community fought intensely over this statement and the entire process was very controversial. As a result, some of the listed public values seem almost mutually exclusive—such as prioritizing local agricultural uses simultaneously with economic growth and development—but the region as a whole concluded that listing these competing interests was entirely appropriate in the context of the Plan’s second goal: comprehensive review and consideration of these diverse values in local water management decisions.

The Regional Water Plan for the Taos region was created with the self-declared purpose of providing “guidance to the Office of the State Engineer when processing water rights applications” for the area.⁸ While the Plan does not ultimately control the State Engineer’s decisions, the Taos Regional Water Plan could prove to be an effective tool for the State Engineer to use when considering the public welfare in transfers of water involving the Taos region. This substantive list of local values theoretically forces a more careful and contemplative process in considering the public welfare as the State Engineer could go down the proffered list, weighing the pros and cons of the transfer in the context of the competing values. The goal is a more rigorous and thoughtful decision-making process, one that encompasses the community’s values.

Because the Taos Regional Water Plan is the result of a wealth of input from a wide range of stakeholders and is limited to regional priorities and not state-wide issues, it will, presumably, offer better decision making criteria than either top-down state wide rules promulgated by the OSE or carved out on a case-by-case basis by the courts. This grassroots water planning with a broad forum for rural community interests is in stark contrast to a market framework where urban interests, outfitted with highly-organized economic and political power, bargain with individual farmers for their water rights and the community voice is not heard. The age of building dams and piping water under the Continental Divide is coming to a close; contemporary New Mexico must use the water supply that exists now efficiently. It is time to reconsider how we use water and decide which uses of water in New Mexico are worth keeping.

continued on page 20

Dairies in New Mexico: The Environmental Implications of A New Industry

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The dairy industry, at first blush, might seem to be an odd growth industry for New Mexico, but the last decade has seen an extraordinary expansion of the industry in the state. The presence of the industry has consequences for the state in several domains, including water quantity and water quality, as well as economics, animal welfare and state finances. This article is an attempt to characterize these implications for water policy and to solicit insights from those who are familiar with the industry. We describe the nature of the enterprise in New Mexico, its economic benefits, water quantity and water quality ramifications, pending regulatory changes, and note some of the animal welfare characteristics of the industry. There are many other public policy threads worth exploring, such as the composition of the labor force, worker health and safety issues, the role of federal food policies, and so on.

Profile of the Industry in New Mexico

The late 1990s were a period of rapid growth for New Mexico's dairy industry. A report by the New Mexico Environment Department Groundwater Bureau staff indicates that the state had 105 producers and 80,000 cows statewide in 1990, which grew to 175 producers and 300,000 cows by 2003.² New Mexico now ranks seventh in the nation in milk production³ and has the largest number of cows per herd in the nation with an average of 2,088 cows per dairy.⁴ New Mexico State University estimated the overall economic impact of New Mexico's dairy industry as approximately 2.6 billion dollars in 2006, directly supporting 4,221 jobs.⁵ Firms are represented by the Dairy Producers of New Mexico, which provides a variety of services, including lobbying and governmental representation.⁶ There is little evidence that the industry has critics in the state, but one agricultural food writer, Mark Winne, has written an article about the industry⁷ and Amigos Bravos, a Taos based environmental NGO, has commented on proposed changes in EPA water quality regulations with respect to dairies.

There are approximately 172 dairy farms currently in the state that collectively manage approximately 355,000 dairy cows.⁸ A dairy cow typically remains in the dairy for five

years, although some cows can produce for up to 15 years.⁹ Cows calve at about 24 months of age, but do not reach mature size until 4 years of age.¹⁰ Generally, dairy cows must produce a calf annually in order to guarantee continuous milk production.¹¹

New Mexico's dairy industry utilizes a significant amount of water within the state and produces waste that can potentially impair and contaminate surface water and ground water resources. Commercial dairy operations utilizing manure flush cleaning and automatic cow washing systems can use as much as 150 gallons of water per day for every cow.¹² A fully grown dairy cow is capable of producing the same amount of waste as 23 humans.¹³ A primary issue with produced manure is that it possesses nitrogen compounds, which if washed into state waters compromises water quality.¹⁴ Nitrogen contamination can pollute groundwater and wells, rendering it unsafe for humans without treatment.¹⁵

No environmental profile would be complete without the carbon footprint of milk. The calculation obviously varies with many factors, and there is no definitive number for each gallon of milk, but it is the methane gasses produced by the cattle's digestive processes that account for half the impact.¹⁶

*Water resources

Our interest in examining this industry emerged from research into the challenges facing water management in New Mexico. The salient fact in New Mexico water is that approximately 78 of the water withdrawn for use in the state is consumed by agriculture.¹⁷ The patterns of agriculture in the state are affected by urbanization, drought, and economic factors. Views about agriculture are heated and often shrill. A new theme has entered the discussion in recent years; the environmental costs of transporting agricultural products over large distances. Thus, the environmental community, the "locavores" and traditional agricultural interests are finding common ground. How does the dairy industry fit into this picture? The primary agricultural producer in the state is the dairy industry, so that

a discussion about “agriculture” must take the dairy industry into account. See Table 1.

New Mexico's Top 5 Agriculture Commodities, 2007			
	Value of receipts thousand \$	Percent of state total farm receipts	Percent of US value
1. Dairy products	1,353,788	44.3	3.8
2. Cattle /calves	951,847	31.1	1.9
3. Hay	195,406	6.4	3.1
4. Pecans	96,200	3.1	22.1
5. Onions	63,440	2.1	4.8

Table 1 New Mexico's Top 5 Agriculture Commodities, 2007¹⁸

The dairy industry is primarily concentrated in southern counties in the state. The largest milk-producing counties in New Mexico are Chaves, Doña Ana, Roosevelt, Curry, Lea, and Eddy.¹⁹ See Table 2. The consumption of water by agriculture in these counties is substantial; it relates to the total water consumed in each county as well as what is consumed by agriculture across the state from alfalfa grown for the dairy herds.²⁰ See Table 3.

New Mexico Dairy Farms and Milking Cows for the Top 6 Producing Counties 2005/2006		
County	Producers	Milk Cows
Chaves	39	90,000
Roosevelt	41	65,000
Curry	24	66,000
Dona Ana	24	53,000
Lea	14	25,000
Eddy	5	19,000

Table 2 New Mexico Dairy Farms and Milking Cows for the Top 6 Producing Counties, 2005/2006²¹

County	Total Withdrawals in acre-feet 2005			% of Total State With- drawal	Irrigated Agriculture Withdrawals in acre-feet 2005			% of Total County With- drawal
	Surface Water	Ground- water	Total		Surface Water	Ground- water	Total	
Chaves County	18,608	250,324	268,932	7%	18,388	218,837	237,225	88%
Curry County	171	147,538	147,709	4%	0	127,946	127,946	87%
Dona Ana County	320,060	211,091	531,151	13%	319,988	149,842	469,830	88%
Eddy County	104,484	152,007	256,491	6%	84,003	124,665	208,668	81%
Lea County	67	185,952	186,019	5%	0	135,371	135,371	73%
Roosevelt County	96	201,720	201,816	5%	0	190,898	190,898	95%

Table 3 New Mexico Surface and Ground Water Withdrawals for Top 6 Dairy Producing Counties²²

*** Water Quality**

The water quality implications of dairy operations are significant, both to surface and groundwater. Dairy operations generate nitrates and other constituents of concern including ammonia, pathogens, antibiotics, hormones, and salts along with other solids which can be released to surface or ground water upon disposal. Nationwide, approximately 1.3 million households rely on wells in U.S. counties with factory farms where nitrate levels exceed the Maximum Contaminant Level.²³

The regulatory structure for water quality is two-fold. Surface waters are regulated by the U.S. EPA (New Mexico does not have regulatory authority over the NPDES program), which regulates certain agricultural discharges through the confined animal feed operations (CAFOs) program. The regulation of CAFOs has been a strife ridden topic in environmental law, because of the discrepancy between point sources and nonpoint sources.²⁴ Groundwater is regulated by the New Mexico Groundwater Quality Bureau of the New Mexico Environment Department.

In New Mexico, commercial animal farm operations (AFOs) and CAFOs which exceed certain animal specific population thresholds have historically been regulated under the National Pollutant Discharge Elimination System (NPDES).²⁵ An AFO is a lot or facility where animals have been, are, or will be stabled or confined for a total of at least 45 days in any 12-month period, and the animal confinement area does not sustain crops, vegetation, forage growth, or post-harvest residues in the normal growing season.²⁶ A CAFO is an AFO that exceeds an animal specific population.²⁷ CAFO regulations are more stringent for operations where pollutants are discharged into navigable waters through a manmade ditch, flushing system or other similar man-made device; or pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.²⁸ Operations



with 700 dairy cows or more are categorized as a CAFO and historically were required to be covered under the NPDES permit, whereas an operation exceeding 200 dairy cows directly discharging into waters of the United States have also been classified as a CAFO for regulatory purposes.²⁹ In New Mexico, the regulation of CAFOs for surface water protection historically has taken place through the NPDES permitting process, where facilities have been able to apply and be covered under the State's general permit or

apply directly to EPA for an individual permit.

A final rule addressing surface water regulation of CAFOs, the Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations, became effective as of December 22, 2008.³⁰ As a result of the new rule, EPA Region 6 proposed a new general CAFO discharge permit for the State of New Mexico. The General NPDES Permit, No. NMG010000, provides general coverage for discharges from CAFOs in New Mexico (except in Indian Country).³¹ New Mexico's General NPDES permit was originally issued in the Federal Register at 58 Fed. Reg. 7610 with an effective date of March 10, 1993, and expired on March 10, 1998.³² Applicable requirements from the 1993 permit are continued in the proposed permit; however, there are significant changes and issues associated with the new proposed permitting process.

The most significant change in New Mexico's General NPDES Permit is that it does not require that all CAFOs apply for coverage, and instead requires those CAFOs discharging or proposing to discharge to "waters of the United States," to apply for the permit.³³ EPA's jurisdiction over water quality under the Clean Water Act is limited to "waters of the U.S.," a term that has been the subject of Supreme Court interpretation, and of interpretation by the EPA³⁴ and the Corps of Engineers. In the arid Southwest, the jurisdictional language creates significant uncertainty for the agriculture industry and regulatory authorities, since determining what constitutes "waters of the United

States” is not a question easily determinable under certain circumstances. The EPA has interpreted the phrase as meaning “Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months).”³⁵ It is the reach of this language that New Mexico AFO and CAFO operators were most concerned with during E.P.A.’s question and answer period in Roswell and Albuquerque to discuss the N.M. proposed permit.³⁶

Options available to operators of CAFOs include applying for NPDES coverage, foregoing coverage, or alternatively certifying that the facility does not discharge or intend to do so.³⁷ A CAFO choosing the certification process will submit the facility’s production area design and construction, and operating and maintenance procedures and practices, as described in its nutrient management plan (NMP), which will be assessed in accordance with certification eligibility criteria.³⁸ The benefit of certification to CAFO operators is that in the event of a discharge from a properly certified CAFO, the CAFO will not be liable for failure to seek permit coverage.³⁹ However, the certified CAFO remains liable for discharging without a NPDES permit and for violations if applicable, whereas operations foregoing coverage would be liable for these violations in conjunction with the failure to seek permit coverage.⁴⁰

CAFOs applying for NPDES permit coverage under the State’s General NPDES Permit are required to submit Nutrient Management Plans (NMPs) along with a NPDES permit application to the EPA.⁴¹ The NMPs have a set of guidelines which must be met prior to permit approval.⁴² Those CAFO’s currently covered will also be required to submit a NMP. All NMPs for facilities requesting a permit, as opposed to those seeking only certification, will be filed with the EPA and published for notice and comment on the EPA website prior to agency approval, in contrast to the previous practice of keeping non-reviewed plans on site. These significant changes are the result of a U.S. Court of Appeals decision, where the Second Circuit, in addressing EPA’s requirement that all CAFO’s apply for a permit, held that the CWA “prevents the EPA from imposing, upon CAFO’s, the obligation to seek an NPDES permit or otherwise demonstrate that they have no potential to discharge.”⁴³ In addition, the court recognized nutrient management plans as “effluent limitations” that must be included in the NPDES permit and that are subject to CWA public participation requirements.⁴⁴

The Nutrient Management Plan (NMP) requirement is one of the most significant changes to the permitting process. NMPs include numerous technical requirements where CAFO “operators are responsible for assuring their NMPs comply with all permit conditions and are properly implemented.”⁴⁵ Each site specific NMP that addresses the application of manure, litter, or process wastewater must limit application rates to an amount not exceeding the nutrient needs of the crops being grown in areas used for land application.⁴⁶ Factors used in determining whether land application rates will exceed the nutrient needs of the crops grown include assessment of nutrients present and the addition of nutrients determined through soils testing.⁴⁷ In addition, the site specific potential for transport is taken in consideration in determining land application rates.⁴⁸

While the requirement of NMPs would appear to be a significant addition to the authority that EPA has under the NPDES program, there are questions about the effectiveness of the NMPs. The State of New Mexico Environment Department has criticized the proposed permit for allowing the NMPs to be prepared by anyone other than certified specialists, since in its opinion there is a reasonable potential for water quality standards to be violated if the NMPs are not developed by qualified personnel.⁴⁹ In addition, there are significant limitations on the ability of the public to make normative contributions during the individual permit process, since the state at this time only has narrative criteria for nutrients in streams and lacks an assessment protocol for the Pecos River and the Rio Grande. New Mexico’s lack of nutrient assessment protocols for these rivers make it difficult, if not impossible to provide scientific based input during the public input process as to whether or not application rates in an NMP submitted for review are sufficient to protect the state’s surface waters from excessive nutrients.⁵⁰ This issue is of significant concern, since the majority of CAFO’s in the state are located within the Rio Grande and Pecos River Basins.

In conclusion, CAFOs that do not discharge into the surface waters of the United State are no longer required to apply for coverage under NPDES but are required to maintain nutrient management plans on site. Second, the EPA will allow public participation in the review process of NMPs for plans submitted by CAFOs applying for permit coverage.

The State of New Mexico Environment Department Groundwater Bureau is the regulatory authority for regulating groundwater quality throughout the state.⁵¹ The groundwater program has two primary purposes: to set standards and require through regulation that discharges will not violate these standards. All commercial dairies in New Mexico are regulated by the Ground Water Bureau and required to have a discharge permit. Dairies using lagoons are required to have properly constructed liners, with engineering oversight.⁵² In addition, operations using wastewater for crop application are limited to a total nitrogen content in effluent not exceeding more than 25 percent the maximum amount of nitrogen reasonably expected to be taken up by the crop. To confirm that animal feedlot operators are complying with the groundwater regulations, the agency generally takes soil samples from every dairy in the state at least once a year.⁵³

* Agricultural practices

The United States has led a movement towards the industrialization of agriculture and the story of the New Mexico dairy industry is part of that story. One concern relating to the proliferation of the dairy industry in New Mexico is the potential effect of mismanagement practices on animal well-being. A variety of animal welfare issues can arise with respect to cattle in high density confined dairy operations. Animal welfare concerns stem from practices which can result in animal lameness, mammary infections, teat injuries, mastitis, mutilations, and in extreme cases, downed cows.

A common cause of suffering in dairy cattle is associated with lameness, which is commonly the result of hoof lesions.⁵⁴ Mammary infections, which negatively impact production, have been found to be less prevalent in cows kept in free stall or straw yards compared with those in tie stalls.⁵⁵ Research has indicated that cows that are continuously tied have an increased frequency of disease and hoof and leg ailments.⁵⁶ It has been shown that these issues can be mitigated by an increase in outdoor exercise.⁵⁷

Mastitis is the primary animal welfare issue for dairy cows in the U.S., where dairy producers have identified the disease as the most common reason for culling and second most common cause of death in dairy cows.⁵⁸ Mastitis is an infection of the mammary gland resulting from the transmission of pathogens.⁵⁹ The pathogens include *E. coli*, streptococci and staphylococci, and transmission during milking can result from contact with contaminated equipment or hands of dairy workers.⁶⁰ In addition, transmission can occur in dairy cow bedding contaminated with

manure and in pathways used to move cattle.⁶¹ There is a direct correlation with the sanitary conditions in operations and the occurrence of pathogens, where proper udder and cow hygiene and housing management can decrease the occurrence of pathogens in the herd.⁶²

In addition, dairy cows are regularly altered by surgical procedures, at times conducted without the benefit of anesthesia. The procedures performed on dairy cows include tail docking, dehorning, and teat removal in what is commonly referred to as mutilations. Tail docking is the removal of part of the cow's tail and practices include the use of rubber rings where the tail falls off weeks after banding, or the use of surgical equipment where the tail is cut off.⁶³ Short-term pain and discomfort are the result of the practice,⁶⁴ however, this practice may help decrease mastitis.⁶⁵

Another procedure conducted on dairy cows is the removal of supernumerary teats because they may get in the way of milking and can become infected.⁶⁶ Extra teats are commonly removed in the first 3 months with a scalpel or scissors and often without an anesthetic.⁶⁷ The procedure in the United Kingdom, for cows exceeding 3 months of age, must be performed by a veterinarian.⁶⁸

"Downed cows" are cows that are unable to walk due to sickness or injury. Under some circumstances, due to size and weight, they can be subjected to extreme pain when moved with chains and ropes.⁶⁹

* Water, Agriculture and the Future

Water in the west is notoriously contested. Yet most of the discussion concerns new users of water, rather than the uses that were established at the turn of the last century or earlier. The growth of municipalities is seen as a threat to agriculture⁷⁰ and, for a variety of reasons, many people prefer to see water used by agriculture rather than by cities, suburban sprawl, or perhaps even fishes. "Agriculture" is a term that encompasses a range of practices; in New Mexico, as discussed above, irrigated agriculture primarily involves the production of alfalfa for cattle, and presumably many of those cattle are used in the dairy industry.

The state's new role as a center of the dairy industry has not been the subject of statewide debate. There was no requirement that an Environmental Impact Statement be produced when the industry moved here, nor a public referendum on the desirability of the industry. Its connec-

tion to water is a compelling reason for public discussion. And there are many questions that are not explored in this paper, but deserve attention. What has driven the movement of the dairy industry to an arid western state? How will transportation costs, or a drying climate, affect the industry? Can the state adequately protect its waters, especially when they are isolated from perennial waters? We welcome comments and hope further publications will be forthcoming.

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continued from page 12

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