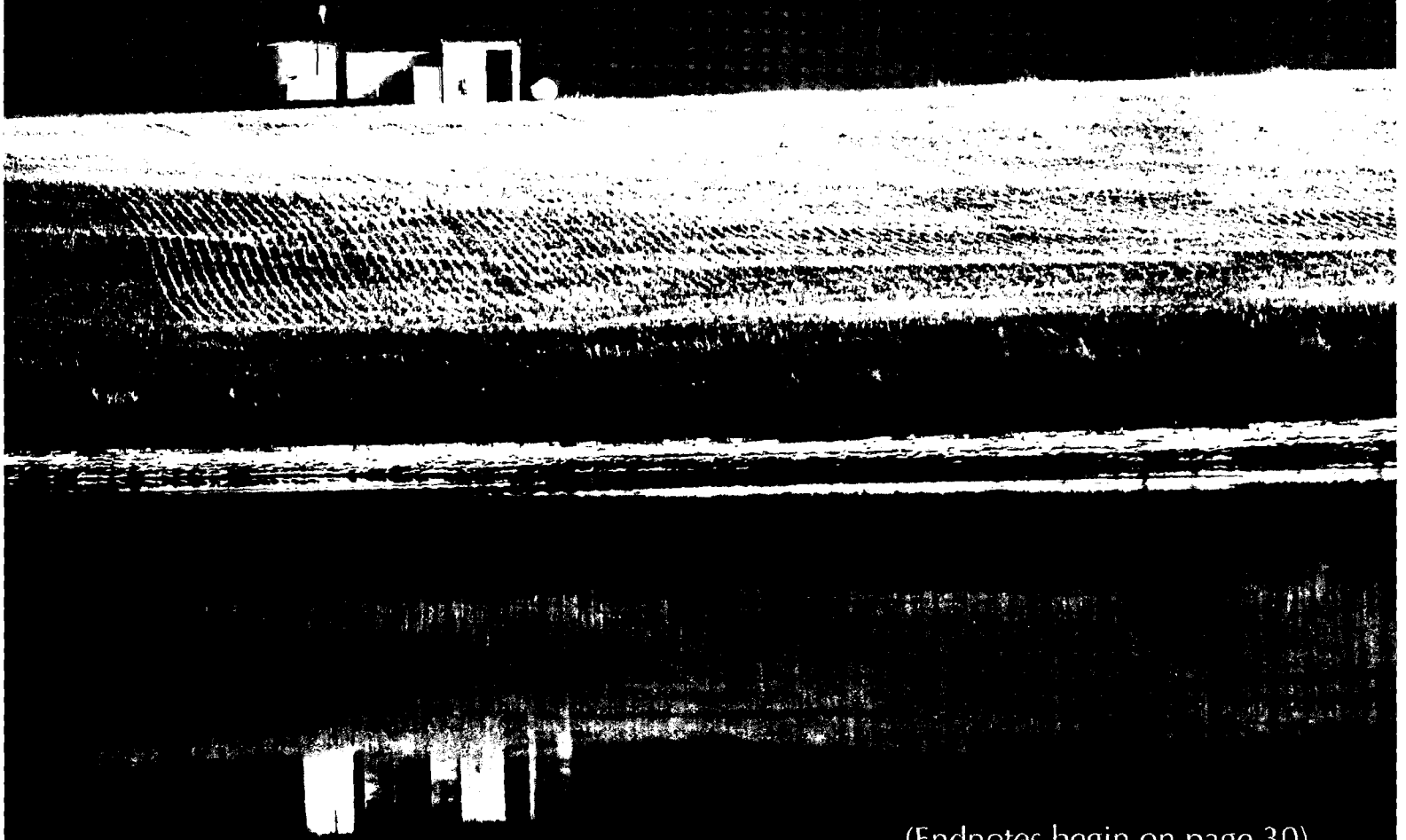


# **Water Allocation Law and the Oil and Gas Industry in Kansas: An Update to the 1981 Neufeld Article**

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(Endnotes begin on page 30)

The Spring 1981 issue of the *Journal of the Kansas Bar Association* contained Eva Neufeld's article "The Kansas Water Appropriation Statutes and Their Effect Upon the Oil and Gas Industry in Kansas" (the 1981 Article).<sup>1</sup> We are updating the 1981 Article because in the intervening 30 years great changes have occurred in Kansas law and in oil and gas recovery methods, particularly in coalbed methane (CBM) production and fracing. The 1981 Article focused on the Kansas Water Appropriation Act (KWAA)<sup>2</sup> administered by the chief engineer of the Division of Water Resources (DWR) of the Kansas Department of Agriculture (KDA). The 1981 Article cited other non-KWAA statutes, including sections dealing with the Kansas Corporation Commission (KCC), civil procedure, and taxation. Over the last 30 years, the Kansas legislature has made numerous additions and amendments to the KWAA and other relevant statutes, and we analyze the effect of these changes on the oil and gas industry.

The 1981 Article began with a brief history of the KWAA and the KWAA's initial impact on oil and gas production. The 1981 Article then covered (1) water use in the initial drilling operation, (2) water as a by-product of oil and gas production, and (3) water use in secondary or enhanced oil and gas recovery. The final three sections dealt with the question of attachment of water rights to land in Oklahoma, Colorado, and Kansas; discussed policy issues and made suggestions; and advised on obtaining a water appropriation permit. This article updates and supplements the 1981 Article, but does not replace it; so, the articles should be read together. We use the same 1981 Article format and subtitles,<sup>3</sup> but in some cases add sub-subsections, and we do not discuss Oklahoma and Colorado law. Like the 1981 Article, this article focuses primarily, but not exclusively, on water allocation. Several developments in legislation, administrative regulations,<sup>4</sup> and in methods of oil and gas recovery necessitate mentioning several water quality concerns as they relate to allocation, but we do not discuss water quality concerns in detail. This article summarizes changes in the KWAA and the other related statutes and in DWR since 1981, and it ties them to recent advancements in oil and gas recovery methods. We deal with attachment of water rights, but only in Kansas and not in Colorado or Oklahoma. The section describing policy issues and making suggestions is reviewed as to current applicability. The final section on obtaining a water appropriation permit is updated and expanded.

## History

The 1981 Article summarized the history of prior appropriation in Kansas, a system based on "first in time, first in right."<sup>5</sup> Since 1981 numerous changes in Kansas water allocation legislation and administrative regulations have occurred, DWR personnel have changed, and judicial decisions have been rendered. Guy Gibson, appointed chief engineer in 1972, retired in 1983. David Pope succeeded him, having served as assistant chief engineer since 1978. Legal counsel Leland Rolfs had joined the DWR staff in 1978. Pope retired in 2007, Rolfs in 2008. In the last 30 years, most of the legal changes in Kansas water allocation law occurred under Pope's and Rolfs' leadership.

The following are a few changes in the KWAA and related statutes since 1981. In 1983, the legislature enacted, and in

1993 amended, the Water Transfer Act<sup>6</sup> to regulate movement of large quantities of water (2,000 acre feet per year) over distances exceeding 35 miles;<sup>7</sup> in 1984, it added minimum desirable streamflow legislation;<sup>8</sup> in 1988, it required annual use reports;<sup>9</sup> in 1995, it enacted a change in the process for appointing the chief engineer;<sup>10</sup> in 1999, it changed the forfeiture period for non-use of a water right from three years to five years;<sup>11</sup> in 2001, it provided for "multi-year flex accounts,"<sup>12</sup> enacted water banking legislation,<sup>13</sup> and enabled the chief engineer to suspend a water use for failure to comply with provisions of the KWAA;<sup>14</sup> and in 2009, it enabled issuance of "term permits," which had until that time been allowed by regulation only<sup>15</sup> ("temporary permits" have been permitted by statute since 1977<sup>16</sup>). Those changes do not count the numerous other examples of the legislature's tweaking other sections of the KWAA, leaving few current sections in their 1981 form. The legislature also abolished the Kansas Water Resources Board and replaced it with the Kansas Water Authority and the Kansas Water Office headed by a director,<sup>17</sup> and it amended the water planning statutes<sup>18</sup> to provide a continuously modifiable State Water Plan, giving Kansas a dynamic water resources planning capability.<sup>19</sup>

In 1981, DWR had published few administrative regulations, but it was producing in-house "administrative policies and procedures." Over the next decade, DWR produced even more policies that filled two large three-ring notebooks and, although not necessarily having the force and effect of law,<sup>20</sup> guided DWR staff and lawyers dealing with DWR. In 1999 the legislature mandated that the chief engineer turn the administrative policies and procedures into full-fledged administrative regulations.<sup>21</sup> Found under K.A.R. Agency 5, DWR regulations contain 35 separate articles.<sup>22</sup> In addition to its usual duties of issuing original permits and change orders, DWR has established several intensive groundwater use control areas (IGUCAs)<sup>23</sup> and held many water rights abandonment hearings.<sup>24</sup>

Prior to 1981, Kansas had only a few appellate court cases dealing with the KWAA, most of them examining its constitutionality.<sup>25</sup> Since then, including still one more constitutional case,<sup>26</sup> the Kansas appellate courts have decided several cases that clarify various issues regarding abandonment of water rights,<sup>27</sup> standing to contest DWR decisions regarding issuance of permits,<sup>28</sup> condemnation powers of special water districts,<sup>29</sup> and changes in vested rights.<sup>30</sup> In addition, Kansas has been a plaintiff in two U.S. Supreme Court cases, one regarding allocation of the Arkansas River<sup>31</sup> and one regarding the Republican River.<sup>32</sup>

## Initial Impact

As stated in the 1981 Article, it is common practice to include a clause in an oil and gas lease in which the lessor grants the lessee the right to use water. Most lease forms in Kansas, including the so-called Producers 88 form lease,<sup>33</sup> contain a "free use" clause granting the lessee the right to use water for its development and operations, except from existing wells of the lessor.<sup>34</sup> While an implied right to use water has been recognized in some states, including West Virginia and Texas,<sup>35</sup> Kansas water rights may be obtained only with a permit from DWR, and, as discussed below, temporary permits are allow-

able and may suffice for initial operations. The landowner must have a water right before the landowner can allow a lessee to use water in the production of oil and gas under the authority of the landowner's water right. Even then, the owner's water right is limited to a particular type of use, such as domestic or irrigation, and to divert and use water for any other purpose requires prior permission from DWR.<sup>36</sup> Even if DWR approves changing the use of the water right, DWR must ensure that the consumptive use remains the same.<sup>37</sup> If oil and gas producers plan to utilize a landowner's water right, the oil and gas producer must carefully evaluate the water right's current consumptive use and the prospect that a change may increase or decrease the consumptive use. Moreover, KWAA's Section 728 makes the diversion of water without a permit a criminal offense.<sup>38</sup> That section contains several exceptions that could apply,<sup>39</sup> but the operator needs to confirm that it either has a permit or meets one of the exceptions.

Any version of an oil and gas lease proffered by a producer may be modified by the parties, including an addendum providing that the lessee is not entitled to use any water from the leased premises whatsoever without first obtaining the written consent and approval of the lessor.<sup>40</sup> Lawyers should carefully review any proposed lease for such provisions affecting water.<sup>41</sup> Professor Pierce makes the following comment and recommendation regarding addressing water use to avoid disputes:

Although the lease purports to grant lessee the right to use water, in most cases the landowner will not have any sort of vested right in water on or in his land. Instead, the lessee must obtain a permit to appropriate water from the Chief Engineer of the Division of Water Resources. K.S.A. § 82a-711 (1984). [cites 1981 Article].

\* \* \*

Today, it would seem prudent to address the use of water in detail to avoid later disputes. For example, rights to water from ponds, streams, and wells should be specified. Rights to salt and fresh water produced from oil and gas wells should be granted to the lessee. The scope of 'use' should be addressed. For example, can the lessee use water from the lease to conduct enhanced recovery operations? ...<sup>42</sup>

He further recommends that the landowner carefully scrutinize the granting clause "to determine the activities which lessee can conduct on the lease land"<sup>43</sup> because the parties' rights may conflict. "If the lessor is using water from a pond on the leased land to water cattle, can the lessee use the water to conduct drilling or secondary recovery operations?" he asks.<sup>44</sup> He cites the 1932 pre-KWAA case of *Wyckoff v. Brown*,<sup>45</sup> which allowed the lessee to use water from a pond on the leased land to support drilling operations, because the lease gave the lessee the right to use water "produced on said land ... except water from wells of lessor."<sup>46</sup> With the requirement now under Section 708b of the KWAA that a water right holder may not change the use of a water right without prior permission of DWR, use of that case as justification is no longer valid. If a temporary permit is used, as described in the next section of

this article, the need for DWR's approving the change would be obviated.

According to Professor Pierce, because an oil and gas lease is a profit (the right to enter the land, sever, and take oil and gas) with a number of express and implied easements that facilitate development, and since the water use is coextensive with the development rights, the lessee should have the requisite right of access or control over the water's point of diversion. Instead of relying upon an implied easement, it may be preferable to state in the lease that such a right is being given. Thus, a lessee may want a lease clause expressly supporting the lessee's unilateral application for an appropriation permit and explicit access to the permit's point of diversion.<sup>47</sup> For example, the following clause might be considered:

Lessor gives Lessee permission to apply for a temporary, term, or regular water appropriation right from the Division of Water Resources, for the use of water in Lessee's oil and gas production, and to use any such water obtained under the authority of such right so long as such use is lawful and within the conditions of the permit and so long as it does not interfere with or impair any water rights held by Lessor, either presently existing or obtained in the future. Lessor hereby gives Lessee access to Lessor's land for the purpose of supporting any application for such water right, and for drilling, operating, and using any such water well or wells needed under any water rights obtained by Lessee.

### Water Use in Initial Drilling Operation

As stated in the 1981 Article, for the initial drilling operation, use and installation of equipment, and work by the operator's employees, a temporary permit and not a full-fledged water right is sufficient. However, temporary rights are subject to curtailment by an impaired senior appropriator. The following comments about temporary permits describe some changes since the 1981 Article.

Section 727 of the KWAA allows temporary permits. DWR regulations provide the details.<sup>48</sup> The DWR website contains a form permit application for temporary permits.<sup>49</sup> The chief engineer may refuse to issue a temporary permit for fresh water if other water is available and its use is technologically and economically feasible.<sup>50</sup> The permit may not be granted for a quantity in excess of 4 million gallons, except for dewatering purposes or water that is to be diverted from a construction site and used on that construction site;<sup>51</sup> it may not be granted for more than one place of use<sup>52</sup> or point of diversion;<sup>53</sup> it may contain conditions necessary to protect the "public interest";<sup>54</sup> it is limited to a term of six months, but may be extended for good cause shown;<sup>55</sup> it is not transferable<sup>56</sup> or a permanent right;<sup>57</sup> and it has a priority based on the date and time of receipt of the application, that priority terminating on the date set out in the application or any extension of the time authorized.<sup>58</sup> Access to the water supply is required,<sup>59</sup> and DWR's form application for a temporary permit contains the following admonition:

You must provide evidence of legal access to, or control of, the point of diversion of water, from the landowner

or the landowner's authorized representative. Provide a copy of a recorded deed, lease, easement, or other document with this application. In lieu thereof, you may sign the following sworn statement: ...<sup>60</sup>

The form also requires the applicant to provide information on the location of the point of diversion, type of use, and place of use.

The 1981 Article stated that groundwater management district (GMD) well-spacing requirements were not applicable to temporary permits. The language in the regulations for GMD No. 1,<sup>61</sup> GMD No. 2,<sup>62</sup> and GMD No. 5<sup>63</sup> refers to well-spacing requirements for a well in a location described in an application for a "permit to appropriate water," which is understood to be permits for regular water rights. The well-spacing regulations for GMD No. 3 refer to the "minimum horizontal distance between each proposed nontemporary ... well."<sup>64</sup> However, the well spacing for GMD No. 4,<sup>65</sup> effective first in 1983, seems to cover temporary wells. While the regulation sets out well-spacing distances to be followed for non-domestic, nontemporary wells,<sup>66</sup> it also sets forth a minimum 800 feet requirement for "each nondomestic well ... from each domestic well" with exceptions empowering the chief engineer to waive the requirement.<sup>67</sup> One ground for such waiver is a case in which "a Theis analysis ... shows that the domestic well is not likely to be impaired by the proposed well."<sup>68</sup> The small quantities involved in temporary permits would arguably be a reason to dispense with the requirement in these cases. The same might also be said about the 2,640 feet spacing requirement for withdrawals from cretaceous aquifers, found in the same regulation.<sup>69</sup>

### Water as a By-Product of Oil and Gas Production

While generally water diversions require prior permitting in Kansas, the exception described in the 1981 Article found at Section 728 of the KWAA is still applicable. That exception is the production and return of salt water in connection with the operation of oil and gas wells permitted by the Kansas Corporation Commission (KCC) under K.S.A. 55-901. Section 728 still defines salt water as water containing more than 5,000 milligrams per liter chlorides.<sup>70</sup> A KCC permit under K.S.A. 55-901(a) is required to give an operator the right to dispose of the salt water "or waters containing minerals to an appreciable degree" by returning such waters "to any horizon from which such salt water may have been produced or to other horizon which contains or had previously produced" such waters.<sup>71</sup> The two technical amendments to K.S.A. 55-901 since 1981 have not altered its main language.

As stated in the 1981 Article, groundwater was then protected under K.S.A. 55-115 *et seq.*, from salt water leaking through the well casing, but in 1982 the legislature repealed those sections and replaced them with K.S.A. 55-150 *et seq.* The purpose of the legislation was "improved protection of surface water and groundwater from pollution resulting from oil and gas exploration, production, and well plugging activities."<sup>72</sup> Prior to drilling "any well," the operator is required to file an "application of intent to drill" with the KCC, a notice of which is sent to the surface owner.<sup>73</sup> To approve the application, the agent of the KCC must determine "that the

proposed construction of the well will protect all usable waters."<sup>74</sup> The legislation empowered the KCC to adopt rules and regulations to implement the statute for "the protection of the usable water of this state from any actual or potential pollution from any well ... ."<sup>75</sup>

The 1981 Article noted that "[s]alt water is returned to the ground for two different reasons" – (i) disposal in underground disposal wells and (ii) use in enhanced recovery procedures<sup>76</sup> and that "[b]oth of these procedures are governed by the Kansas Corporation Commission."<sup>77</sup> The 1981 Article discussed the question of whether these procedures were in accordance with and pursuant to K.S.A. 55-901 because the statute did not specifically refer to either procedure.<sup>78</sup> Neufeld concluded that both the disposal into underground disposal wells and the use of water for enhanced recovery were included within the purview of K.S.A. 55-901.<sup>79</sup> Another issue discussed in the 1981 Article was whether the KWAA Section 728 exception from water permitting extended to additional wells necessary for the production of salt water for fluid repressuring.<sup>80</sup> Neufeld concluded that while the same policy arguments existed for the exclusion, the chief engineer would have the authority under KWAA Section 711 to require an appropriation permit for water other than fresh water.<sup>81</sup>

The 1981 Article did not discuss a further ambiguity relating to the KWAA Section 728 exception for an appropriation permit. Such ambiguity deals with salt water produced that is not returned directly or immediately to the ground and whether this water falls under the exception. The ambiguity arises from the language of Section 728 "the production and return" and whether the exception applies only in cases in which the salt water both comes to the surface and is then returned, either for storage or enhanced recovery. Generally, salt water is injected back into the subsurface.<sup>82</sup> The question is whether salt water produced as a by-product that is not returned to the subsurface requires an appropriation permit. One example would be brine used in road construction and maintenance. K.S.A. 55-904, the penalties section for salt water disposal, states that the section does not "prohibit the spreading of salt water on road beds under construction or maintenance if such spreading" complies with Kansas Department of Health and Environment (KDHE) regulations. KDHE has regulated such use since 1982.<sup>83</sup> Another example would be use of the salt water to extract valuable chemicals, such as iodine, if they could be extracted economically.<sup>84</sup> But even after use of such saltwater, the residual would likely have to be injected into the subsurface.<sup>85</sup> As fresh water resources have dwindled, "reuse" of water from municipalities, irrigation, and industry has become increasingly important, and oil field brine could be sufficiently cleaned up for some uses.<sup>86</sup> The "reuse" of water (i.e., using the water again after a first use for the same purpose or for a different purpose) has become an important topic in Western water law, because reusing water can increase the consumptive use to the detriment of other appropriators.<sup>87</sup> Oilfield brine used for road construction and maintenance or desalinated for beneficial use would not fit the "production and return" exception of KWAA Section 728. K.A.R. 5-1-1(fff) addresses some of these issues because it limits the definition of "the production and return of saltwater" to "saltwater actually produced during the pri-

mary production of oil and gas wells.”<sup>88</sup> The definition does not include saltwater produced and used in the initial drilling of the well and saltwater injected into an enhanced recovery injection well unless the saltwater was produced during the primary production of the wells.<sup>89</sup> Although this regulation limits the exception regarding the production of saltwater, the regulation does not limit the reuse or return of that water. The water can still be returned to the same horizon.<sup>90</sup>

**Coalbed Methane.** A related topic not discussed in the “Water as a By-Product of Oil and Gas Production” section of the 1981 Article is coalbed methane (CBM) production. Like fracking, discussed in the next section, these subjects have become extremely important and controversial in the last few decades, and legal aspects of these subjects deserve much detailed and critical analysis. Our coverage is narrowly focused on the water allocation aspects in Kansas, and is superficial, generally only suggesting the issues and not analyzing them in depth.

The U.S. Geological Survey (USGS) states:

Methane (natural gas) ... occurs in association with coal, ... and ... [b]ecause coal has such a large internal surface area, it can store surprisingly large volumes of methane-rich gas ... [much of which] ... lies at shallow depths. ... To produce methane from coal beds, water must be drawn off first ... [and] ... [t]his water, which is commonly saline but in some areas can be potable, must be disposed of in an environmentally acceptable manner.”<sup>91</sup>

In Kansas, the number of CBM wells increased from a total of five in 1981 to more than 1,300 in 2004 with most activity confined to the eastern third of the state and predominantly in five counties in the southeast.<sup>92</sup> The peak year for CBM drilling was 2006 and for CBM production was 2008.<sup>93</sup>

The same issues and concerns discussed above, and others, are applicable to water produced as a by-product of CBM production. Four issues are briefly addressed regarding the permitting requirements under KWAA Section 728: (1) If the exceptions to Section 728 were deemed not to excuse this diversion of water from permitting requirements, could a producer successfully argue that an appropriation permit is not necessary anyway because this water is diverted only as an incidental part of the process and not for beneficial use of the water itself? If a permit is required because DWR deems this process to be a beneficial use of water, then three additional issues are raised: (2) What if the water is not “produced *and* returned” to the subsurface?; (3) Is coalbed methane the same as the “gas” mentioned in Section 728?; and (4) What if the water is not salt water as defined in Section 728?

**(1) Is permitting required for water diverted that is only incidental to the ultimate object of the project (methane production)?** Even if the requirements for an exception on Section 728 were not met, a CBM producer might argue that DWR should not require a permit because the water diverted is only incidental to the process, that the diverted water is in fact only a nuisance, and that such diversion is therefore not a “beneficial use” of water, which is a basic underlying premise of the KWAA. This argument arose in Colorado in 2009 in *Vance v. Wolfe*.<sup>94</sup> The Colorado Supreme Court determined

that extracting and storing the water to accomplish the specific purpose of retrieving CBM was a beneficial use under the Colorado Ground Water Management Act, because “the use of water in the CBM production is an integral part of the CBM process itself,”<sup>95</sup> and although the purpose of CBM production is not obtaining water, it is the “inevitable result.”<sup>96</sup> The court based its decision in part on the fact that Colorado has determined that gravel pits that create ponds constitute “wells” for the purpose of obtaining water by appropriation for the “beneficial use” even though the purpose of the gravel pits is not to obtain water.<sup>97</sup> In Kansas, the KWAA requires an appropriation permit for water evaporated from sand and gravel pits if the pit is opened in an area of high “average annual potential net evaporation.”<sup>98</sup> A separate regulation defines “substantially adverse impact on the area groundwater supply,” based on average annual potential net evaporation, which varies across the state.<sup>99</sup> Thus, Kansas does recognize the need to obtain an appropriation permit in some cases involving diversions or extractions of water that are only incidental to the main objective of the project. A Kansas court could potentially follow the *Vance* rationale and require a permit for CBM, but it is not clear whether such use would constitute an “industrial” use as currently defined by DWR regulations.<sup>100</sup> If not, DWR might have to create and define a new beneficial use in K.A.R. 5-1-1.

**(2) Water produced but not returned?** While some CBM producers would generally view the water as a nuisance, in some places in the United States, water is not returned to the ground, and indeed is put to beneficial use.<sup>101</sup> In Kansas, the failure to return the water to the ground would arguably give rise to an appropriation permit requirement, as discussed above.<sup>102</sup>

If the CBM water is deemed an exception to appropriation right permitting requirements pursuant to KWAA Section 728, K.S.A. 55-901 referenced therein requires the water to be returned “to any horizon from which such salt waters may have been produced, or to any other horizon which contains or had previously produced salt water ... in an appreciable degree ... .” Over the life of a well, the amount of water produced can be large,<sup>103</sup> and in some places, re-injection requires finding a geologic area large enough to store the water.<sup>104</sup> Section 55-901 contains no geographical restriction on the location of the reinjection, just the requirement of a horizon previously containing salt water. However, if the water were to be disposed of across state lines,<sup>105</sup> K.S.A. 82a-726 would come into play, requiring prior DWR approval if anyone intends to “divert and transport water produced from a point or points of diversion located in this state for use in another state ... .”<sup>106</sup>

**(3) Methane the same as KWAA Section 728 “gas”?** While methane is the main component of natural gas,<sup>107</sup> “coalbed methane can be distinguished from traditional natural gas in a number of ways ...,”<sup>108</sup> so the legal question is whether coalbed methane is the same as the gas referred to in KWAA Section 728. The KWAA and accompanying regulations do not define oil and gas. One non-KWAA statute defines “oil and gas” as “crude oil, natural gas, casinghead gas, condensate, or any combination thereof,”<sup>109</sup> while another defines “natural gas” as “gas either while in its original state or after the same has been processed by removal therefrom of component parts not essen-

tial to its use for light and fuel.”<sup>110</sup> Regulations accompanying these statutes define “coalbed natural gas” to mean “natural gas produced from either coal seams or associated shale.”<sup>111</sup> A regulation defines “gas” as “the gas obtained from gas or combination wells, regardless of the chemical analysis.”<sup>112</sup> The Kansas Supreme Court in *Central Nat. Res. v. Davis Operating Co.*<sup>113</sup> defined CBM as a “gas” and not as “coal.” Reading these definitions harmoniously<sup>114</sup> and concurrently with *Central Nat. Res.*, one may conclude that CBM is a natural gas that falls under the terms “oil and gas” in KWAA Section 728 and accompanying regulations. Although unlikely, if coalbed methane were not deemed to be “gas” within the meaning of KWAA Section 728, then coalbed methane producers would need to follow the KWAA and its rules and regulations.

**(4) Is saltwater, as by-product of CBM, “saltwater” as defined in KWAA Section 728?** To meet the definition of Section 728 and qualify as an exception to appropriation permitting, the water must contain more than 5,000 milligrams per liter chlorides. Although not potable in Kansas,<sup>115</sup> much of the water produced during CBM extraction in other states is “drinkable, irrigable, or usable for stockwatering.”<sup>116</sup> The salinity determination would have to be made on a well-by-well basis. Salinity can vary by basin and depth.<sup>117</sup> The salt content of the produced water can change during CBM production. Sometimes a well might begin producing water that does not meet the Section 728 exemption, but the salinity might increase as drilling continues.<sup>118</sup> If Kansas CBM production involves water at lower chloride levels, the water would not fall within the Section 728 exception.

### Water Use in Secondary or Enhanced Oil and Gas Recovery<sup>119</sup>

This section of the 1981 Article dealt with two topics – (i) the need for an appropriation permit for such activity and (ii) the attachment of the water right to real estate interests. It began with a brief description of enhanced recovery and the need in many enhanced oil recovery techniques for the use of fresh water. That description has not changed, with the exception of one cited statute.<sup>120</sup> When fresh water is needed, an appropriation permit is required, and this process is described in more detail in the last section of this article.

**Fracing.** What was not mentioned in the 1981 Article was the subject of “fracturing” or “fracking,” often spelled “fracing,” which is increasingly important in Kansas<sup>121</sup> and elsewhere. A USGS publication states the following:

To produce commercial amounts of natural gas from such fine-grained rock, higher permeability flowpaths must be intercepted or created in the formation. This is generally done using a technique called hydraulic fracturing or a *hydrofrac*, where water under high pressure forms fractures in the rock which are propped open by sand or other materials to provide pathways for gas to move to the well. Petroleum engineers refer to this fracturing process as *stimulation*.<sup>122</sup>

Public interest issues associated with obtaining a water appropriation permit for fracing activities are discussed below in the last section of the article.

Even though the water requirements for single fracing projects are relatively small, compared, for example, to irrigation,<sup>123</sup> a water appropriation permit of some kind (regular, temporary, or term) would be required for fracing, with two exceptions: (1) salt water used under the exception noted above in Section 728 of the KWAA; and (2) small amounts used from a public water supply. Moreover, a well may be fraced multiple times over its life. If the time intervals between fracing exceed five years, issues of abandonment of an appropriation right would arise,<sup>124</sup> which is another reason temporary or term permits are generally more appropriate, and obtained in succession if necessary for multiple fracing situations.

**Attachment of Water Right to Real Estate Interest.** This section on enhanced recovery in the 1981 Article dealt in large part with the question of attachment of a water right to land. Because the oil and gas lessee would be applying for a water appropriation permit for this recovery process and using the water on lands of another, and because Kansas water rights “attach to the land on or in connection with which the water is used and ... remain subject to the control of the owners of the lands ...,”<sup>125</sup> the 1981 Article discussed the various interests in land to which such an appropriation right could attach—the surface estate, the severed mineral estate, and the oil and gas leasehold. It noted that the definitions in the KWAA do not define land, but that the Groundwater Management District Act does.<sup>126</sup> The article then states: “To which lands the rights to the beneficial use of water attach will be of crucial importance to the oil and gas lessee, as the owner of such land shall control the right to use the water.”<sup>127</sup> Control of the water right could also include the power to transfer: KWAA Section 701(g) states that the water right “passes as an appurtenance with a conveyance of the land by deed, lease, mortgage, will or other disposal, or by inheritance.”<sup>128</sup> Thus, if the water right were deemed appurtenant to, say, the mineral rights as opposed to the surface right, a transfer of the mineral rights would include the water right.

The KWAA is not clear on the attachment issue. However, the arguments made in the 1981 Article that “the legislature contemplated the attachment of the right ... to only the surface estate”<sup>129</sup> are still valid, even though the Article’s supporting statutes and regulations cited have been amended. Section 709 of the KWAA still requires the permit applicant to show the “location of the ... use of the water,”<sup>130</sup> and Section 710, unchanged since 1945, pertains mainly to DWR’s return of the application for correction, but requires maps to show the location of pipe lines and other physical structures used to convey water.<sup>131</sup> K.A.R. 5-3-4 has been amended in other respects since 1981, but still requires “an aerial photograph or a detailed plat ... [showing] ... the location of the place of [water] use ... identified by crosshatching or by some other appropriate method.”<sup>132</sup>

On the question of whether a water right could conceivably attach to a severed mineral estate, the 1981 Article avers that because KWAA Section 708a stated (and still does) that the right to use water “shall attach to the lands on or in connection with which the water is used,”<sup>133</sup> an oil and gas lessee could argue that “the water is not being used either on or in connection with the surface estate but in connection with the

mineral estate.<sup>134</sup> Supporting the notion of separate surface and mineral estates, the 1981 Article cited the 1977 version of K.S.A. 79-420, which required mineral interests to be taxed separately from the “fee of such land.” Although the legislature amended that section in 1982, the relevant language is the same. Thus, the remaining arguments for recognizing the possible attachment of the water right to the mineral interest are as valid today as in 1981.

The same is also true with possible attachment of the water right to the oil and gas leasehold. The statutes cited on venue in actions concerning real property,<sup>135</sup> on actions for possession of real property,<sup>136</sup> and on writs of execution<sup>137</sup> have not changed since 1981 and still indicate that oil and gas leases are treated as real property in those cases. The Kansas appellate court cases cited in the 1981 Article have not been overruled, even though the cited case law indicates that the leasehold is for some purposes to be considered as personal property and in others as real property.<sup>138</sup> And, as concluded in the 1981 Article, if the water right were considered to be attached to the leasehold interest, the “parties to the lease would then be analogous to the ‘owners of the lands’ [citing KWAA Section 708a] and would thereby control the beneficial use of the water perfected under such an application.”<sup>139</sup> The final paragraph of this section of the 1981 Article makes several arguments as to why such attachment would be desirable, but, as discussed in the Policy and Suggestions section below, the 1981 Article did not recommend a statutory change to effect that result, but instead suggested a practical solution to aid the holder of the leasehold.

### Policy and Suggestions

The Policy and Suggestions section in the 1981 Article stated that Kansas “allows any person to appropriate water on any land.”<sup>140</sup> Section 708a of the KWAA states that any person “may apply for a permit to appropriate water ... notwithstanding that the application pertains to the use of water ... upon or in connection with the lands of another.”<sup>141</sup> But 2010 amendments to Section 709 now require a “sworn statement or evidence of legal access to or control of the point of diversion from the landowner ... .”<sup>142</sup> DWR regulations require an applicant for an appropriation permit to have legal access to both the point of diversion and the place of use.<sup>143</sup> And, as noted above, temporary permits require access to the source of water supply.<sup>144</sup>

On the question of whether the water right attaches to the surface interest, the mineral interest, or the leasehold interest, the Policy and Suggestions section of the 1981 Article said that the answer is “unknown” and that at that time there had been no court interpretations of KWAA Section 708a. That is still the case. The 1981 Article made the following suggestion:

... [T]he oil and gas lessee can be protected from the loss of the right to use the water. While the owner of the land to which the water right attaches has the right to control the use of the water, he or she also may transfer that right to the oil and gas lessee. [citing KWAA Section 701(g)] By agreement with surface and mineral estate owners the oil and gas lessee can obtain the control of the water right and, subject to the rights of prior

appropriators, insure his or her right to use water in enhanced oil recovery operations.<sup>145</sup>

While the 1981 Article questioned the rationale for attaching the water right to the surface interest,<sup>146</sup> it made no policy recommendations, such as proposing a change in the KWAA to state clearly that a water right for industrial use (enhanced production) would attach either to the mineral interest or the leasehold. We likewise affirm the notion that the KWAA should not be amended to clarify the issue, but that this issue should be left to contract among the parties.

### Obtaining an Appropriation Permit

The essence of obtaining an appropriation permit detailed in the last section of the 1981 Article has not changed over the years. This section described the core of water allocation law set in place in the original KWAA in 1945. We quote below the entire section, only to add legal authority in footnotes to the statements in the text, as the 1981 Article omitted those references. In three places shown in italics, we also note additions to the law and provide an amplification to a statement. These references would hopefully aid a reader conducting legal research on related issues. Finally, at the end of the quoted material we add a paragraph on term permits (as an alternative to a temporary or regular permit) and some thoughts about the public interest element required of the chief engineer when assessing an application for an appropriation right or a change in the type of use, place of use, or point of diversion.

From the 1981 Article:

With the exception of the production and return of salt water, no oil and gas operator or lessee may acquire an appropriation right to the use of water without first filing an application for a permit to appropriate water with the Chief Engineer of the Division of Water Resources.<sup>147</sup> If the proposed use of water meets the criteria established by statute, the Chief Engineer must approve the application for a permit.<sup>148</sup> Such approval constitutes a permit for the applicant to proceed with construction of diversion works and to take other steps necessary to put the amount of water specified in the application to the beneficial use specified in the application.<sup>149</sup> Upon completion of the diversion works, the applicant notifies the Chief Engineer who, after inspection and a determination that the water has actually been put to a use conforming to the application, issues a certificate of appropriation.<sup>150</sup>

The certificate of appropriation represents an appropriation right to divert a specified amount of water<sup>151</sup> from a definite water supply at a specified rate of diversion and to apply such water to a specified beneficial use or uses.<sup>152</sup> Such appropriation right is subject to all vested or prior appropriation rights to divert and use water from the same source of supply,<sup>153</sup> and is also subject to *minimum desirable streamflow requirements*.<sup>154</sup> The priority of an appropriation right *except for domestic* use is based on the time of filing an application for a permit to appropriate water.<sup>155</sup>

A water right includes both vested rights and appropriation rights.<sup>156</sup> It is a real property right appurtenant to and severable from the land on or in connection with which the water is used.<sup>157</sup> Such rights, unless severed, pass with conveyance of the land.<sup>158</sup>

Even though the oil and gas operator may feel that he or she is currently drowning in a flood of governmental regulations and paperwork, the benefits accruing from an appropriation right for the use of water far outweigh the burden of applying for and perfecting such a right. First, appropriating water without a permit is unlawful and punishable as a class C misdemeanor.<sup>159</sup> Moreover, the potential value of a right to use water in an agricultural state with diminishing water supplies is inestimable. A water right may be leased, sold, assigned or otherwise transferred,<sup>160</sup> and the intended use to be made of the water may be changed upon approval from the Chief Engineer.<sup>161</sup> *Temporary permits, however, are not transferable.*<sup>162</sup> A wise oil and gas operator will recognize the value of such a right and take all steps necessary to properly obtain and perfect a right to appropriate water in Kansas.

Temporary permits were discussed in the 1981 Article, and the changes in the law since then are shown in some detail above.<sup>163</sup> Term permits were not discussed in the 1981 Article. While temporary permits would generally be appropriate for the initial drilling operation, term permits would likely be more appropriate for CBM production and fracing.<sup>164</sup> K.S.A. 82a-708c, enacted in 2009, allows term permits, defined as a “permit to appropriate water for a limited specified period of time in excess of six months,” at which time it is automatically dismissed unless the chief engineer extends the time.<sup>165</sup> Further definition is given in the regulations: “‘Term permit’ means a permit to appropriate water that is issued for a specified period of time and exceeds the criteria for a temporary permit specified in K.S.A. 82a-727.”<sup>166</sup> Term permits in general are limited to five years, but may be extended by the chief engineer.<sup>167</sup> But term permits “for the use of water containing more than 5,000 milligrams of chlorides per liter of water may be initially issued for not more than 10 years and may be extended in increments of not more than 10 years, for a total period not to exceed 20 years.”<sup>168</sup> As in the case of temporary permits,<sup>169</sup> no water right is perfected pursuant to a term permit.<sup>170</sup> Thus, a term permit for the oil and gas producer would be an alternative to a temporary permit, especially in cases of the need to use more than 4 million gallons or the need to exceed six months in operation.

## The Public Interest

An element in the consideration of the chief engineer in deciding whether to grant a permit for an appropriation right under KWAA Section 711 or for a change in the type of use, place of use, or point of diversion of Section 708b is the public interest.<sup>171</sup> Public interest analysis becomes more important as water resources dwindle and climate change manifests itself. If appropriation rights are required for CBM or for fracing, as discussed above, other water right holders and the public will have the opportunity to object to the approval of appro-

priation rights by the chief engineer.<sup>172</sup> Neither Section 711 nor 708b defines the public interest. The definition found in K.A.R. 5-3-9 seems to focus only on the public interest aspects of protecting water users and aquifers.<sup>173</sup> Other, broader conceptions of the public interest exist in the vernacular,<sup>174</sup> statutes,<sup>175</sup> and regulations.<sup>176</sup> Courts have had to construe and apply statutory public interest language to specific project proposals.<sup>177</sup> Scholars have made proposals concerning public interest analysis.<sup>178</sup> Professor Grant noted that public interest reviews through the 1960s were primarily for the purpose of maximizing economic development.<sup>179</sup> Then, states began enacting statutes that balanced economic values with other considerations like recreation, flood damage, cultural values, aesthetics, water quality, and fish and wildlife benefits.<sup>180</sup> Grant suggests other variations, including the consideration of secondary project effects and externalities; maximization of benefits to the community considering all effects, not just policy found expressly in statutory laws; and the consideration of a broader view of the community, both geographical (local and regional) and temporal (present as well as future residents).<sup>181</sup>

The Kansas definition of public interest in the DWR regulation is very narrow compared to definitions from other states. Issues raised in both water allocation and water quality under CBM and fracing and other oil and gas recovery methods could raise the importance of the public interest and suggest a broader view.

## Conclusion

Kansas water allocation law has changed immensely over the last 30 years. But the core principles of the law, “first in time, first in right” and “use it or lose it,” remain intact. The system governing application and enforcement of those principles has led to more regulations and abandonment hearings. These changes impact oil and gas producers as they impact all water users. In the future, the legislature, DWR, and the courts will need to clarify some of the issues raised in this article, such as whether water derived incidentally from oil and gas production is a beneficial use of water, whether CBM is included in the definition of oil and gas, and to what extent they should limit reusing water produced during oil and gas recovery. Regardless of whether these issues are resolved, over the next 30 years oil and gas producers will need to adjust to changes in the water allocation system and wider application of public interest analyses in regulatory decision making. ■

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#### ENDNOTES

1. 50 J. KAN. BAR ASS'N 43 (Spring 1981) (available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1935031](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1935031)). The article began as a law student paper for an oil and gas class and a water law class.

2. K.S.A. 82a-701 *et seq.*

3. Our approach is similar but not identical to the updates on Kansas homestead law done by Porter in 1951 and by Theis and Swartz in 1996. See James W. Taylor, "The Kansas Law of Homestead," KAN. JUD. COUNCIL BULL. (July 1935) at 52-83; William Porter, *Homestead Law in Kansas*, KAN. JUD. COUNCIL BULL. (April 1951), at 3-52; Roger L. Theis & Karl R. Swartz, *Kansas Homestead Law*, 65 J. KAN. BAR ASS'N, 20-49 (April 1996). The two later articles covered many of the same subjects as the initial article, but changed some subjects, placed them in different places, and added some new ones.

4. The 1981 Article cited no administrative regulations of the Kansas Corporation Commission, for the reason that the KCC regulations on the production and conservation of oil and gas, K.A.R. 82-3-100 *et seq.*, were first introduced after 1981.

5. See K.S.A. 2010 Supp. 82a-707(c).

6. K.S.A. 82a-1501 *et seq.*

7. See *Water Dist. No. 1 v. Kansas Water Authority*, 19 Kan. App. 2d, 866 P.2d 1076 (1994) (case dealing with various issues regarding a proposed water transfer).

8. K.S.A. 82a-703a-703c.

9. K.S.A. 2010 Supp. 82a-732.

10. The purpose of the legislation was to overcome the one-person-one-vote constitutional problem of having the Board of Agriculture, the members of which were not popularly elected, appoint the chief engineer. See *Hellebust v. Brounback*, 824 F. Supp. 1511 (1993), *aff'd* 42 F.2d 1331 (1994). The 1995 changes provided for having both the secretary of the State Department of Agriculture and the members of the State Board of Agriculture appointed by the governor. See K.S.A. 2010 Supp. 74-560, -562.

11. K.S.A. 2010 Supp. 82a-718.

12. K.S.A. 2010 Supp. 82a-736.

13. K.S.A. 2010 Supp. 82a-761-769.

14. K.S.A. 2010 Supp. 82a-770.

15. K.S.A. 2010 Supp. 82a-708c.

16. K.S.A. 2010 Supp. 82a-727.

17. K.S.A. 74-2608 & -2609; K.S.A. 2010 Supp. 74-2613 & -2622.

18. See K.S.A. 82a-901 *et seq.*

19. See John C. Peck, & Doris K. Nagel, *Legal Aspects of Kansas Water Resources Planning*, 37 KAN. L. REV. 199 (1989).

20. See *Bruns v. Kan. State Bd. of Technical Professions*, 255 Kan. 728, 877 P.2d 391 (1994).

21. K.S.A. 2010 Supp. 82a-1903.

22. See K.A.R. 5-1-1 *et seq.*

23. For a map locating the IGUCAs, copies of order, and other information, see <http://www.ksda.gov/appropriation/content/291>.

24. See *gen. John C. Peck & Constance C. Owen, Loss of Kansas Water Rights for Non-Use*, 43 KAN. L. REV. 801 (1995).

25. See, e.g., *Williams v. City of Wichita*, 190 Kan. 317, 374 P.2d 578 (1963).

26. See *F. Arthur Stone & Sons v. Gibson*, 230 Kan. 224, 630 P.2d 1154 (1981).

27. *Hawley v. Kan. Dep't of Agric.*, 281 Kan. 603, 132 P.3d 870 (2006); *Frick Farm Properties LP v. Kan. Dept. of Agric. Div. of Water Res.*, 289 Kan. 690, 216 P.3d 170 (2009); and *Wheatland Elect. Co-op v. Polansky*, 46 Kan. App. 2d 746, 265 P.3d 1194 (2011).

28. *Cochran v. Kan. Dep't of Agric. and the City of Wichita, Kansas*, 291 Kan. 898, 249 P.3d 434 (2011).

29. *Shipe v. Public Wholesale Water Supply Dist. No. 25*, 289 Kan. 160, 210 P.3d 105 (2009).

30. *Wheatland Elect. Co-op v. Polansky*, *supra* note 27, 265 P. 3d at 1200-1206.

31. *Kansas v. Colorado*, 514 U.S. 673 (1995); 533 U.S. 1 (2001); 543 U.S. 86 (2004); and 556 U.S. 98 (2009) (regarding the Arkansas River Compact, K.S.A. 82a-520).

32. *Kansas v. Nebraska and Colorado*, 538 U.S. 720, 123 S. Ct. 1898 (2003) (regarding the Republican River Compact, K.S.A. 82a-518).

33. A Google search for the Producers 88 form shows millions of results, and there are many statements in online materials that there is no true standard Producers 88 form. In *Fagg v. Texas Co.*, 575 S.W.2d 87 (Tex. Com. App. 1933), the court stated: "As we see it, the reference to 'an 88 form lease' is as incapable of definite application as if the term 'oil and gas lease form' had been used instead." *Id.* at 89.

34. Emails from Chuck Woodin, Foulston Siefkin LLP, Wichita, Kansas, Sept. 16, 2009; and Professor David Pierce of Washburn Law School, Topeka, Kansas, Sept. 20, 2009 (on file with John Peck).

35. See JOHN S. LOWE ET AL., *CASES AND MATERIALS ON OIL AND GAS LAW* (5th ed. 2008), at 319.

36. K.S.A. 2010 Supp. 78a-708b & -711.

37. Consumptive use refers to the amount of water used up in a process, expressed either as a quantity or as a percentage. K.S.A. 78a-708b allows changes in type of use, place of use, and point of diversion of a water right, but only if the change will not impair existing water rights. A change that increases consumptive use might impair other rights. K.A.R. 5-5-3 prohibits "substantial" changes in consumptive use. See *Wheatland Elect. Co-op v. Polansky*, *supra* note 27, at 1202 (increase in consumptive use of vested rights not permitted when holder seeks a change in type of use and place of diversion).

38. K.S.A. 78a-728.

39. See section on Water as a By-Product of Oil and Gas Production, *infra*.

40. An example of such a clause is the following from a lease used by Kramer, Nordling, & Nordling LLC, of Hugoton, Kansas: "13. Use of Surface ... (a) The Lessee shall not have the right to use water found on the leased premises." (permission given by Erick Nordling in email with John C. Peck, March 21, 2012).

41. See note 34, *supra*.

42. DAVID E. PIERCE, *KANSAS OIL AND GAS HANDBOOK*, § 11.05, at 11-4 (1986).

43. *Id.*, § 12.05 at 12-8 (1986).

44. *Id.*

45. 135 Kan. 467, 11 P.2d 720 (1932).

46. *Id.* at 720.

47. Email from Professor David E. Pierce to John C. Peck, March 25, 2012 (on file with John C. Peck).

48. K.A.R. 5-9-1 through 5-9-11. Section 5-1-1 contains a definition of "term permit" (5-5-1(eeee)), but not "temporary permit." Several other DWR regulations refer to temporary permits, mostly excluding them from strictures limiting regular water rights, such as a stratigraphic log for a test hole (5-3-4d); a water level measurement tube (5-3-53); various closings of areas to new permits (5-3-11(d)(5), 5-3-26, 5-3-29, and 5-25-4(4)(2)); groundwater management district (GMD) regulations relating to safe yield (5-21-4(c)(2) and 5-24-2(b)(5)); GMD review of permit and change applications (5-22-12(c)(8)); and GMD water flow meter requirements (5-25-5).

49. <http://www.ksda.gov/appropriation/content/299>.

50. K.S.A. 2010 Supp. 82a-727.

51. K.A.R. 5-9-3.

52. K.A.R. 5-9-4.

53. K.A.R. 5-9-5.

54. K.A.R. 5-9-6. For a definition of "public interest," see K.A.R. 5-3-9. See also discussion below in the section on Obtaining an Appropriation Permit.

55. K.A.R. 5-9-7.

56. K.A.R. 5-9-8.

57. K.S.A. 2010 Supp. 82a-727(c).

58. K.A.R. 5-9-2.

59. K.A.R. 5-9-11.

60. "Application for Temporary Permit." Form provided on website at note 49, *supra* [emphasis in original].

61. K.A.R. 5-21-3(a).

62. K.A.R. 5-22-2(a).

63. K.A.R. 5-25-2(a).

64. K.A.R. 5-23-3 (high plains aquifer), and 5-23-31 (confined aquifers).

65. K.A.R. 5-24-3.

66. K.A.R. 5-24-3(a)(1).

67. K.A.R. 5-24-3(a)(3).

68. K.A.R. 5-24-3(a)(3)(iii).

69. K.A.R. 5-24-3(a)(6).

70. K.S.A. 82a-728.

71. K.S.A. 55-901(a).

72. Kansas Legislature Summary of Legislation 1981, Leg. Res. Dept., at p. 45 (June 1981). K.S.A. 55-150(c) defines "fresh water" as "water containing not more than 1,000 milligrams per liter, total dissolved solids," and K.S.A. 55-150(i) defines "usable water" as "water containing not more than 10,000 milligrams per liter, total dissolved solids."

73. K.S.A. 55-151(a). K.S.A. 55-151(b) also states that no change in the use of a well may be made without the approval of the KCC.

74. K.S.A. 55-151(b).

75. K.S.A. 55-152(a). However, for regulations relating to "wells providing cathodic protection to prevent corrosion to lines" these rules are not permitted to "preempt existing standards and policies adopted by ... groundwater management district[s] if such standards and policies provide protection of fresh water to a degree equal to or greater than that provided by such rules and regulations." K.S.A. 2010 Supp. 55-153 established a 12-member advisory committee, to include one member representing GMDs. The committee is charged with meeting quarterly and making recommendations on oil and gas activities including "all matters pertaining to the protection of waters of the state from pollution relating to oil and gas activities." K.S.A. 55-154 requires the operator to certify compliance with K.S.A. 55-151 and the regulations. K.S.A. 2010 Supp. 55-155 requires licensure of operators. K.S.A. Supp. 2010 55-156 sets forth requirement for protection of usable groundwater when wells are plugged. K.S.A. 55-157 requires cementing of all wells below the fresh water strata, as well as "additional pipe ... necessary to protect from pollution and from loss through downward drainage any usable water." K.S.A. 55-158 requires submission of "bond logs or other surveys for surface casing" upon request of the KCC. And K.S.A. 55-159 and -160 require notification prior to setting surface casing, plugging, or re-entering plugged wells. Other sections pertain to KCC powers regarding investigation of abandoned wells (K.S.A. 55-161); hearing procedures on

perceived violations (K.S.A. 55-162); interagency agreements (K.S.A. 55-163); and administrative penalties (K.S.A. 2010 Supp. 55-164) (up to \$10,000 per day). Legislative additions after 1982 provide for creation of a KCC database of all oil and gas wells in the state (K.S.A. 55-165); a well-plugging assurance fund (K.S.A. 55-166 to -168); requirements and rules governing the storage, disposal, and escape of salt water (K.S.A. 55-171 to -173 and -175 to -184, and K.S.A. 55-2010 Supp. 173), spill notification (K.S.A. 2010 Supp. 55-193), and pollution remediation (K.S.A. 55-191 & -192, and K.S.A. 2010 Supp. 55-193).

76. 1981 Article, at 47-48. Footnote 18 cites K.S.A. 55-133, which was repealed in 1982. That section had provided that the well operators could introduce water under pressure for the purpose of recovering oil and gas, but only with the prior approval of the KCC. Enhanced oil recovery refers to methods of extracting oil beyond primary and secondary methods, and it includes any process involving the injection of fluids into an oil pool to increase the recovery of oil or gas. See K.A.R. 82-3-101(a)(29).

77. *Id.*

78. *Id.* at 48.

79. This conclusion on enhanced recovery was based on a statement made in a special committee report to the legislature in 1976. See footnotes 10 and 19 in the 1981 Article. The conclusion on disposal wells was based on the 1977 version of K.S.A. 55-1003, which although amended twice since 1981 remains essentially the same. It empowers companies to own and maintain facilities for brine disposal, and it requires prior approval by the KCC for the plans and specifications for such works.

80. 1981 Article, at 48.

81. Since 1977, K.S.A. 82a-711 has stated that "the chief engineer shall approve all applications ... made in good faith ... except that the chief engineer shall not approve any application submitted for the proposed use of *fresh* water in any case where other waters are available for such proposed use and the use thereof is technologically and economically feasible" (emphasis added). As discussed below in the text at notes 99-100, in a related but not identical situation, Colorado seems to have done just what Neufeld concluded the Kansas chief engineer would have the power to do – require a permit when water is incidentally extracted in CBM production. See *Vance v. Wolfe*, 205 P3d 1165 (Colo. 2009); cf. *William F. West Ranch LLC v. Tyrrell*, 206 P2d 722 (Wyo. 2009).

82. See "Petroleum: a primer for Kansas," KGS Education, at 13 (online at <http://www.kgs.ku.edu/Publications/Oil/primer13.html>), which states: "After the oil, gas, and water have flowed ... to the surface ... [and the oil is separated from the water] ... [t]he water is either put into a saltwater-handling facility such as a lined pit or tank, or into a flow line to a disposal well where it will be disposed of underground." Dr. Don Whittemore, Senior Scientific Fellow, Environmental Geochemistry, KGS, provided the following information:

Saltwater was stored in on-ground lagoons in the early days of the oil fields. Unfortunately, although some operators might have thought that these were 'evaporation' pits that would allow the water to be evaporated and the salt retained in the surface pits, most soon realized that they were actually recharge lagoons. Sometimes the berms around a lagoon would be breached (either accidentally or on purpose) and the saltwater would flow across the land (which can be seen as saltwater scars emanating from old pit locations in old aerial photos). As a result, fresh ground water became contaminated, especially where the pits overlay shallow aquifers such as the Equus Beds aquifer in Harvey, Reno, McPherson, and Sedgwick counties. The Burrton Intensive Groundwater Use Control Area in GMD2 was formed as a result of this contamination. ... Some cement-lined lagoons were later used, but these were also found to leak and are no longer allowed.

In the current operation of oil and gas wells, the saltwater is separated from the oil and gas and then injected into the subsurface ... Sometimes the saltwater is stored in a tank and then trucked to a site with a disposal well and injected into the subsurface.

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Temporary surface pits are allowed for storing saltwater produced during the drilling of an oil and/or gas well, the workover of an existing well, an emergency, and other instances. ...

Email from Don Whittemore to John Peck, December 30, 2011 (copy on file with John Peck).

K.S.A. 55-901 allows the saltwater to be returned either to “any horizon from which such salt waters may have been produced, or to any other horizon which contains or had previously produced salt water or waters containing minerals in the appreciable degree ...”

83. See K.A.R. 28-47-1 through -7.

84. According to Dr. Whittemore: “Starting in 1977, saltwater has been pumped from a particular subsurface formation in northern Woodward County and southern Harper County, Oklahoma (the latter county borders Clark County in Kansas) for the extraction of iodine.” Email from Don Whittemore to John Peck, December 30, 2011 (copy on file with John Peck).

85. “The processed brine is reinjected into the same formation from which it was pumped to maintain reservoir pressure.” *Id.*

86. See <http://www.pe.tamu.edu/gpri-new/home/BrineDesal/MembraneWkshpAug06/Burnett8-06.pdf> (discusses Texas A&M study on desalinating oilfield brine for beneficial use). For Clean Water Act implications of discharging into navigable waters such produced water that has a use in agriculture or wildlife, see 40 C.F.R. Part 435, especially 435.50 & 435.51.

87. See Jay F. Stein, James C. Brockmann, Cynthia F. Covell, and John C. Peck, *Water Use and Reuse: The New Hydrologic Cycle*, 2011 ROCKY MOUNTAIN MINERAL LAW INSTITUTE 29-1, 29-6 to -9 (2012).

88. K.A.R. 5-1-1(ffff).

89. *Id.*

90. See K.S.A. 82a-728 and K.S.A. 55-901.

91. “Coal-Bed Methane: Potential and Concerns,” USGS Fact Sheet FS-123-00 (Oct. 2000) (*available at* <http://pubs.usgs.gov/fs/fs123-00/>).

92. K. David Newell et al., “Geological and Geochemical Factors Influencing the Emerging Coalbed Gas Play in the Cherokee and Forest City Basins in Eastern Kansas,” KGS Open-File Report 2004-17 (*available at* <http://www.kgs.ku.edu/PRS/publication/2004/AAPG/Coalbed/>).

93. “The peak year for drilling CBM wells in Kansas was 2006 when 1,598 wells were drilled, but in 2010 only about 30 wells were drilled.” “Kansas Oil Production Rises, Gas Production Declines in 2010,” News Release, Kansas Geological Survey, June 30, 2011, at [http://www.kgs.ku.edu/General/News/2011/oil\\_gas.html](http://www.kgs.ku.edu/General/News/2011/oil_gas.html).

94. 205 P.3d 1165 (Colo. 2009). At the same time, the Wyoming Supreme Court decided *William F. West Ranch LLC v. Tyrrell*, 206 P.2d 722 (2009), holding that objectors to a CBM project did not have standing in a declaratory judgment action because they had failed to allege a connection between a state obligation and a particular harm suffered.

95. *Id.* at 1167.

96. *Id.* at 1170.

97. *Id.*

98. K.S.A. 2010 Supp. 82a-734(b) (high “average annual potential net evaporation” means greater than 18 inches per year). Similar requirements exist for “hydraulic dredging.” See K.A.R. 5-1-1(o) (hydraulic dredging listed as a “beneficial use”; K.A.R. 5-1-1(ll) (defines hydraulic dredging); K.A.R. 5-1-1(qq) (“industrial use” does not include hydraulic dredging, but includes evaporation from sand and gravel pits if the evaporation has a substantially adverse impact on the area groundwater supply); K.A.R. 5-9-1b(b)(2) (term permits for hydraulic dredging); and K.A.R. 5-13-4 (exemptions from safe yield regulations).

99. K.A.R. 5-13-2 & 5-6-3.

100. CBM water production does not neatly fit the definition of either “industrial use” or “dewatering.” “Industrial use” under K.A.R. 5-1-1 (qq) includes use of water in connection with “secondary and tertiary oil recovery,” but CBM removal is not secondary or tertiary recovery. CBM, however, may fit the broad definition of that section: “use of water in connection with ... production ... of products ...” The process is referred to in the industry as “dewatering.” Robert S. Sawin and Lawrence L. Brady, “Natural Gas from Coal in Eastern Kansas,” KGS, Public Information Circular (PIC) 19, at 1 (Nov. 2001), *available at* [http://www.kgs.ku.edu/Publications/pic19/pic19\\_1.html](http://www.kgs.ku.edu/Publications/pic19/pic19_1.html) (hereinafter “Sawin and Brady”). However, K.A.R. 5-1-1(x) limits “dewatering” to construction activities or protection of buildings or mining activity.

101. “CBM-produced water is also disposed of on the surface. Typical disposal methods include placement in lined pits (to allow for evaporation), unlined pits (to allow the water to seep into shallow aquifers), dust suppression, air spraying (which allows for evaporation), or traditional beneficial uses, such as irrigation, stock watering, wildlife habitat enhancement, and even use as municipal drinking water.” C. Barrett, *Fitting a Square Peg in a Round (Drill) Hole: The Evolving Legal Treatment of Coalbed Methane-Produced Water in the Intermountain West*, ENVIRONMENTAL LAW REPORTER NEWS & ANALYSIS (Sept. 2008), at 6 (citing the brief for Defendant-Intervenor BP America at 22-23, from *Vance v. Wolfe*, 205 P.3d 1165 (Colo. 2009)).

102. See text at notes 82-90, *supra*.

103. See Samuel S. Bacon, *Why Waste Water? A Bifurcated Proposal for Managing, Utilizing, and Profiting from Coalbed Methane Discharged Water*, 80 U. COLO. L. REV. 571, 576 (2009).

104. *Id.* (citing U.S. Geological Survey, U.S. Dep’t Interior, Fact Sheet 2006-3137, Coalbed Methane Extraction and Soil Suitability Concerns in the Powder River Basin, Montana and Wyoming 1 (2006) *available at* [http://pubs.usgs.gov/fs/2006/3137/pdf/fs06-3137\\_508.pdf](http://pubs.usgs.gov/fs/2006/3137/pdf/fs06-3137_508.pdf)).

105. See *Ohio Shuts Wells Following Quakes*, THE WALL STREET JOURNAL, Tues., Jan. 3, 2012, at page A3 (fracing wastewater from Pennsylvania transported to Ohio and injected into the subsurface in Ohio allegedly causing earthquakes).

106. K.S.A. 2010 Supp. 82a-726.

107. “Methane, the main component of natural gas, has been a product of the petroleum industry for years ... Coalbed gas is mainly composed of methane (CH<sub>4</sub>), the principal constituent of natural gas.” See Sawin and Brady, *supra* note 100, at 1, 3.

108. Comment, *Trading Water for Gas: Application of the Public Interest Review to Coalbed Methane Produced Water Discharge in Wyoming*, 9 WYO. L. REV. 455, 458 (2009) (citing The Ruckelshaus Institute of Environment and Natural Resources, *Water Production from Coalbed Methane Development in Wyoming: A Summary of Quantity, Quality and Management Options*, U. OF WYO., Dec. 2005, at 5-10).

109. K.S.A. 55-1302.

110. K.S.A. 55-1201(b).

111. K.A.R. 82-3-101(a)(11). CBM originates in coal seams.

112. K.A.R. 82-3-101(a)(35).

113. 288 Kan. 234, 201 P.3d 680 (Kan. 2009).

114. See *State v. Breedlove*, 285 Kan. 1006, 1015 (2008) (if at all possible, statutes should be read harmoniously).

115. “Unlike western states’ CBM water, Kansas CBM water is saline and not potable.” Email from Dave Newell (KGS) to John C. Peck, March 22, 2012 (on file with John Peck).

116. Gary Bryner, *Coalbed Methane Development in the Intermountain West: Producing Energy and Protecting Water*, 4 WYO. L. REV. 541, 554 (2004) (citing a presentation by Jill Morrison at The Natural Resources Law Center Conference, Apr. 4-5, 2002).

117. *Id.* at 544. “Water quality indicators vary across and even within basins, depending on the depth of the methane, geology, and environment of the deposition.” (citing Vito Nuccio, “Geological Overview of Coalbed Methane,” presentation at the U.S. Geological Survey Coalbed Methane Field Conference (May 9-10, 2001)).

118. See *id.* “In general, the deeper the coalbed, the less the volume of water in the fractures, but the more saline it becomes.” (citing Nuccio)

119. Some of the discussion above in the section on water as a by-product is also germane to enhanced recovery.

120. See K.S.A. 55-133, cited in footnote 24 to the 1981 Article, which provided expressly for the KCC approval of applications for the injection of water or other fluids into formations for the purpose of recovering oil and gas. That section was repealed in 1982 and replaced by K.S.A. 55-151, which is broader in scope and covers approval of “any well,” with “well” defined in K.S.A. 55-150 to include “a hole drilled ... for the purpose of (1) producing oil or gas; (2) injecting fluid, air or gas in the ground in connection with the ... production of oil or gas. ...” See also K.A.R. 82-3-400 to -412 regarding disposal and enhanced recovery well rules.

121. “It has been used for up to 60 years but is attracting new attention because of increased use in northwest Kansas, where analysts

expect to find shale associated with oil deposits. More fracking activity also is reported in the south-central portion of the state, particularly in the Oklahoma border counties of Harper and Barber." The Assoc. Press (Sept. 6, 2011) (*available at* <http://www.hutchnews.com/todaystop/BC-KS--Fracking-Controversy-1st-Ld-Writeth-20110906-21-36-46>).

122. Daniel J. Soder and William M. Kappel, "Water Resources and Natural Gas Production from the Marcellus Shale," USGS Fact Sheet 2009-3032, at 2 (May 2009).

123. See Daniel R. Suchy & K. David Newell, *Hydraulic Fracturing of Oil and Gas Wells in Kansas*, Kan. Geo. Survey, Public Information Circular 32, p. 4 (revised May 2012), *available at* <http://www.kgs.ku.edu/Publications/PIC/pic32.html>: "drilling ... may typically require 2 to 4 million gallons of water [6 to 12 acre feet]." (citing Groundwater Protection Council and ALL Consulting (2009, p. ES-4)).

124. See K.S.A. 2010 Supp. 82a-718. Email from David E. Pierce to John C. Peck, February 19, 2012 (on file with John Peck). See also "Fact Sheet, Horizontal Fracking," Ohio Environmental Council, *online at* [http://www.theoec.org/PDFs/FactSheets/FactSheet\\_Fracking\\_2012.pdf](http://www.theoec.org/PDFs/FactSheets/FactSheet_Fracking_2012.pdf).

125. K.S.A. 2010 Supp. 82a-708a.

126. See K.S.A. 82a-1021(f), which defines "land" as "real property as that term is defined by the laws of the state of Kansas." The rules of construction found in K.S.A. 2010 Supp. 77-201 *Eighth* states that "land," "real estate," and "real property" together include "lands, tenements and hereditaments, and all rights to them and interest in them, equitable as well as legal"; *Tenth* states that "property" includes personal and real property; and *Ninth* states that "personal property" includes "money, goods, chattels, evidences of debt and things in action."

127. 1981 Article, at 50.

128. K.S.A. 2010 Supp. 82a-701(g).

129. 1981 Article, at 50.

130. K.S.A. 2010 Supp. 82a-709.

131. *Id.*

132. K.A.R. 5-3-4.

133. K.S.A. 2010 Supp. 82a-708a.

134. 1981 Article, at 50.

135. K.S.A. 60-601.

136. K.S.A. 60-1001.

137. K.S.A. 60-2401.

138. See cases cited in 1981 Article, at 51.

139. 1981 Article, at 51.

140. *Id.* at 53. That section also stated that "Oklahoma still requires ownership of the land or a valid lease from such owner for certain appropriations of water," and that "Colorado imposes no requirement that the appropriator own the land or attach the right to use such water to a particular interest in land." *Id.* We state no opinion on the current validity of those statements.

141. K.S.A. 2010 Supp. 82a-708a(a).

142. K.S.A. 2010 Supp. 82a-709(g).

143. K.A.R. 5-3-3a states that "[i]f the chief engineer is aware, or becomes aware, that the applicant does not have legal access to either the point of diversion or the place of use, before an application for ... [an approval of application] ... can be approved by the chief engineer, the applicant shall demonstrate that the applicant has legal access to the proposed point of diversion and the proposed place of use ... ." In place of the term "permit" used in the vernacular, DWR uses the term "approval of application" in K.A.R. 5-3-3 and defines it in K.A.R. 5-1-1(d) as "a permit to proceed with construction of diversion works and the diversion and use of water in accordance with the terms and conditions set forth in the permit."

144. See text at notes 59 and 60, *supra*. K.A.R. 5-9-11.

145. 1981 Article, at 54.

146. The following statements are found in the section on Water Use in Secondary or Enhanced Oil and Gas Recovery in the 1981 Article: "The water used in enhanced recovery techniques is intended to increase the production of oil and gas and thereby benefit both the mineral estate owner and the oil and gas lessee. One could certainly question the rationale for attaching the right to this use of water to the surface estate. Moreover, this attachment would posit the control of such use of water with the surface estate owner, a party foreign to both the oil and gas lease

and its purpose." 1981 Article, at 50. The surface owner would counter that he or she certainly has an interest in the effects of the water use on the surface or on the groundwater, to which the surface owner might hold domestic or other water rights.

147. K.S.A. 82a-728.

148. K.S.A. 2010 Supp. 82a-711(a).

149. K.S.A. 82a-712.

150. K.S.A. 2010 Supp. 82a-714.

151. See K.S.A. 82a-711a.

152. K.S.A. 2010 Supp. 82a-701(f) & -711; K.S.A. 82a-712; and K.S.A. 2010 Supp. 82a-714.

153. K.S.A. 2010 Supp. 82a-707(b) & (c) and K.S.A. 82a-717a.

154. K.S.A. 82a-703a to -703c.

155. K.S.A. 2010 Supp. 82a-707(c). That section states that the "priority ... to use water for domestic purposes shall date from the time of the filing of the application therefor ... or from the time the user makes actual use of water for domestic purposes, whichever is earlier."

156. K.S.A. 2010 Supp. 82a-701(d) & (f). See also K.S.A. 82a-703, -704a, and -717a.

157. K.S.A. 2010 Supp. 82a-701(g).

158. *Id.*

159. K.S.A. 82a-728.

160. The KWAA is silent on the details of these transactions, except for K.S.A. 2010 Supp. 82a-701(g) (defines "water right" and states that "such water right passes as an appurtenance with a conveyance of the land by deed, lease, mortgage, will, or other disposal or by inheritance") and K.S.A. 2010 Supp. 82a-708b (permits changes in type of use, place of use, and point of diversion). See *gen.* John C. Peck, Leland E. Rolfs, Michael K. Ramsey, & Donald L. Pitts, *Kansas Water Rights: Changes and Transfers*, 57 J. KAN. BAR ASS'N 21 (July, 1988), and John C. Peck, *Title and Related Considerations in Conveying Kansas Water Rights*, 66 J. KAN. BAR ASS'N 38 (Nov. 1997).

161. K.S.A. 2010 Supp. 82a-708b. See also K.A.R. 5-5-1 to 5-5-16.

162. See K.A.R. 5-9-8.

163. See section on Water Use in Initial Drilling Operation, *supra*.

164. "DWR regulates water used for oil and gas production in Kansas," DWR Currents, at 2,3 (Oct. 6, 2011) (*available at* <http://www.ksda.gov/dwr/content/314/cid/1856>).

165. K.S.A. 2010 Supp. 82a-708c.

166. K.A.R. 5-1-1(eeee).

167. K.A.R. 5-9-1b.

168. K.A.R. 5-9-1b(b)(4).

169. K.S.A. 2010 Supp. 82a-727 (c) states that a temporary permit does not vest the holder with a permanent right to appropriate water.

170. K.A.R. 5-9-1d.

171. These are not the only statutes mentioning public interest. See also KWAA Sections 712 (conditions on permits), 726 (diversions of water to other states), 727 (temporary permits), 733 (conservation plans), and 767 (evaluation of water banks), as well as K.S.A. 82a-1020, *et seq.* (GMDs), K.S.A. 82a-1301 *et seq.* (water storage), and K.S.A. 82a-1501, *et seq.* (water transfers).

172. K.S.A. 2010 Supp. 82a-711 does not require a hearing, but K.A.R. 5-3-4a states that "[a] hearing may be held ... if ... the chief engineer finds it to be in the public interest ... [a] hearing has been requested by a person who shows ... approval of the application could cause impairment of senior water rights or ... [t]he chief engineer desires public input on the matter." K.S.A. 82a-711(c) limits the persons allowed to petition for judicial review of the chief engineer's decision to persons aggrieved by any order of the chief engineer "relating to that person's application for a permit to appropriate water." However, *Cochran v. Kansas Dep't of Agric. and the City of Wichita*, 291 Kan. 898, 249 P.3d 434 (2011), held that notwithstanding the limits of Section 711(c), senior water right holders objecting to a new application have standing to appeal, thus potentially opening the door to wider public objection to new permit applications.

Moreover, when reviewing applications for water permits, the chief engineer is required by K.S.A. 82a-711(c) to examine whether granting the permit will impair existing water rights, which includes both quantity impairment and the unreasonable deterioration of the other water user's water quality beyond a reasonable economic limit. An existing water right

holder could object to the granting of the new permit on the ground that the permit would decrease its water quality, and the chief engineer's determination is then reviewable by the courts. *See id.*, *Cochran*, 291 Kan. 898, 249 P.3d 434.

173. "Public Interest. (a) ... [I]n ascertaining whether a proposed use will prejudicially and unreasonably affect the public interest, the chief engineer shall also take into consideration the quantity, rate and availability of water necessary to: (1) satisfy senior domestic water rights from the stream; (2) protect senior water rights from being impaired by the unreasonable concentration of naturally occurring contaminants; and (3) over the long term reasonably recharge the alluvium or other aquifers hydraulically connected to the stream. (b) Unless otherwise provided by regulation, it shall be considered to be in the public interest that only safe yield of any source of water supply, including hydraulically connected sources of water supply, shall be appropriated." K.A.R. 5-3-9.

174. "Public Interest. 1. The general welfare of the public that warrants recognition and protection. 2. Something in which the public as a whole has a stake; esp., an interest that justifies governmental regulation." BLACK'S LAW DICTIONARY, 9th ed. (2009), at 1350.

175. *See, e.g.*, Alaska. Stat. 46.15.080(b) (expressly includes effect on economic activity, fish and game resources, public health, and harm to other persons). Idaho Code 42-203A(5)(e) defines the "local public interest" as "the affairs of the people in the area directly affected," and "the public interest" to include, inter alia, environmental protection, recreation, aesthetic beauty, transportation, and water quality.

176. *See, e.g.*, Idaho Dept. of Water Resources, Water Appropriation Rules § 37.03.08.03 Evaluation Criteria for Appropriation Rights (for proposed use of trust water, public interest evaluation includes consideration of factors such as the state and local economy, electric utility rates, the family farming tradition, water quality, fish, wildlife, recreation, and aesthetic values) (*available at* <http://adm.idaho.gov/adminrules/rules/idapa37/0308.pdf>).

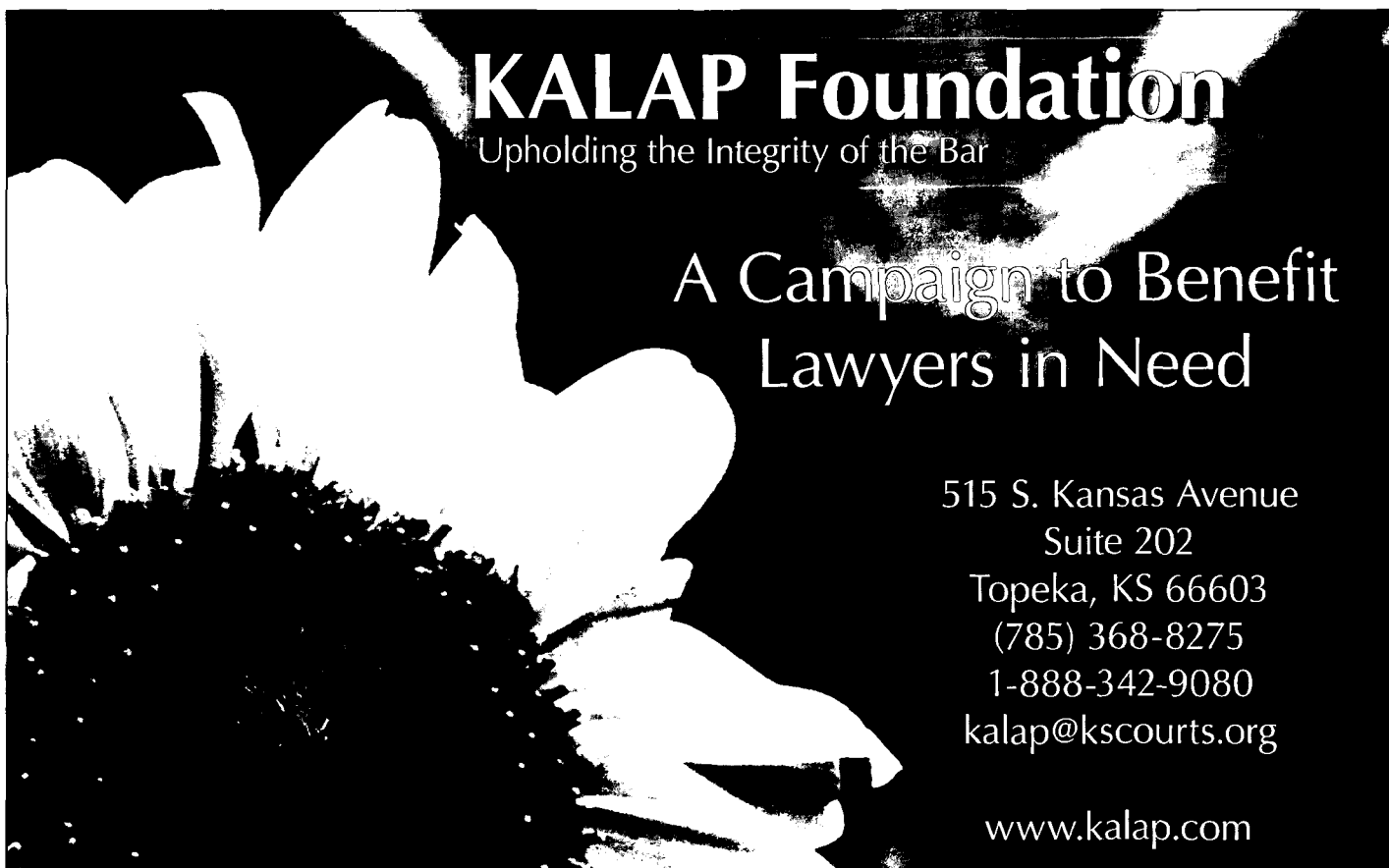
177. *See Shokal v. Dunn*, 707 P.2d 441 (Idaho 1985) (court read two separate statutes together, and required inclusion of statutory factors detailed under "the public interest" when applying another statute on "the local public interest"); and *Stempel v. Dept of Water Res.*, 208 P.2d 166 (Wash. 1973) (department must consider water quality impact of proposed diversion despite no such statutory mandate in water permit statute, because state also had environmental policy act and a water resources act that requires protection of the natural environment).

178. *See, e.g.*, D. Grant, *Public Interest Review of Water Right Allocation and Transfer in the West: Recognition of Public Values*, 19 ARIZ. ST. L.J. 681 (1987); D. Grant, *Two Models of Public Interest Review of Water Allocation in the West*, 9 U. DENV. WATER L. REV. 485 (2005-2006).

179. *Id.*, U. DENV. WATER L. REV., at 492-95.

180. *Id.* at 495-508.

181. *Id.* at 508-17.



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