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Water Law - Well Permits - Unappropriated Water and Maximum Utilization - Hall v. Kuiper, 510 P.2d 329 (Colo. 1973)

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COMMENT

WATER LAW—WELL PERMITS— Unappropriated Water and Maximum Utilization *Hall v. Kuiper*, 510 P.2d 329 (Colo. 1973).

INTRODUCTION

In an early Colorado case Justice Helm explained the consequences of the West's scarcity of water:

> The climate is dry, and the soil, when moistened only by the usual rainfall, is arid and unproductive; except in a few favored sections, artificial irrigation for agriculture is an absolute necessity. Water in the various streams thus acquires a value unknown in moister climates.[1]

These conditions made a system for allocating water essential, and therefore led to the development of the doctrine of prior appropriation. Simply stated, the doctrine is an application of the maxim "first in time, first in right," because it gives to an appropriator whose diversion and beneficial use of water is prior in time to that of others the right to use that water in the future, free from interference by subsequent appropriators. Prior appropriation was incorporated into the state constitution[2] and has been applied not only to water in "natural streams," but also to tributary ground water[3] and designated ground water[4] as well.

Increased development in Colorado has led to an increased demand for water, a trend expected to continue in the future.[5] In

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[1]Coffin v. Left Hand Ditch Co., 6 Colo. 443, 446 (1882).

[2] The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied. Priority of appropriation shall give the better right as between those using the water for the same purpose . . . .

COLO. CONST. art. XVI, § 6.

[3]Safranek v. Town of Limon, 123 Colo. 330, 228 P.2d 975 (1951); Nevius v. Smith, 86 Colo. 178, 279 P. 44 (1928); Comstock v. Ramsay, 55 Colo. 244, 133 P. 1107 (1913); COLO. REV. STAT. ANN. §§ 148-21-2(1), -3(3) (Supp. 1969).

[4]COLO. REV. STAT. ANN. § 148-18-1 (Supp. 1965). Designated ground water is:

> [T]hat ground water which in its natural course would not be available to and required for the fulfillment of decreed surface rights, or ground water in areas not adjacent to a continuously flowing natural stream wherein ground water withdrawals have constituted the principal water usage for at least fifteen years preceding the date of the first hearing on the proposed designation of the basin; and which in both cases is within the geographic boundaries of a designated ground water basin.

Id. § 148-18-2 (Supp. 1971).

[5]Harrison & Sandstrom, *The Groundwater—Surface Water Conflict and Recent*

the Arkansas Valley, for example, demand for irrigation water is predicted to double by the year 2000.[6] This prediction must be viewed in the context of the vastly greater use of water for irrigation in Colorado than for all other uses.[7] Not surprisingly, surface water has become scarcer as a result of this increased demand.

This growing scarcity of surface water has had two results. The first is an increase in the number of wells drilled in recent years, which in turn has led to conflicts between ground and surface water users.[8] In an attempt to bring some order to the chaotic state of ground water development, the Colorado General Assembly passed the Ground Water Management Act,[9] which sets up a permit system for wells. The second result of this growing scarcity has been the articulation of a doctrine of maximum utilization.

In the recent case of *Hall v. Kuiper*,[10] the Colorado Supreme Court interpreted the well permit statute and began a new direction in the development of maximum utilization. This comment will consider that case in detail, examining its impact on both these facets of Colorado water law.

I. *Hall v. Kuiper*

An owner of farm land near Wellington, Colorado, applied to the State Engineer for permits to construct two tributary ground water wells, each of which would have been used to irrigate an 80-acre tract. Both wells would have been pumped at a rate of 500 gallons per minute, and the total annual pumped volume would have amounted to 240 acre-feet. The ground water to be pumped by the wells was tributary to the Cache la Poudre River, 13 miles distant, yet the wells would not "substantially affect" any surface rights or wells in the immediate area.[11]

Colorado Water Legislation, 43 U. COLO. L. REV. 1, 3 (1971) [hereinafter cited as Harrison & Sandstrom].

[6] *Id.* at 2-3.

[7] In 1965, 3,900,000 acres were irrigated in Colorado, requiring 13,000,000 acre-feet, or 11,000 million gallons per day (mgd) of water. In the same year, 360 mgd were required for public supplies and 40 mgd for rural use. THE WATER ENCYCLOPEDIA 226, 228, 230 (D. Todd ed. 1970).

[8] *See, e.g.*, Kuiper v. Well Owners Conservation Ass'n, 176 Colo. 119, 490 P.2d 268 (1971); Fellhauer v. People, 167 Colo. 320, 447 P.2d 986 (1968). For a discussion of the conflicts between ground and surface water users, see Harrison & Sandstrom, *supra* note 5.

[9] COLO. REV. STAT. ANN. §§ 148-18-1 to -38 (Supp. 1965).

[10] 510 P.2d 329 (Colo. 1973).

[11] *Id.* at 330.

The State Engineer initially denied the applications and, following a hearing on the matter, he denied them again. The Halls then purchased the property and continued efforts to obtain the well permits by taking an appeal in the form of a trial de novo to the Larimer County District Court, which upheld the State Engineer's denial. On appeal the Colorado Supreme Court affirmed.[12]

For the State Engineer to issue a permit to construct a well under the Colorado Ground Water Management Act, he must find that (1) there is unappropriated water available, and that (2) the proposed well would not cause material injury to the vested rights of others.[13] In addition, these findings must be supportable by hydrologic and geologic facts. The Cache la Poudre is tributary to the South Platte River, and both are over-appropriated some of the time.[14] Further, there was testimony at the trial that the proposed wells would have caused a steady diminishment in the amount of ground water reaching the stream, thereby depriving senior surface appropriators of some of the water to which they were entitled. On the basis of these facts, the court concluded that there was support for the findings that no unappropriated water was available and that the wells would have caused material injury to other appropriators. Acknowledging that it would be difficult for the State Engineer to single out any particular appropriator who would be injured by the wells, the court held that he could nevertheless refuse to issue the well permits without having to make such specific findings. The court also held that the constitutional guarantee of the right to make an appropriation[15] was inapplicable because of the lack of unappropriated water.

As a first step toward appreciating *Hall's* significance, it is necessary to analyze the statute giving the State Engineer the power to grant well permits, and to examine carefully the court's interpretation of it.

II. Well Permits and the Ground Water Management Act

The Colorado Ground Water Management Act of 1965 provides that no well may be constructed outside a designated ground water basin[16] without a permit from the State Engineer,[17]

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[12] *Id.* at 329.

[13] Colo. Rev. Stat. Ann. § 148-18-36(2) (Supp. 1971).

[14] Hall v. Kuiper, 510 P.2d 329, 330 (Colo. 1973).

[15] Colo. Const. art. XVI, § 6.

[16] The applications for well permits in *Hall* were not in a designated ground water basin.

and such a permit may be obtained only under the following circumstances:

> If the state engineer shall find that there is unappropriated water available for withdrawal by the proposed well and that the vested water rights of others will not be materially injured, and can be substantiated by hydrological and geological facts, he shall issue a "permit to construct a well", but not otherwise . . . .[18]

Significantly, the two major requirements for issuing a well permit—availability of unappropriated water and lack of material injury—are defined nowhere in the statutes. Therefore, the court's application of the statute in *Hall* is important because it puts flesh on the bare bones of the statute.

A. *The Court's Interpretation*

The court's approach to dealing with the requirement of unappropriated water in *Hall* is clear. After stating that the Poudre and South Platte Rivers are over-appropriated, the court explained:

> This means that *in the irrigation season*, except during storm and flood times, there is not enough water in the streams to satisfy all of the decreed surface appropriations.[19]

What the court did, then, is to hold that if a river is fully appropriated at any time of the year, it has no unappropriated water available within the meaning of section 148-18-36(2). The rationale for this holding would seem to be that no new user should be allowed to make an appropriation unless adequate water is available for him on every day of the year.

The court seems to follow a similar approach in its treatment of the material injury question. Although admitting that at some times there is adequate water available for all appropriators, the court countered with the observation that:

> [t]he applicants . . . cannot escape the evidence in the record that during other times of the year there would be material injury to surface appropriators.[20]

In other words, the fact that there is no unappropriated water available some of the time leads inexorably to the conclusion that there will be material injury. Such an approach in effect equates the two requirements of unappropriated water and no material

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[17]COLO. REV. STAT. ANN. § 148-18-36(1) (Supp. 1965).

[18]*Id.* § 148-18-36(2) (Supp. 1971).

[19]510 P.2d at 330 (emphasis added).

[20]*Id.* at 332.

injury; the absence of unappropriated water some of the time makes it impossible to meet the material injury test.

By making these two requirements synonomous, the court adopted a position which could result in prohibiting the issuance of all well permits for new water rights in the future. Colorado's rivers are all fully appropriated, at least some of the time;[21] therefore, in the court's view, there would be material injury and no unappropriated water for new wells, and hence no well permits could be issued. This result could hardly have been in the contemplation of the legislature, for it would be absurd to establish the machinery to issue well permits and at the same time set requirements such that no permit could ever be issued.

The fact that the court's reasoning leads to this unexpected result suggests that its interpretation of the statute may be incorrect. To explore this possibility, an alternate interpretation of the statutory requirements for issuing a well permit is suggested.

B. *A Proposed Interpretation*

It must be noted that the requirement of unappropriated water was added to the statute in 1971; prior to that time, the only question was one of material injury.[22] This fact strongly suggests that the General Assembly intended that the new requirement deal with something other than material injury. Otherwise, there would have been no reason for the amendment.

The proposed interpretation of these requirements is based upon the fact that prior appropriation has two distinct functions, and it is suggested that each of the two statutory requirements deals with one of these functions. To be more specific, prior appropriation provides a means by which water rights can be acquired, and it also provides a mechanism for regulating the exercise of rights thus acquired. The availability of unappropriated water is essential to the acquisition of water rights, and questions of material injury concern the exercise of these rights.

1. Requirement of Unappropriated Water

The right to make an appropriation is guaranteed by the Colorado constitution, but only with respect to unappropriated

[21]Holland & Hart, Report to Governor John A. Love on Certain Colorado Water Law Problems, Dec. 20, 1972, at 5, 39; C. McGUINNESS, THE ROLE OF GROUND WATER IN THE NATIONAL WATER SITUATION 214, 216 (Geologic Survey Water-Supply Paper No. 1800, 1963); Delaney, *Water for Oil Shale Development*, 43 DENVER L.J. 72, 75 (1966).

[22]*Compare* COLO. REV. STAT. ANN. § 148-18-36(2) (Supp. 1971) *with id.* (Supp. 1965).

water.[23] If there is no unappropriated water, there can be no right to appropriate nor indeed, any water which can lawfully be appropriated. The availability of unappropriated water is thus important as a threshold question.

Assuming that the existence of unappropriated water is a prerequisite to obtaining a water right, how is this requirement to be met? Traditionally, the courts have held that when, on any given day, the needs of all appropriators on a stream are being met, any excess water in the stream is considered to be unappropriated.[24] This approach takes account of the fact that on a given day a stream may have more water than needed to fill decreed priorities, or it may simply be that the stream has more water than appropriators are taking. Allowances are made for day-to-day differences in the stream, and simply because a stream is fully appropriated one day, it may not be so on the following day. In other words, the existence of unappropriated water on a particular day depends upon conditions that day. Contrast this with the approach in *Hall*, where the fact that a stream was fully appropriated some of the time dictated that there could be no unappropriated water *any* day of the year, regardless of whether or not there was excess water in the stream that day.

That a stream may be fully appropriated on some days and yet have unappropriated water on other days was illustrated in *Cache la Poudre Reservoir Co. v. Water Supply & Storage Co.*[25] There the court pointed out that even though an appropriator acquires the right to use a given quantity[26] of water for a particular period of time, subsequent appropriators can acquire the right to take that same quantity of water from the stream during a different period of time. Of course, for the later appropriators to acquire such rights, the water would have to be unappropriated when they make their initial diversions. Hence, the extent of appropriation of a stream at one time should not be determinative for other times.

The court has also recognized, in *Humphreys Tunnel & Mining Co. v. Frank,*[27] that even if a stream is normally fully

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[23]COLO. CONST. art. XVI, § 6.

[24]*See, e.g.*, Humphreys Tunnel & Mining Co. v. Frank, 46 Colo. 522, 532, 105 P. 1093, 1096 (1909).

[25]25 Colo. 161, 53 P. 331 (1898); *accord*, United States v. Ahtanum Irr. Dist., 330 F.2d 897, 908-09 (9th Cir. 1964).

[26]"Quantity," it should be noted, refers not to volume of water, but rather to rate of flow. *See* City of Colo. Springs v. Bender, 148 Colo. 458, 366 P.2d 552 (1961).

[27]46 Colo. 524, 105 P. 1093 (1909).

appropriated, conditions may sometimes result in unappropriated water:

> Though other appropriations, to the full capacity of the stream during its ordinary flow, were made before plaintiff's rights accrued, this does not prevent him from building a ditch and diverting and using its waters whenever his seniors do not need it. Floods often occur and the natural flow of the stream is thus augmented. No appropriator uses water all the time. It is well known that many streams of this state are over-appropriated, yet appropriators whose rights accrue after the ordinary flow is fully appropriated, have, nevertheless, acquired valuable rights . . . .[28]

Because *Humphreys Tunnel* is an older case, one might well question whether the possibility referred to there of unappropriated water appearing at any time is realistic under present day conditions.[29] This question may be answered by examining the number of days in a year with no call on the river. When a senior appropriator is not receiving sufficient water to fill his decreed rights, he puts a "call" on the river, thereby preventing upstream junior appropriators from taking water to which he is entitled. But, when there is no call, it is a "free river"; anyone can divert water from it, and by applying it to beneficial use, he can acquire rights to it in the future.

Table 1 shows the number of days during each of the last 10 years when there was no call on the South Platte River in District 3.[30] This district was chosen as an example because the property involved in *Hall* is located there.

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[28] *Id.* at 532, 105 P. at 1096.

[29] Interestingly enough, in a recent district court opinion holding the Colorado Ground Water Management Act unconstitutional, Judge Carpenter cited *Humphreys Tunnel* for the proposition that there can always be some unappropriated water even on a fully appropriated stream. Kuiper v. Lundvall, Civil Action No. 20093 (Weld County Dist. Ct., decided July 10, 1973).

[30] This information was obtained from the Summary Sheets of the South Platte River Call, which may be examined in the State Engineer's office in Denver.

Table 1

Number of Days with No Call on South Platte
District 3

Year	Jan.-Dec.	Apr.-Sept.
1972	216	33
1971	284	102
1970	294	112
1969	293	111
1968	100	22
1967	158	120
1966	194	94
1965	159	67
1964	26	0
1963	222	48
Average	195	71

A glance at Table 1 shows that although during some exceptionally dry years, such as 1964, there was little unappropriated water available, during most years there was considerable water available. Diversions could have been made an average of 195 days per year over the last 10 years. Even during the irrigation season, April through September, there was an average of 71 days with no call on the river in District 3. What this indicates is that the statement quoted from *Humphreys Tunnel* is relevant to present day conditions on the South Platte.

According to the interpretation of section 148-18-36(2) argued for here, the question of the availability of unappropriated water is a threshold matter. Water is considered unappropriated if it is not required by senior appropriators, and the extent of appropriation on a stream may change from day to day.

2. Requirement of No Material Injury

The existence of unappropriated water is a necessary, but not sufficient, condition for the issuance of a well permit. Additionally, there must be a finding that there would be no material injury to vested rights, a requirement, it is suggested, which looks to administration. The logic of this proposal may be clarified by considering how prior appropriation regulates the exercise of surface rights. Once a right to water is acquired by appropriating otherwise unappropriated water, it is regulated to prevent material injury to earlier vested rights. That is, when the exercise of a junior right would deprive a senior appropriator of water to which he is entitled, the junior appropriator will not be allowed to exercise his right.

The Water Right Determination and Administration Act of 1969[31] also suggests that the question of material injury is relevant to administration. This Act gives the State Engineer and the Division Engineers authority to order the discontinuance of diversions causing material injury to prior vested rights.[32]

In addition, language in *Fellhauer v. People*[33] gives further support to the proposition that material injury is an aspect of regulation:

> [W]henever . . . the pumping of a junior well materially injures senior appropriators who are calling generally for more water, there exists a legitimate and constitutional ground and reason for the regulation of the well . . . .[34]

If material injury does relate to the administration of wells, should a well permit be issued only if there will be no material injury, or rather, whenever regulation of the well can eliminate possible material injury?

The manner in which prior appropriation regulates surface water rights suggests an answer to this question. Any new surface right will almost of necessity interfere with prior vested rights at some time or another, and when this occurs, the holder of the junior right is not allowed to make a diversion. Note, however, that the virtual certainty of material injury at some time or another is not the decisive factor. If regulation (*i.e.*, prohibiting the junior from diverting water when it is required by senior appropriators) can eliminate material injury, the mere possibility of injury in the absence of regulation does not defeat the junior's right to appropriate otherwise unappropriated water.

The law concerning change of water rights offers an analogue helpful in understanding the well permit statute's requirement of no material injury. Although the holder of a water right may be allowed to change the type or location of use, such a change will be allowed only if it will cause no material injury to other vested

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[31] COLO. REV. STAT. ANN. §§ 148-21-1 to -45 (Supp. 1969).

[32] *Id.* § 148-21-35(2) (Supp. 1969). This material injury depends upon such factors as:

> the current and prospective volumes of water in and tributary to the stream from which the diversion is being made; distance and type of stream bed between the diversion points; the various velocities of this water, both surface and underground; the probable duration of the available flow; and the predictable return flow to the affected stream.

Id.

[33] 167 Colo. 320, 447 P.2d 986 (1968).

[34] *Id.* at 329, 447 P.2d at 991.

rights.[35] Often, though, a change will result in material injury, as when the change is from irrigation to municipal use. In such a case, rights previously exercised only intermittently would henceforth be exercised continuously.[36] When material injury is a possibility, "the courts will impose conditions upon the change of use and point of diversion sufficient to protect the rights of other appropriators."[37] Only the impossibility of imposing restrictions adequate to protect vested rights will cause a court to deny a change in water right.[38]

Thus, the operation of prior appropriation and the law of change of water rights both suggest that the requirement of no material injury be interpreted as meaning no material injury *which cannot be removed by regulation.* This raises the question of how wells can be regulated to minimize material injury to surface appropriators. Essentially, there are four methods by which this can be done.

The first is simply to order the offending well to stop pumping.[39] This approach will obviously be more effective when the well is close to the stream, where the effects of pumping are quickly noticeable. Because the ground water in *Hall* traveled approximately 3/10 mile per year over the 13 miles to the Cache la Poudre River,[40] the effects of pumping would not reach the stream for many years. And, by the same token, the effect of shutting off the wells would not reach the stream for many years. Furthermore, the court in *Hall* noted that intermittent pumping would diminish the amount of ground water reaching the stream by an amount constant throughout the year.[41] Prohibiting pumping by these wells during the irrigation season—or any other period, for that matter—would therefore not eliminate material injury.

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[35]City of Westminster v. Church, 167 Colo. 1, 445 P.2d 52 (1968); Boulder & White Rock Ditch & Reservoir Co. v. City of Boulder, 157 Colo. 197, 402 P.2d 71 (1965); Farmers Highline Canal & Reservoir Co. v. City of Golden, 129 Colo. 575, 272 P.2d 629 (1954); City of Colo. Springs v. Yust, 126 Colo. 289, 249 P.2d 151 (1952); Bates v. Hall, 44 Colo. 360, 98 P. 3 (1908).

[36]*See, e.g.*, City of Westminster v. Church, 167 Colo. 1, 445 P.2d 52 (1968).

[37]Authorities cited note 34 *supra.*

[38]Farmers Highline Canal & Reservoir Co. v. City of Golden, 129 Colo. 575, 272 P.2d 629 (1954).

[39]This was done in Kuiper v. Well Owners Conservation Ass'n, 176 Colo. 119, 490 P.2d 268 (1971).

[40]510 P.2d at 330.

[41]*Id.*

Another method of dealing with material injury is to prohibit continuous pumping. When a well pumps, it lowers the level of ground water in the area near the intake, an effect known as "draw down." By pumping intermittently, the cone of depression thus formed can recover, and hence the effect at a distance from the well is greatly lessened.[42] Assuming, as the court in *Hall* did, that even with intermittent pumping the Halls' proposed wells would have caused a constant diminution in the amount of ground water reaching the stream,[43] the technique of stop-and-go pumping would probably have been ineffective.

A third method for minimizing material injury to surface users from a well is bypass pumping. It was mentioned in *Fellhauer v. People*:

> The possibility has occurred to us that, if the defendant would discharge a certain portion of the well water into the stream and use the remainder for his land, no material injury to senior users would result.[44]

Bypass pumping is based upon the fact that the volume of ground water required to support a surface flow is significantly greater than the volume of the surface flow itself. For example, if four acre-feet of ground water are required to support one acre-foot of surface flow, it would be possible to pump out all five acre-feet.[45] Then, one acre-foot could be given to the surface users, and the remainder used by the well owner.[46] This practice is limited, however, by the recharge capacity of the aquifer and by its effect on adjacent wells.[47] If carried to an extreme, bypass pumping could dry up surface streams and thus cause ecological problems.[48] Used in moderation, however, it can help to alleviate adverse effects from wells. Perhaps the Halls could have used this method to prevent material injury.

A fourth way to minimize the adverse effects of pumping is through artificial recharge, which replaces ground water pumped out by the well. Off-season irrigation is one method of doing this.[49]

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[42]Harrison & Sandstrom, *supra* note 5, at 33.

[43]510 P.2d at 330.

[44]167 Colo. 320, 335, 447 P.2d 986, 993 (1968).

[45]As the amount of ground water decreases, the amount of surface water which it can support decreases, and so some surface water percolates into the ground.

[46]This example was taken from Harrison & Sandstrom, *supra* note 5, at 39.

[47]*Id.*

[48]*Id.* at 14-15.

[49]*Id.* at 41.

Another technique is to pump water into the ground via injection wells,[50] or, less efficiently, to use the well itself as an injection well.[51] With all these methods of artificial recharge the water used to recharge the aquifer must, of course, come from a source other than the aquifer. As noted earlier, however, it is still possible on many days to make a surface appropriation from a river as fully appropriated as the South Platte.[52] Therefore, the Halls could conceivably have made a surface appropriation during periods of low demand, and by using that water to recharge the acquifer they could have eliminated material injury to surface appropriators.

The existence of the four techniques discussed above for eliminating material injury from pumping wells means that even if the ground water pumped by the well is not always unappropriated, material injury to senior users need not necessarily result. Thus, the interpretation of section 148-18-36(2) proposed in this comment does not equate lack of unappropriated water at some time in the year with material injury.

C. *Comparison of the Two Interpretations*

The facts in *Hall* can serve as a concrete example for comparing the court's interpretation of section 148-18-36(2) with the one offered in this comment. The court there held that because the river was fully appropriated *some* of the time, it had no unappropriated water, and therefore the proposed wells would have caused material injury to vested rights. Hence, a well permit could not be issued. It is important to note that the court used a single level test in *Hall.*

Under the proposed interpretation, however, the first step is to consider the unappropriated water question. In *Hall* there would have been a finding of "unappropriated water available for withdrawal."[53] Perhaps it would not have been available every day, but unappropriated water would nevertheless have been available. The second step is to determine whether the wells could be regulated to prevent material injury. Assuming the court's finding was correct that even intermittent pumping would

[50]On techniques of artificial recharge, see W. WALTON, GROUNDWATER RESOURCE EVALUATION 168 (1970); R. DE WIEST, GEOHYDROLOGY 147 (1965); Todd, *Groundwater,* in HANDBOOK OF APPLIED HYDROLOGY 13-41 to 13-46 (V. Chow ed. 1964).

[51]Harrison & Sandstrom, *supra* note 5, at 41.

[52]See Table 1 and accompanying discussion *supra.*

[53]COLO. REV. STAT. ANN. § 148-18-36(2) (Supp. 1971).

cause a decrease in the amount of ground water reaching the stream at all times, and assuming that bypass pumping and artificial recharge would be impractical for some reason or other, it is therefore apparent that the wells would have caused material injury. Again, no permit could be issued.

The fact that the same result is reached under these facts does not mean that the two interpretations always lead to identical results. In *Hall* the court's shortcut approach yielded the same result as the proposed interpretation because of the material injury issue. If, however, there had been a practical way of preventing material injury by the wells in *Hall*, then the State Engineer should have granted the permits. The major difficulty with the court's interpretation is that by making the presence of unappropriated water in the stream all year long the sole criterion, it oversimplifies the two statutory tests. On the other hand, the two step analysis proposed here keeps the statutory tests separate.

The advantages of the proposed interpretation over that employed by the court in *Hall* can be summarized as follows:

1. It defines unappropriated water in a manner consistent with prior case law.
2. It recognizes that the well permit statute involves two requirements rather than one.
3. Because it does not automatically equate lack of unappropriated water with material injury, the proposed interpretation takes into account the possibility that regulation of wells may remove any material injury to vested rights.
4. As a further consequence of not equating the two requirements, and by defining unappropriated water in the traditional manner, it does not automatically foreclose the possibility of obtaining a well permit for a new water right.

For these reasons, the proposed interpretation of section 148-18-36(2) appears to be superior to that adopted by the court in *Hall*. Having established this, it is still possible to gain additional insight into the meaning of *Hall* by approaching it from a different direction—by examining its impact on maximum utilization.

III. Maximum Utilization

Although always implicitly a part of Colorado water law, the doctrine of maximum utilization has gained explicit recognition

only in recent years. No precise definition of the doctrine has yet been formulated, nor have all its implications been explored. A brief review of the development of maximum utilization will aid in attempting to define its elements.

A. *Development of the Doctrine*

The prohibition against wasting water has long been a means of insuring that water be used efficiently. An appropriator otherwise entitled to water may not divert it if he will not be able to apply it to beneficial use; he must leave it in the stream for others to use beneficially.[54] If he has already diverted the water, he must return to the stream what he cannot use beneficially.[55] The obvious result of these rules is to allocate water on the basis of priority of right *and* upon need, thus rendering water usage more efficient.

City of Colorado Springs v. Bender[56] has been cited as marking the beginning of the "new era" in maximum utilization.[57] There a senior appropriator sought to enjoin Colorado Springs from pumping ground water because the city's withdrawals deprived him of water. This occurred because the draw down from the city's well lowered the ground water level below the intake of the plaintiff's well, which did not reach to so great a depth as the city's due to irregularities in the aquifer. The court held that an appropriator must employ an efficient means of making a diversion, and that he is "not entitled to command the whole or a substantial flow of the stream merely to facilitate his taking the fraction to which he is entitled."[58] The court reasoned that since the plaintiff's well did not reach to a depth great enough for both himself and the city to pump water from the aquifer, his means of diversion was inefficient, and hence he could not prevent the city from withdrawing water.[59]

In dictum the court in *Bender* also discussed the futile call doctrine. Generally, when a senior appropriator is not receiving sufficient water to fill his adjudicated priority, he may "call" the river to prevent appropriators junior to himself from making di-

[54]Enlarged Southside Irrigation Ditch Co. v. John's Flood Ditch Co., 120 Colo. 423, 210 P.2d 982 (1949); Fort Lyon Canal Co. v. Chew, 33 Colo. 392, 81 P. 37 (1905).

[55]Pulaski Irrigation Ditch Co. v. City of Trinidad, 70 Colo. 565, 203 P. 681 (1922).

[56]148 Colo. 458, 366 P.2d 552 (1961).

[57]Fellhauer v. People, 167 Colo. 320, 336, 447 P.2d 986, 994 (1968).

[58]148 Colo. at 462, 366 P.2d at 555, *citing* Schodde v. Twin Falls Land & Water Co., 224 U.S. 107 (1912).

[59]148 Colo. at 462, 366 P.2d at 555.

versions. However, the senior is not permitted to make a call which is futile; that is, if shutting off a particular junior appropriator will not increase the amount of water reaching the senior, the junior may not be shut off.

Bender thus furthered the development of maximum utilization in two ways: first, it refused to encourage inefficient means of diversion; and second, by forbidding futile calls it helped to increase the number of users who could make appropriations.

Although *Bender* and the early decisions against waste suggest a predisposition of the court to favor the more efficient use of water, the doctrine of maximum utilization was not consciously articulated until *Fellhauer v. People.*[60] In 1969 the Division Engineer attempted to shut down 39 of the more than 1600 major wells in the Arkansas Valley without prior written regulations or, as far as the court could discover, without standards of any sort. The court held that this action was so arbitrary that it violated the equal protection clause of the United States Constitution and the due process clause of the Colorado constitution.[61]

In addition, the court discussed maximum utilization. After quoting from the provisions in the Colorado constitution relating to prior appropriation,[62] the court concluded:

> It is implicit in these constitutional provisions that, along with *vested rights*, there shall be *maximum utilization* of the water of this state. As administration of water approaches its second century the curtain is opening upon the new drama of *maximum utilization* and how constitutionally that doctrine can be integrated into the law of vested rights.[63]

The court did not explain what it meant by maximum utilization beyond pointing to the decisions forbidding waste and the statement in *Bender* regarding the need for an efficient means of diversion.

Following the decision in *Fellhauer,* the Colorado General Assembly passed the Water Right Determination and Administration Act of 1969, which recognizes the need for maximum utilization. The Act declares that:

> it shall be the policy of this state to integrate the appropriation, use and administration of underground water tributary to a stream

[60]167 Colo. 320, 447 P.2d 986 (1968).
[61]*Id.* at 334, 447 P.2d at 993.
[62]COLO. CONST. art. XVI, § 6.
[63]167 Colo. at 336, 447 P.2d at 994.

> with the use of surface water, in such a way as to maximize the beneficial use of all of the waters of this state.[64]

The Act prohibits futile calls[65] and requires that an appropriator establish a reasonable means of diversion.[66] In addition, the statement of policy declares that ground water has thus far received insufficient attention and that the integration of ground and surface water is vital.[67]

The next mention of maximum utilization appeared in *Kuiper v. Well Owners Conservation Association,*[68] where the court quoted from *Fellhauer* and from the Water Right Determination and Administration Act of 1969. The court viewed that legislation as an attempt to promote in detail the general thought in *Fellhauer.*[69]

It might be useful at this point to summarize the preceding discussion of the development of maximum utilization by listing the elements of the doctrine which have been hammered out by the Colorado Supreme Court and the legislature:

1. No wasteful use of water.[70]
2. No futile calls.[71]
3. Need for an efficient means of diversion.[72]
4. Development of ground water and its coordination with surface water.[73]

Underlying these rules is the policy of increasing the efficiency of water use and thus making water available to more people.

B. *The* Hall *Decision and Maximum Utilization*

Prior to *Hall* the development of a doctrine of maximum

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[64]COLO. REV. STAT. ANN. § 148-21-2(1) (Supp. 1969).

[65]*Id.* §§ 148-21-2(e), -35(2) (Supp. 1969).

[66]*Id.* § 148-21-2(c) (Supp. 1969).

[67]*Id.* § 148-21-2(2)(a) (Supp. 1969).

[68]176 Colo. 119, 490 P.2d 268 (1971).

[69]*Id.* at 149-50, 490 P.2d at 283.

[70]Enlarged Southside Irrigation Ditch Co. v. John's Flood Ditch Co., 120 Colo. 423, 210 P.2d 982 (1949); Pulaski Irrigation Ditch Co. v. City of Trinidad, 70 Colo. 565, 203 P. 681 (1922); Fort Lyon Canal Co. v. Chew, 33 Colo. 392, 81 P. 37 (1905); *see* COLO. REV. STAT. ANN. §§ 148-7-7 to -9 (1963); *Id.* at § 148-21-35(2) (Supp. 1969).

[71]City of Colo. Springs v. Bender, 148 Colo. 458, 366 P.2d 552 (1961); COLO. REV. STAT. ANN. §§ 148-21-2(e), -35(2) (Supp. 1969).

[72]City of Colo. Springs v. Bender, 148 Colo. 458, 366 P.2d 552 (1961); COLO. REV. STAT. ANN. § 148-21-2(c) (Supp. 1969).

[73]COLO. REV. STAT. ANN. §§ 148-21-2(1), -2(2)(a) (Supp. 1969); Hall v. Kuiper, 510 P.2d 329, 332 (Colo. 1973).

utilization, although somewhat tentative and uncertain, seemed to hold the promise of bringing a new era in which Colorado's water would be used with greater efficiency. However, in *Hall* there appears to be an attempt to limit the further development and application of maximum utilization. For example, the court stated:

> It was in the spirit of *Fellhauer, supra,* to add weight to what was referred to as the "new drama of maximum utilization," *viz.*, among other things, to use as much underground water as possible. We dream and we hope that in some future day technology will provide a means where by [*sic*] persons in the position of these applicants can use some water which would represent that reaching the stream during flood and storm stages. But today these are merely dreams.[74]

Believing, as the court did, that the wells applied for would cause material injury to vested rights, the court refused with reluctance to weigh maximum utilization with the other factors used to reach a decision. Seemingly the court chose not to explore "how constitutionally that doctrine [maximum utilization] can be integrated into the law of *vested rights.*"[75] It is not clear whether the court has declined to further maximum utilization in general or merely under the facts in *Hall.* But one thing is certain: the court's treatment of maximum utilization in *Hall* will probably stunt the doctrine's future growth.

CONCLUSION

The drive to make water available to as many people as possible who can put it to beneficial use is the common factor in the decisions dealing with maximum utilization. This drive is also present in the court's pre-*Hall* definition of what constitutes unappropriated water, for the day-to-day approach in determining the existence of unappropriated water would allow a greater number of appropriators to share in Colorado's water than the all-or-nothing approach followed in *Hall.*

Thus, when the court redefined the requirement of unappropriated water in *Hall,* it also implicitly rejected one aspect of maximum utilization. This suggests that perhaps maximum utilization is much more basic to Colorado water law than had been previously suspected. Both the prior appropriation and maximum utilization doctrines derive from the scarcity of water. The first appeared to allocate water, and the second to insure that it

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[74]510 P.2d at 332.

[75]People v. Fellhauer, 167 Colo. 320, 336, 447 P.2d 986, 994 (1968).

be used efficiently. *Hall v. Kuiper* is thus significant because it gives insight into how the court interprets the well permit statute and how the court views maximum utilization; and perhaps even more importantly, it illustrates how basic maximum utilization is to Colorado water law.

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