

THE MAXIMUM USE DOCTRINE AND ITS RELEVANCE TO WATER RIGHTS ADMINISTRATION IN IDAHO'S LOWER BOISE RIVER BASIN

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I. INTRODUCTION

This article examines Idaho’s approach to irrigation water delivery and water rights administration in the context of urbanization of formerly irrigated farmland in the rapidly-growing Treasure Valley—the Lower Boise River Basin.¹ In particular, it explores the implications of this approach in light of the maximum beneficial use element of the prior appropriation doctrine and Idaho’s rules governing the conjunctive administration of surface and ground waters.

Idaho’s Constitution allows diversions only for “beneficial uses” of water and declares a policy of “optimum development of water resources in the public interest.”² And Idaho courts repeatedly have held that the prior appropriation doctrine seeks the “maximum use and benefit” of water.³ But in practice, this concept rarely has been invoked to affect actual water diversions and uses.

Idaho also now fully embraces the principle that hydraulically connected ground and surface water rights are to be administered together. The advent of conjunctive water rights administration and the adjudication of Snake River Basin surface and ground water rights now exposes many ground water rights to potential priority administration to supply senior surface water diversions. In the Treasure Valley, it is possible that senior surface water users on the Boise River or its tributaries will seek the curtailment of junior ground water rights. The authors suggest that beneficial use and maximum use principles likely will become a focal point in such delivery call proceedings.

In recent years Idaho courts have had occasion to point out the continued vitality of the maximum use principle, primarily in connection with the rise of conjunctive administration. Although Idaho was one of the first western states to adopt a ground water code,⁴ it was not until 1994 when, prodded by litigation, the Idaho Department of Water Resources (Department) formally adopted its Conjunctive Management Rules (CM Rules)⁵ by which it intended to actively administer ground and surface water rights together, with an initial focus on the Eastern Snake River Plain.⁶ For various reasons, surface water users in parts of southern Idaho have long been dissatisfied with the Department’s approach to administering ground water rights and with the CM Rules. They finally took action in 2005 by filing delivery calls against holders of junior ground water rights diverting from the Eastern Snake Plain Aquifer (ESPA).⁷ They simultaneously challenged the CM Rules’ constitu-

1. The Lower Boise River Basin includes the approximately sixty-four mile reach of the Boise River and its tributary streams between its confluence with the Snake River near Parma, Idaho and Lucky Peak Reservoir, which is situated approximately ten miles above Boise City.

2. IDAHO CONST. art. XV, §§ 3 and 7.

3. *See, e.g.*, Wash. State Sugar Co. v. Goodrich, 27 Idaho 26, 44, 147 P. 1073, 1079 (1915); Poole v. Olaveson, 82 Idaho 496, 502, 356 P.2d 61, 65 (1960).

4. 1951 Ground Water Act, 1951 Idaho Sess. Laws 423 (codified as amended at IDAHO CODE ANN. §§ 42-226 to -237 (2010)).

5. IDAHO ADMIN. CODE r. 37.03.11.000 (2010).

6. *See id.* r. 37.03.11.050.

7. Am. Falls Reservoir Dist. No. 2 v. Idaho Dep’t of Water Res., 143 Idaho 862, 865–67, 154 P.3d 433, 437–38 (2007).

tionality as written and as applied.⁸ The resulting protracted litigation ultimately validated the CM Rules as written; it also has highlighted the legal and scientific questions that must be resolved where senior priority surface water right holders in Idaho ask the State to curtail junior ground water diversions alleged to cause material injury to the seniors' stream diversions or reservoir storage reserves.⁹

These developments also gave new vigor to other elements of the prior appropriation doctrine that have received only limited attention over the years in this relatively water-rich state, but that now warrant our full attention. These are the principles of avoiding waste and maximizing the beneficial use of Idaho's water resources. A central point of this article is that applying these fundamental principles will be instrumental in implementing both conjunctive management, and if necessary, conjunctive administration of ground and surface waters.¹⁰

The premise for conjunctive administration of ground water rights is that surface water supplies are insufficient to satisfy existing right holders' beneficial uses because the surface water supply is being affected by aquifer pumping. But as the ESPA litigation to date has shown, conjunctive administration will require looking beyond the senior's "paper right"¹¹ and examining the actual needs of those calling for the curtailments.¹² That inquiry will be particularly important where formerly irrigated agricultural lands have been significantly reduced over time through conversion to residential subdivisions, commercial centers, streets, and parking lots—while, at least on paper, the water rights for these same areas remain undiminished and fully diverted.

It is a relatively straightforward task to identify former farm acres that no longer are irrigated. But suggesting that a reduced rate or volume of diversions can be legally justified, or that portions of a water right might be transferred for a new use elsewhere, may conflict with established delivery systems and current practices among suburban irrigators. Bringing these practices in line with an appropriate duty

8. *Id.* at 868, 154 P.3d at 439.

9. Controversy over conjunctive administration in Idaho had been predictable at least since the Swan Falls litigation in the mid-1980s. In that episode, Idaho Power Company sued thousands of ground water pumpers and upstream river diverters in an attempt to protect river flows at the Company's Snake River power facilities at Swan Falls south of Boise, Idaho. The Swan Falls controversy is explored in Jeffrey C. Fereday & Michael C. Creamer, *Swan Falls in 3-D: A New Look at the Historical, Legal and Practical Dimensions of Idaho's Biggest Water Rights Controversy*, 28 IDAHO L. REV. 573 (1991).

10. For purposes of this article, the authors distinguish between "conjunctive administration" and "conjunctive management." The authors refer to conjunctive administration as the process by which the State curtails junior ground water rights, or requires their owners to provide mitigation, to remedy the material injury their pumping is shown to be causing to senior surface water rights. This is what the CM Rules expressly cover. Conjunctive management, which is only implicit in the CM Rules, connotes collaboration among seniors and juniors to implement measures designed to optimize the availability of surface and ground water resources to meet existing and future needs.

11. By "paper rights" the authors mean the maximum diversion rate or volume as authorized on the face of a right holder's license or decree, as compared to the legal right to divert only that amount of the licensed or decreed amount that actually can be placed to beneficial use at a given time. IDAHO CONST. art. XV, § 3; IDAHO CODE ANN. § 42-220 (2010); *see also* Lee v. Hanford, 21 Idaho 327, 330-32, 121 P. 558, 559-60 (1912); Boise Irrigation & Land Co. v. Stewart, 10 Idaho 38, 48, 77 P. 25, 27 (1904).

12. *See* Briggs v. Golden Valley Land & Cattle Co., 97 Idaho 427, 434 n.4, 546 P.2d 382, 389 n.4 (1976).

of water will require change, which of course can be politically unpopular and more difficult to achieve the longer it is delayed.

This article begins with a summary of the maximum use principles¹³ as they have developed in Idaho, including their recent reaffirmation in the conjunctive management context by the Idaho Supreme Court in *American Falls Reservoir District No. 2 v. Idaho Dep't of Water Resources (American Falls)*,¹⁴ and considers how they might be applied in the Treasure Valley. The next section discusses historical water and agricultural development in the Treasure Valley and some of the hydrologic facts unique to the area.

The authors then review the methods of irrigating the now-extensive subdivided areas in the Valley. Described here as the "Treasure Valley approach," these methods involve the use of pressurized lawn irrigation systems supplied with water by the canals of the traditional irrigation entities that have been in place for a century or more. Of particular importance is these entities' practice of continuing to divert and supply the full amount of irrigation water that was delivered to these areas before they were converted to non-agricultural purposes. One result of this approach is that water previously beneficially used on now-developed parcels is effectively "stacked" upon the water that continues in use on the remaining lawns and landscaped areas. The authors contend that this results in per-acre diversions to irrigated areas that exceed the water right's legal duty of water.

The article then surveys some of the opportunities available to senior surface water users to exert control over the non-use of water within their service areas and perhaps avoid or limit a perceived need to shut off junior ground water wells to accommodate river diversions for irrigation. The authors advocate that a rigorous application of the maximum use principles would move water off lands that no longer are irrigated, would allow such water to be put to new beneficial uses in Idaho, and would maintain or reestablish the historical duty of water on the remaining irrigable areas. In addition to reducing pressure to shut off junior water rights, this approach could free up surface water supplies to meet growing needs for water elsewhere in the Valley. Among other benefits, this could avoid or postpone costly and controversial water storage projects.

By definition, the prior appropriation doctrine is designed to enforce water right priorities when the supply cannot satisfy all demands, and this helps protect private property interests in water rights and the established economic expectations dependent upon them. The authors argue, however, that Idaho's economic opportunities may depend on how seriously we take the doctrine's equally fundamental obligations to enforce priorities *only* to serve beneficial uses, and to implement the mandate to *maximize* the beneficial use of our water resources. The changes in Idaho's irrigated landscape bring these points into sharp focus. The question for Idaho is whether it will see this and act, or ignore it and await the consequences.

13. The authors refer both to "maximum beneficial use" and "maximum use." The terms are interchangeable.

14. *Am. Falls*, 143 Idaho at 862, 154 P.3d at 433.

stances when the water user is not irrigating the full number of acres decreed under the water right.”²⁴

The requirement of beneficial use is a continuing obligation while the water remains in the water user’s or irrigation entity’s control, and it has been held that “the legislature has and does exercise a certain control over all the waters of the state while they are flowing in the natural channel of the stream, and the law follows the water, after it is diverted therefrom, to see that it is applied to a beneficial use.”²⁵ The maxim that the State’s interest in the water continues beyond its diversion from the natural stream derives from the fact that Idaho’s waters are a public resource. A person’s private right acquired by appropriation is “usufructuary only, and . . . at any given time the extent of his reasonable need is the measure of the maximum amount he is entitled for the time being to divert from the stream or to receive and use.”²⁶

B. The Duty of Water

Idaho’s law concerning the duty of water is another expression of the maximum use requirement. The duty of water principle arose out of efforts to define the limit of an appropriator’s diversion in terms of what is reasonable and necessary rather than what an appropriator is accustomed to or prefers. Recognizing that a water right decree or license would describe the quantity element as an upper limit, the courts and the Legislature developed the legal basis for determining, at least for irrigation, what constitutes a reasonable and necessary diversion rate on a per-acre basis.²⁷

In *Briggs v. Golden Valley Land & Cattle Co.*, the Idaho Supreme Court held that Idaho Code section 42-220 “prohibits the senior appropriators, regardless of the amount of their decreed right, from ‘the use of more water than can be beneficially applied on the lands for the benefit of which such right may have been confirmed’”²⁸ The Court also has held that “[i]t is a cardinal principle established by law and the adjudications of this court that the highest and greatest duty of water be required.”²⁹ Simply put, the maximum use policy as described by the statute and decisions construing it contemplates irrigating the greatest number of acres with the least water. And regardless of whether a right is decreed within the statutory duty

24. *Am. Falls*, 143 Idaho at 876, 154 P.3d at 447.

25. *Boise City Irrigation & Land Co. v. Stewart*, 10 Idaho 38, 48, 77 P. 25, 27 (1904).

26. *Caldwell v. Twin Falls Salmon River Land & Water Co.*, 225 F. 584, 595 (D. Idaho 1915); *see also* IDAHO CODE ANN. § 42-101 (2010) (the State is responsible for regulating the “just apportionment to, and economical use by, those making a beneficial application” of the “waters of the state,” and “in providing for its use, [the state] shall equally guard all the various interests involved.”)

27. “Duty of water” refers to that amount of water that is economically and reasonably needed for the authorized use, and with respect to irrigation, the Idaho Supreme Court has held that “[i]n determining the duty of water, reference should always be had to lands that have been prepared and reduced to a reasonably good condition for irrigation. Economy must be required and demanded in the use and application of water.” *Farmers’ Co-op. Ditch Co. v. Riverside Irrigation Dist.*, 16 Idaho 525, 535, 102 P. 481, 483 (1909). By statute, absent sufficient evidence to the contrary, no water right may be licensed or decreed for irrigation at a duty of water greater than 0.02 cubic feet per second per irrigated acre. IDAHO CODE ANN. § 42-220 (2010). This rate of flow also equates to a flow rate of nine gallons per minute or one “miner’s inch.” Accordingly, the statutory limit on irrigation diversions is often stated as “one miner’s inch per acre,” or “one inch per acre.”

28. 97 Idaho 427, 435 n.5, 546 P.2d 382, 390 n.5 (1976).

29. *Munn v. Twin Falls Canal Co.*, 43 Idaho 198, 207, 252 P. 865, 867 (1926).

headgate requirements.³⁶ Soil types and irrigation practices can also affect the amount of water deliveries needed. But generally speaking, improvements in efficiency over time—from canal lining to the use of more pipelines, pumps, and sprinklers instead of flood irrigation techniques—have reduced the amount of water that actually needs to be diverted from the source to grow a given crop.

C. The Ground Water Act's "Full Economic Development" Mandate

In the mid-twentieth century, when it focused on how to characterize and administer ground water rights, the Idaho Legislature adopted Idaho's Ground Water Act (GWA) and expressly included another version of the maximum use principle:

The traditional policy of the state of Idaho, requiring the water resources of this state to be devoted to beneficial use in reasonable amounts through appropriation, is affirmed with respect to the ground water resources of this state as said term is hereinafter defined and, while the doctrine of "first in time is first in right" is recognized, a reasonable exercise of this right shall not block full economic development of underground water resources.³⁷

Thus, the GWA is in harmony with the longstanding rule, as enunciated in *Schodde v. Twin Falls Land & Water Co.*, that an appropriator must use a reasonable means of diversion and cannot command a large portion of the water resource to support his diversion.³⁸

D. The Department's Conjunctive Management Rules

In 1993, when the Department decided to adopt statewide rules to implement conjunctive administration, certain ground water users were concerned their junior ground water rights should not be curtailed to deliver water that was not needed and that could not be placed to actual beneficial use by senior right holders.³⁹ They pressed for, among other things, the express incorporation in the CM Rules of the maximum beneficial use principles, including a requirement of a finding of "material" injury before junior rights would be subject to curtailment, and an opportunity for junior rights found to be causing material injury to provide mitigation so as to allow them to continue pumping out of priority. Their position was that these provisions would promote state policies of maximum beneficial use and the full and optimum development of water resources.⁴⁰

At the outset, ground water users' interests were largely disorganized in these discussions. But perhaps the second-most significant outcome of this rulemaking, after the CM Rules themselves, was the organization of ground water users from across the state in pursuit of a common goal of promoting these principles through-

36. *See id.*; *see also* JEFFREY C. FEREDAY, RURAL WATER USE IN AN URBANIZING ENVIRONMENT 3 (2010), *available at* http://www.idwr.idaho.gov/waterboard/WaterPlanning/CAMP/TV_CAMP/PDF/2010/07-08-2010_Urban-Irrigaton.pdf.

37. IDAHO CODE ANN. § 42-226 (2010). *See also* the Idaho Supreme Court's recent decision in *Clear Springs Foods, Inc. v. Spackman*, No. 37308-2010, 2011 WL 907115 (Idaho March 17, 2011).

38. 224 U.S. 107, 120–21 (1912).

39. *See generally* Letter from Jeffrey C. Fereday & Michael C. Creamer, Givens, Pursley & Huntley, to R. Keith Higginson, Director, Idaho Dep't of Water Res. (Nov. 5, 1993) (on file with authors).

40. *Id.*

For example, the CM Rules provide that in responding to a delivery call—one which a senior right holder must affirmatively assert—the Director will consider, among other things,

whether the petitioner making the delivery call is suffering material injury to a senior-priority water right and is diverting and using water efficiently and without waste, and in a manner consistent with the goal of reasonable use of surface and ground waters as described in Rule 42. The Director will also consider whether the respondent junior-priority water right holder is using water efficiently and without waste.⁴⁵

The CM Rules also provide that in determining material injury and reasonableness of water diversions by a senior making a delivery call the Director may consider a variety of other factors surrounding the senior's water use.⁴⁶ These include the effort or expense the senior's diversion involves, the rate of diversion compared to the acreage irrigated, "the system diversion and conveyance efficiency," the method of water application, the amount of water being diverted compared to the water rights, the existence of water measuring devices, and the extent to which the senior's needs "could be met with the user's existing facilities and water supplies by employing reasonable diversion and conveyance efficiency and conservation practices. . . ."⁴⁷

E. Maximum Use Principles in Actual Practice

Despite the repeated pronouncements from the Idaho courts, the Legislature, and the agency charged with administering water rights, the authors recognize that efficiency, maximum use, duty of water, and the avoidance of waste—all elements of the beneficial use mandate—are largely unenforced objectives in the real world of water right adjudication and administration in Idaho, and in other western states for that matter. Several scholars have commented on these or closely related topics, and generally concluded that the West-wide mandate that water be placed to beneficial use has had little meaningful effect in increasing water use efficiency, particularly as it relates to irrigation.⁴⁸ In at least one commentator's view,

when it comes right down to it, the common law beneficial use doctrine, as it has developed over the past century, does not appear to be an efficiency-seeking doctrine at all. It is instead a laissez-faire legal doctrine that leaves the water users alone for the most part, once in a while reining in a bad actor or an especially egregious practice. . . . If more efficient

45. *Id.* r. 37.03.11.040.03. Rule 42 sets forth the factors to be considered in determining material injury.

46. *Id.* r. 37.03.11.042.01.

47. *Id.*

48. *See, e.g.*, A. Dan Tarlock, *The Changing Meaning of Water Conservation in the West*, 66 NEB. L. REV. 145, 150 (1987) ("Despite pious condemnations of waste and statements by major water users that water should always be put to its highest and best use, water has seldom been allocated efficiently in either the technical or economic sense."); Stephen F. Williams, *The Requirement of Beneficial Use as a Cause of Waste in Water Resource Development*, 23 NAT. RESOURCES J. 7 (1983) (discussing the tendency to over-divert in anticipation of having a larger water right for actual use, or sale, in the future).

practices are needed to stretch the West's water supplies, they are not likely to come from the slow development of western states' common law.⁴⁹

The mandates of actual beneficial use, waste avoidance and maximum use are enforceable, to be sure, as amply demonstrated by the Idaho decisions reviewed above. But they tend to arise only in disputes between appropriators, and their application tends to reverberate no further than the facts of that case.⁵⁰ Despite these principles' constitutional underpinnings, they sometimes are pushed to the sidelines by the legislature itself, or even by the courts.⁵¹ More often, they are ignored as a matter of custom. In any event, the authors suggest that implementation of conjunctive administration in the Lower Boise River Basin under the Department's CM Rules may be the point at which these principles receive more attention.⁵²

III. A BRIEF HISTORY OF WATER DEVELOPMENT AND MANAGEMENT IN THE LOWER BOISE RIVER BASIN

The history of water development and administration in the Lower Boise River Basin provides another perspective on how Idaho has approached the admonitions pertaining to maximum use and duty of water. Interestingly, it was the disputes that arose between Boise River water users in early adjudications and in priority administration that resulted in some of the earliest Idaho court decisions enunciating the maximum use doctrine and refining the duty of water principle.

Despite this distinction, the Boise Basin also might be considered by some to be an example of the institutional failure to apply these principles at key junctures. The authors say this because of the curious history of the Stewart and Bryan Decrees pursuant to which the most senior Boise River surface water rights recently have been adjudicated in the Snake River Basin Adjudication (SRBA), because of

49. Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919, 947-48 (1998).

50. See, e.g., *Briggs v. Golden Valley Land & Cattle Co.*, 97 Idaho 427, 434 n.5, 546 P.2d 382, 390 n.5 (1976) (court limited juniors' curtailment to what seniors can put to beneficial use, "regardless of the amount of their decreed right.").

51. For example, in the Snake River Basin Adjudication (SRBA) the Court ruled that the forfeiture statute was tolled for water rights as of the date they were claimed in the SRBA. *In re* SRBA, Case No. 39576, Order of Partial Decree, *Wood v. Troutt*, No. 65-05663B (Idaho 5th Jud. Dist. Ct. 2002). This has resulted in partial decrees confirming water rights that have not been beneficially used since as early as 1983. Also, as a matter of policy, the Department determined that it would evaluate water rights claimed in the SRBA based on a snapshot of the beneficial use existing as of the SRBA's commencement in 1987. And in 2002, the Idaho Legislature codified the result in *Aberdeen-Springfield Canal Co. v. Peiper*, 133 Idaho 82, 982 P.2d 917 (1999), providing that nonuse by an irrigation entity's water users will not result in forfeiture of the water right "unless the nonuse is subject to the control of" the irrigation entity. Other protections against forfeiture due to nonuse were added in 2003, 2004, and 2008. IDAHO CODE ANN. § 42-223(8)-(11), 2003 Sess. L. Ch. 166, p. 470; 2004 Sess. L. Ch. 178, p. 560; 2008 Sess. L. Ch. 239, p. 719.

52. These principles actually have received attention in the delivery calls initiated in 2005 under the CM Rules by surface water right holders seeking the curtailment of hundreds of ground water rights on the ESPA. The litigation regarding these calls is ongoing, but the Department and the courts so far have enforced various portions of the CM Rules that reflect maximum use concepts, such as the Department's determination not to require curtailment to supply any more than the seniors' "reasonable in-season demand" as opposed to their decree amounts. See *In re* Distribution of Water to Various Water Rights (Idaho Dep't of Water Res. 2008), available at http://www.idwr.idaho.gov/News/WaterCalls/Surface%20Coalition%20Call/2008_Filings/SWC_Rec_Order.pdf.

the way the U.S. Bureau of Reclamation's (Bureau) renewal of Lucky Peak Reservoir storage contracts for many of these same senior surface water right holders unfolded, and because of the continuing practice of maintaining full irrigation diversions from the Boise River despite the shrinkage of irrigated land on which to place the water to use. Following a brief historical review, each of these is taken up in turn.

A. Water Development in the Boise River Basin

The Boise River Basin includes the mountainous areas of the upper basin above Lucky Peak Reservoir and a broad and terraced alluvial plain, interblended with basalt flows, downstream of Lucky Peak Reservoir and extending west-northwest to the Snake River.⁵³ The entire Boise River Basin encompasses a drainage area of slightly more than 4,000 square miles.⁵⁴ The Lower Boise Basin, which also is referred to in this article as the Treasure Valley, includes the principal cities of Boise, Eagle, Meridian, Nampa, and Caldwell in Ada and Canyon Counties. It has a drainage area of almost 1,500 square miles.⁵⁵ Based on 2009 U.S. Census Bureau estimates, it has a current population of approximately 571,000.⁵⁶

Nearly all of the Boise River streamflow discharges come from snowmelt runoff from its Upper Basin.⁵⁷ On an average annual basis, the Boise River Basin generates approximately two million acre-feet of water.⁵⁸ Over 75% of the annual runoff occurs in the five months of March through July.⁵⁹

1. Boise River Natural Flow Water Rights

The first irrigation efforts in the Lower Boise Basin began in the early 1860s as small private and mutual canals developed along the river bottomlands. These lands benefitted from the most senior natural flow direct diversion rights from the Boise River. Irrigation of lands on the benches above the river required more effort and capital, occurred later, and proceeded under later-priority surface water rights.⁶⁰

One of the earliest large-scale Treasure Valley irrigation projects, conceived in the late 1880s, was initiated by John H. Burns and his partners, including A.D. Foote, as the Idaho Mining and Irrigation Company.⁶¹ Burns and Foote contemplated a diversion dam on the river above Boise City that would divert into a large main canal running south and west for approximately thirty miles.⁶² The main canal

53. Jacqueline Harvey, *Boise River Drainage*, DIGITAL ATLAS OF IDAHO (1999), <http://imnh.isu.edu/digitalatlas/geog/fishery/drainage/drain20.htm>.

54. *Id.*

55. 2 U.S. ARMY CORPS OF ENG'RS, LUCKY PEAK MASTER PLAN § 2.02 (1983).

56. *State and County Quick Facts—Ada County, ID*, U.S. CENSUS BUREAU (August 16, 2010), <http://quickfacts.census.gov/qfd/states/16/16001.html> (Ada County: 384,656); *State and County Quick Facts—Canyon County, ID*, U.S. CENSUS BUREAU (August 16, 2010), <http://quickfacts.census.gov/qfd/states/16/16027.html> (Canyon County: 186,615).

57. 2 U.S. ARMY CORPS OF ENG'RS, *supra* note 56, § 3.02.

58. *Id.*

59. *Id.*

60. LEONARD J. ARRINGTON, HISTORY OF IDAHO 473 (1994).

61. *Id.*

62. A.D. FOOTE, A REPORT ON THE IRRIGATING AND RECLAIMING OF CERTAIN DESERT LANDS IN IDAHO AND OTHER PROJECTS CONNECTED THEREWITH 42 (1887).

would intersect and discharge into several natural channels, including Blacks Creek, Five Mile Creek, and Ten Mile Creek, which in turn were to be used to carry irrigation water as far west as the City of Caldwell.⁶³ A chronic lack of capital prevented Burns from seeing this irrigation project to completion,⁶⁴ but the work ultimately was taken up and completed under a modified plan by the Bureau under the Reclamation Act of 1902.⁶⁵ The Boise River Diversion Dam, New York Canal and Deer Flat Reservoir (now Lake Lowell) are the primary components of the project as completed; these form the backbone of the federally-constructed water distribution system known as the “Boise Project.”⁶⁶

2. The Bureau’s Boise Project Storage System

In addition to the New York Canal and related facilities, the Arrowrock Division of the Boise Project includes two dams on the upper Boise River: Arrowrock Dam, which was completed in 1915,⁶⁷ and Anderson Ranch Dam, which was completed in 1950.⁶⁸ Arrowrock Dam has an active capacity of 286,600 acre-feet,⁶⁹ and was constructed to provide a supplemental supply of water to approximately 79,000 acres of land developed under the original New York Canal, and a primary water supply to an additional 164,000 acres.⁷⁰ Anderson Ranch Dam has capacity to store another 423,000 acre-feet of water for supplemental irrigation, power generation, recreation and wildlife conservation and municipal purposes.⁷¹ Two other reservoirs, Lake Lowell and Lucky Peak, complete the Boise Basin water storage system.⁷² Lake Lowell is located at the western end of the New York Canal and has a storage capacity of 173,100 acre-feet.⁷³ Lucky Peak Reservoir is located on the River approximately ten miles upstream from Boise City and has a capacity of

63. *Id.* at 42–45.

64. ARRINGTON, *supra* note 61, at 473. Foote’s struggles to complete this Boise River irrigation project are described in a biography entitled *A Victorian Gentlewoman in the Far West*, written by his wife Mary Hallock Foote, and is fictionalized in Wallace Stegner’s Pulitzer Prize winning *Angle of Repose*.

65. 32 Stat. 388 (codified as amended at 43 U.S.C. § 391 *et seq.* (2010)); *see also* WM. JOE SIMONDS, BUREAU OF RECLAMATION HISTORY PROGRAM, THE BOISE PROJECT 3 (1997), available at http://www.usbr.gov/projects/ImageServer?imgName=Doc_1261497242949.pdf.

66. *Boise Project*, BUREAU OF RECLAMATION, U.S. DEP’T OF THE INTERIOR, http://www.usbr.gov/projects/Project.jsp?proj_Name=Boise+Project (last updated Dec. 22, 2009) [hereinafter *Boise Project*]. The Boise Project consists of the Arrowrock and Payette Divisions. *Id.* The Payette Division is located on the Payette River, which lies roughly fifteen to twenty miles north of the Boise River and follows a generally parallel, west-northwest course on its way to the Snake River. *Id.* Several large storage projects, including Deadwood Reservoir, Cascade Reservoir and Black Canyon Reservoir regulate the Payette River supply for downstream irrigation. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*

70. U.S. BUREAU OF RECLAMATION, BUREAU OF RECLAMATION PROJECT FEASIBILITIES AND AUTHORIZATIONS, REPORT TO DIRECTOR, U.S. RECLAMATION SERVICE 127–30 (U.S. Gov’t Printing Office 1957) (1910).

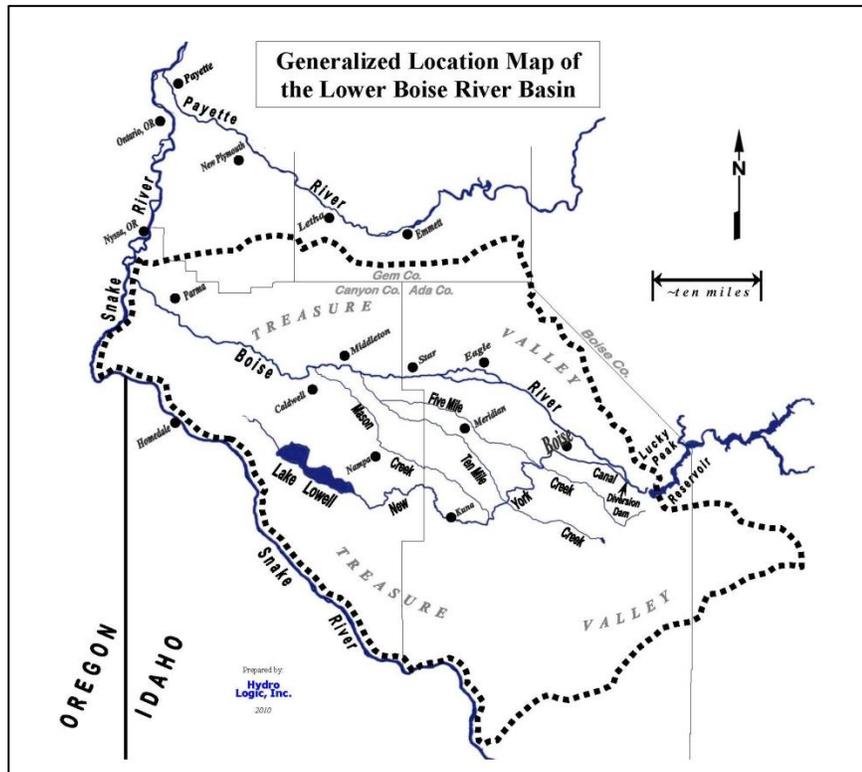
71. U.S. ARMY CORPS OF ENG’RS WALLA WALLA DIST., WATER CONTROL MANUAL FOR BOISE RIVER RESERVOIRS 2–1, 2–7 (1985).

72. *Boise Project*, *supra* note 67.

73. *Id.*

264,371 acre-feet.⁷⁴ These reservoirs together provide approximately one million acre-feet of storage.

The Boise Project facilities were constructed with federal funds,⁷⁵ and a portion of the construction cost was repaid by irrigators who subscribed to acquire storage space in the reservoirs and entered into repayment contracts with the Bureau.⁷⁶ Although small mutual canal companies also were permitted to contract for reservoir storage, the lion's share of Boise Project irrigation storage space is contracted to several large irrigation districts organized under state law to deliver irrigation water to their patrons. These include the Nampa & Meridian, New York, Pioneer, Settlers, Boise-Kuna, Riverside and Wilder Irrigation Districts.⁷⁷ Each serves lands through a large network of canals and laterals.⁷⁸



[Figure 1]⁷⁹

74. U.S. ARMY CORPS OF ENG'RS WALLA WALLA DIST., *supra* note 72, at 2–19.

75. WM. JOE SIMONDS, BUREAU OF RECLAMATION HISTORY PROGRAM, THE BOISE PROJECT, 5-7 (Brit Storey ed. 2009).

76. *Id.* at 3–4.

77. *See id.* at 2–4.

78. *Id.* at 3–4.

79. This Figure was prepared by Loren Pearson and Ed Squires of Hydro Logic, Inc. of Boise, Idaho.

3. Management and Appropriation of Shallow Ground Water in Drains

An adage holds that sooner or later every irrigation project becomes a drainage project. Indeed, drainage, though ignored in the early development of large irrigation projects, has become an essential consideration in designing and operating irrigation systems to control salinity and water-logging of soils in arid and semi-arid regions and provide for permanent and sustained agriculture.⁸⁰ And so it was that as hundreds of miles of canals and laterals were extended across the Treasure Valley under federal and private irrigation projects, and some 330,000 acres came under irrigation, drainage quickly became a concern, particularly in the mid- to lower portions of the Valley.⁸¹ The application of surface water for irrigation had the effect of increasing the amount of ground water in the shallow underlying aquifer.⁸²

In response, beginning in approximately 1912, the Bureau began contracting with the various irrigation districts to construct a system of large, deep-cut drains to intercept the rising water table and carry the ground water off to several tributaries to the Boise River such as Five Mile Creek, Tenmile Creek, and Mason Creek, or to discharge directly to the Boise River.⁸³ Some of this drainage water was taken up for additional beneficial use by irrigation entities, some was subject to new appropriations as wastewater rights, and a largely unquantified amount discharges to the Boise River. By the 1930s, however, these drainage projects had the intended effect of stabilizing the amount of water that could remain in storage in the shallow aquifer.⁸⁴

Three drainage districts also operate in the Lower Boise Basin and have constructed drains that discharge either into irrigation facilities or directly to the Boise River.⁸⁵ Few drains are monitored or regulated, although the Boise River Watermaster does distribute water from certain of the drainage district canals to several of the more senior Boise River canal companies pursuant to court decrees.⁸⁶

The Department's water rights database includes records for over 300 licensed or decreed water rights for appropriations from Lower Boise Basin drains by irrigation entities, drainage districts, and private individuals.⁸⁷ These water rights typically depend, to varying degrees, on the irrigation entities continuing to allow wastewater, tailwater, and seepage from irrigation water delivery and appli-

80. *See, e.g.*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, IRRIGATION AND DRAINAGE PAPER No. 25, EFFECTIVE RAINFALL IN IRRIGATED AGRICULTURE (1978).

81. *See* R.D. SCHMIDT ET AL., BUREAU OF RECLAMATION, A DISTRIBUTED PARAMETER WATER BUDGET DATA BASE FOR THE LOWER BOISE VALLEY 10 (rev. ed. 2008).

82. N.P. DION, IDAHO DEP'T OF WATER ADMIN., SOME EFFECTS OF LAND USE CHANGES ON THE SHALLOW GROUND WATER SYSTEM IN THE BOISE-NAMPA AREA, IDAHO 2 (1972).

83. *See id.*

84. *Id.*

85. LEE SISCO, REPORT ON CANAL DELIVERIES FROM BOISE RIVER 33 (2006) (unpublished report, on file with authors).

86. *Id.* at 33–35.

87. *See IDWR Water Right and Adjudication Search*, IDAHO DEP'T OF WATER RES., <http://www.idwr.idaho.gov/apps/ExtSearch/SearchWRAJ.asp> (last visited Jan. 3, 2011).

cation to reach the drains.⁸⁸ To the extent an appropriation diverts from a constructed drain or natural drainage channel deep enough to intercept the upper level of the shallow aquifer, it also depends on maintenance of that ground water level.⁸⁹

The accumulated subsurface return flows to the Boise River from the application of irrigation water, together with drain discharges, have resulted in a situation where although the Boise River is deemed fully-appropriated or over-appropriated and is carefully regulated with respect to irrigation season diversions above the city of Star, Idaho, there are sufficient subsurface and drain return flows to fill all water rights, with water to spare, in the reach of the Boise River between Star and the Snake River.⁹⁰

4. Ground Water Development

A few areas, particularly the lower lands along the Boise River's north side, benefitted from irrigation-enhanced recharge to the shallow aquifer, and many shallow domestic wells were developed in tandem with early irrigation efforts involving surface water.⁹¹ As in other areas of Idaho, however, significant ground water development in the Treasure Valley did not begin until the mid- to late-1940s with the advent of better drilling technology and efficient, high-lift pumps.⁹² Since then, the use of ground water for irrigation, municipal and commercial purposes has increased in pace with the Valley's population growth.⁹³ Between 1950 and 1970, the population of Ada County, which comprises the eastern half of the Lower Boise Basin, increased by 59%, while acreage irrigated with ground water grew from 7,100 acres to approximately 31,000 acres, and acreage irrigated with surface water declined by approximately 4,000 acres.⁹⁴

5. Population Growth and Land Changes in the Lower Boise River Basin

The historical population growth trends and conversions of agricultural lands in the Treasure Valley have continued relatively unabated until a significant economic downturn that began in 2008. Between 1970 and 2009, the Treasure Valley's population grew by approximately 400,000 people.⁹⁵ The resulting demand for land for new homes and businesses drove the conversion of tens of thousands of acres of irrigated farmland to subdivisions and urban hardscape. As shown in Table 1 below, the federal Census of Agriculture, conducted in conjunction with the national census, reports that total farmland in the Treasure Valley declined by nearly

88. *See, e.g.*, *Sebern v. Moore*, 44 Idaho 410, 258 P. 176 (1927) (finding that a wastewater appropriator may not compel a senior appropriator to continue generating the wastewater, but may prevent a junior wastewater appropriator from taking the water out of priority).

89. *See* R.D. SCHMIDT ET AL., BUREAU OF RECLAMATION, MODELING SPATIAL WATER ALLOCATION AND HYDROLOGIC EXTERNALITIES IN THE BOISE VALLEY 67 (2009).

90. *See Boise Project*, *supra* note 67.

91. DION, *supra* note 83, at 24.

92. *See, e.g.*, Bill Ganzel, *From Low Tech to High Tech*, WESSELS LIVING HISTORY FARM, http://www.livinghistoryfarm.org/farminginthe40s/water_02.html (last visited Mar. 1, 2011).

93. DION, *supra* note 83, at 2.

94. *Id.* at 1–2.

95. *See State and County Quick Facts—Ada County, ID*, *supra* note 57 and accompanying text; BUREAU OF THE CENSUS, 1970 CENSUS OF POPULATION 14–13 (1970) (Ada County: 112,230; Canyon County: 61,288).

130,000 acres between 1978 and 2007. Over the same period, total *irrigated* farmland in Ada and Canyon Counties declined by 77,567 acres, despite an increase in ground water irrigated acres. In Ada County alone, there has been a reduction in the acreage of irrigated farmlands since 1978 of nearly 42%.⁹⁶

Table 1
Irrigated Farmland Acreage by Year⁹⁷

Year	Ada	Canyon
1978	97,797	234,065
1982	91,736	229,066
1987	85,928	213,013
1992	73,794	215,279
1997	78,112	221,051
2002	70,760	205,568
2007	56,973	197,322
Net Change	(40,824)	(36,743)
% Change	-41.7%	-15.7%

These figures are consistent with those found in one of the few studies of Treasure Valley irrigation, which evaluated changes in the Valley's irrigated lands between 1938 and 1994.⁹⁸ That study did not attempt to differentiate between groundwater and surface water irrigated acres, and therefore does not provide a clear picture of changes in overall surface water irrigated acres, with the exception of the Nampa and Meridian and New York irrigation districts.⁹⁹ These two districts decreased in irrigated area by about a third, despite the fact that it is likely that some lands within their boundaries now are irrigated with ground water.¹⁰⁰

6. The Stewart and Bryan Decrees

Priority administration of the early Boise River natural flow rights occurs under a provision unique among administration schemes in the prior appropriation states. The arrangement originally was imposed by the Canyon County District

96. As this farmland has transitioned to other uses, such as subdivisions, some of the agricultural irrigation has been replaced by lawn and landscape irrigation. This subject is taken up *infra* in Section III.

97. BUREAU OF THE CENSUS, U.S. DEP'T OF COMMERCE, 1982 CENSUS OF AGRIC. 129-30 (1984) (listing statistics for Ada and Canyon counties for 1978 and 1982); BUREAU OF THE CENSUS, U.S. DEP'T OF COMMERCE, 1987 CENSUS OF AGRIC. 188, 190 (1989) (reporting statistics for Ada and Canyon counties for 1987); NAT'L AGRIC. STATISTICS SERV., U.S. DEP'T OF AGRIC., 1997 CENSUS OF AGRIC. 220-21 (1999) (reporting statistics for Ada and Canyon counties for 1992 and 1997); NAT'L AGRIC. STATISTICS SERV., U.S. DEP'T OF AGRIC., 2007 CENSUS OF AGRIC. 311-13 (2009) (reporting statistics for Ada and Canyon counties for 2002 and 2007).

98. WILLIAM J. KRAMBER ET AL., *Mapping Historical Change in the Irrigated Agriculture of the Lower Boise River Valley, Idaho*, 25 WATER INT'L 273, 274-77 (2000).

99. *See id.* at 273, 277.

100. *Id.* at 277.

Court in 1915 as an interim or provisional measure in response to the failure of the early canal and irrigation district diverters to “prove up” the appropriate duty of water for the lands they served.¹⁰¹ It now has been incorporated into the SRBA decrees for these water rights.¹⁰²

The provision, which was imposed on water rights claimed in Boise River adjudications commenced in 1902 and 1913, prescribes that when the River’s natural flow decreases to the point that all right holders cannot be delivered their full decreed quantities, diversions are reduced, in priority order, to 75% of the decreed quantity. When the flow becomes insufficient to deliver 75% to all, the process is repeated, this time reducing diversions to 60% of the decreed quantity. It is only after all diversions are cut to the 60% level that further cuts take diversions to zero, again in priority order.

The history surrounding this 75% to 60% shared curtailment or “step down” provision is as interesting as the provision is unique. In the original 1902 litigation that produced what is referred to as the “Stewart Decree,” the district court awarded the claimants quantities of water without determining the number of acres they were irrigating, and determined a duty of water based on testimony that, on appeal, the Idaho Supreme Court found to be incredible, “purely guesswork,” and “most unsatisfactory.”¹⁰³ After observing that the record demonstrated “that a higher duty may be obtained from the water than that of an inch and an inch and one-tenth, respectively, per acre as provided for in [the Stewart] [D]ecree,” the Supreme Court ordered a new trial to determine the appropriate duty of water.¹⁰⁴ On a motion for rehearing, the Supreme Court reiterated that the Stewart Decree had allotted the claimants diversion rates larger than could be justified for their irrigation uses:

We are satisfied from an examination of the record in this case that the maximum amount of water to be allowed each appropriator [by the Stewart Decree] is too large and in excess of the amount that may in any event be necessary for the successful irrigation of the lands under consideration.¹⁰⁵

On remand, the litigation continued before District Court Judge Ed Bryan¹⁰⁶ but made little progress. In 1915, pending a determination of the duty of water issue, Judge Bryan ordered that a 75% to 60% shared curtailment scheme would be imposed as the duty of water for purposes of interim administration of the Stewart Decree water rights.¹⁰⁷ The order was not appealed and the shared curtailment rule remained in force through 1929. This shared curtailment scheme was in reality not a duty of water finding at all, but apparently was imposed as a stop-gap measure

101. *See* Farmers’ Co-op. Ditch Co. v. Riverside Irrigation Dist., Ltd. (Idaho 7th Jud. Dist. Ct. June 12, 1915) (interim order fixing the duty of water per acre according to the Stewart Decree).

102. *See, e.g., In re* SRBA, No. 39576 (Idaho 5th Dist. Ct. Dec. 13, 2006).

103. *See* Farmers’ Co-op. Ditch Co. v. Riverside Irrigation Dist. Ltd., 16 Idaho 525, 533, 102 P. 481, 482 (1909) (“The evidence introduced in this case for the purpose of establishing the duty of water under these several canals and appropriations was practically all purely guesswork, and of the most unsatisfactory character.”).

104. *Id.* at 538, 102 P. at 483–85.

105. *Id.* at 540, 102 P. at 485.

106. In the interim, District Judge George Stewart had been appointed to the Idaho Supreme Court, although he took no part in that Court’s review of his decision below.

107. *See* Farmers’ Co-op. Ditch Co. v. Riverside Irrigation Dist., Ltd. (Idaho 7th Jud. Dist. Ct. June 12, 1915).

quired to investigate all claims and to recommend the elements of the water rights to the SRBA court, together with any remarks or general provisions necessary for the rights' definition or administration.¹¹⁷ Boise River irrigators (acting primarily through the irrigation districts and canal companies) claimed their Boise River rights in the SRBA with the full diversion quantities—one miner's inch per irrigated acre—that had been allowed in the sharing arrangement adopted as a means to avoid a final decision in the Stewart and Bryan Decree litigation nearly sixty years before.

With very limited exceptions, in the SRBA the Department recommended these water rights as claimed, and also recommended the 75% to 60% shared curtailment provision as a remark necessary for their definition or administration.¹¹⁸ Most of these water rights delivered by irrigation districts and canal companies were decreed with places of use and total irrigated acres that reflected no reductions resulting from subdivision or commercial development of farm land. Again, except in very limited instances, none of these claims was challenged based on the quantities recommended. No one objected to the shared curtailment condition. As a result, the Department never evaluated, and the SRBA Court therefore never considered, the duty of water for irrigation rights diverted from the Boise River. By this series of circumstances, the sharing arrangement has become the law of the Boise River. And the inch-per-acre diversion allotment, though twice criticized by the Idaho Supreme Court, has not been replaced with any determination of the actual duty of water. Indeed, as to Boise River irrigation diversions, it appears the question has not even been asked since the time of the Great Depression.

At least on paper, these Boise River natural flow water rights now have the imprimatur of a fixed deliverable quantity based on one miner's inch-per-acre that may be asserted as the upper limit on diversion entitlements in the context of water rights administration. As discussed elsewhere in this article, however, the question remains whether junior rights may be curtailed to supply that upper limit, particularly where the significant conversion of irrigated acres to urbanized hardscape has reduced the area on which these irrigation water rights can be beneficially used.

The authors recognize that the duty of water issue would have been as challenging and complicated in the SRBA as it evidently was to the parties before Judge Bryan. The difficulties of proof aside, these parties may not have felt it nec-

117. IDAHO CODE ANN. § 42-1411(2)(j), (3) (2010).

118. The standard remark is worded as follows:

This right shall receive 100 percent of its decreed quantity until the natural flow of the waters of the Boise River shall decrease so that all rights containing this condition cannot receive 100 percent of their decreed quantities, at which time this right and the other rights containing this condition shall first be cut to 75 percent of their decreed quantities, as the natural flow of the river decreases, beginning with the latest rights containing this condition and preceding to the earliest rights containing this condition in the order of their priority dates, and after all of the rights containing this condition shall have been reduced to 75 percent of their decreed quantities, should the natural flow of the waters of the river decrease below the amount necessary to supply 75 percent of those decreed quantities, then this right and the other rights containing this condition, beginning with the latest and preceding to the earliest, shall be reduced to 60 percent of their decreed quantities.

See, e.g., Partial Decree, *In re* SRBA, No. 39576 (Idaho 5th Jud. Dist. Ct. Dec. 13, 2006) (on file with authors).

[w]hen the contracts expire, consideration will be given to extending existing contract holders' contract rights under a new contract form. It will also be necessary to fully consider the contract holder's need for storage and other water demands, including streamflow maintenance and endangered species. The volume . . . available to some entities may well decrease due to urbanization or other reasons, including other needs.¹²³

The Bureau had been able to lease some of these placeholders' Lucky Peak storage through the Water District 63 Rental Pool for flow augmentation.¹²⁴ However, only the Nampa & Meridian Irrigation District and J.R. Simplot Company/Micron Technology agreed to relinquish contract rights in Lucky Peak, in the combined amount of 40,932 acre-feet, to the Bureau for flow augmentation.¹²⁵

Thereafter, given the approaching expiration of the forty-year-term water service contracts held by the Boise River irrigation entities, the Bureau initiated the process contemplated by Director Keys' 1995 letter.¹²⁶ Not surprisingly, the issue of the irrigation entities' historical beneficial use of their contracted space, at least initially, moved to the forefront. In several workshops convened with placeholders in early 2000, the Bureau identified environmental review, cost reimbursement, and a "needs assessment" as integral to its contract renewal analysis.¹²⁷ In a letter dated March 28, 2002, the Bureau's regional office notified contract placeholders of the status of its water needs assessment and their individual share of the costs associated with that effort.¹²⁸ In lieu of undertaking detailed water modeling, the Bureau chose to conduct the assessment based on "actual historic [sic] water use information to quantify beneficial use during the terms of the contracts," using the period from 1982 to 2001 to establish the highest annual water use under each Lucky Peak storage account.¹²⁹

It is understandable that the Bureau contemplated that the contract renewal process should evaluate the placeholders' past water use. Federal reclamation law and existing Bureau policy concerning contract renewals made actual beneficial use of water the primary, if not the only, consideration. In carrying out the mandates of the Reclamation Act the Bureau must proceed pursuant to state water law, at least so long as state law does not frustrate federal law.¹³⁰ The Reclamation Act also contains this well-known provision: "The right to the use of water acquired under

123. *Id.*

124. SNAKE RIVER AREA OFFICE, U.S. BUREAU OF RECLAMATION, FINAL ENVIRONMENTAL ASSESSMENT—LUCKY PEAK WATER SERVICE CONTRACTS RENEWAL OR CONVERSION 8 (2004) [hereinafter LUCKY PEAK EA].

125. *Id.*

126. *Id.* at 1.

127. *Id.* at 5–6. An issue of critical concern to the placeholders, was whether their existing limited-term water service agreements would be converted into permanent "repayment contracts" in the renewal process. *Id.* at 5.

128. Letter from Ryan Patterson, Program Manager, Repayment and Acreage Limitation, Pac. Nw. Region, U.S. Bureau of Reclamation, to Lucky Peak placeholders (Mar. 28, 2002) (on file with authors).

129. *Id.*

130. 43 U.S.C. § 383 (2006) ("Nothing in this Act shall be construed as affecting or intended to affect or to in any way interfere with the laws of any State or Territory relating to the control, appropriation, use, or distribution of water used in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws, and nothing herein shall in any way affect any right of any State or of the Federal Government or of any landowner, appropriator, or user of water in, to, or from any interstate stream or waters thereof.").

Discussions ensued in which the irrigators challenged the Bureau's draft historical use analysis.¹³⁸ The irrigators urged (among other things) that if the contracts were renewed for the original storage quantities, the Bureau's action would maintain the status quo and, they contended, therefore would not require analysis under the federal National Environmental Policy Act (NEPA).¹³⁹ In a letter to the spaceholders' legal counsel, then Regional Director William McDonald responded that the agency would undertake a NEPA analysis by preparing an Environmental Assessment (EA) (as opposed to an Environmental Impact Statement) which would evaluate as action alternatives: (1) contract renewal or conversion for the amount of storage requested, not to exceed the original amount and (2) contract renewal or conversion for an amount based on the highest historical use of each contractor's Lucky Peak storage.¹⁴⁰

Ultimately, the Bureau's EA's proposed action was to provide current Lucky Peak contractors "with a supplemental irrigation water supply . . . up to the percentage of active capacity in the reservoir allocated to each contractor under their original contract."¹⁴¹ The alternatives considered were the statutorily required "No Action" alternative, and alternatives that would convert the contracts to permanent repayment contracts in either their original quantities or in reduced quantities "based on the highest historic [sic] annual delivery."¹⁴²

In the course of the Bureau's NEPA review, various entities and interest groups submitted extensive comments.¹⁴³ Irrigation entities supported conversion of the water service contracts to permanent repayment contracts for the originally contracted quantities.¹⁴⁴ Other interests, particularly municipal water providers, were interested in making storage available for domestic and commercial purposes.¹⁴⁵ Conservation organizations urged that storage should be made available to maintain or improve Boise River water flows.¹⁴⁶ Many of these non-irrigation entity comments urged an expansion of the Bureau's analysis and range of alternatives to account for, among other things, actual spaceholder water needs and historical

138. The Bureau revised its needs assessment/historical beneficial use analysis and reduced the 9,163 acre-feet "unused storage" calculation to 6,405 acre-feet. *Compare id.*, with LUCKY PEAK EA, *supra* note 125, at 13.

139. Letter from Scott L. Campbell on behalf of Pioneer Irrigation District and Settlers Irrigation District, to Steve Dunn, Bureau of Reclamation, Snake River Area Office (Feb. 2, 2004) *reprinted in* LUCKY PEAK EA, *supra* note 125, app. C at Comment Letter 4; Letter from Daniel V. Steenson on behalf of various Lucky Peak contract spaceholders, to Steve Dunn, Bureau of Reclamation, Snake River Area Office (Feb. 6, 2004), *reprinted in* LUCKY PEAK EA, *supra* note 125, app. C at Comment Letter 13; National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–4370f (2006).

140. Letter from William McDonald, Reg'l Dir., Pac. Nw. Region, U.S. Bureau of Reclamation, to Daniel V. Steenson, Scott Campbell and Jerry Kiser, counsel for various Lucky Peak contract spaceholders (Feb. 26, 2003) (on file with authors).

141. LUCKY PEAK EA, *supra* note 125, at 1.

142. *Id.* at 9–11.

143. See *generally id.* app. C.

144. *E.g.*, Letter from Norman M. Semanko, Exec. Dir. & Gen. Counsel, Idaho Water Users Ass'n, to Steve Dunn, Bureau of Reclamation, Snake River Area Office (Feb. 6, 2004), *reprinted in* LUCKY PEAK EA, *supra* note 125 app. C at Comment Letter 6.

145. See, *e.g.*, Letter from David Bieter, Mayor, City of Boise, to Steve Dunn, Bureau of Reclamation, Snake River Area Office (Feb. 4, 2004), *reprinted in* LUCKY PEAK EA, *supra* note 125, app. C at Comment Letter 7.

146. See, *e.g.*, Letter from Sarah Denniston Eddie, Attorney, Advocates for the West, to Steve Dunn, Bureau of Reclamation, Snake River Area Office (Feb. 12, 2004), *reprinted in* LUCKY PEAK EA, *supra* note 125, app. C at Comment Letter 16.

8. Urbanization of Agricultural Lands and the Rise of Pressure Irrigation Systems

Since 1978 in Idaho's Treasure Valley, an average of 2,674 acres have transitioned annually from irrigated agriculture to urban or suburban land uses such as residential subdivisions, roads, and commercial areas.¹⁵³ Many of these subdivisions in the Treasure Valley are irrigated with surface water diverted from the Boise River under the now-SRBA-decreed Stewart and Bryan Decree water rights. Increasingly, pressurized sprinkler systems rather than the former flood techniques are used. The Bureau calculates that over 42,000 acres of pressurized systems now exist in Ada and Canyon counties; these are supplied from the canals and laterals of the existing irrigation entities that served the area before development.¹⁵⁴

The proliferation of pressurized irrigation in the Treasure Valley was spurred in significant part by state statutes and local ordinances. In 1993 the legislature authorized irrigation districts to enter into contracts for the construction of "pressurized system[s] for the proper distribution of irrigation water" to those lands within the irrigation districts being developed for "residential, commercial, industrial or municipal use."¹⁵⁵

In that same decade, nearly every Treasure Valley city adopted an ordinance strongly encouraging, or requiring, use of canal-delivered water for residential lawns and common areas where it is available.¹⁵⁶ None of these local ordinances addresses what should happen with the portion of the irrigation water right that has been made appurtenant to lands that no longer will be irrigated within a new subdivision. None includes a directive or comment about principles such as the rotation of deliveries among users, the sizing of facilities to avoid diverting more than reasonably can be put to beneficial use or how the originally authorized duty of water (or any duty of water) will be maintained on the actually irrigated acres. Nor do these ordinances address the issue or opportunity of moving unneeded portions of water rights from developed hardscape to other irrigable lands or uses.

For example, the Boise City Code provides:

No subdivision plat shall be approved for residential development unless the applicant has provided for the design, construction, and installation of a pressurized individual lot irrigation system. Irrigation system maintenance and operation shall be provided by the irrigation district or canal

153. See Table 1, *supra* note 98 and accompanying text.

154. SCHMIDT ET AL., *supra* note 82, at 77–78. The Bureau refers to these areas as having "dual systems," that is, both non-potable surface irrigation and standard municipal potable supplies. *Id.* at 77.

155. 1993 Idaho Sess. Laws 892 (codified as amended at IDAHO CODE ANN. §§ 43-330A to -330G (2010)). The Idaho Code also allows irrigation districts to create local improvement districts to fund construction of pressurized irrigation systems. IDAHO CODE ANN. §§ 43-2501 to -2554 (2010).

156. See, e.g., BOISE, IDAHO, ORDINANCE NO. 5589 (Jan. 15, 1994) (codified as BOISE, IDAHO, CITY CODE § 9-20-08(J)(1) (2005)). Rationales for this policy include preserving ground water for domestic and culinary purposes, and avoiding inherent costs of supplying treated water to irrigation uses. In a series of orders in connection with a rate increase to pay for the Valley's first surface water treatment plant, the Idaho Public Utilities Commission directed United Water Idaho, Inc., the Boise area's municipal water supplier, to make significant progress toward making the installation of dual water systems in new developments practicable. The Commission believed this was consistent with good public policy and would defer the need for expensive treatment facilities. See *In re* Application of Boise Water Corp., Case No. BOI-W-93-3, Order No. 25640, at 32 (Idaho Pub. Utils. Comm'n July 14, 1994) (final administrative order); *In re* Application of Boise Water Corp., Case No. BOI-W-93-1, Order No. 25062, at 30 (Idaho Pub. Utils. Comm'n Aug. 4, 1993) (final administrative order).

company within which the development lies, by a municipal irrigation district or by the formation of another entity capable of operating and maintaining a pressurized irrigation system.¹⁵⁷

The City of Meridian's pressurized irrigation ordinance requires constant surface water flow of 15 gallons per minute per user (21,600 gallons per day), delivered at the point of use.¹⁵⁸ This is substantially above the 13,000 gallons per day of diversions per household allowed under Idaho law for domestic use (including up to a half-acre of irrigation).¹⁵⁹

The City of Eagle's "Pressure Irrigation Standards," provided for by section 9-4-1-9 of the Eagle City Code, employs a probability equation to account for the possibility that all homeowners will attempt to water their lawns at the same time.¹⁶⁰ The Eagle ordinance assumes that sufficient water diversions and deliveries must be available at all times to accommodate this.¹⁶¹

The cities' approaches were codified in 2005 by the enactment of Idaho Code section 67-6537, which essentially mandates the use of surface irrigation water from existing canal systems in most cases:

(1) The intent of this section is to encourage the use of surface water for irrigation. All applicants proposing to make land use changes shall be required to use surface water, where reasonably available, as the primary water source for irrigation. Surface water shall be deemed reasonably available if:

(a) A surface water right is, or reasonably can be made, appurtenant to the land;

(b) The land is entitled to distribution of surface water from an irrigation district, canal company, ditch users association, or other irrigation delivery entity, and the entity's distribution system is capable of delivering the water to the land; or

(c) An irrigation district, canal company, or other irrigation delivery entity has sufficient available surface water rights to apportion or allocate to the land and has a distribution system capable of delivering the water to the land.¹⁶²

157. BOISE, IDAHO, CITY CODE § 9-20-08(J)(1) (2005), available at http://www.cityofboise.org/Departments/City_Clerk/PDF/CityCode/Title9/0920.pdf.

158. MERIDIAN, IDAHO, CITY CODE §§ 9-1-28 and 12-5-2-N (2010).

159. IDAHO CODE ANN. § 42-111(1)(a) (2010).

160. EAGLE, IDAHO, CITY CODE § 9-4-1-9(C)(1) (2010), available at http://www.sterlingcodifiers.com/codebook/index.php?book_id=609.

161. *See id.* Other local governments in Idaho have taken a similar approach. For example, the Blaine County Code has ordinance provisions to the effect that existing on-site surface and ground water irrigation rights should be used before allowing new water rights to be established for housing developments. BLAINE COUNTY, IDAHO, CODE §§ 9-35-5-10(B)(2)(a) and 21B-15(B)(8)(d) (2010), available at http://sterlingcodifiers.com/codebook/index.php?book_id=450. The effect of this in the Treasure Valley typically is to require a "dual" system, with the existing surface or ground water irrigation rights supplying the irrigation component, leaving the in-house culinary uses to be supplied by a new municipal water right.

162. IDAHO CODE ANN. § 67-6537 (2010). A separate and much older statute, IDAHO CODE ANN. § 31-3805 (2010), originally enacted in 1976, requires subdivision developers to either: 1) transfer the

Like the city ordinances, this statute expressly deals with water use and delivery where “land use changes” occur, but it is silent on the question of what should be done to address the reductions in beneficial use resulting from these changes.

IV. WATER NEEDS AND DELIVERIES ON AGRICULTURAL LANDS CONVERTED TO URBAN USES

A. The Reduction in Irrigated Acres Associated with Urban Land Use Changes

The conversion of irrigated farmland to housing and commercial uses invariably removes irrigation from significant portions of the parcel and places them under buildings, streets, parking lots, and similar features. Urban conversions of agricultural land may result in a 40% to 65% reduction in total, post-development irrigated area. This elimination of the actually irrigated area is particularly acute where development involves substantial transportation infrastructure, shopping centers, apartment buildings, or intensive industrial uses.

A 2006 engineering study used some actual numbers to illustrate this point.¹⁶³ The study was undertaken by SPF Water Engineers of Boise, Idaho in support of junior water right holders facing delivery call litigation under the CM Rules brought by upper Snake River surface water irrigators.¹⁶⁴ The study employed canal company maps, aerial and onsite photographs, GIS mapping, site inspections, and other publicly available information to estimate the non-irrigated areas within subdivisions served by certain canal companies in the Magic Valley in south central Idaho.¹⁶⁵ Places within the service areas of a canal company were classified as “urban subdivisions,” “rural subdivisions,” or “miscellaneous areas” based on the relative development density.¹⁶⁶ Within urban subdivisions, the non-irrigated portions of developed land ranged from 50% to 85% and averaged approximately 62%, while the conversion percentage for rural subdivisions averaged 24%.¹⁶⁷ Conversion from irrigated to non-irrigated area within the miscellaneous areas category was approximately 40%.¹⁶⁸

It does not take an engineering study to conclude that converting an irrigated farm field to a subdivision results in reduced irrigated area. However, the SPF

water rights to uses off the parcel; 2) install an irrigation system for the subdivision that will use water provided by the irrigation entity; or 3) inform the lot buyers that neither of the above has been done and that the owner will remain obligated to pay any legal assessments the irrigation entity may impose on the lot owners. This typically has been accomplished through the inclusion of a note on the recorded subdivision plat describing which alternative the developer employed. Thus, Idaho Code § 31-3805 mandates disclosure, but it does not dictate how the landowner will deal with the appurtenant water rights. *See* Decision on Judicial Review, *Eagle Creek Partners, LLC v. Blaine County*, No. CR-2007-670, at 9 (Idaho 5th Jud. Dist. Ct. May 6, 2008) (characterizing Idaho Code § 31-3805 as a consumer protection statute that ensures a buyer of subdivided lands in an irrigation district either gets water from the irrigation district, or receives notice that he is still liable for assessments for that water even though it will not be delivered). It is unclear how Idaho Code § 31-3805 and Idaho Code §§ 43-330A–G operate together.

163. SPF Water Eng’g, LLC, Estimate of Non-Irrigated Acres in the Twin Falls Canal Company Service Area 1 (2007) [hereinafter SPF EXPERT REPORT].

164. *Id.* This report was prepared for Idaho Ground Water Appropriators, Inc., as an Expert Report filed of record in the Matter of Distribution of Water to Various Water Rights Held For the Benefit of A&B Irrigation District, Before the Department of Water Resources of the State of Idaho.

165. *Id.* at 2, 4–8.

166. *Id.* at 2.

167. *Id.* at 10.

168. *Id.* at 15.

uses. However, irrigation districts and canal companies in the Treasure Valley generally have not reduced river diversions in response to urban development.¹⁷⁷

A 1970 Department report on the effects of land use changes in a portion of the Treasure Valley found that despite an overall reduction between 1953 and 1970 in irrigated acres, total surface water diversions by the eleven major irrigation entities serving the area studied actually increased from 712,000 acre-feet in 1953 to 732,000 acre-feet in 1970, and the average delivery of water increased from 5.2 acre-feet per acre to 5.5 acre-feet per acre.¹⁷⁸ The annual Boise River Watermaster Reports also support the conclusion that diversions do not necessarily decrease in response to reduced irrigable acres.¹⁷⁹

The *Treasure Valley Future Water Demand* draft report observes that the Valley's "irrigation districts deliver water based on water rights, not intended use."¹⁸⁰ In other words, they deliver to consumers "on demand" under a "constant flow" basis, which is a method that makes no attempt to match irrigated acres with diversions held to a duty of water. Although the point is not explored in the draft Treasure Valley Future Water Demand report, the result must be a significant increase in the per-acre diversions to such areas as development occurs.

For example, consider an eighty-acre alfalfa field for which eighty miner's inches (1.6 cfs) is licensed or decreed to be diverted from the Boise River. Once subdivided into a 200-lot subdivision, the eighty-acre parcel may have only forty irrigable acres remaining. If the irrigation entity continues to divert and deliver the full eighty inches to the development, which is what typically occurs in the Treasure Valley, then the duty of water for the property will have changed from one inch per acre to two inches per acre. The assumption here is, of course, that all of the water diverted for delivery to the subdivision will be applied to the landscaped areas. This generally is not the case however, again due to the nature of urban water use when compared to agricultural water use, as will be discussed below.

A constant flow delivery to agricultural irrigation makes sense where the farmers along the lateral are able to apply all the water sequentially, keeping the entire flow working on a rotation. In the farmer's hands, the eighty acres would be irrigated at a maximum rate of perhaps sixteen acres per day, with his sprinklers moving to the next sixteen acres the following day, and so on. That is, an internal rotation carried out by the farmer himself. A similar rotation may occur among users on a lateral. In that scenario, the eighty inches appurtenant to our farmer's eighty acres is combined with another 200 inches appurtenant to the other lateral users' 200 acres. With 280 inches of water available to him, the farmer may be able to irrigate his entire eighty acres over two days rather than the five days it would take using only his allotted eighty inches. At the end of his two-day rotation, the farmer turns all the water back to the lateral, including his eighty inches, for others to divert in turn. As a result, all of the water is being applied to irrigation essential-

177. This same approach appears to be followed elsewhere in Idaho. For example, officials with the Twin Falls Canal Company have confirmed that the Company does not reduce overall water diversions because lands have been taken out of production for subdivisions or because of similar non-irrigation uses. Deposition of Vince Alberdi at 38, *In re* Distribution of Water to Various Water Rights Held by or for the Benefit of A & B Irrigation Dist. et al., (Idaho Dep't of Water Res. 2005) (on file with authors).

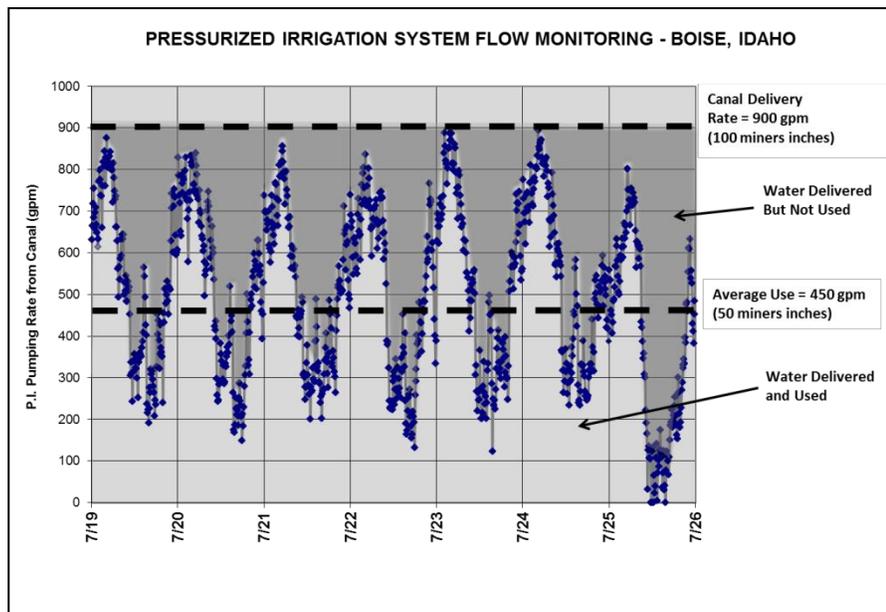
178. DION, *supra* note 83, at 14, 16–18.

179. SIMONDS, *supra* note 76, at 43.

180. WRIME, *supra* note 177, at 2–7.

ly all of the time and 280 miner's inches are serving 280 actually irrigated acres. But each farmer goes several days without irrigating at all, which incidentally is what a healthy crop typically needs.

In a typical urban setting, however, absent a fixed watering schedule or rotation among lots or even among subdivisions, water use tends to fluctuate radically. The following graph illustrates this situation. The graph plots pumping rates measured every ten minutes for a pressurized system serving a hypothetical residential subdivision in the Boise Valley during eight days in July 2006.¹⁸¹ Under the irrigation entity's per-acre allocation based on gross acres instead of irrigated acres, this hypothetical one-hundred-acre subdivision with fifty acres of actually irrigated land would receive delivery on a constant flow basis of one inch per acre. This equates to 100 inches, or 900 gallons per minute (gpm). The graph shows that daily irrigation pumping rates averaged 450 gpm, but the instantaneous flow rates ranged from zero to 900 gpm. Flow rates typically were less than 450 gpm between 10 a.m. and 10 p.m. and more than 450 gpm between 10 p.m. and 10 a.m. The peak pumping rates occur from approximately 2 a.m. to 7 a.m. In other words, without an established watering schedule or rotation, most of the subdivision residents preferred to water at night. They also are free to irrigate all at once at any given time. Either way, the use of water is not maximized.



[Figure 2]

181. The Pressurized Irrigation System Flow Monitoring Graph is based on actual measured pumping-rate data for a Boise River Valley subdivision scaled to the one hundred-acre subdivision hypothetical presented here.

The obvious question, then, is what becomes of the water delivered to the pumping station but not diverted during the non-peak and ramping-up periods, i.e., the water represented by the darker shaded area below the 900 gpm constant delivery rate and above the use curves? The answer is that this water, which in the above example amounts to approximately 50% of the total delivery, simply runs past the pump as wastewater each day. At the same time, the overall amount of water actually put to beneficial use on the parcel, and its consumptive use, is only half as much as for the original hundred-acre farm. But the diversion rate and annual volume diverted per irrigated acre is doubled. This appears to be the situation on many, if not most, subdivisions in the Boise Valley that receive surface water from irrigation districts and canal companies.

If, however, the subdivision had a mandatory rotation schedule among lots,¹⁸² or storage facilities to capture water coming in at a smaller diversion rate to meet the nighttime demand peaks, the amount of water delivered could be reduced to maintain the decreed or licensed per irrigated acre duty of water and still provide all actually irrigated acres with a sufficient supply. The fifty inches that formerly were delivered for irrigation of farmland that no longer is irrigated then would be available to other beneficial uses.

Several rationales can be advanced for the prevailing system of over-deliveries and diversions. It provides a peaking capability for the irrigation system during periods of extreme irrigation demand, particularly systems that are not on a rotation or other watering schedule. It minimizes both complaints from homeowners about low water pressure during peak irrigation times and labor and management costs for the delivery entity. It accommodates the suburban experience, where homeowners want to be using their lawns during the day and not getting wet in the sprinklers. Irrigation entities may assert that it is not their job to determine or police actual use, only to divert and deliver all water held under their water rights.¹⁸³ It also contributes to aquifer recharge, which is a subject taken up below.

But such an approach also raises legal and policy issues for water management. It is inconsistent with the mandate not to waste water and Idaho law imposing a standard duty of water allowing diversion flow rates of no more than one miner's inch (0.02 cfs) per acre. More fundamentally, a failure to reduce diversions in response to reduced irrigated area also assures that water is being diverted that is not being put to beneficial use. Such non-use ultimately cannot be protected, much less enforced, as a water right. The water represented by this non-use could be placed to beneficial use elsewhere—typically through a transfer proceeding—but under the Treasure Valley approach usually is not. Instead, some largely unquanti-

182. This requirement might be imposed by a number of mechanisms, including recorded subdivision covenants, homeowners' association or irrigation entity regulations, county or city ordinances or state statutes.

183. Comments from one valley irrigation district regarding the Treasure Valley water demand study commissioned in the CAMP process simply take the position that, if there is still a water right registered for the parcel, the question whether it is still irrigated is irrelevant: "The [report's] conclusion, that land conversion from agriculture to urban land use will be a net loss of 154,718 acres of agricultural ground is not indicative of the change in demand on the appropriated water delivery system. If all of the acres converted from agricultural to urban land use have an appropriated water right associated with them, there is no issue." Comments of Gayle Batt, Wilder Irrigation District (October 12, 2010), on file with Idaho Department of Water Resources, Treasure Valley CAMP project; *see also* WRIME, *supra* note 177, at 3–32.

ever, it does not appear that any of them in the Boise Valley mandate scheduling requirements or explain to homeowners how their subdivision might irrigate its reduced acres with deliveries conforming to the standard per-acre duty of water. As the foregoing discussion indicates, typical urbanized lands that continue to receive delivered irrigation water probably do require as much or more water than the former irrigated farmland. But the reason for this appears to be institutional, not physical.

C. Incidental Recharge from Irrigation Diversions

Some portion of all canal diversions, even the most efficiently applied, will leak to ground water or otherwise escape, usually to the benefit of other appropriators. This is the natural and expected course of things as irrigation water rights are exercised. The less efficiently water is delivered and used, the greater the seepage and return flows.

In the Treasure Valley, diversions to a shrinking irrigated area over time must place increasing amounts of water into shallow aquifers as “incidental recharge,” into drains, and into the river. This undoubtedly increases benefits to at least some who rely on ground water or drain flows, or to other appropriators downriver, including those out of state. Some may believe that, because of these third-party benefits, excess canal diversions should be tolerated in the Treasure Valley and perhaps even encouraged. Such arguments are difficult to reconcile with the goal of maximum use or the beneficial use requirement; they also do not square with a statute addressing incidental recharge.

Due to the concerns of some southern Idaho irrigators who divert large per-acre amounts to lands overlying the ESPA, the Legislature in 1995 amended section 42-234 of the Idaho Code to provide limited, and uncertain, coverage for incidental recharge:

The legislature further recognizes that incidental ground water recharge benefits are often obtained from the diversion and use of water for various beneficial purposes. However, such incidental recharge may not be used as the basis for claim of a separate or expanded water right. Incidental recharge of aquifers which occurs as a result of water diversion and use that does not exceed the vested water right of water right holders is in the public interest. The values of such incidental recharge shall be considered in the management of the state’s water resources.¹⁸⁷

Thus, incidental recharge is seen as having benefits and values, but diverting and delivering water for it cannot be claimed as part of the irrigation entity’s underlying water right.¹⁸⁸ The statute covers recharge that is incidental to use of water for “beneficial purposes,” and provides that only that incidental recharge occurring “as a result of water diversion and use that does not exceed the vested water right” can

it relies on a recommended but inherently random approach to water use to even out demand within the subdivision. *See id.*

187. IDAHO CODE ANN. § 42-234(5) (2010); *see also* A Concurrent Resolution Stating Legislative Findings and Providing a Ground Water Recharge Policy, 1994 Idaho Sess. Laws 1524 (“[A]rtificial recharge of Idaho’s ground water aquifers has been and continues to be a useful and productive utilization of Idaho’s water and shall be encouraged wherever possible.”).

188. IDAHO CODE ANN. § 42-234(5).

be considered in this policy context as potentially valuable and in the public interest.¹⁸⁹

In any event, it would appear reasonable for “[t]he values of such incidental recharge [to] be considered in the management of the state’s water resources”—although the statute does not explain how this management is to take place, or in what context.¹⁹⁰ The Department often participates in water supply studies, such as those associated with the CAMP process discussed above. The authors suggest that the values (and costs, including opportunity costs) of incidental recharge in the Treasure Valley should be considered in any study of the area’s water supply. To the extent feasible, the amounts of such incidental recharge should be understood, located, and quantified. Where there are benefits, they should be identified. For example, it would seem quite important to have an idea of the percentage of incidental recharge of the Boise River or its alluvial aquifer that accrues below Star, where there already is no in-season water shortage and diversions are not regulated. It would be important to determine what amount of recharge accrues to the deep aquifer system. Currently, there appears to be little interest in analyzing the implications of irrigation changes in the area, much less in engaging in actual water management addressing these implications.

Similarly, current practices will make it more difficult—in some cases legally impossible—to transfer these excess portions of the water rights to new irrigation elsewhere or to non-irrigation uses as the valley grows. This is because when a water right is evaluated in a transfer, the Department must evaluate questions of forfeiture and historical beneficial use.¹⁹¹ A water right that has gone too long without being put to beneficial use will have no historical consumptive use that can be legally transferred.¹⁹²

D. A Comparison of the Treasure Valley Approach with the Oregon Approach

In comparison to the Treasure Valley approach, Oregon has enacted statutes requiring that when farmland is subdivided within irrigation districts, “the subdivision shall be excluded and taken from the district”¹⁹³ While it is beyond the scope of this article to evaluate in any significant detail how Oregon water managers have implemented this statute or otherwise responded, in practice, to farmland conversions in that state, it is useful to note that Oregon’s water code at least recognizes the issue and describes an approach differing from that taken to date in Idaho.

The Central Oregon Irrigation District (COID), which has experience implementing this statute, has informed its users that “[a] water right gives you permis-

189. *Id.*

190. *Id.*

191. *Jenkins v. State Dep’t of Water Res.*, 103 Idaho 384, 387–88, 647 P.2d 1256, 1259–60 (1982); Memorandum from Jeff Peppersack, Adm’r, Idaho Dep’t of Water Res., to the Water Mgmt. Div. Staff, Idaho Dep’t of Water Res. 22, 29–30 (Dec 21, 2009) (on file with authors).

192. *Jenkins*, 103 Idaho at 387–90, 647 P.2d at 1259–60. This also may set up another ESPA problem, whereby third party beneficiaries of incidental recharge, who by law cannot make injury claims against canal owners who become more efficient, instead turn on the ground water users.

193. OR. REV. STAT. § 545.101(1) (2010).

sion and an obligation to beneficially irrigate a very specific area (generally measured in acres)” and has recognized that “[c]onverting land to another use (road, parking lot, building, etc.) can also result in the forfeiture of a water right.”¹⁹⁴ A subdivision can be retained in the district and served with irrigation water if the district agrees to serve it.¹⁹⁵ However, in these cases the subdivision must install a delivery and measurement system “for *only* the area that will be irrigable. The remainder shall be transferred off in accordance with law.”¹⁹⁶

COID serves the Bend-Redmond area, which is urbanizing in ways similar to the Treasure Valley. Indeed, COID describes one of its “challenges” as the “[p]ersistence of patrons failing to beneficially use their water either due to economics, absentee ownership, or mismanagement resulting in potential confiscation by the District as the only viable option to prevent forfeiture.”¹⁹⁷ One of the ways COID deals with this situation is to insist that the surface irrigation water right be transferred off subdivided parcels altogether and the water used elsewhere, including use through a collaboratively managed water bank that provides supplies for municipal uses, other irrigation, and even instream values in the Deschutes River.¹⁹⁸

Accordingly, urbanization within irrigation entities in Oregon has given rise to a markedly different approach compared to that employed in Idaho: generally, there is an effort to move water from the subdivision to new uses elsewhere. The alternative is to allow that portion of the water right appurtenant to actually irrigated acres to remain, while the remainder is transferred. Either result would serve the principle of maximum use.

V. THE INTERSECTION OF CONJUNCTIVE ADMINISTRATION AND MAXIMUM USE IN THE TREASURE VALLEY

The previous sections of this article describe the legal, historical, and physical situation as it relates to water appropriation, use, and administration in the Lower Boise Basin. Given that background, and the observation that maximum use principles tend to arise only in disputes between appropriators, it might be expected that the actual beneficial use question will come to the fore if senior right holders on the Lower Boise River make a delivery call to curtail junior water rights, including junior ground water rights under the CM Rules, to supply full diversions to reduced irrigated acreage. Absent such a delivery call, the question may well continue to be sidestepped. This section considers these issues.

194. *Operations & Maintenance*, CENT. OR. IRRIGATION DIST. <http://www.coid.org/operations/> (last visited Jan. 5, 2011).

195. See CENT. OR. IRRIGATION DIST., DEVELOPMENT HANDBOOK 13 (2008), available at http://www.coid.org/index.php/download_file/view/49.

196. *Id.* at 14 (emphasis in original).

197. *Manager's Report*, CENT. OR. IRRIGATION DIST. (Nov. 9, 2010), <http://www.coid.org/about-us/managers-report/november-2010/>. The authors have not inquired into whether such confiscation has occurred (and they question whether a finding of forfeiture is “confiscation” in any event). However, the point is that this irrigation district at least has recognized, and informed its patrons about, the problem of nonuse of any portion of a water right.

198. See, e.g., CENT. OREGON. IRRIGATION DIST., *supra* note 196, at 13–14.

shareholders or members, unless the nonuse is subject to the control of such entity.²⁰⁵

Irrigation delivery entities already have power to approve or disapprove transfers of water rights that are held under the entity's shares or diverted through an irrigation district's works.²⁰⁶ So they already exert some control concerning the use and nonuse of water in their service areas. But the irrigation delivery entities might have taken advantage of *Peiper* and the legislative process to assert better control over the nonuse of water by their patrons. A statute that might prove useful, at least to irrigation districts, would be a provision allowing them to initiate their own proceedings or adopt regulations to exclude lands that are no longer irrigated and move the water elsewhere.²⁰⁷ Other legislation could expressly allow districts to deliver water to other lands or uses, either inside *or outside* of district boundaries, by way of lease, sale, or exchange. Districts also could be allowed to establish different prices for water delivered to non-traditional irrigation uses.²⁰⁸ The COID example is instructive here as well.

Districts might undertake long-range planning to prepare for changes in water delivery methods and water uses, to enter cooperative agreements with other governmental agencies or water purveyors, and to finance and undertake water measurement, water conservation, or water quality improvement projects. Districts may find it appropriate, and seek any express statutory authority they conclude is necessary, to convey unneeded portions of their natural flow water rights or make more Boise River storage available to cities or industries on a long-term or permanent basis. Districts may find it appropriate to change their boundaries or service areas to include newly-irrigated lands and account for excluded lands. Water users and managers should consider comprehensive revisions to policies and procedures concerning the Boise River Rental Pool and the Idaho Water Resource Board's water bank, as well as possible changes to current statutes and Department regulations that would facilitate water conservation, water transfers, and a more robust water market.

Private ditches and mutual, non-profit canal companies also might benefit from similar legislation. These water delivery entities operate under powers granted by the Idaho Nonprofit Corporations Act²⁰⁹ and their articles of incorporation and bylaws. Based on the authors' experiences in the Treasure Valley and elsewhere, these private entities typically have either very basic or antiquated articles and bylaws, few of which contemplate the transfer of water rights into or out of the com-

205. IDAHO CODE ANN. § 42-223(7).

206. IDAHO CODE ANN. § 42-108. This is referred to as "consent" in Idaho Code § 42-222.

207. Current Idaho statutes provide for exclusions of land from an irrigation district only if the landowner requests exclusion by filing a petition. *E.g., id.* § 43-1101. Compare, however, Oregon's statutes which require exclusions in the case of subdivisions. *E.g., OR. REV. STAT* § 545.101 (2010).

208. One of the original reasons for statutorily authorized irrigation districts was to create an entity with assessment and lien powers that could then contract with the Bureau to construct reclamation projects and have the ability to assure repayment of the allocable costs. *See* *Nampa & Meridian Irrigation Dist. v. Petrie*, 28 Idaho 227, 236-37, 153 P. 425, 428 (1915). Routine exclusions could impair the repayment ability of an irrigation district. *Id.* at 238-41, 153 P. at 429. However, if commercial areas and streets, sidewalks, and building footprints in a subdivision could be routinely excluded, and water for residential landscape irrigation of the non-excluded acres could be assessed at a higher rate, the impact of exclusion on the district's repayment ability could be minimized or eliminated.

209. IDAHO CODE ANN. §§ 30-3-1 to -3-145 (2010).

but the question whether, or how, this makes water available for other uses is not expressly evaluated.²¹²

In any event, the authors suggest that the irrigation entities, working with the Department, the Bureau, the Valley's cities, and perhaps the Legislature, determine the facts about irrigation water use and pursue policies that could help move irrigation water to new areas, or new uses, as Idaho continues to experience development and reductions in irrigated acres in many of its communities. Proactive efforts in this direction could result in positive incentives to maximize beneficial use of water in the Basin as a matter of routine.

B. Legal Principles Implicated by a Delivery Call under the CM Rules

As of this writing there has been no delivery call in the Treasure Valley pursuant to which senior surface water rights seek to shut off junior ground water diversions. However, if conjunctive administration were to be sought, the Department would be required, pursuant to its CM Rules, the opinion in *American Falls*, and the subsequent departmental and court rulings implementing the ESPA delivery calls, to determine several factors pertaining to the question of actual beneficial use. These would include, among other things, totaling the calling entities' reasonable in-season demand for irrigation water and disqualifying those acres that no longer are irrigated; calculating the amounts of "reasonable carryover storage" for which curtailment of juniors could be justified; evaluating the annual fluctuations in natural flow availability at the time the seniors' rights were established,²¹³ and determining how to apply the Boise River's shared curtailment arrangement in the context of administering ground water rights.

Another question, which quite possibly could be the first one presented and answered in any Treasure Valley delivery call under the CM Rules, is whether holders of water rights in drains, which depend on the persistence of seepage-dependent ground water at levels at least high enough to intersect the bottom of the constructed drains, could preclude junior uses of ground water diverted from the shallow aquifer. Delivery calls under this scenario very likely would be subject to review under the "full economic development," "reasonable means of diversion" and other criteria in the CM Rules and as developed in the ESPA delivery call litigation.²¹⁴ Such questions already have been the subject of significant litigation between senior spring users in the Thousand Springs area near Hagerman, Idaho and junior ground water users on the ESPA.

A thorny issue with potential to affect the outcome of delivery calls under the CM Rules in the Treasure Valley and elsewhere is whether differing burdens of proof apply to junior and senior right holders when their rights are being administered in priority. In particular, the question is whether a junior right holder, whose

212. See WRIME, *supra* note 177 (estimating water demands for multiple sectors through 2060).

213. *In re* Distribution of Water to Various Water Rights Held by or for the Benefit of A&B Irrigation District (Idaho Dep't of Water Res. Apr. 29, 2008) (opinion constituting findings of fact, conclusions of law and recommendation), available at http://www.idwr.idaho.gov/News/WaterCalls/Surface%20Coalition%20Call/2008_Filings/SWC_Rec_Order.pdf. This order was not significantly changed by the SRBA judge on review. See *A&B Irrigation Dist. v. Idaho Dep't of Water Res.*, No. 2009-000647, at 34 (Idaho 5th Jud. Dist. Ct. 2010), available at http://www.idwr.idaho.gov/News/WaterCalls/Surface%20Coalition%20Call/SWC_2009docs.htm.

214. IDAHO ADMIN. CODE r. 37.03.11.042.01(g)-(h); 37.03.11.043 (2010).

defense to a delivery call rests on asserted inefficiencies or wasteful practices of the senior, must establish that defense by clear and convincing evidence. Although the CM Rules require the Department to make specific findings regarding whether juniors and seniors are diverting and using water efficiently and without waste, and whether the senior's use is being accomplished "in a manner consistent with the goal of reasonable use of surface and ground waters,"²¹⁵ they do not create specific levels of proof that must be adduced on these issues. Nor do they allocate burdens of proof based on the priority of the water rights involved. The failure of the CM Rules to specifically address such procedural issues has been held not to affect their validity.²¹⁶

Despite the requirement that the Department review actual use being made of water in a delivery call, a recent Idaho District Court decision reviewing a Department order in a delivery call under the CM Rules held that if a junior right holder asserts that a senior is wasting water, that fact must be established by clear and convincing evidence.²¹⁷ After observing that "if a water user is not making beneficial use of the water diverted, irrespective of the quantity decreed, the result is waste,"²¹⁸ the court reasoned that "[a] determination that a portion of a decreed water right is being wasted (or is not being put to beneficial use) is a diminishment of a property right. The decreed quantity is reduced by the amount determined not being put to beneficial use."²¹⁹ The court also concluded that a junior water user has the burden to prove the defense that a senior is not placing all of his or her water to beneficial use by clear and convincing evidence.²²⁰

It is not apparent why, in the context of a delivery call whereby a senior seeks to shut off a junior's diversion, the junior's defense alleging non-use by the senior should be assigned an enhanced burden of proof. Nor does it seem that a determination in the junior's favor would work a "diminishment" of a water right. The unique property interest in water exists and is recognized in administration solely by reference to its actual beneficial use.²²¹

On the other hand, diminishment of a water right by a determination of forfeiture or abandonment can and often does occur in the context of adjudications. But that is a concept separate from water right administration and the fact finding directed at both the junior's and senior's use of water required by the CM Rules.²²² Under the CM Rules, to determine whether a senior right is being materially injured by a junior diversion, the Director considers, among other factors, "the rate of

215. IDAHO ADMIN. CODE r. 37.03.11.040.03.

216. *Am. Falls Reservoir Dist. No. 2 v. Idaho Dep't. of Water Res.*, 143 Idaho 862, 874, 154 P.3d 433, 445 (2007).

217. *A&B Irrigation Dist. v. Idaho Dep't of Water Res.*, No. 2009-000647, at 34 (Idaho 5th Jud. Dist. Ct. 2010) (Memorandum Decision and Order on Petition for Judicial Review).

218. *Id.* at 33.

219. *Id.* at 34.

220. *Id.*

221. *See id.*

222. IDAHO ADMIN. CODE r. 37.03.11.40.03 (2010) (stating that "the Director shall consider" whether both the senior making the call and the junior against whom the call is directed are "diverting and using water efficiently and without waste.").

diversion compared to the acreage of the land served,” and the “amount of water being diverted and used compared to the water rights.”²²³

Imposition of an elevated standard of proof on a junior right holder who may be curtailed to deliver water to a senior user also seems difficult to square with the Idaho Supreme Court’s holding in *American Falls* that under the CM Rules, “the Director ‘has the duty and authority’ to consider circumstances when the water user is not irrigating the full number of acres decreed under the water right.”²²⁴ The court further stated that the “evaluation of whether a diversion is reasonable in the administration context should not be deemed a re-adjudication.”²²⁵ Notably, although the court also held that once a determination is made that a senior is being materially injured the junior has “the burden of proving that the call would be futile,” or to challenge the call in some other constitutionally permissible way, it did not suggest that this burden was necessarily a heightened one.²²⁶

The opposing views on the issue aside, and given the holding in *American Falls* that the Director has the duty to consider whether the calling water user is irrigating the full number of decreed acres under the water right, one might argue that regardless of who bears what burden in a delivery call, a junior right holder should not be curtailed to deliver water allocated to acres the senior is not irrigating, or to acres that already receive a quantity of water at least equal to the duty of water established for the water right.

C. Implications of Maximum Beneficial Use Beyond the Treasure Valley

The law of interstate water allocation favors those states demonstrating actual uses of their water resources.²²⁷ It is worth noting that Idaho is virtually alone among the western prior appropriation states in having no significant downstream water delivery obligations arising from compacts or Supreme Court decrees.²²⁸ Indeed, to focus just on the Treasure Valley, the Boise River downstream from Star is not even fully appropriated due to the substantial flows from drains, ditches, and ground water that return to the River in this lowest reach. In contrast, other western states face protracted litigation, constraints on economic development, and sometimes even harsh penalties due to their obligations to deliver both surface and tributary ground water to a downstream sovereign.²²⁹

There always is the possibility that there will be calls for Idaho to release additional water for salmon passage or in furtherance of habitat needs of other species under the Endangered Species Act. This situation, and other “regulatory droughts” based on environmental concerns, could make it more difficult for Idaho to meet

223. *Id.* r. 37.03.11.42.01(d)–(e).

224. *Am. Falls Reservoir Dist. No. 2 v. Idaho Dep’t of Water Res.*, 143 Idaho 862, 876, 154 P.3d 433, 447 (2007).

225. *Id.* at 877, 154 P.3d at 448.

226. *Id.* at 878, 154 P.3d at 449.

227. *See, e.g.*, *Washington v. Oregon*, 297 U.S. 517, 527 (1936) (“There must be no waste . . . of the ‘treasure’ of a river. . . . Only diligence and good faith will keep the privilege alive.”); *Colorado v. New Mexico*, 459 U.S. 176, 184 (1982) (“[W]asteful or inefficient uses will not be protected.”).

228. Idaho’s compact with Utah and Wyoming concerning the Bear River is not seen as a significant impediment to reasonable development in Idaho, nor has it been the source of litigation between these states. *See* *Kunz v. Utah Power & Light Co.*, 117 Idaho 901, 902, 792, P.2d 926, 927 (1990).

229. *See, e.g.*, *Kansas v. Colorado*, 514 U.S. 673 (1995); *Colorado v. Kansas*, 320 U.S. 383 (1943); *Kansas v. Colorado*, 206 U.S. 46 (1907); *Kansas v. Colorado*, 185 U.S. 125 (1902).

new demands for water use in the Treasure Valley. However, failing to place diverted water to beneficial use will only tend to exacerbate this risk.

In 1990, then-Governor Cecil Andrus appointed a “Water Defense Group” of experts to assist in responding to developments in the federal courts and in California that “could result in an erosion of the state’s ability to control and protect its present and future uses of water or could commit large quantities to out-of-state . . . uses.”²³⁰ One federal threat was a United States Supreme Court decision finding that the Federal Energy Regulatory Commission could override state water law by imposing bypass flow requirements as a federal license condition on a hydroelectric facility—thus overriding the facility’s state-granted water right, which did not require such a concession.²³¹ Another threat was the fact that petitions to list salmon and steelhead had been filed under the Endangered Species Act.²³²

A third threat was a reprise of a longstanding bugaboo for Idaho, this time in the form of a Los Angeles County Board of Supervisors’ resolution seeking to lift the ban on the federal study of transferring Columbia River basin water to Southern California.²³³ The *Water Defense Report* described two letters from Kenneth Hahn, a member of the Board of Supervisors, inquiring whether Idaho would support the diversion of “a small fraction of the Columbia River’s great surplus to California.”²³⁴ Governor Andrus’s response, “[t]here exists no surplus water in Idaho to consider for transfer,” was unequivocal opposition to such a diversion, or any study of it.²³⁵

With regard to issues most relevant to this article, the *Water Defense Report* recommended that “Idaho should place a great deal more emphasis and effort (financial and staff) into comprehensive water resources planning which considers the present and potential future use of Idaho’s water. This would demonstrate the need of conserving the resource for future uses within the state.”²³⁶ It also recommended that “[m]inimum flow water rights should be established for all river reaches in Idaho as expeditiously as practical.”²³⁷

The *Water Defense Report* did not address how water currently is being used in Idaho or how uses might be changing due to land-use changes. It did not evaluate the law of equitable apportionment on interstate streams and how that legal principle could figure into Idaho’s future. It did not initiate comprehensive water resource planning. The authors suggest these subjects should receive attention now.

230. RAY RIGBY ET AL., IN DEFENSE OF IDAHO’S WATER: A REPORT TO GOVERNOR CECIL D. ANDRUS 2 (1991) [hereinafter *WATER DEFENSE REPORT*].

231. *California v. Fed. Energy Regulatory Comm’n*, 495 U.S. 490 (1990) (commonly known as the “Rock Creek” decision).

232. *See* IDAHO CODE ANN. § 42-1763B (2010). The salmon and steelhead listings have resulted in the Bureau of Reclamation having an obligation, when the water is available, to release annually up to 427,000 acre-feet of storage from Idaho reservoirs for fish passage purposes in Washington.

233. *See* *WATER DEFENSE REPORT*, *supra* note 231, at 6.

234. *Id.*

235. *Id.*

236. *Id.* at 30.

237. *Id.* at 31.

VI. CONCLUSION

The constitutional principles establishing the Prior Appropriation Doctrine promote stability, but they do not describe a system that prevents change. Indeed, the Doctrine's very design, which ties the existence of a water right to actual use, confirms that it was intended to accommodate change.

Idaho's water law establishes that the right to use this public resource is private property, but it prohibits hoarding this resource without beneficial use. Limiting the quantity of water that can be diverted at any given time to the amount that can be beneficially used is not a diminishment of this unique property right. On the contrary, because actual beneficial use is the essence of the property right, this constitutional mandate contemplates that other beneficial uses, including those of junior appropriators, can and should be accommodated with reference to the changing needs of the paramount water right holder. Marketing a water right or changing its place or type of use through the statutory processes is a means both to preserve and realize a benefit from one's property in the face of change. Such actions also provide a mechanism to implement the policy of maximum use.

Failure to take action with respect to non-use generated by change, or otherwise, removes the entire basis for the water right. However, no legal doctrine adjusts behavior automatically; it takes administration, management, and attention. Arguably, it requires a sense of discipline strong enough to match the importance of this natural resource.

In Idaho's Treasure Valley, as in other parts of the State, suburban development of farmland has brought permanent change to the irrigated landscape that has not been matched by changes in the way water is diverted and delivered. But the laws of physics silently and continuously compel real and measurable change nevertheless. The acre-foot delivered to a given parcel today finds pavement or buildings where crops once grew. Instead of being consumed in farm products, the water now seeks a storm drain, a drain ditch, a shallow aquifer, or the River. Perhaps, it even finds its way to the lands of some other irrigator within the irrigation entity's boundaries or within those of some other entity. Wherever its course, the water no longer is placed to beneficial use as intended or originally decreed. Its consumptive use component goes unused on the lands to which the right was originally appurtenant, and may go unused altogether. The phenomenon is measurable, but little, if any, attempt is being made to measure it. The result—in terms of water passing the subdivision's irrigation pump, entering drains and the shallow aquifer, and moving beyond the Boise Basin to where rights in its use will be established and asserted by users in other states—is entirely predictable and quantifiable, but to date water managers have chosen to pay little attention to it.

In the area of water use, enforcement of the beneficial use obligation typically occurs when a senior elects to enforce his priority. Once he does, the juniors can be expected to defend. In the Treasure Valley, part of that defense very well could revive the long-dormant, long-avoided discussion of duty of water and maximum use. The authors urge that the discussion about maximizing beneficial use of Idaho's water, in the Boise Basin and elsewhere, need not await conflict. The purpose of this article is to shed light on this issue and to suggest collaborative ways forward. It is hoped that Idaho's irrigators, its cities and other municipal providers, the Bureau, and the Department will take the next steps together toward measures to

